



Received: 05-10-2023
Accepted: 15-11-2023

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

Financial Performance in Hospitals: A Systematic Literature Review

Dang Thi Thuy Giang

University of Labour and Social Affairs, Hanoi, Vietnam

Corresponding Author: Dang Thi Thuy Giang

Abstract

To respond to the changing operating environment, hospitals are always interested in evaluating their financial performance. Although hospitals are increasingly focusing on financial performance, there are not many systematic reviews, analyses, and syntheses of documents related to this content. This article aims to evaluate research trends on financial performance in hospitals based on literature in the PubMed database for the years 2013–

2023. The results show a growing interest in research on financial performance assessment in hospitals, of which 2021 is the year with the highest number of publications, and many journals have published up to 34 issues about this content. Finally, keyword analysis identified much content that will be important research points for future research.

Keywords: Financial Performance, Hospital, Systematic Literature Review, VOSviews

1. Introduction

In the current period, hospitals are always in a state of having to find ways to minimize operating costs. Financial efficiency is an important factor for a hospital to maintain its existence. Hospitals always need to maintain current services, develop new services and improve quality while maintaining financial efficiency ratios. There have been many studies in many different countries on financial efficiency and assessment of financial efficiency in hospitals. Therefore, in this study, it helps readers grasp the development and quality of information about the current situation of "hospitals evaluating financial performance" through the frequency of using keywords and the number of citations and the number of times the author and co-authors are cited over time. At the same time, it helps future researchers know the trends of this topic over time.

The article clarifies the following research questions, including Q1: What is the number of articles on financial performance in hospitals published from 2013 to 2023? Q2: What topics are the keywords used grouped into? And have these keywords changed and gained strength over time?

To answer the above questions, the study reviewed 185 articles published in the period 2013-2023. Research conducted through bibliometric analysis makes a great contribution to the research community because through bibliometrics, a valuable amount of information can be collected about a topic. By reflecting on what has been done and what needs future research, the article aims to add to the literature on different methods and contexts to assist researchers on financial performance in hospitals. The research is divided into parts: defining the conceptual foundation, applied methods, research results and concluding remarks.

2. Theoretical Basis

2.1 Financial Performance

Business performance can be described as a summary of the achievements of a business or department. The business performance results of an enterprise are expressed by a system of measurement indicators. Based on the assessment of operating results, businesses can clearly understand the current status of their business operations and financial potential, and make necessary adjustments to improve business performance in the future. Hult and colleagues (2008) believe that there are two types of performance results used: financial performance and operational performance. Drury (2018) [2] believes that financial and non-financial measurement systems are widely used to evaluate corporate performance. Frequently used financial indicators such as ROI, EVA, revenue growth rate, etc. Non-financial indicators are often used as indicators to assess the satisfaction of stakeholders, indicators related to market share, and indicators related to quality.

According to Hult *et al.* (2008), the most popular measures of financial results are revenue targets (44%) and return on assets - ROA (40%); The most popular way to measure performance is market share (47%); And to measure aggregate results, the

most popular indicator is reputation (30%). Hult and his colleagues also reported that 44.8% of studies focused on using and surveying data at the enterprise level and using financial indicators to measure enterprise performance.

However, the financial aspect only partly reflects the operating efficiency of the business; in many cases, the long-term survival and development of the business lies in customer satisfaction and the development of employee skills or the improvement of internal management processes. Therefore, in modern management, measuring performance on non-financial aspects is increasingly focused on both theory and practice. Typically, the birth of the balanced scorecard model by Kaplan and Norton (1996) [5] and the pyramid model by Lynch and Cross (1991). Specifically, Kaplan and Norton (1996) [5] use a combination of four aspects: customers, finance, internal processes and learning and development to reflect business performance. The combination of financial results with non-financial results will help businesses operate more stably in the long term as well as better implement strategic business plans. Kaplan (1998) pointed out that many studies use financial results to reflect business performance because these results are objective and convenient. Financial results are provided from accounting data and comply with the principles of ensuring objectivity, reasonableness and validity. However, in many cases, the existence and development of a business is not reflected in financial indicators but in customer satisfaction, employee capacity or the business's internal processes. Therefore, non-financial results are increasingly used to evaluate business performance. The combination of both financial and non-financial results will help businesses operate stably in the long term and more effectively in a fiercely competitive environment.

Assessing Financial Performance in Hospitals

There is growing evidence of a positive association between the financial health of health care providers and the quality of care. Financially stable hospitals are better able to maintain reliable systems and provide resources for quality improvement. Monitoring the financial performance of healthcare entities is therefore important in the context of improving efficiency and ensuring sustainability of the care delivery organization. Several recently published studies have focused on the financial performance of hospitals in Poland. However, these include a limited number of hospitals, based on their specialty and/or geographic location. For example, a study by Siedlecki *et al.* (2016) [9] included 201 hospitals and included data from 2012. The authors compared financial indicators between urban and rural hospitals, concluding that the latter were characterized by better financial conditions. Krzeczewski *et al.* (2019) [4] conducted a longitudinal study (2007–2016) on a cohort of 118 hospitals, comparing the financial performance of units from large cities versus small cities. The results indicate that hospitals located in cities with populations over 100,000 perform better financially than hospitals from smaller cities. Organizational structure and financial efficiency are important factors that help hospitals overcome difficulties and maintain operations. Because hospitals need to be self-sufficient, Gapenski (2007) [3] pointed out that hospitals should not rely solely on government grants or funding to meet the financial goals of the hospital and its board of directors. Hospitals need to understand the factors that help hospitals achieve financial performance.

3. Method

This study uses the systematic literature review method SLR (Systematic Literature Review) of Tranfield *et al.* (2003) [8]. Sample selection for the study was based on PRISMA (priority items for systematic reviews and meta-analyses) originally proposed by Liberati *et al.* (2009) [6] and updated in 2021 by Page *et al.* (2021) [7]. The PRISMA flow diagram is based on three steps: identification, screening, and study inclusion.

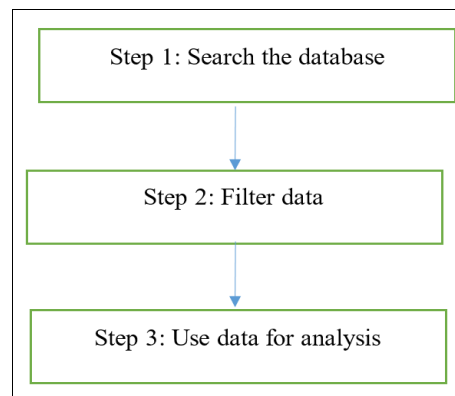


Fig 1: Research process

As a first step, the authors began by selecting a database to collect articles to include in the study. The database chosen is PubMed, known as a free, accessible database primarily through its database of references and abstracts on life science and science biomedical topic. The study investigates and evaluates financial efficiency in hospitals, so this is a highly scientific database to collect data. Data were collected on September 27, 2023, with the use of the following keywords “financial performance” and “hospital”. The Boolean operator AND is placed between keywords in the search. A total of 185 results were found from the PubMed site from 2013 to 2023.

In the second step, the author group screened to remove inappropriate documents through technical screening and content screening. For technical screening, documents are in the form of: Encyclopedia, Editorials, Short communications, Mini reviews, Book chapters will be eliminated by deselecting. For content screening, documents are pre-read to remove documents with irrelevant content even though they contain search keywords. The results after filtering showed that all 185 results met the filtering conditions for inclusion in the study.

The remaining number of documents after the two steps were analyzed with an overview of the SLR (systematic literature review) document system and entered into VosViewer software to analyze keywords and co-citation analysis. The results of the SLR analysis are presented in tables and graphs. The results of the bibliometric analysis will be presented in visual form. From the analysis results, the study finds popular research directions, names the research directions, and suggests future research directions.

4. Results

4.1 Statistics on the Year of Publication

From 2013 to 2023, a total of 185 articles on hospital balanced scorecards were indexed in PubMed with an average of 17 articles published per year. The lowest number of articles was in 2013 (4 articles published) and 2022 (8 articles published). And 2021 is the year with the

highest number of articles published (34 articles). Statistical results published in the year of publication show that researchers are paying a lot of attention to evaluating financial performance in hospitals.

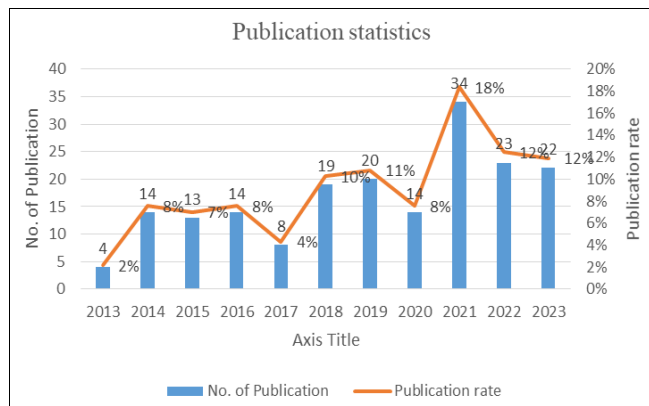


Fig 2: Chart of the number of studies over the years

4.2 Keyword Analysis Results

In the keyword analysis section, research and select keywords that appear 15 times or more. Keywords are evaluated by the software based on the number of occurrences and total link strength. Keyword analysis results can be exported into files as images. The keyword analysis results are as follows:

Selected	Keyword	Occurrences	Total link strength
<input checked="" type="checkbox"/>	humans	133	277
<input checked="" type="checkbox"/>	united states	71	207
<input checked="" type="checkbox"/>	hospitals	54	147
<input checked="" type="checkbox"/>	medicare	28	99
<input checked="" type="checkbox"/>	economics, hospital	32	95
<input checked="" type="checkbox"/>	cross-sectional studies	24	72
<input checked="" type="checkbox"/>	financial performance	25	62
<input checked="" type="checkbox"/>	aged	15	57
<input checked="" type="checkbox"/>	retrospective studies	16	46
<input checked="" type="checkbox"/>	financial management, hospital	16	42
<input checked="" type="checkbox"/>	quality of health care	15	42
<input checked="" type="checkbox"/>	hospital administration	15	36
<input checked="" type="checkbox"/>	hospitals, public	16	36

Fig 3: Keywords appearing multiple times

The group of keywords that appear 15 times or more includes, humans, united states, hospitals, medicare, economics, cross sectional studies, financial performance, aging, retrospective studies, financial management, quality of health care, hospital administration. The keyword “humans” is the keyword that appears the most with 133 appearances.

Fig 4 shows the keyword network. Note that the larger the circle, the more times it appears; the thicker the line connecting the two keywords, the greater the frequency of occurrences. Related keywords are grouped into groups, each group is a separate color. Looking at the image, it can be seen that the keywords are divided into 3 groups, with 69 links and total link strength of 609. Group 1 is represented by red links with the keywords cross sectional studies, financial management, financial manage hospitals, public hospitals, and quality of health care. Group 2 is represented by green links with keywords aged, medicare, retrospective studies, and united states. Group 3 is represented by green links with the keywords economic, hospital administration, hospitals, and humans. With 3 research directions and 13 popular keywords, the results show that the research content on financial efficiency in hospitals is not comprehensive.

Future studies can base on that to choose research directions to fill the gap, or analyze more deeply.

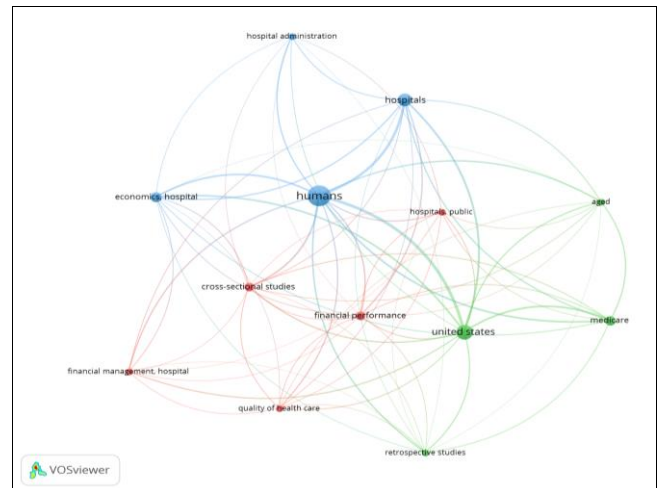


Fig 4: Keyword network

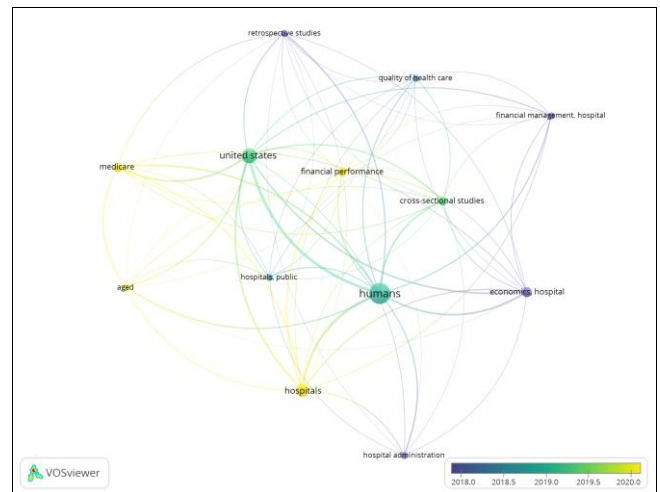


Fig 5: Keyword network over time

In addition, the results from the VOSviewer tool have shown the time of keywords appearing. Dark colors represent keywords researched from the first years (2018), in recent studies, keywords have appeared in brighter colors. The keyword appearance time chart shows that financial performance and hospitals are the keywords that have received the most attention recently. Along with that is the emergence of keywords about performance evaluation measures, and organizational evaluation, which is widely researched in public hospitals.

4.3 Co-authorship Analysis

To investigate the trend of collaboration in research using balanced scorecards in hospitals, this study analyzed co-authorship relationships between individual authors and between institutions. According to Benoit *et al.* (2018) [1], the analysis results help improve understanding of research collaboration and help discover influential researchers. Fig 6 presents the co-authorship network map. The link between two nodes represents the collaborative relationship between the two authors, and the thickness of the link represents the intensity of the collaboration. The group of authors who cooperate most closely are the authors Weech – Maldonado and Rober. This is a combined group that has published

many articles over many years, specifically 11 publications in the period from 2013 to 2023.

Selected	Author	Documents	Total link strength
<input checked="" type="checkbox"/>	weech-maldonado, robert	11	6
<input checked="" type="checkbox"/>	rundall, thomas g	4	4
<input checked="" type="checkbox"/>	shortell, stephen m	5	4
<input checked="" type="checkbox"/>	ramamonjivarivelo, zo	4	3
<input checked="" type="checkbox"/>	upadhyay, soumya	5	3
<input checked="" type="checkbox"/>	bazzoli, gloria j	4	0
<input checked="" type="checkbox"/>	pink, george h	4	0

Fig 6: Co-authors appear multiple times

Fig 7 shows the co-authorship network. Related authors are grouped into groups, each group is a separate color. Looking at the image, it can be seen that the co-authors are divided into 2 groups, with 9 links and total link strength of 20. Group 1 is represented by red links with the author groups Hearld, Larry, Menachemi, Weech Maildonado, and Robert. Group 2 is represented by green links with the authors being Smith, Dean, Upahyay, and Soumya.

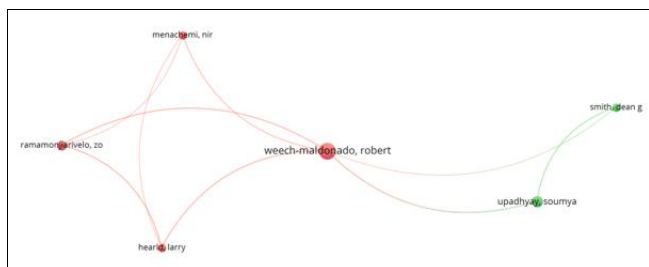


Fig 7: Co-authorship analysis by units of authors

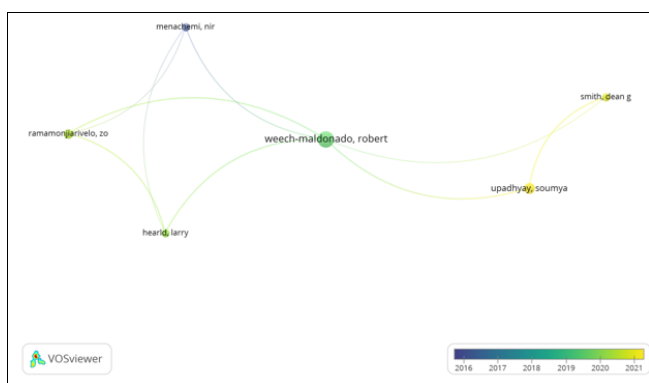


Fig 8: Co-authorship analysis over time

5. Conclusion

In this study, we evaluated global publications on hospital financial performance indexed in the PubMed database published between 2013 and 2023 to provide insight into the number of publishing, journal publishing, keyword networks, and co-author networks. This study used bibliometric methods with the help of several statistical and data visualization applications to explore research trends in the content of financial performance in hospitals.

Research results show that there have been a total of 185 articles on financial performance in hospitals indexed in PubMed from 2013 to 2023. Statistical results of published journals show that there are many journals published BMC Health Serv Res, Healthc Financ Manage, Gac Sanit, and Int J Environ Res Public Health published several articles about

the balanced scorecard in hospitals. In terms of keywords, there are 13 keywords of great interest: Humans, united states, hospitals, medicare, economics, cross-sectional studies, financial performance, aging, retrospective studies, financial management, quality of health care, and hospital administration.

The research results have contributed to the general theoretical basis, serving as a basis for reference studies on financial efficiency in hospitals. Data collected from richer sources such as Scopus or Web of Science are suggestions for further research on financial performance, in addition, future studies can systematically evaluate the literature on financial performance in areas other than medicine and health care.

6. References

1. Benoit K, Watanabe K, Wang H, Nulty P, Obeng A, Müller S, Matsuo A. An R package for the quantitative analysis of textual data. *Journal of Open Source Software*. 2018; 3(30):774-774.
2. Drury C. *Cost and management accounting*. Belmont, CA, USA: Cengage Learning, 2018.
3. Gapsenski LC. *Healthcare finance: An introduction to accounting and financial management*. Aupha, 2007.
4. Krzeczewski B, Krzeczewska O, Pluskota A, Pastusiak R. Does the agglomeration effect occur in the hospital sector? The impact of agglomeration economies on the financial performance of hospitals-An evidence from Poland. *The International Journal of Health Planning and Management*. 2019; 34(2):553-571.
5. Kaplan RS, Norton DP. Linking the balanced scorecard to strategy. *California management review*. 1996; 39(1):53-79.
6. Liberati A, Altman DG, Tetzlaff J, Mulrow C, Gøtzsche PC, Ioannidis JP, et al. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Annals of internal medicine*. 2009; 151(4):W-65.
7. Page MJ, Moher D, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. PRISMA 2020 explanation and elaboration: Updated guidance and examples for reporting systematic reviews. *Bmj*. 2021; 372.
8. Tranfield D, Denyer D, Smart P. Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*. 2003; 14(3):207-222.
9. Siedlecki R, Bem A, Ucieklak-Jeż P, Prędkiewicz P. Rural Versus Urban Hospitals in Poland. Hospital's Financial Health Assessment. *Procedia-Social and Behavioral Sciences*. 2016; 220:444-451.