The balanced scorecard in hospitals: A systematic literature review.

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Abstract

Hospitals are implementing modern administration tools to respond to the changing operating environment to improve operational efficiency. A balanced scorecard is a management tool that helps hospitals establish, implement, and monitor to achieve their strategies and goals by interpreting and developing strategies into goals and specific action programs based on four aspects: finance, customers, internal processes, training, and development. This article aims to evaluate research trends in applying the balanced scorecard in hospitals based on documents in the PubMed database in the years 2015–2023. The results show that there is growing interest in using the balanced scorecard as a strategic management tool in hospitals, with 2022 being the year with the highest number of publications and many journals having published up to four publications on this issue. Finally, keyword analysis identified much content that will be important research points for future research..

Keywords: *Balanced scorecard, hospitals, systematic literature review, VOSview.*

1. Introduction

Since 1992, when the Balanced Scorecard (BSC) was introduced by Kaplan, it has been widely used in the US. In a survey by Silk (1998), up to 60% of companies in the US have applied BSC and considered BSC as an effective management tool. Over the past 25 years, BSC has become the focus of the whole world, especially receiving a lot of attention in the management and business community. BSC has been widely used in various industries such as the higher education industry (Chimtengo et al., 2017), the afforestation industry (Putri et al., 2017), the healthcare industry (Gonzalez & Sanchez et al., 2017), the construction industry (Toong & Poh, 2012), banking industry (Al-Najjar & Kalaf, 2012).

Inamdar et al. (2002) pointed out that BSC is suitable for healthcare organizations because BSC helps healthcare organizations develop market and customer-oriented strategies, and adjust the organization's activities in accordance with the strategy; BSC facilitates, monitors, and evaluates strategy implementation; The BSC helps assign accountability for performance at all levels within the organization, and the BSC facilitates continuous feedback on strategy and allows for adjustments to health sector regulatory changes. Government hospitals have been operating for several decades in a stable, protected environment without stiff competition. However, a more autonomous management system is needed in the current trend of improving people's care experience and public trust in government hospitals (Gonzalez & Sanchez et al., 2018). Gonzalez et al., (2018) conducted research in three countries (Portugal, Spain, and Italy), on the application of BSC in public hospitals, the results showed that BSC is widely used and seems to be widely used. as an essential management tool for healthcare organizations. Therefore, this study, it helps readers grasp the development and information quality of the content "balanced scorecard in hospitals" through the frequency of keyword use, number of citations, and number of times authors 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 about the balanced scorecard in hospitals published from 1995 to 2023? And which journals have the most publications related to this content? 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 144 articles

published in the period 1995-2023. Research that has been 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 to be researched in the future, the article aims to add to the literature on different methods and contexts to assist researchers in management accounting and control. The research is divided into parts: defining the conceptual foundation, applied methods, research results, and concluding remarks.

2. Literature review

2.1. Balanced scorecard

In early 1992, Kaplan and Norton introduced the Balanced Scorecard (BSC) as an integrative device that facilitates the formal use of non-financial information in evaluating the performance of business units (Kaplan and Norton, 1992). Arguably, there is a "balance" between financial and non-financial measures, between short-term and long-term performance, which is summarized in a BSC report.

The functions of BSC are developed along with the research and development of BSC theory. In 1992, when BSC was first introduced, BSC was used as a measurement tool. Then, in 1996, Kaplan introduced the strategic management function of BSC. By 2000, the third function of BSC introduced by Kaplan in the book "The Strategy focused organization: How Balanced Scorecard Companies threve in the new Business environment" was the communication function.

BSC helps organizations translate strategy into specific goals and measurements. A "goal" is a brief statement, usually starting with a verb, that describes what we need to do well in all four areas to execute our plan. The goals could be "increase profits", "improve delivery times", "reduce emissions," etc. These goals are arranged in a strategy map and linked together by cause-and-effect relationships. Tracking success in achieving goals is the domain of metrics, a quantitative device used to monitor progress.

BSC is a management tool that helps businesses establish, implement, monitor, and achieve their strategies and goals through interpreting and developing strategies into goals and specific action programs based on four aspects: Finance, Customers, Internal Processes, Training and Development. The financial aspect lets everyone know the company's financial situation through financial indicators such as ROI, ROA, ROE, etc. Shareholders' attention is always directed toward financial targets. However, financial indicators only give a view of the business activities of the enterprise in the past and present and do not meet the long-term development strategy. Therefore, non-financial indicators expressed through the remaining 3 aspects will give us an overall view of the business's development goals and strategies. To achieve the desired financial targets, managers propose measures to increase the number of customers and meet customer needs. That is shown through the customer aspect. A well-achieved customer aspect increases the financial results of the business. However, in order for customers to be loyal to a business's products, businesses must constantly improve and promote their business processes. Thus, the internal business operations aspect creates short-term and long-term superiority of the strategy, creating elements to develop added value for customers. In a competitive environment, increased customer value will make the customer side of the business successful. And that will lead to financial success, creating added value for shareholders. For the customer aspect and internal processes to be successful, the business must constantly train and improve techniques, which means that the training, research and development aspects need to be taken care of. The success of the learning and development aspect improves current capabilities, ensuring the short- and long-term success of the customer aspect and internal processes. Conversely, the success of the financial aspect will lead to support for the training and development aspects, and more successful internal processes, further influencing the success of the customer side.

2.2. Balanced scorecard in hospitals

To respond to the changing healthcare landscape, managers across countries are implementing modern management tools such as the balanced scorecard to improve hospital performance. The BSC is built around the critical success factors of a limited set of performance measures. BSC gives indicators according to four different dimensions of equal weight: learning and development, internal processes, customer satisfaction, and financial performance. Indicators can be developed from existing data systems and used periodically to facilitate quality improvement and excellence in hospitals. Villalbı' et al. (2007) argued that using BSC systematically brings greater efficiency in connecting the management team with the entire organization and can bring goals closer to daily management activities in hospitals. The BSC has been proven to be a useful tool to guide strategy development and implementation in healthcare organizations through research by Groene et al. (2009). The BSC has been increasingly used to measure and report health system performance. El-Jardali F, Saleh S, Ataya N, and Jamal D. T (2012), in a study in a hospital in Lebanon, showed that the BSC provides a balanced view of performance and guides decisions in hospital strategy. This has aimed to establish a complete performance evaluation system and form a complete set of performance indicators to evaluate strategies to achieve the strategy and prospects of the organization. Nasiripour AA, Afshar Kazemi MA, Izadi A (2012), pointed out that a single performance index cannot measure the performance of a complex organization like a hospital. Therefore, a comprehensive tool is needed to measure performance systems in hospitals like BSC.

3. Research method

This study uses the systematic literature review method SLR (Systematic Literature Review) of Tranfield et al. (2003). Sample selection for the study was based on PRISMA (priority items for systematic reviews and meta-analyses) originally proposed by Liberati et al. (2009) and updated in 2021 by Page et al. (2021). The PRISMA flow diagram is based on three steps: identification, screening, and study inclusion.
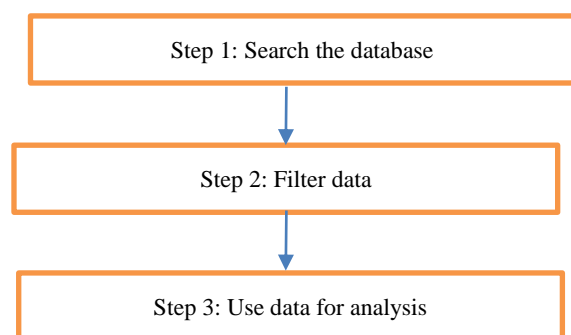
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Step 1: Search the database
        ↓
Step 2: Filter data
        ↓
Step 3: Use data for analysis
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Figure 1. Research diagram

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 mainly through its database of references and abstracts on life science topics related to medicine. The study explores the use of balanced scorecards in hospitals, so this is a highly scientific database for data collection. Data were collected on September 2, 2023, with the use of the following keywords: "balanced scorecard" and "hospital". The boolean operator AND is placed between keywords in the search. A total of 144 results were found on the PubMed site from 1995 to 2023.

In the second step, the author group screened to remove inappropriate documents through technical screening and content screening. For technical screening, documents in the form of encyclopedias, editorials, short communications, mini-reviews, and book chapters have been eliminated. For content screening, documents are pre-read to eliminate documents with irrelevant content even though they contain search keywords. The results after filtering showed that all 144 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 SLR analysis are presented in tables and graphs. The results of 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 1995 to 2023, a total of 144 articles on hospital balanced scorecards were indexed in PubMed with an average of 5.6 articles published per year. The lowest number of articles was in 1995 (1 article published) and 2007 (2 articles published). And 2022 is the year with the highest number of articles published (12 articles). Statistical results of the year of publication show that researchers are paying a lot of attention to the use of balanced scorecards in hospitals.
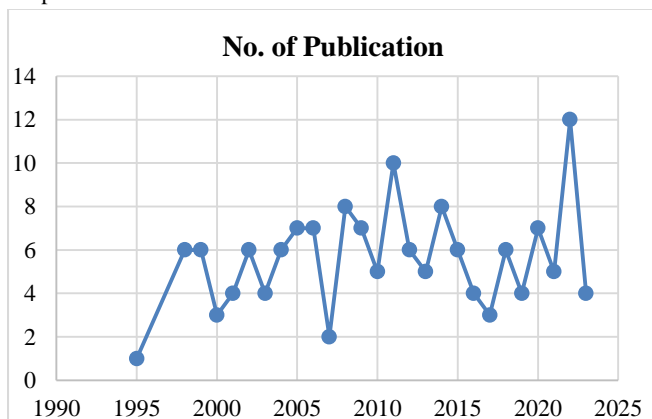

Figure 2. Chart of the number of studies over the years

4.2 Magazine publishing statistics

The list of published journals has been extracted directly from the database. The list of journals with the number of publications on the topic of balanced scorecards in hospitals twice or more is listed in Figure 3. The results of magazine publication statistics show that there are many magazines that have published 2 or more articles with this content, especially 4 magazines that have

published 4 articles, which are BMC Health Serv Res, Healthc Financ Manage, Gac Sanit, and Int J Environ Res Public Health.
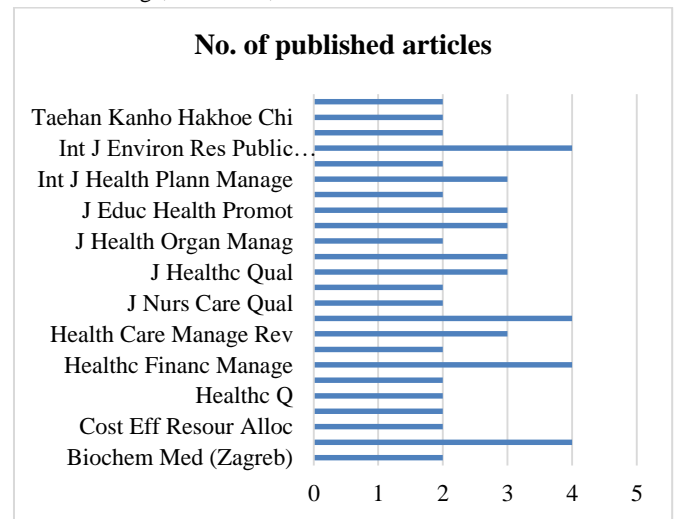

Figure 3. Chart of the number of published journals

4.3 Keyword analysis results

In the keyword analysis section, research and select keywords that appear twice 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:
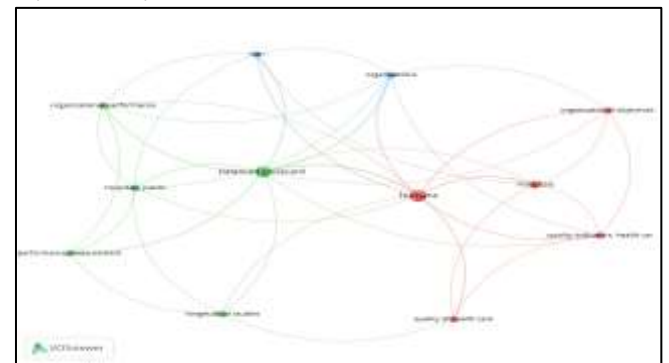

Figure 4. Co-occurrence networks

Out of 59 keywords, only 12 meet the conditions to appear at least twice. Among them, 3 keywords appeared 3 times or more: the keyword "hospitals" appeared 3 times, the keyword "balanced scorecard" appeared 6 times, and the keyword "humans" appeared the most. with 7 times. 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 three groups. Group 1 is represented by red links with the central keyword "humans" with 10 links and a total link strength of 20. Group 2 is represented by green links, with the central keyword being "balanced scorecard," with 10 links and a total link strength of 18. Group 3 is represented by green links with the central keyword "organizations" with 7 links and a total link strength of 9. With 3 research directions and 12 popular keywords (Figure 4), the results show that the research content on management accounting in hospitals is not comprehensive. Future studies can base their decisions on that to choose research directions to fill the gap or analyze more deeply.

Figure 5. Time of keyword appearance

In addition, the results from the VOSviewer tool have shown the time of keywords appearing. Dark colors represent keywords researched since the first years (1995), in recent studies, keywords have appeared in brighter colors. The keyword appearance time chart shows that a balanced scorecard is the keyword that has received the most attention recently. Along with that is the emergence of keywords about performance assessment measures, and organizational assessment, and is widely researched in public hospitals.

4.4 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), the analysis results help improve understanding of research collaboration and help discover influential researchers. Figure 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 Meliones JN, Alton M, Mericle J, Ballard R, Cesari J, Frush KS, Mistry K. This is a co-author group that has published many articles over many years.

Figure 6. Co-authorship analysis by units of authors

Statistical results have shown that there are 19 organizations with authors who have published articles related to the balanced scorecard in hospitals. Through co-authorship analysis with organizations as the unit of analysis, for each of the 19 organizations, the total strength of co-authorship links with other organizations was calculated, and then the organizations with the greatest total linkage strength were selected, as shown in Figure 7.

Figure 7. Co-authorship analysis by units of organizations

5. Conclusion

In this study, we evaluated the global publication of hospital-balanced scorecards indexed in the PubMed database between 1995 and 2023 to provide insight into the number of publications, 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 the balanced scorecard in hospitals.

The results of the study showed that there were a total of 144 articles about the balanced scorecard in hospitals indexed in PubMed from 1995 to 2023. The results of magazine publication statistics show that there are many magazines that have repeatedly published articles about the balanced scorecard in hospitals, such as BMC Health Serv Res, Healthc Financ Manage, Gac Sanit, and Int J Environ Res Public Health. In terms of keywords, there are three that have received great attention: "hospitals", "balanced scorecard" and "humans". In recent years, the keyword "balanced scorecard" has received the most attention.

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

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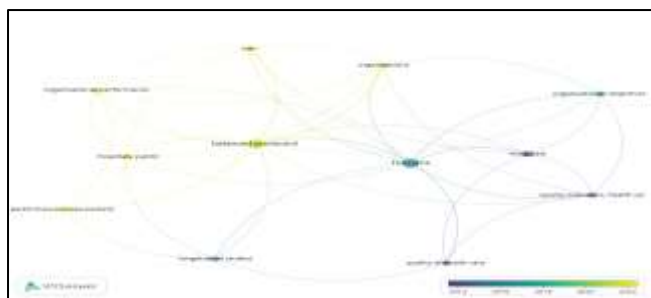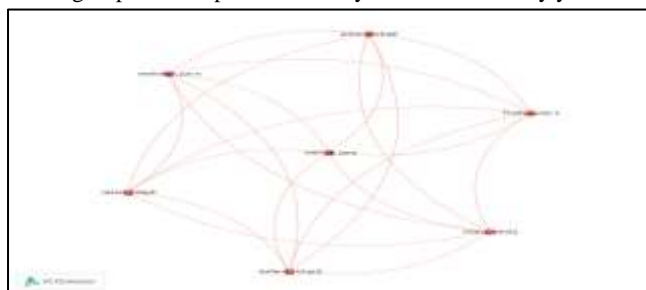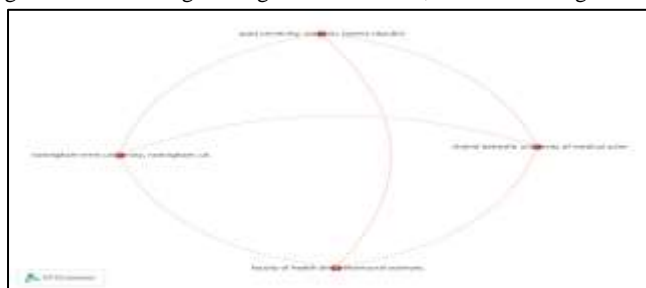
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