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Abstract

Hospital administration is facing increasing challenges in ensuring operational efficiency while maintaining the quality of healthcare services. The digital transformation in hospital administration, particularly through the implementation of Hospital Management Information Systems (SIMRS) and process innovations, has become a crucial strategy in improving service efficiency. SIMRS facilitates data integration, automates administrative tasks, and enhances coordination among hospital units, leading to faster and more accurate service delivery. However, its implementation faces obstacles such as limited technological infrastructure, staff readiness, and high implementation costs. Meanwhile, process innovation such as digital queue systems and automated administrative procedures, optimizes resource utilization and reduces patient waiting times. Despite these advantages, challenges like resistance to change and limited funding remain significant barriers. This study, conducted through a literature review, analyzes the relationship between SIMRS, process innovation, and hospital efficiency. The findings highlight the importance of comprehensive strategies, including policy support, staff training, and infrastructure development, to ensure effective digital transformation in hospital administration.

Keywords: Management Information System, Process Innovation, Operational Efficiency, Hospital, Administration.

INTRODUCTION

Health care is a fundamental aspect of a country's development, as it directly affects the quality of life of the community. Hospitals as health care institutions have an important role in providing fast, precise, and efficient medical services. Along with the increasing number of patients and the complexity of health services, hospitals are faced with the challenge of managing resources optimally. Operational efficiency is a major factor that must be considered so that services can run well without sacrificing quality. Therefore, various innovations and the application of information technology are widely used solutions to improve the effectiveness of hospital management (Rabiulyati & Nurwahyuni, 2023).

Management Information System (MIS) is one of the technologies that are increasingly being implemented in hospitals to help manage data and operational processes. SIM enables the integration of information that includes electronic medical records, administrative systems, human resource management, and medicine logistics. With this system, the service process can be carried out more quickly and accurately, thereby increasing efficiency and minimizing administrative errors. However, in its implementation, many hospitals still face various obstacles such as limited technological infrastructure, the readiness of medical personnel in using the system, and the high cost of implementation (Mokoagow et al., 2024).

In addition to the use of information technology, process innovation also plays an important role in improving the effectiveness of hospital operations. These innovations include the implementation of digital queuing systems, automation of administrative procedures, and more efficient patient flow management. With process innovation, hospitals can reduce patient waiting time, improve coordination between units, and maximize the use of available resources. However, many hospitals still face barriers in adopting process innovation, such as resistance from the workforce, lack of training, and budget constraints in developing more modern systems (Santoso et al., 2025).

Although the implementation of SIM and process innovations has brought many benefits, there are still various problems that hinder the hospital's operational efficiency. Some of the main challenges include delays in service delivery, imbalance in the workload of medical personnel, and lack of integration between the systems in



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use. These problems can have an impact on the quality of health services provided to patients, such as increased waiting times, errors in medical record management, and less than optimal allocation of medical personnel. Therefore, it is necessary to have the right strategy in implementing information technology and process innovation so that it can run effectively and have a positive impact on hospital operations.

Hospital operational efficiency is also an important factor in dealing with surges in patient numbers, especially during times of health crises such as pandemics or natural disasters. Inefficiencies in hospital management can cause various problems, ranging from long queues, delays in drug delivery, to low levels of patient satisfaction with the services provided. With an integrated system and innovation in service flow, hospitals can better manage resources and increase effectiveness in handling patients optimally. Therefore, hospitals need to continue to develop strategies to overcome the obstacles that exist in their operational systems (Budiyatno, 2023).

Based on these problems, this study aims to analyze the relationship between the implementation of Management Information Systems, process innovation, and hospital operational efficiency. By reviewing various literature studies that have addressed this topic, this research is expected to provide a deeper understanding of the factors that influence hospital efficiency. This research also aims to identify the challenges hospitals face in implementing SIM and process innovation, and provide recommendations that can help hospitals improve healthcare efficiency.

Through this study, it is hoped that greater insight can be gained into the importance of SIM implementation and process innovation in improving hospital operational efficiency. With a more comprehensive understanding, hospital managers can develop appropriate policies and strategies in optimizing the technology and innovation used. In addition, the results of this study can also serve as a basis for policy makers in formulating regulations that support the development of information systems and process innovation in the world of health, so that medical services provided to the community can be optimized.

LITERATURE REVIEW

Management Information System

Management Information System (MIS) in hospitals is a technology used to integrate and manage data and operational processes effectively. According to Siregar, et al. (2024), SIM helps hospitals manage electronic medical records, patient administration, drug management, and human resource management. With an integrated system, hospitals can improve operational efficiency, speed up decision-making, and reduce errors in data recording and reporting. However, several studies have also shown that SIM implementation still faces challenges, such as the lack of readiness of medical personnel in adopting new technology and high investment costs.

Process Innovation

Process innovation in hospitals includes the development and implementation of new methods of delivering health services, both in administrative and medical procedures. The study by Purba, et al. (2025) showed that process innovation can improve the efficiency and effectiveness of services through the application of new technology, automation of administrative systems, and improvements in patient flow management. The implementation of process innovations, such as digital queuing systems and electronic medical records, has been shown to reduce patient waiting times and improve coordination between hospital units. However, the adoption of innovations often faces barriers, such as resistance from health workers who are accustomed to conventional systems and lack of supporting infrastructure.

Operational Efficiency

Hospital operational efficiency refers to the institution's ability to optimize the use of resources to provide quality services at minimal cost. According to research by Effendy, et al. (2024), the main factors affecting operational efficiency include the utilization of information technology, innovation in work processes, and effective human resource management. Hospitals that successfully implement information systems and innovation in their operations tend to have higher levels of productivity, reduce waste of resources, and increase patient satisfaction. However, operational efficiency is also influenced by external factors such as government regulations, health policies, and the financial readiness of the institution to invest in technology and medical personnel training.

METHOD

This research uses a qualitative approach with a literature study method to analyze the influence of Management Information Systems (MIS), process innovation, and operational efficiency in hospitals. The literature study was conducted by collecting, reviewing, and analyzing various scientific sources, such as journals, books, and related research reports that discuss the three variables. This research aims to understand the concept,



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implementation, and challenges faced in implementing SIM and process innovation in improving hospital operational efficiency. The data sources used in this study came from national and international indexed journals obtained through databases such as Google Scholar, PubMed, and ScienceDirect. Literature selection criteria were based on relevance to the research topic, year of publication that was not more than the last 10 years, and source validity. The data collected was then analyzed descriptively to identify patterns, relationships, and key findings from previous studies on SIM, process innovation, and hospital operational efficiency.

Data analysis was conducted using content analysis techniques to understand the relationship between the variables studied. Each literature reviewed will be categorized based on the main themes related to SIM implementation, process innovation, and its impact on operational efficiency. The results of this analysis will be used to synthesize findings that can provide insight into how SIM and process innovation contribute to improving the effectiveness and efficiency of hospital management.

RESULTS AND DISCUSSION

The Effect of Management Information Systems on Hospital Operational Efficiency

The implementation of Hospital Management Information System (SIMRS) has become an urgent need in an effort to improve hospital operational efficiency. SIMRS acts as a technical subsystem that integrates various processes, from patient administration to logistics management, enabling more effective and efficient information management. With SIMRS in place, hospitals can reduce the complexity of health services through automation and digitization of processes, which in turn increases productivity and accuracy in services. This is in line with research showing that SIMRS implementation can speed up access to information and reduce administrative errors (Suryantoko et al., 2020).

SIMRS implementation was also studied by Fadila, N, M. (2021) discussing how the Hospital Management Information System (SIMRS) contributes to improving operational efficiency through more structured data management, automation of administrative processes, and reduction of human error. The mini literature review conducted showed that the implementation of SIMRS can improve the effectiveness of health services by accelerating access to information and improving coordination between units in the hospital. This research is relevant to your study as it supports the argument that SIMRS is an important factor in hospital operational efficiency.

Maharani & Aisar (2024) highlighted the role of SIMRS in improving hospital efficiency through optimizing resource use and improving workflow. This study emphasized that proper implementation of information systems can reduce the administrative burden of health workers, speed up the service process, and increase patient satisfaction. This study is closely related to your research, as it reinforces the understanding that information technology innovation plays an important role in improving hospital operational efficiency

Effendy, Paramarta, & Purwanda's (2024) research highlights how the Hospital Management Information System (SIMRS) contributes to improving operational efficiency by automating administrative processes, accelerating information access, and improving coordination between service units. Their results showed that SIMRS was able to reduce recording errors, speed up the patient care process, and optimize the use of hospital resources, ultimately improving health worker productivity and service quality. The implications of this research for your study are very relevant, as it reinforces the argument that the application of information technology is not just an administrative tool, but also part of process innovation that contributes to hospital operational efficiency. In addition, this study supports the idea that the successful implementation of SIMRS depends on the quality of the system, workforce readiness, and management support in utilizing technology to improve the effectiveness of health services.

However, the successful implementation of SIMRS is inseparable from the challenges faced by hospitals. One of the main obstacles is resistance to change from staff who are accustomed to the manual system. In addition, limited human resources skilled in information technology are also an obstacle to the optimal implementation of SIMRS. Therefore, an effective training and socialization strategy is needed to ensure that all staff understand and are able to operate the system properly. Research by Waruwu, et al. (2024) showed that proper training can increase the efficiency of using SIMRS in health facilities.

In addition to human resources, the quality of the information system itself also plays an important role in improving operational efficiency. A system that is well designed, has a user-friendly interface, and is able to provide accurate and real-time information will greatly assist in managerial decision making. High information quality can increase user satisfaction, which in turn has a positive impact on employee performance and hospital



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operational efficiency. Research conducted by Prayanthi, et al. (2020) shows that good information system quality contributes significantly to user satisfaction and employee performance.

The implementation of SIMRS also has an impact on improving the quality of service to patients. With an integrated system, administrative processes become faster and more accurate, resulting in reduced patient waiting times. In addition, electronic medical records make it easier for medical personnel to access patients' medical history, which contributes to more precise and efficient medical treatment. This increased operational efficiency not only benefits the hospital, but also increases patient satisfaction and trust in the services provided (Hidayatuloh & Mulyanti, 2023).

However, investment in SIMRS development and implementation is costly. A cost-benefit analysis is crucial to ensure that the investment is worth the increase in efficiency and quality of service gained. In addition, support from top management and commitment from all levels of the organization are needed to ensure the success of SIMRS implementation. Without this support and commitment, efforts to implement a management information system risk facing various obstacles that can reduce its effectiveness.

The Effect of Process Innovation on Hospital Operational Efficiency

Process innovation in the hospital context refers to the application of new methods or practices aimed at improving operational efficiency and effectiveness. One widely applied approach is Lean Management, which focuses on reducing waste and increasing added value in the healthcare process. Through the identification and elimination of non-value-added activities, hospitals can optimize their workflow and resources. Research shows that implementing Lean Management can reduce patient waiting time, improve resource utilization, and increase patient satisfaction (Anita & Yuliati, 2024).

In addition to Lean Management, innovations in information technology also play an important role in improving hospital operational efficiency. The use of automation systems, such as Robotic Process Automation (RPA), can speed up administrative processes by automating routine tasks that were previously time-consuming and prone to human error. The implementation of this technology allows hospitals to process data at a higher speed, such as in the processing of insurance claims that used to take days can be completed in a matter of hours. This not only improves operational efficiency but also the quality of service to patients (Novitawati & Hendradi, 2019).

Various studies have shown that the application of innovation, whether in management, technology, or operational strategies, can help hospitals optimize resources, accelerate services, and reduce operational costs. Several previous studies have discussed how process innovation contributes to hospital efficiency, including in the aspects of supply chain, management strategy, technology utilization, and efficiency policy in the era of National Health Insurance (JKN).

Research by Aulia, F. (2020) shows that innovative leadership plays a role in improving supply chain efficiency in hospitals. Innovation in the supply chain allows the distribution of drugs and medical devices to be more optimized, reduces waste, and increases operational cost efficiency. This proves that process innovation is not only related to patient care but also includes better logistics and resource management. These findings are in line with your research that highlights how innovations in various aspects of operations can improve overall hospital efficiency.

The study by Kuddi et al. (2024) highlighted innovations and challenges in hospital strategic management. They found that innovations in management systems and workflow improvements play an important role in improving operational efficiency. This study confirms that the success of process innovation is highly dependent on the adoption of appropriate strategies, such as service digitization and technology integration. Thus, process innovation not only impacts cost efficiency but also helps hospitals to cope with regulatory changes and competition in the healthcare sector.

Meanwhile, research by Lelyana, N. (2024) discussed the impact of technological innovation on hospital management strategies and found that the use of technology can increase the productivity of medical personnel and accelerate patient service. Digitalization and automation of administrative processes play a role in improving hospital operational efficiency. Furthermore, a study by Rabiulyati & Nurwahyuni (2023) discussed hospital efficiency strategies in the JKN era, emphasizing that innovations in service systems and operational policies are the main factors in improving efficiency. Both studies corroborate the finding that process innovation, both in the form of technology and managerial policies, plays an important role in improving hospital operational efficiency.

However, implementing process innovations does not always go smoothly and often faces various challenges. One of the main barriers is resistance to change from staff who are comfortable with old procedures. In



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addition, limited budget and human resources skilled in operating new technologies are also obstacles. Therefore, it is important for hospital management to take a comprehensive approach, including intensive training and socialization, as well as ensuring the availability of adequate resources to support the implementation of such innovations.

In addition to technical and operational aspects, organizational culture also plays an important role in the successful implementation of process innovation. A culture that supports change, such as openness to new technology, collaboration between departments, and orientation towards continuous improvement, can accelerate the adoption of innovation in hospital operations. If management and employees have a flexible and adaptive mindset, then resistance to change can be minimized. Conversely, if the organizational culture tends to be conservative and less responsive to innovation, then the implementation of process innovation will face greater obstacles. Therefore, changes in organizational culture are a crucial aspect that must be considered in an effort to improve hospital operational efficiency.

CONCLUSION

Based on the results of the discussion, it can be concluded that the implementation of the Hospital Management Information System (SIMRS) and process innovation has a crucial role in improving hospital operational efficiency. SIMRS enables data integration and automation of various administrative processes that speed up access to information, reduce human error, and improve coordination between units. Previous studies have shown that the implementation of a good information system can optimize the use of resources and improve the quality of service to patients. However, the success of SIMRS implementation is highly dependent on the readiness of human resources, the quality of the system, and support from hospital management to ensure the system can be adopted effectively.

Process innovations in hospital operations, such as the implementation of Lean Management and digitization, have also been shown to improve efficiency by reducing waste and increasing productivity. Research shows that innovations in supply chain, management strategies, and information technology have a positive impact on cost efficiency and improved healthcare services. However, challenges in the implementation of process innovation, such as resistance to change and limited resources, are still obstacles that must be overcome. Therefore, successful innovation in hospitals requires a comprehensive approach, including the support of an adaptive organizational culture and effective training strategies to ensure innovation can be implemented optimally and sustainably.

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