

BIBLIOMETRIC METHOD AS A TOOL TO PREVENT FRAUD IN THE HOSPITAL ENVIRONMENT (A STUDY OF STRATEGIES, CHALLENGES, AND THEIR IMPACT ON FINANCIAL MANAGEMENT)

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Abstract

This study aims to identify bibliometric methods in fraud prevention in a hospital environment. The research method used was bibliometric analysis. Data were collected from various indexed scientific journals relevant to the topic of fraud in hospitals. The data analysis process involved identifying publication trends, fraud risk patterns, prevention strategies, as well as implementation constraints in the healthcare sector. The results showed that the bibliometric method is effective in mapping fraud-related research trends and prevention strategies. Successfully implemented fraud prevention strategies involve strengthening internal control systems, using information technology to monitor financial transactions in real time, and integrating technological approaches with manual supervision. However, some key challenges, such as technological limitations, lack of human resource competencies, and internal resistance, are still obstacles in the implementation of bibliometric methods. The positive impacts of implementing this method include increased transparency and accountability in hospital financial management, as well as the ability to detect financial anomalies more quickly and accurately. This study provides policy recommendations to strengthen the fraud prevention system through bibliometric methods, staff training, and strengthening information technology.

Keywords: Fraud, Bibliometrics, Fraud Prevention, Internal Controls

Abstrak

Penelitian ini bertujuan untuk mengidentifikasi metode bibliometrik dalam pencegahan fraud di lingkungan rumah sakit. Metode penelitian yang digunakan adalah analisis bibliometrik. Data dikumpulkan dari berbagai jurnal ilmiah terindeks yang relevan dengan topik fraud di rumah sakit. Proses analisis data melibatkan identifikasi tren publikasi, pola risiko fraud, strategi pencegahan, serta kendala implementasi di sektor kesehatan. Hasil penelitian menunjukkan bahwa metode bibliometrik efektif dalam memetakan tren penelitian terkait fraud dan strategi pencegahannya. Strategi pencegahan fraud yang berhasil diterapkan melibatkan penguatan sistem pengendalian internal, penggunaan teknologi informasi untuk memantau transaksi keuangan secara real-time, serta integrasi pendekatan teknologi dengan pengawasan manual. Namun, beberapa tantangan utama seperti keterbatasan teknologi, kurangnya kompetensi sumber daya manusia, dan resistensi internal masih menjadi hambatan dalam implementasi metode bibliometrik. Dampak positif penerapan metode ini mencakup peningkatan transparansi dan akuntabilitas dalam pengelolaan keuangan rumah sakit, serta kemampuan untuk mendeteksi anomali keuangan dengan lebih cepat dan akurat. Penelitian ini memberikan rekomendasi kebijakan untuk memperkuat sistem pencegahan fraud melalui metode bibliometrik, pelatihan staf, dan penguatan teknologi informasi.

Kata kunci: Fraud, Bibliometrik, Pencegahan Fraud, Pengendalian Internal

Introduction

Fraud or fraud in financial management is an increasingly worrying issue in the world of health services, especially in the hospital environment. In hospitals, fraud has various forms, such as insurance claim fraud, manipulation of patient data, corruption in the procurement of medical equipment, to misuse of operational funds. In Indonesia, hospital fraud cases continue to increase in line with the complexity of the health service system and the lack of strict supervision from the government. According to Rorwana et al., (2015) In the context of hospital financial management, fraud not only has an impact on financial losses but also affects the quality of health services received by the community. Therefore, fraud prevention is currently a priority that must be implemented in a structured and systematic manner. In this study, the researcher studied scientific articles related to solutions in preventing fraud with Bibliometrics. Bibliometrics is a quantitative analysis method used to identify patterns, trends, and relationships in the scientific literature related to a particular topic. (Cardona et al., 2024; Mall et al., 2023). This method can help hospital management in understanding potential fraud hotspots and developing effective prevention strategies. The application of bibliometric method studies as a fraud prevention study is still rarely carried out in Indonesia, especially in the hospital environment. Therefore, this study aims to explore the strategies, challenges, and impacts of the implementation of hospital financial management through a bibliometric study.

This study uses several theories as the basis for analysis in developing fraud prevention strategies in hospitals through a bibliometric approach. The Fraud Triangle Theory was put forward by. Schuchter & Levi, (2016) Explained that the three main elements cause fraud, namely pressure (*pressure*), opportunities (*opportunity*), and rationalization (*rationalization*). Pressure arises from individual needs or demands, opportunities arise due to weak internal control, and rationalization becomes a justification for perpetrators to commit fraud. In addition, Internal Control Theory emphasizes the importance of a good internal control system to minimize the chances of fraud. Effective internal control involves policies, procedures, and oversight mechanisms that are consistently implemented within the organization. (Pfister, 2009). With strong internal controls, the opportunity to commit fraud can be significantly minimized.

Then, this research is also based on Public Financial Management Theory, which focuses on the principles of transparency, accountability, and efficiency in financial management in the public sector, including hospitals (Bastian, 2021). Transparent and accountable financial management is an important key to preventing budget abuse and ensuring that funds are used according to their designation. Finally, this study utilizes Bibliometric Analysis as a method to identify and evaluate various scientific publications related to the topic of fraud prevention. Through bibliometric analysis, it is possible to map trends, patterns, and relationships between relevant research, thereby helping to formulate a more comprehensive and evidence-based fraud prevention strategy (Tupan et al., 2018).

The combination of these theories provides a solid conceptual framework for analyzing the strategies, challenges, and impacts of fraud prevention in hospitals using a bibliometric approach.

A number of previous studies have discussed various aspects related to fraud prevention in the hospital environment, both in terms of causes, strategies, and challenges. Rorwana et al., (2015) Highlight the implementation *Fraud Triangle* to identify the main factors causing fraud in the health sector, especially the importance of strict internal control to reduce the chances of fraud. In line with that Ramos Montesdeoca et al., (2019) Found that fraud is often associated with insurance claims that do not match the patient's condition. The study recommends the use of information technology as a tool to monitor claims systematically in *real-time*. On the other hand, Anand et al., (2015) Emphasizing the importance of applying Big Data analysis to detect financial anomalies in hospitals. This approach allows for faster and more accurate identification of fraud patterns. Meanwhile, Starke et al., (2016) Examined the impact of corruption in hospital financial management in developing countries and concluded that corruption negatively impacts the quality of health services. This emphasizes the need for effective prevention mechanisms to ensure the efficiency of hospital financial management.

A more specific approach is offered by Ota et al., (2020) This evaluates the effectiveness of bibliometric methods in analyzing research trends related to fraud prevention. The results of this study show that bibliometrics can help in understanding fraud risk patterns systematically. Further Huang & Vasarhelyi, (2019) Highlighting the importance of effective and periodic internal audits as a fraud prevention strategy in hospitals. This research proves that consistent internal audits can reduce the potential for fraud. However, challenges are also found in the implementation of internal controls. Roberts-Miller, (2019) Discuss the obstacles faced by hospitals, especially the lack of competent human resources, which are obstacles to implementing internal control systems. Meanwhile, Lee et al., (2020) Using bibliometric methods to analyze fraud-related publications in the health sector, and found a significant increase in the number of fraud prevention studies over the past decade. The combined approach between technology and manual supervision is also highlighted by Patel & Malek, (2023) In the context of private hospital risk management. This research emphasizes that an effective strategy requires a balance between the use of technology and human supervision. In Indonesia, Nugroho & Afifi, (2022) Discussing the implementation of anti-fraud policies in government hospitals. The results of the study show that the success of fraud prevention depends on the commitment of transparent management and supervision.

The various studies above provide information about the importance of internal control, the use of technology, periodic audits, and bibliometric methods in efforts to prevent fraud in the hospital environment. This study has some significant differences with previous research. Most previous

research has focused on the application of the Fraud Triangle, internal audits, and big data analysis as fraud prevention tools. However, this study specifically examines bibliometric methods as a tool to prevent fraud in hospitals. This approach is still rarely used in Indonesia, making a new contribution to the fraud prevention literature. In addition, this study not only discusses strategies but also the challenges and impacts of the application of bibliometric methods on hospital financial management.

The urgency of this research is based on the increasing cases of fraud in the health sector, which has a direct impact on public services. Fraud in hospitals can harm the state and society, as well as hinder the achievement of national health development goals. The use of bibliometric methods as a fraud prevention tool offers innovative solutions that can help hospitals identify potential fraud risks early. By understanding patterns and trends through bibliometrics, hospitals can design more effective and efficient prevention strategies. In addition, the urgency of this research also lies in the need for transparent and accountable financial management in hospitals, especially in the era of National Health Insurance (JKN) or BPJS Kesehatan.

This research has several main objectives related to the prevention of fraud in the hospital environment through a bibliometric method approach. First, this study aims to identify strategies for the application of bibliometric methods as a tool to detect and prevent fraud in hospital financial management. By mapping and analyzing scientific publications, it is hoped that patterns and trends can be found that are useful for developing effective prevention strategies. Furthermore, this study also aims to analyze the challenges faced in the implementation of bibliometric methods in hospitals, especially in the context of financial management. Various obstacles, such as technological limitations, human resources, and infrastructure, need to be understood in depth so that the right solutions can be formulated.

In addition, this study will evaluate the impact of the use of bibliometric methods on the effectiveness of financial management in hospitals. This evaluation covers the extent to which bibliometric methods can improve transparency, accountability, and efficiency in detecting and preventing fraud. This analysis is expected to provide empirical evidence on the effectiveness of bibliometric methods in strengthening hospital financial management. Finally, this study aims to provide policy recommendations that can be used to improve the transparency and accountability of hospital financial management. The recommendations are expected to be a guide for hospital management in implementing bibliometric methods as part of the internal control system, thereby minimizing the risk of fraud and improving the quality of financial governance in the health sector.

Research Methods

This research uses the bibliometric research method to analyze the strategies, challenges, and impact of the application of this method in fraud prevention in the hospital environment. The

bibliometric method was chosen because it can provide a comprehensive overview of research trends, pattern identification, and evaluation of the scientific literature related to fraud prevention topics (Hernawati, 2017). The first step in this study was the collection of data from databases of leading scientific journals, such as Scopus, Web of Science, PubMed, and Google Scholar. Keywords used in searches include "fraud prevention," "hospital finance," "bibliometric analysis," "fraud detection," and "internal control in healthcare."

Furthermore, according to Juniarmoko, (2019) After the data is collected, article selection is carried out based on inclusion and exclusion criteria. Inclusion criteria include articles relevant to fraud prevention in hospitals and using bibliometric methods or related analysis. Articles that are not directly related to the context of hospital financial management or do not discuss fraud prevention will be excluded. This selection process is carried out to ensure that the literature analyzed is truly relevant to the purpose of the research. Next, a bibliometric analysis was performed using software such as VOSviewer to visualize relationships between researchers, authors, and frequently occurring keywords. This analysis includes mapping publication trends, identification of key research topics, as well as networks of collaboration between researchers. With this approach, effective strategies, challenges faced, and the impact of bibliometric methods in preventing fraud in hospitals can be identified. To complete the analysis, the results were interpreted by comparing the bibliometric findings with the theories underlying the research, such as *the Fraud Triangle Theory*, the Internal Control Theory, and the Public Financial Management Theory. The results of this interpretation will be used to develop practical and applicable policy recommendations for hospital management. This research is expected to provide comprehensive insights into the application of bibliometric methods as an effective tool in preventing fraud in hospitals.

Results and Discussion

1. Research Trends on Fraud Prevention in Hospital Environments

Based on the results of bibliometric analysis of 1000 articles from various publications in the Scopus, Web of Science, PubMed, and Google Scholar databases as well as Crosreff, in which the researcher used the Publish on Perish application through the Crosreff's database, the results showed a significant increase in the number of studies related to fraud prevention in hospitals in the last decade. Data shows that the issue of fraud is getting more attention, as the complexity of financial management in the health sector increases. Keyword network visualization shows that the most frequently appearing terms include *fraud detection*, *internal control*, *healthcare finance*, and *risk management*.

Figure 1. Search Results Scopus indexed articles with the keyword Fraud in Hospitals in Publish on Persih (POP) for the research years 2013 to 2024

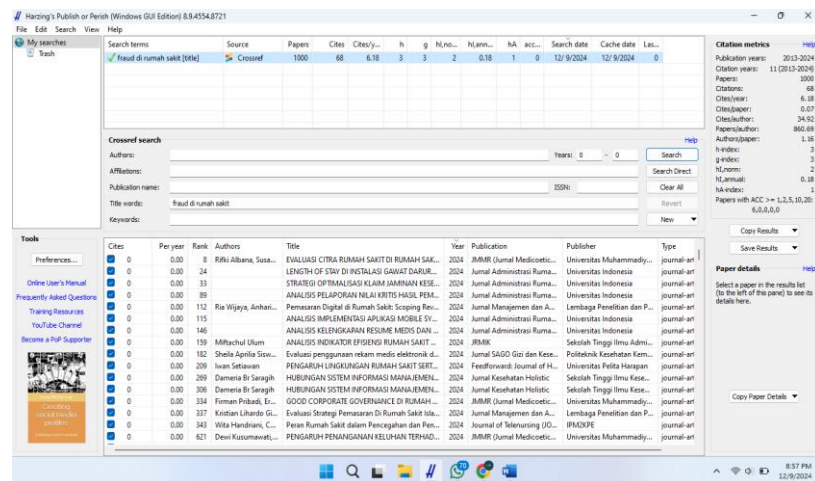


Figure 2. Network Visualization for development
Fraud Research Year 2013-2024



Figure 3. Network Visualization for development
Fraud Research Year 2013-2024

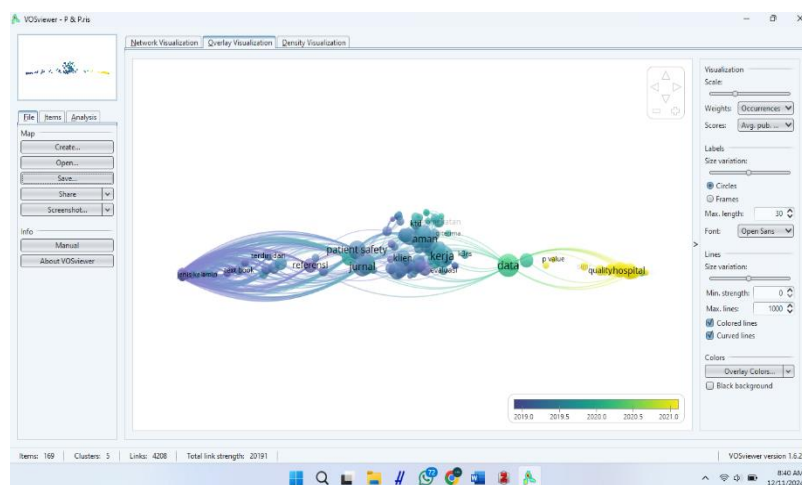
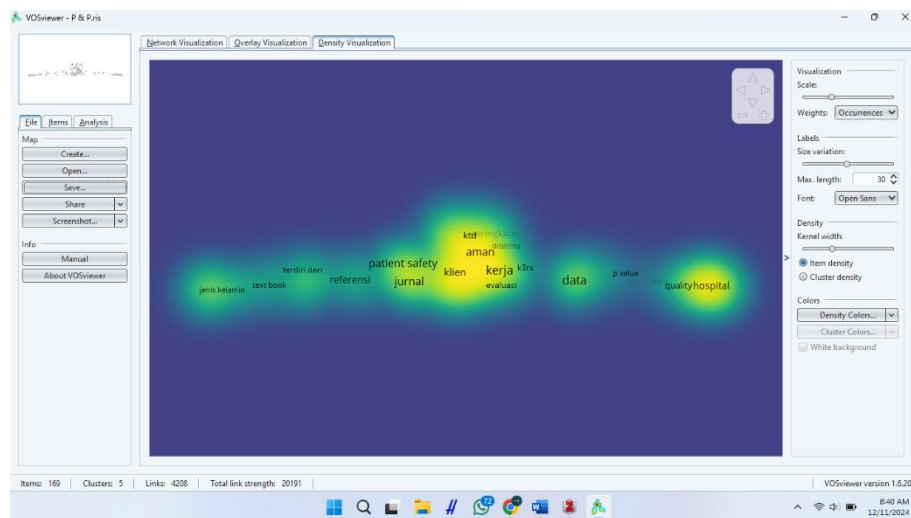


Figure 4. Density Visualization on development
Forensic Audit Research 2021 – 2024



In the context of the Theory of *Fraud Triangle* submitted by Schuchter & Levi, (2016) The increase in the number of these studies shows that there is an awareness that pressure, opportunity, and rationalization factors are increasing in the modern health system. The financial pressure faced by hospitals due to high operational costs and health insurance management opens up opportunities for fraud. Rationalization of fraud often arises due to weak internal supervision and control. Therefore, attention to fraud prevention mechanisms through strengthening internal control is very important.

2. Identify Fraud Prevention Strategies with a Bibliometric Approach

The results of the bibliometric analysis identified many effective strategies in preventing fraud in hospitals. One of the main strategies is the application of information technology and digital-based audit systems to detect financial anomalies in real-time. This is in line with research. Ramos Montesdeoca et al., (2019) This states that monitoring insurance claims using technology can reduce the risk of fraud due to claims that do not follow the patient's condition. Another strategy that emerged was the implementation of strict internal controls. These results support the Internal Control Theory, which emphasizes the importance of policies, procedures, and supervisory mechanisms to minimize the chances of fraud. Research Huang & Vasarhelyi, (2019) It also shows that periodic internal audits can detect irregularities and improve the transparency of hospital financial management. This strengthening of internal controls includes document verification, rotation of financial staff duties, and the formation of a dedicated team to oversee financial transactions.

In addition, bibliometrics show the effectiveness of risk management approaches as a fraud prevention strategy. Patel & Malek (2023) highlight that the combination of automated surveillance technology and manual surveillance can increase the effectiveness of fraud prevention. By applying

the principles of Public Financial Management Theory, this strategy helps ensure that the financial management process in hospitals is transparent, accountable, and efficient.

3. Challenges in the Implementation of Bibliometric Methods for Fraud Prevention

Although the bibliometric method offers various advantages in fraud prevention, the results of this study also reveal a number of challenges in its implementation in hospitals. One of the main challenges is the limitations of technological infrastructure. Many hospitals, especially in developing countries, do not have adequate information systems to support real-time data analysis. Starke et al., (2016) Found that corruption and technological limitations harm the quality of health services and financial management. Another challenge is the lack of competent human resources in conducting bibliometric analysis and applying the results in fraud prevention policies. Research Miller et al., (2021) Mentioned that the lack of staff who have special expertise in the field of internal control and data analysis is a significant obstacle in implementing an effective supervision system. In addition, resistance from internal hospital parties, such as administrative and management staff, is also an obstacle. The implementation of new methods is often considered to be burdensome or damaging to an already running system. It relates to the *Rationalization* in the Theory of *Fraud Triangle*, where fraudsters tend to justify their actions due to weak supervisory systems or policy changes that are considered inefficient.

4. The Impact of the Use of Bibliometric Methods on Hospital Financial Management

The use of bibliometric methods in preventing fraud has had some positive impacts on the effectiveness of hospital financial management. The results of the study show that bibliometric analysis helps in identifying fraud risk patterns that were previously difficult to detect. By mapping research trends, hospital management can identify areas prone to fraud and take appropriate preventive measures. In addition, bibliometrics contribute to increased transparency and accountability in financial management. By identifying best practices from previous research, hospitals can implement more open and accountable policies. This is in line with the principles in Public Financial Management Theory, where transparency and accountability are key elements in preventing misuse of public funds.

The results of this analysis also show that the application of bibliometric methods helps in improving internal control. By understanding trends and effective strategies in fraud prevention, hospitals can improve their internal control policies and procedures. This strategy includes more intensive internal audits, regular verification of financial transactions, and staff capacity building through ongoing training. In addition to the positive impact, the results of this study also show that there are challenges that must be overcome so that the bibliometric method can be implemented effectively. Hospitals need to allocate resources to improve technology infrastructure and develop

staff competencies. By addressing these challenges, bibliometric methods can be an effective tool for detecting and preventing fraud, thereby improving the overall quality of financial management.

5. Policy Recommendations to Improve Transparency and Accountability

Based on the results of the analysis and discussion, this study recommends many policies to increase transparency and accountability in hospital financial management through bibliometric methods. First, hospitals need to invest in adequate information technology to support real-time data analysis. A good technological system will help in detecting financial anomalies and preventing fraud. Second, there is a need for training and competency development of staff in the field of data analysis and internal control. By increasing the capacity of human resources, the implementation of bibliometric methods can run more effectively. This training should include an understanding of the *Fraud Triangle* Theory and the principles of internal control so that staff have a comprehensive insight into preventing fraud.

Third, hospital management needs to implement stricter internal control policies and ensure that these policies are implemented consistently. This policy includes transaction verification procedures, periodic audits, and rotation of staff duties to minimize the chance of fraud. Fourth, it is recommended to form a special fraud prevention team tasked with monitoring financial transactions and following up on any indications of fraud. This team should have full authority to conduct investigations and report findings to hospital management. Finally, hospitals need to apply the principle of transparency in financial management by involving external parties, such as independent auditors, to ensure that fund management is carried out in an accountable manner. By implementing this policy, it is hoped that the risk of fraud can be minimized and public trust in health services can increase.

Conclusion

This study concludes that *the bibliometric* method is an effective approach to prevent fraud in the hospital environment by identifying trends, strategies, and challenges related to financial management. Bibliometric analysis allows mapping of relevant scientific publications so that fraud risk patterns and the most effective prevention practices can be found. The results of the study show that the increase in fraud in hospitals is caused by three main elements stated in the *Fraud Triangle* by Donald Cressey, namely financial pressure, opportunities due to weak internal controls, and rationalization of fraud. The prevention strategies found include strengthening the internal control system, the application of information technology to monitor financial transactions in real-time, and a combination of manual approaches with technology in risk management. This is in line with the principles in the Theory of Internal Control and the Theory of Public Financial Management, which emphasize the importance of transparency, accountability, and efficiency in the management of hospital finances. However, this study also identified some challenges, such as the limitation of technological infrastructure, a lack of human resource competence, and resistance from internal

parties.

The positive impacts of the application of bibliometric methods include increased transparency, strengthening internal controls, and the ability to detect financial anomalies more effectively. To address these challenges, hospitals are advised to invest in information technology, provide training to staff, and form a dedicated fraud prevention team. In addition, a more transparent and accountable financial management policy needs to be implemented consistently. Thus, the application of bibliometric methods not only helps detect and prevent fraud but also strengthens the overall financial management of hospitals. The results of this study are expected to be a reference for hospitals in developing better policies to minimize the risk of fraud and increase public trust in health services.

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