

ANALYSIS OF THE HOSPITAL MANAGEMENT INFORMATION SYSTEM IN IMPROVING THE QUALITY OF HEALTH CARE SERVICES AND EMPLOYEE PERFORMANCE (SURVEY STUDY AT BHAYANGKARA HOSPITAL LEVEL III MANADO)

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Abstarct

Hospital management information system (HMIS) as one of the systems that plays a major role in the success of hospital documentation and services. This is because with the existence of an information technology system, it can help various organizational tasks run effectively and efficiently. The success of the implementation of HMIS should have a good impact on employee performance and service quality. This study aims to analyze the hospital management information system, health service quality and employee performance at Bhayangkara Hospital Level .III Manado. This study uses a quantitative approach. The sample in this study amounted to 78 respondents. Data analysis used is descriptive analysis and verification analysis using path analysis. The results of the descriptive analysis of the hospital management information system, health service quality and employee performance of respondents gave a good assessment, there were still some that needed to be improved. While the results of the verification study, the path analysis model showed that the path coefficient value between variables was positive and the indirect influence path coefficient value was greater than the direct influence ($63.7\% > 43.1\%$), meaning that the health service quality variable as an intervening variable was able to mediate the hospital information management system variable with employee performance variables.

Keywords: Employee Performance, Health Service Quality, Hospital Management Information System

Introduction

A hospital management information system (MIS) is a system used to collect management data from a hospital, which includes many installations, departments, and units integrated into a comprehensive system (Garmelia, 2020). The implementation of a management information system (MIS) for a hospital is crucial in today's era. This is supported by the increasingly complex issues surrounding patient medical data and other administrative data related to the provision of hospital services received by patients (Sudiarti, 2019). Hospitals are expected to provide quality services at competitive prices. This can be achieved if the hospital has competent human resources in their respective fields. Therefore, effective human resource management is necessary to achieve organizational goals (Citrawati, 2019).

A technology-enabled information system plays a significant role in organizational success. This is because an information technology system can help various organizational tasks run effectively and efficiently (Citrawati, 2019). Likewise, a hospital requires an information system to

support its operational activities. An information system can assist in all activities, including improving efficiency and effectiveness, communication, collaboration within organizational processes, and enhancing the company's competitiveness. Like any business facing the era of globalization, hospitals, as business entities, must be equipped with adequate facilities and infrastructure, which can be utilized by hospital management to carry out their operations (Garmelia, 2019).

Hospitals, with all their integrated components, constitute a service infrastructure focused on the health sector. Hospitals are required to improve their performance in providing services that empower trained and educated personnel to address and address any existing problems, particularly in providing health services to the community (Sudiarti, 2019). According to the World Health Organization (2024), hospitals are an integral part of social and health organizations, with the function of providing both curative and preventive health services to the community. In providing healthcare services, employees are a crucial resource for achieving hospital goals. High employee performance positively impacts the hospital's future progress. Performance is defined as the ability of an individual within an institution to achieve mutually desired work results, particularly in service quality and documentation within the Hospital Management Information System (HMIS) (Hariana, 2019).

The HMIS application is a form of hospital investment. Hospital management information system applications offer numerous benefits, prompting many hospitals to invest in them. These benefits can range from universal benefits to operational benefits, managerial benefits, to organizational benefits. To ensure a system meets its targets and benefits, both for employees and the organization, a data system quality assessment and evaluation are necessary. Therefore, a procedure is needed to conduct a Hospital Management Information System (HMIS) quality assessment. By establishing a quality measurement procedure as a form of system assessment, appropriate parameters are obtained to determine system success. The results of the HMIS quality assessment and evaluation can then be used for organizational and subsequent system development (Endang, 2014).

Information systems that were previously conventional are shifting to web-based systems due to their extensive nature and the ability for everyone to access information quickly and easily from anywhere. This allows data entry to be performed from anywhere and controlled from a single location, the central Management Information System (MIS). A management information system (MIS) is an information network required by leaders to carry out their duties, particularly in decision-making (Sudiarti, 2019). The general benefits of a Hospital Management Information System (HMIS) include service quality control, quality control and productivity assessment, service simplification, benefit analysis and needs estimation, clinical research, education, and hospital program planning and evaluation (Arifin, 2014).

The public's increasing understanding of technology also demands that hospitals develop fast, precise, and accurate information systems. It is well known that healthcare services are prone to errors if the hospital's information system is not properly maintained. In reality, the need to reduce healthcare costs, improve the quality of healthcare services, and strategic considerations underlie the need for hospitals to develop hospital management information systems (Hariana, 2019).

Employee performance is the result of activities undertaken during their time at a company, and performance is influenced by various factors, one of which is information systems. Information systems are systems that generate information for managerial purposes or management processes, including planning, implementing, monitoring, and evaluating organizational activities (Edison, 2018). Information systems can be implemented effectively as long as the human resources within an organization are reliable. Human resources are a crucial asset for a company or institution in achieving its goals. Without good human resources, the company cannot operate smoothly and

achieve its objectives (Afandi, 2018). Employee performance can be considered good if the employee's duties and responsibilities follow established procedures and are carried out effectively in the workplace (Astuti, 2019). This study aims to analyze the hospital management information system, health service quality and employee performance at Bhayangkara Hospital Level .III Manado.

Method

This study uses a quantitative research design with a descriptive analysis approach and verification analysis using path analysis. This study was conducted at Bhayangkara Hospital Class III Manado. This study began on July 3, 2025, to July 10, 2025. The sampling technique used a random sampling technique. The sample in this study amounted to 78 respondents. The instrument used by the researcher was a questionnaire consisting of 30 statements. The variables in this study were the hospital management information system (X), the quality of health services (Y), and employee performance (Z). Data analysis used descriptive analysis, verification analysis, correlation coefficient analysis, and determination analysis (R²). Hypothesis testing used a partial test (t-test).

Results

Descriptive Analysis

Tabel 1. Hospital Management Information System

Variable	Total Score	Average	Category
Hospital Management Information System	2.995	3.84	Good

Source: Primary Data Processing Results, 2025

It can be seen that the total score for the Hospital Management Information System (HMIS) variable is 2.995 with an average of 3.84. Therefore, from these calculations, it can be concluded that respondents' perceptions of the Hospital Management Information System (HMIS) are in the good category.

Table 2. Quality of Health Services

Variable	Total Score	Average	Category
Quality of Health Services	3.111	3.99	Good

Source: Primary Data Processing Results, 2025

It can be seen that the total score for the variable Quality of Health Services is 3111 with an average of 3.99. Therefore, from these calculations, it can be concluded that respondents' perceptions of Quality of Health Services are in the good category.

Table 3. Employee Performance

Variable	Total Score	Average	Category
Employee Performance	3.043	3.90	Good

Source: Primary Data Processing Results, 2025

It can be seen that the total score for the Employee Performance variable is 3043 with an average of 3.90. Therefore, from these calculations, it can be concluded that respondents' perceptions of Employee Performance are in the good category.

Verification Analysis (*Path Analysis*)

Tabel 4. Direct and Indirect Influence

Variable	Path Coefficient	Influence	
		Direct	Indirect
Hospital management information system (HMIS) on the quality of health services	0.738	$0.738 \times 0.738 = \mathbf{0.545}$	
Quality of health services on employee performance	0.863	$0.863 \times 0.863 = \mathbf{0.745}$	
Hospital Management Information System (HMIS) on Employee Performance	0.656	$0.656 \times 0.656 = \mathbf{0.431}$	
Hospital Management Information System (HMIS) on Employee Performance through Quality of Health Services			$0.738 \times 0.863 = \mathbf{0.637}$

The table shows that the total contribution of the Hospital Management Information System (HMIS) to employee performance is 43.1%, and the indirect effect of the Hospital Management Information System (HMIS) on employee performance through the quality of health services is 63.7%. This indicates that the indirect effect is greater than the direct effect, or $63.7\% > 43.1\%$. This means that the quality of health services, as an intervening variable, is able to mediate the relationship between the Hospital Management Information System (HMIS) and employee performance.

Hypothesis Testing

Hypothesis Testing: The Effect of Hospital Management Information Systems (HMIS) on Healthcare Quality

The p-value is 0.000, meaning $p\text{-value} < \alpha = 0.05$, and the calculated t-value is greater than 1.99. This means that H_{01} is rejected and H_{a1} is accepted. There is a significant effect between Hospital Management Information Systems (HMIS) on Healthcare Quality. Therefore, the hypothesis stating that there is a significant effect between Hospital Management Information Systems (HMIS) on Healthcare Quality is accepted.

Hypothesis Testing: The Effect of Healthcare Quality on Employee Performance

The p-value is 0.000, meaning $p\text{-value} < \alpha = 0.05$, and the calculated t-value is greater than 1.99. This means that H_{02} is rejected and H_{a2} is accepted. There is a significant effect between Healthcare Quality and Employee Performance. Therefore, the hypothesis stating that there is a significant effect between Healthcare Quality and Employee Performance is accepted.

Hypothesis Testing the Effect of Hospital Management Information Systems (HMIS) on Employee Performance

The p-value obtained was 0.000, meaning $p\text{-value} < \alpha = 0.05$, and the calculated t-value was greater than 1.99. This means that H_{03} is rejected and H_{a3} is accepted. There is a significant effect between the Hospital Management Information System (HMIS) on employee performance. Therefore, the hypothesis stating that there is a significant effect between the Hospital Management Information System (HMIS) and employee performance is accepted.

The Effect of Hospital Management Information Systems (HMIS) on Employee Performance Through Healthcare Quality

To test the significance of healthcare quality as a mediating variable in the model, the Sobel test results were examined. The first step was to find the calculated t-value of the Hospital Management Information System (HMIS) obtained from the path analysis calculation in the first substructure, which was 9.538. Then, the calculated t-value of healthcare quality on employee performance was obtained from the path analysis calculation in the second substructure, which was 14.908. After each calculated t-value is known, the next step is to enter the value into the Sobel test calculator, with the following results:

Table 5. Results of the Sobel Test of the Hospital Management Information System (HMIS) on Employee Performance Mediated by the Quality of Healthcare Services

Input:		Test statistic:	p-value:
t_a	9.538	Sobel test:	8.03434796
t_b	14.908	Aroian test:	8.02155326
		Goodman test:	8.04720408
		Reset all	Calculate

Based on the calculation results, the calculated t value for the mediation effect test on this hypothesis is 8.034. If $\alpha = 0.05$ then t table = 1.99. From the calculation above, it can be concluded that the calculated t of 8.034 is greater than the t table of 1.98 with a significance level of 0.05, so it can be concluded that the quality of health services is able to mediate the relationship between the Hospital Management Information System (HMIS) and employee performance. Thus, hypothesis 4 can be accepted and the type of mediation of the quality of health services is partial mediation, where both the quality of health services and the absence of the Hospital Management Information System (HMIS) still have a significant influence on employee performance.

Discussion

Descriptive Analysis

Hospital Management Information System (HMIS)

Respondents' assessments categorized the hospital management information system as good, although there are still some areas for improvement. This is crucial for improving the efficiency and effectiveness of hospital management, including reducing the time and costs required to manage hospital data and information, and increasing hospital staff productivity by automating repetitive processes. Furthermore, proper use of the HMIS by hospital staff is essential, with prior socialization and training provided to facilitate its use in healthcare services (Olilingo, 2025).

The HMIS can increase the accessibility of hospital data and information, making it easier for staff to make informed decisions. It can also improve the quality of care by more effectively monitoring and analyzing patient data. Furthermore, the HMIS can enhance the analysis of hospital data and information, making it easier for decision-makers to make informed decisions. The improved HMIS function can enhance hospital strategic planning by monitoring and analyzing relevant data and information, which can improve service quality and employee performance. Thus, improving the Hospital Management Information System (MISRS) is crucial for improving efficiency, service quality, decision-making, and data security in hospitals (Nurfarahin, 2025).

Quality of Health Services

Respondents' assessments categorized the quality of health services as good, although there are still areas for improvement. This is crucial because it relates to accessibility, efficiency, and quality of care. The quality of health services in the HMIS can be improved in several ways: HMIS can improve the accessibility of patient data, making it easier for staff to make informed decisions. HMIS can increase the availability of relevant information, making it easier for staff to provide quality care. Efficiency-wise, HMIS can automate repetitive processes, increasing efficiency and reducing errors. Furthermore, HMIS can improve coordination between departments, making it easier for staff to collaborate and provide quality care (Ronaldi, 2022).

This is supported by research by Dewanti (2023), which explains that the quality of health services can improve patient condition monitoring. HMIS can improve patient condition monitoring, making it easier for staff or employees to make informed decisions. Hospital Information Systems (MISRS) can improve patient data analysis, making it easier for staff to make informed decisions. The quality of healthcare services in hospitals can improve communication with patients. HMIS can improve communication with patients, making it easier for patients to understand their conditions and treatments. Thus, HMIS can improve the quality of healthcare services by increasing data accessibility, process efficiency, quality of care, and patient satisfaction.

Employee Performance

Respondents' assessments of employee performance were categorized as good, although some areas still require improvement. Research by Aprilia & Yuliaty (2025) explains that improving employee performance in hospitals is crucial for improving the quality of healthcare services and achieving organizational goals. Employee performance in hospitals needs to be improved because it can increase patient and family satisfaction, improve the quality of care and reduce medical errors, increase productivity and work efficiency, and reduce costs associated with errors and inefficiencies. Good employee performance can boost employee motivation and satisfaction. Furthermore, good employee performance can increase employee retention and reduce turnover (Kabbani & Santoso, 2023). Therefore, improving employee performance in hospitals is crucial for improving service quality, efficiency, patient safety, and employee satisfaction.

Verification Analysis (*Path Analysis*)

The Influence of Hospital Management Information Systems on Service Quality

Hospital Management Information Systems have a positive and significant impact on service quality. The Hospital Management Information System (HMIS) used in a hospital must facilitate operational convenience and be able to address patient service barriers encountered in the hospital (Muhammad, 2024). The National Hospital Accreditation Standards (NHAS) require the implementation of a hospital data management system (HMIS) that complies with laws and regulations. Hospitals establish a work unit that manages the Hospital Management Information System (HMIS) and has human resources consisting of a unit head and staff with qualifications in systems analysis, programming, hardware, and network maintenance (Hospital Accreditation Commission, 2018).

HMIS can influence service quality. The goal of service quality is to meet or even exceed customer expectations. There are five dimensions of service quality that a company must possess: tangibles, reliability, responsiveness, assurance, and empathy. These five dimensions shape a good customer experience that can help companies build long-term relationships with customers and increase customer satisfaction and loyalty to the products or services offered. The impact of service quality on patients and potential customers is crucial to a company's success. Therefore, companies

must have appropriate strategies and systems for measuring and evaluating to ensure that the desired level of service quality is achieved (Muhammad, 2024).

The Influence of Service Quality on Employee Performance

Service quality has a positive and significant impact on employee performance. Service quality is the level of expected excellence and the control over that level of excellence to meet customer desires (Revanza, 2024). Research by Riska (2022) explains that service quality is a measure of how well the level of service provided meets customer expectations. Service quality is a crucial component of consumer perception and is also crucial in influencing customer satisfaction. The better the quality of the service provided, the better the image of the service. Service quality and employee morale can contribute to satisfaction. Morale has a more dominant influence than service quality. Chindy's (2024) theory shows that motivation has a significant effect on job satisfaction, but motivation does not significantly influence employee performance, and job satisfaction has a significant effect on employee performance.

The Direct Effect of Hospital Management Information Systems on Employee Performance

The Hospital Management Information System directly impacts employee performance. The Hospital Management Information System (HMIS) is considered a vital part of the hospital healthcare system. The use of a hospital management information system increases effectiveness by reducing time and improving the quality of healthcare services in hospitals. The Hospital Management Information System (HMIS) streamlines complex processes in hospitals, enabling them to provide better healthcare services to patients (Riska, 2022). With the HMIS, hospital human resources can optimize the use of information technology to improve services. The HMIS ensures more efficient and effective hospital performance, eliminating human errors and data redundancies, and increasing employee productivity and efficiency (Rizkiyatul, 2022).

The Indirect Effect of the Hospital Management Information System on Employee Performance Through Healthcare Quality

The Hospital Management Information System indirectly impacts employee performance through employee performance. The Hospital Management Information System (HMIS) is a crucial solution and plays a key role in improving the quality of hospital services. In this modern era, hospitals are no longer measured solely by their medical expertise, but also by the extent to which they utilize information technology. HMIS is not just an application, but a foundation underlying operational efficiency, service quality, and patient satisfaction. Linda's (2024) research explains that this also fulfills the hospital's vision and mission, making HMIS a smart choice. With HMIS, hospitals are able to manage their management systems in an integrated and controlled manner. This is not only an answer to the demands of quality service but also a solution to bureaucratic complexity. Dameria's (2024) research explains that with HMIS, hospitals can integrate various organizational units.

Conclusion

The hospital management information system (HMIS), the quality of healthcare services, and employee performance at Bhayangkara Hospital Level III Manado are in the good category. The hospital management information system (HMIS) has a positive and significant effect on the quality of healthcare services at Bhayangkara Hospital Level III Manado. The quality of healthcare services has a positive and significant effect on employee performance at Bhayangkara Hospital Level III Manado. The hospital management information system (HMIS) has a positive and significant effect on employee performance at Bhayangkara Hospital Level III Manado. The hospital management information system (HMIS) has a significant indirect effect on employee performance through the quality of healthcare services at Bhayangkara Hospital Level III Manado. The results of the path analysis model indicate that the indirect effect is greater than the direct effect. Therefore, the quality of healthcare services, as an intervening variable, can play a mediating role between the hospital management information system (HMIS) and employee performance at Bhayangkara Hospital Level III Manado.

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