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Effectiveness of Implementation of Hospital Management Information System (Sim-Rs) and Commitment to the Quality of Health Services Towards the Efficiency of Health Services and Its Implications on Patient Satisfaction

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Abstract. *Digital transformation in healthcare requires hospitals to provide effective, efficient, and patient-satisfaction-oriented services. One strategic effort is the implementation of a Hospital Management Information System (SIM-RS), supported by a commitment to quality healthcare services. Analyze the influence of the effectiveness of the implementation of SIM-RS and the commitment to the quality of health services on the efficiency of health services and their implications for patient satisfaction at Ibnu Sina Hospital Makassar. This study uses a quantitative approach with a survey method. Data were collected through distributing questionnaires to respondents and analyzed using path analysis to test the direct and indirect influences between research variables. Shows that the effectiveness of SIM-RS implementation and commitment to quality healthcare services have a positive effect on healthcare service efficiency. Healthcare service efficiency also has a positive effect on patient satisfaction. Furthermore, healthcare service efficiency has been shown to act as a mediating variable in the relationship between SIM-RS implementation effectiveness and commitment to quality healthcare services on patient satisfaction. These findings emphasize that the success of hospital digitalization needs to be balanced with a strengthened commitment to quality to achieve efficient services and optimal patient satisfaction.*

Keywords: *Hospital Management Information System, Quality Commitment, Health Service Efficiency, Patient Satisfaction*

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INTRODUCTION

Hospitals (RS) are strategic healthcare institutions obligated to guarantee the public's right to receive quality, fair, and efficient services, as mandated by Law No. 17 of 2023 concerning Health (Wicaksono, 2025; Sriwidodo et al., 2025; Tandry et al., 2024). In the era of digital transformation, the implementation of the Hospital Management Information System (SIM-RS) is a key pillar for modernizing services and improving operational efficiency. However, the effectiveness of this technology cannot stand alone; it requires strong support from a commitment to quality healthcare services and a work culture oriented towards continuous quality improvement to have a real impact on patients (Ginting et al., 2023; Kartini et al., 2025).

Although digitization through a Hospital Management Information System (MIS-RS) is now a legal requirement to support national data integration (Satu Sehat), in practice, not all hospitals are able to translate this technology into tangible service efficiencies. This has the potential to impact patient satisfaction levels, a vital indicator of the success of modern healthcare. Therefore, a study is needed to evaluate how the implementation of a SIM-RS and a commitment to quality can drive efficiency and improve patient satisfaction (Devi & Susanti, 2025; Indrayati et al., 2021).

A preliminary study conducted at Ibnu Sina Hospital in Makassar found that the implementation of the SIM-RS system has had a positive impact, with 80% of employees understanding the system's benefits in terms of efficiency and data accuracy. However, operational challenges remain, with approximately 30% of staff not receiving adequate technical training and 25% of respondents identifying a need for hardware or network infrastructure improvements. Furthermore, although the quality commitment was deemed quite good, approximately 22.5% of staff felt they had not received regular quality evaluations (Maulana & Yunengsih, 2025; Sapriadi & Zega, 2023; Widiyanti & Andriyanto, 2024).

Beyond the operational dimension, the integration of digital systems in hospitals is closely linked to broader health system reforms aimed at enhancing accountability, transparency, and patient-centered care (Matog, 2025; Shafik, 2025; Binsar et al., 2026). The adoption of Hospital Management Information Systems (SIM-RS) enables healthcare institutions to streamline administrative processes, improve data accessibility, and support evidence-based decision-making. However, the extent to which these benefits are realized depends largely on organizational readiness, including human resources, infrastructure, and leadership commitment (Mansour et al., 2022; Berlilana et al., 2021; Zihan et al., 2024; Aldhi et al., 2025). Without these supporting elements, digital transformation risks becoming a superficial compliance exercise rather than a meaningful improvement in healthcare delivery.

In many developing healthcare systems, including Indonesia, disparities in technological readiness across hospitals present significant challenges (Nugroho et al., 2024; Gaffar & Mayansara, 2025; Mahendradhata et al., 2021; Sinuraya et al., 2026). While large urban hospitals tend to adopt digital systems more effectively, smaller or regional institutions often struggle with limited resources and insufficient technical capacity. This uneven implementation creates gaps in service quality and efficiency, ultimately affecting patient outcomes. Consequently, it becomes essential to examine not only the presence of SIM-RS but also how effectively it is utilized within different institutional contexts.

Another critical factor influencing the success of SIM-RS implementation is the level of staff engagement and digital literacy. Gooch & Roudsari (2011), Campion et al. (2014), Poots et al. (2024) said that, healthcare professionals are required to adapt to new workflows, data entry protocols, and system interfaces, which may initially disrupt established routines. Resistance to change, lack of training, and perceived increases in workload can hinder optimal system use. Therefore, continuous capacity building and organizational support are necessary to ensure that digital systems are embraced as tools for improvement rather than burdens on healthcare workers (Naslund et al., 2019; Curioso, 2019; Ştefan et al., 2024).

In addition to technological and human resource factors, organizational culture plays a vital role in shaping the outcomes of digital transformation. A strong commitment to quality healthcare services fosters an environment where continuous improvement is prioritized, and innovations are effectively integrated into daily practice (Bhaladhare & Rishipathak, 2025; Hoxha et al., 2024; Moldovan & Blaga, 2021). Hospitals that cultivate a culture of accountability, teamwork, and patient-centeredness are more likely to leverage SIM-RS to enhance service efficiency and patient satisfaction. Conversely, weak organizational commitment may limit the impact of even the most advanced technological systems.

Patient satisfaction, as a key performance indicator in healthcare, reflects the extent to which services meet or exceed patient expectations. It is influenced not only by clinical outcomes but also by administrative efficiency, communication quality, and overall patient experience

(Brown et al., 2016; Goldzweig et al., 2013). The implementation of SIM-RS has the potential to improve these aspects by reducing waiting times, minimizing errors, and facilitating better coordination among healthcare providers. However, empirical evidence on the relationship between SIM-RS implementation, service quality commitment, and patient satisfaction remains limited, particularly in the Indonesian context.

The interaction between technological systems and service quality commitment warrants deeper investigation (Mohammad et al., 2018; Park et al., 2012; Thaichon & Quach, 2015; Al-Hawari, 2011). While SIM-RS provides the structural framework for efficient operations, commitment to quality ensures that these systems are used effectively to deliver patient-centered care. The synergy between these factors is crucial in achieving sustainable improvements in healthcare services. Understanding this relationship can provide valuable insights for policymakers and hospital administrators in designing strategies that maximize the benefits of digital transformation (Kraus et al., 2021; Ghosh et al., 2023; Ziadlou, 2021; Brommeyer et al., 2024; Konopik & Blunck, 2023).

Previous studies have primarily focused on either technological adoption or service quality independently, with limited attention to their combined effects on healthcare outcomes. This fragmented approach may overlook the complex interplay between systems, human factors, and organizational culture (Jackson, 2011; Rehmat, 2025). Therefore, there is a need for integrative research that examines how these variables interact to influence efficiency and patient satisfaction in a comprehensive manner.

Based on these considerations, this study aims to analyze the effectiveness of SIM-RS implementation and the commitment to healthcare service quality in improving service efficiency and patient satisfaction. By focusing on both technological and organizational dimensions, this research seeks to contribute to the development of a more holistic understanding of digital transformation in healthcare. The findings are expected to provide practical implications for enhancing hospital performance and supporting the ongoing modernization of healthcare systems.

METHODS

This research uses a quantitative approach with an explanatory survey method. This method was chosen to explain causal relationships and test hypotheses regarding the influence between predetermined variables through direct data collection from respondents. The population in this study was all individuals involved in or directly impacted by the implementation of the Hospital Management Information System (SIM-RS) at Ibnu Sina Hospital, Makassar. A total of 345 respondents participated. Sampling was conducted using a specific technique to ensure representation of patients (outpatients and inpatients) and healthcare workers/hospital management staff. Data analysis used path analysis with the aid of IBM SPSS Statistics software. This technique was used to test direct, simultaneous, and indirect effects through the mediating variable (Healthcare Efficiency). Hypothesis testing was conducted using a partial t-test (Sig. < 0.05) and a Sobel test to verify the mediation effect (Djusran et al., 2025).

RESULT AND DISCUSSION

The findings of this study provide empirical evidence that the implementation of the Hospital Management Information System at Ibnu Sina Hospital Makassar cannot be understood merely as a technological intervention, but as part of a broader organizational process that connects digital infrastructure, service discipline, operational efficiency, and patient experience. The descriptive results show that respondents assessed the effectiveness of SIM-RS implementation, commitment to healthcare service quality, health service efficiency, and patient satisfaction within the very good category. Meanwhile, the verification analysis demonstrates that SIM-RS implementation effectiveness and commitment to healthcare service quality have positive and significant effects on health service efficiency, and that efficiency subsequently contributes to patient satisfaction. These results indicate that hospital digitalization becomes

meaningful when it is supported by strong quality commitment and when both factors are able to produce more orderly, responsive, and efficient service delivery. Therefore, the discussion does not simply restate the statistical significance of the model, but interprets how the relationships among these variables reflect the practical realities of hospital management, staff readiness, service coordination, and patient centered care.

Respondent Characteristics

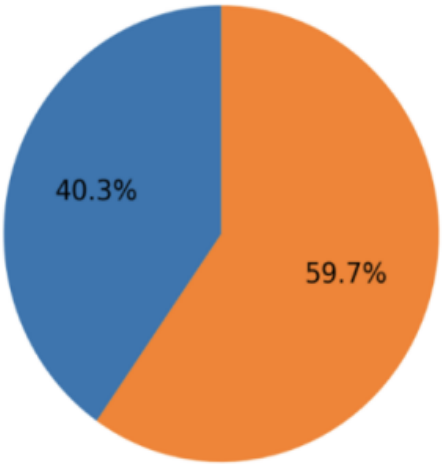

Figure 1. Respondent Characteristics Based on Gender.

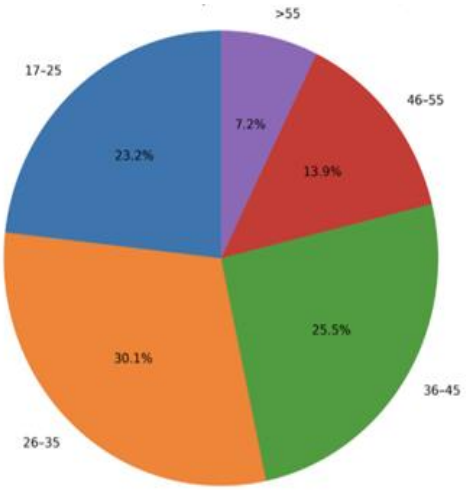

Figure 2. Respondent Characteristics Based on Age

Descriptive Analysis

The descriptive analysis in this study aims to provide an empirical picture of the objective conditions of the variables studied. Variable measurements were carried out using a Linkert scale questionnaire 1-5 on 345 respondents. Based on the assessment criteria, the interpretation of the average value (mean) was divided into 5 categories: very bad (1.00-1.80), bad (1.81-2.60), sufficient (2.61-3.40), good (3.41-4.20), and very good (4.21-5.00).

Effectiveness of SIM-RS Implementation (X1)

This variable falls into the Very Good category (average score of 4.31). Respondents assessed the implemented information system as highly reliable and stable, with minimal

technical disruptions. However, there is still little room for further improvement in the system's contribution to optimizing work efficiency at the service unit level.

Commitment to Healthcare Quality

This variable was rated Very Good (average score of 4.35). The hospital's primary strength lies in the adherence of its medical staff in the field to consistently implementing service procedures in accordance with Standard Operating Procedures (SOPs).

Healthcare Service Efficiency (Y)

This variable falls within the Very Good criteria (average score of 4.26). Management is deemed to have successfully optimized the effective use of hospital resources. However, as is the general condition of the hospital institution, the aspect of service waiting time (queues) is the indicator with the lowest score, requiring management attention for future improvement.

Patient Satisfaction (Z)

This variable received the highest score (average score of 4.38) and was categorized as Very Good. This demonstrates that patients highly appreciate the human touch, friendliness, and genuine attention provided by medical personnel during the treatment process (Rachmawaty et al., 2020; Yafie et al., 2024).

Verification Analysis

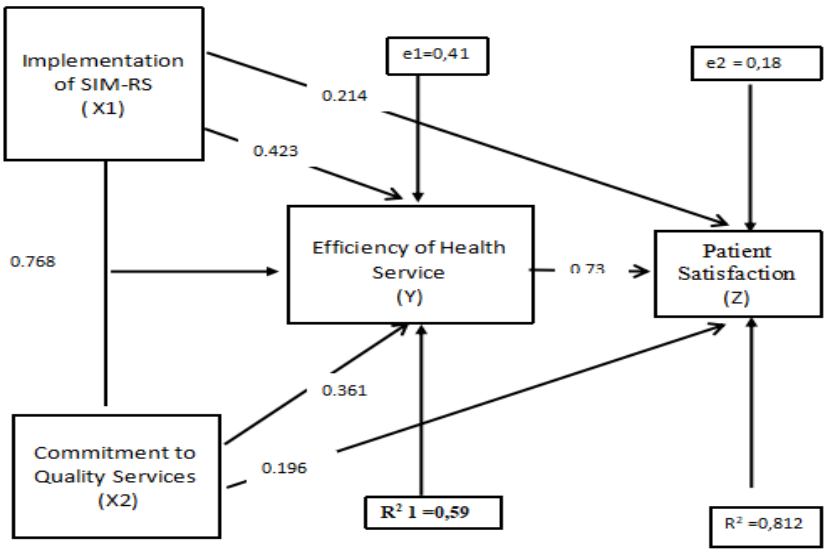

Figure 3. Complete Path Analysis Overview

Overall, this path analysis diagram shows that the relationship between variables in the study occurs through direct and indirect influence mechanisms, where Health Service Efficiency (Y) acts as an intervening variable that strengthens the influence of the Effectiveness of SIM-RS Implementation (X1) and Commitment to Health Service Quality (X2) on Patient Satisfaction (Z). This relationship pattern confirms that the research model has strong explanatory power and a logical relationship structure, in accordance with the objectives of the path analysis used in this study.

Hypothesis Testing

T-test

Table 1. Hypothesis Testing T-Test

Model	Variable	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (Beta)	t	Sig.
1	(Constant)	0.512	0.084	–	6.095	0.000
1	Effectiveness of SIM-RS Implementation (X1)	0.421	0.031	0.423	13.581	0.000
1	Commitment to Quality of Health Services (X2)	0.356	0.030	0.361	11.867	0.000

Hypothesis 1: The effectiveness of SIM-RS implementation (X1) has a positive and significant effect on the efficiency of health services (Y), because the sig. value is 0.000<0.05. Hypothesis 2: Commitment to Health Service Quality (X2) has a positive and significant effect on Health Service Efficiency (Y), because sig. 0.000 < 0.05 Hypothesis 3: Health Service Efficiency (Y) has a positive and significant effect on Patient Satisfaction (Z), because the sig. value is 0.000 < 0.05. Hypothesis 4: The effectiveness of the implementation of SIM-RS (X1) directly has a positive and significant effect on patient satisfaction (Z), because sig. 0.000<0.05. Hypothesis 5: Directly, commitment to quality of health services (X2), Directly, commitment to quality of health services (X2), has a positive and significant influence on patient satisfaction (Z), because the sig. value is 0.000 < 0.05

F test

Table 2. Hypothesis Testing - F Test

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	79.182	2	39.591	246.203	0.000
Residual	55.013	342	0.161	–	–
Total	134.195	344	–	–	–

Hypothesis 6: Simultaneous implementation of SIM-RS and Service Quality Commitment has a positive and significant effect on Health Service Efficiency, because the sig. value is 0.000 < 0.05. Sobel test

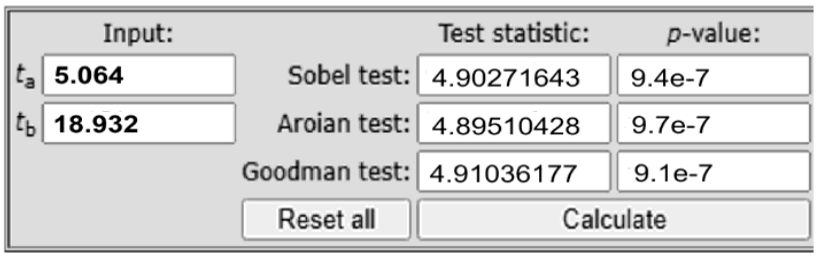

Figure 4. Hypothesis Testing Sobel Test Hypothesis 7

Hypothesis 7: Indirectly, the implementation of SIM-RS has a positive and significant influence on patient satisfaction (Z) through the efficiency of health services (Y).

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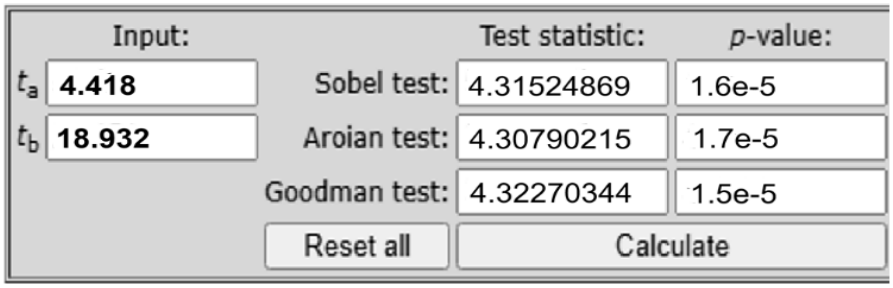

Figure 5. Hypothesis Testing Sobel Test Hypothesis 8

Hypothesis 8: Indirectly, Commitment to Quality of Health Services (X2) has a positive and significant effect on Patient Satisfaction (Z) through Efficiency of Health Services (Y).

The positive and significant effect of SIM-RS implementation effectiveness on health service efficiency confirms that hospital information systems can strengthen the operational capacity of healthcare institutions when they are properly embedded into daily service processes. This finding is consistent with the broader literature on digital transformation in healthcare, which argues that digital technologies generate value not simply because they are adopted, but because they reorganize information flow, decision making, coordination, and service execution (Kraus et al., 2021). In the context of Ibnu Sina Hospital Makassar, the very good assessment of SIM-RS effectiveness suggests that the system has supported the reliability and stability of hospital operations. This means that service units are likely able to access information more easily, reduce unnecessary manual procedures, and support more accurate administrative and clinical processes. Such a finding is also consistent with Menachemi and Collum (2011), who explained that electronic health systems can produce organizational benefits through improved data availability, efficiency, and coordination, although these benefits depend heavily on implementation quality.

This result also strengthens the view that the success of hospital digitalization depends on the relationship between system quality and organizational use. DeLone and McLean's information system success model emphasizes that system quality, information quality, and service quality shape system use, user satisfaction, and net benefits (DeLone & McLean, 2003). The finding of this study follows that logic because SIM-RS effectiveness contributes to efficiency only when the system is perceived as useful, reliable, and supportive of service work. In hospital settings, efficiency is not limited to saving time. It also includes better patient registration, faster access to records, improved communication among departments, reduced duplication of work, and more accountable resource use. Nguyen et al. (2014) similarly found that electronic health record implementation can improve healthcare performance, but its impact is shaped by contingency factors such as workflow alignment, staff acceptance, infrastructure readiness, and institutional capacity.

However, this finding should not be interpreted as evidence that the hospital has already achieved complete digital maturity. The preliminary data in the article show that some staff still lacked adequate technical training, some respondents identified hardware and network limitations, and some staff felt that quality evaluations were not conducted regularly . These points are important because many studies warn that digital health systems may fail to produce expected benefits when organizational readiness is weak. Cresswell and Sheikh (2013) argued that the implementation of health information technology is often constrained by organizational, professional, and workflow related factors. Brommeyer et al. (2024) also emphasized that digital health transformation requires strong leadership, staff engagement, governance, and sustained organizational investment. Thus, the positive result in this study should be read as encouraging, but it also points to the need for continuous strengthening of technical capacity and infrastructure support.

The positive and significant effect of commitment to healthcare service quality on health service efficiency shows that efficiency in hospitals is not produced by technology alone. A

hospital may have a functioning digital system, but without disciplined staff, procedural consistency, service accountability, and a culture of quality, the system may not generate meaningful operational improvement. This finding is important because the study positions quality commitment as an organizational variable rather than a purely technical variable. Quality commitment reflects the willingness of medical staff, administrative officers, and management to follow service standards, maintain accuracy, respond to patient needs, and continuously improve service processes. In this sense, quality commitment creates the behavioral and cultural conditions that allow SIM-RS to function effectively.

This finding is aligned with the argument that healthcare quality is shaped by systems, people, and organizational culture. Kruk et al. (2018) argued that high quality health systems require more than service availability because they must also produce competent care, positive user experience, and continuous improvement. In the present study, commitment to quality appears to support efficiency by encouraging adherence to standard operating procedures and reducing inconsistencies in service delivery. When staff members are committed to quality, they are more likely to record data properly, use the system responsibly, follow established workflows, and coordinate with other units. This is why quality commitment can strengthen efficiency even when digital systems are already in place. The finding also supports Carayon et al. (2014), who explained that healthcare quality and patient safety depend on the interaction between people, tasks, tools, organization, and environment.

The finding that health service efficiency has a positive and significant effect on patient satisfaction is also highly relevant to hospital service management. Patients often evaluate hospital service not only through clinical outcomes, but also through waiting time, administrative clarity, staff responsiveness, service flow, information accuracy, and the emotional quality of interaction with healthcare workers. The descriptive result of this study shows that patient satisfaction received the highest average score among the studied variables . This suggests that patients at Ibnu Sina Hospital Makassar perceived the service experience positively, especially in relation to friendliness, attention, and the human touch provided by medical personnel. This result is consistent with Goldzweig et al. (2013), who found that digital health tools can contribute to satisfaction and efficiency when they improve access, communication, and service experience.

The study's finding that waiting time remained one of the lowest indicators of efficiency deserves serious attention. This means that while the overall efficiency score is very good, patient flow and queue management still require improvement. This is important because waiting time is one of the most visible aspects of hospital efficiency from the patient perspective. A technically strong SIM-RS may not fully improve satisfaction if patients still experience delays in registration, consultation, pharmacy service, laboratory processes, or inpatient administration. Campanella et al. (2016) noted that electronic health records can improve quality and efficiency, but their benefits are not automatic and depend on how they are integrated into clinical and administrative workflows. Therefore, the hospital should not only maintain the SIM-RS system but also use system data to identify bottlenecks and redesign service flow.

The direct positive effect of SIM-RS implementation effectiveness on patient satisfaction indicates that digital systems can influence patient experience even when patients do not directly operate the system. Patients may not see the technical processes inside SIM-RS, but they experience its effects through faster service, more accurate information, reduced administrative confusion, and better continuity of care. This finding supports the argument that hospital information systems function as patient experience infrastructure. A well functioning SIM-RS helps staff retrieve patient data, coordinate service processes, and reduce avoidable errors. Stoumpos et al. (2023) explained that digital transformation in healthcare affects not only internal efficiency but also service accessibility, patient communication, and the quality of healthcare delivery. Therefore, the direct effect found in this study is reasonable because SIM-RS shapes the service environment through which patients form their satisfaction.

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The direct positive effect of commitment to healthcare service quality on patient satisfaction further confirms that patient satisfaction is strongly influenced by human and organizational dimensions of care. Even in a digitally supported hospital, patients still value empathy, courtesy, responsiveness, clarity, and trust. The high patient satisfaction score in this study suggests that the hospital's quality commitment is not only reflected in procedures but also in the way health workers interact with patients. This finding is important because digital transformation should not reduce healthcare into administrative speed alone. It should support more humane, responsive, and reliable care. Kruk et al. (2018) argued that patient experience is a central dimension of healthcare quality, while Carayon et al. (2014) emphasized that better systems should support people in delivering safer and more effective care. In this study, quality commitment appears to translate into patient satisfaction because it strengthens both procedural reliability and interpersonal service.

The mediation findings provide the most important theoretical contribution of this study. The Sobel test indicates that health service efficiency mediates the effect of SIM-RS implementation effectiveness on patient satisfaction and also mediates the effect of commitment to healthcare service quality on patient satisfaction . This means that SIM-RS and quality commitment do not only influence satisfaction directly. They also influence satisfaction indirectly by first improving the efficiency of health services. This finding is important because it explains the mechanism through which hospital management practices affect patients. Technology and quality commitment become meaningful to patients when they result in faster, more coordinated, more accurate, and less burdensome services.

This mediation result is consistent with the logic of digital health transformation literature. Kraus et al. (2021) argued that digital transformation creates value when technology changes organizational processes and stakeholder experience. Brommeyer et al. (2024) similarly showed that digital transformation benefits depend on organizational factors that allow digital systems to be translated into practical improvements. In this study, health service efficiency is the operational bridge between internal hospital capacity and external patient satisfaction. Internally, efficiency reflects better resource use, smoother workflow, and improved coordination. Externally, patients experience efficiency as shorter delays, clearer procedures, better communication, and greater confidence in hospital service. Therefore, the mediating role of efficiency strengthens the argument that SIM-RS implementation and quality commitment should be evaluated not only by their existence, but by their ability to improve real service processes.

The study shows that the improvement of patient satisfaction at Ibnu Sina Hospital Makassar is shaped by a combination of digital effectiveness, quality commitment, and service efficiency. The findings support the view that SIM-RS should not be treated merely as a mandatory administrative system. It should be managed as a strategic tool for improving hospital performance. At the same time, the commitment to healthcare service quality should not remain at the level of formal compliance. It must be continuously practiced through staff discipline, routine evaluation, patient centered communication, and service improvement. The hospital should therefore strengthen technical training, improve hardware and network infrastructure, institutionalize quality evaluation, and use SIM-RS data to monitor waiting time and service bottlenecks. By doing so, the hospital can ensure that digital transformation produces not only better internal management but also more satisfying patient experiences.

CONCLUSION

This study concludes that the effectiveness of SIM-RS implementation, commitment to healthcare service quality, health service efficiency, and patient satisfaction at Ibnu Sina Hospital Makassar are generally perceived in the very good category. These findings indicate that the hospital has developed a relatively strong foundation in digital service management, procedural commitment, resource optimization, and patient oriented care. However, the descriptive results also show that several aspects still require improvement, particularly technical training for staff,

infrastructure readiness, routine quality evaluation, and service waiting time. The verification analysis confirms that SIM-RS implementation effectiveness and commitment to healthcare service quality have positive and significant effects on health service efficiency. Health service efficiency also has a positive and significant effect on patient satisfaction. Furthermore, SIM-RS implementation effectiveness and commitment to healthcare service quality directly influence patient satisfaction, while health service efficiency acts as a mediating variable in these relationships. This means that digital systems and quality commitment contribute more strongly to patient satisfaction when they are translated into faster, more coordinated, and more efficient service processes. The success of SIM-RS at Ibnu Sina Hospital Makassar should not be understood merely as the availability of a hospital information system, but as the ability of the system to support efficient and patient centered service delivery. Strengthening staff capacity, improving supporting infrastructure, maintaining consistent quality evaluation, and reducing waiting time are necessary steps to ensure that digital transformation produces sustainable improvements in hospital performance and patient satisfaction.

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