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Analysis of electronic medical record acceptance among inpatient registration staff using the technology acceptance model at RS PKU Muhammadiyah Gombong

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ABSTRACT

The adoption of Electronic Medical Records (EMR) has become an essential transformation in healthcare to enhance service efficiency and data accuracy. However, the successful implementation of EMR significantly depends on user acceptance, particularly among hospital administrative staff. This study aimed to evaluate EMR adoption at RS PKU Muhammadiyah Gombong using the Technology Acceptance Model (TAM), focusing on perceived usefulness (PU), perceived ease of use (PEOU), and behavioral intention (BI). A qualitative descriptive approach was employed through structured interviews, direct observations, and document analysis. The results showed that 75% of staff acknowledged improved efficiency and accuracy, yet 30% experienced workflow disruptions due to technical issues. Additionally, 60% found the system easy to use after training, but 25% struggled with document uploads. Major challenges included system downtime, connectivity issues, and storage limitations, with 50% of staff reporting these barriers. Training deficiencies were noted by 20% of respondents, highlighting the need for continuous learning initiatives. Management support played a vital role in implementation success, yet ongoing assistance remained necessary. Addressing technical constraints, refining training programs, and strengthening managerial engagement are crucial for optimizing EMR adoption.

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INTRODUCTION

The digital transformation in the healthcare sector has become a crucial necessity to enhance the efficiency and quality of hospital services (Wulandari, Novriyanti, Purwadhi, & Widjaja, 2025)(Nadiyah & Prayoga, 2024). One of the essential aspects of this transformation is the implementation of Electronic Medical Records (EMR), which aims to replace manual documentation systems with more integrated digital solutions (Sylvia Anjani, Maulana Tomy Abiyasa, & PK, 2023)(Raharjo, Sukmawati, Sari, & Sevtiyani, 2025). Previous studies indicate that

EMR implementation can improve hospital administrative efficiency and accelerate patient information access (Khairul & Abidin, 2024)(Athira & Sampetoding, 2024). However, the success of EMR implementation significantly depends on user acceptance of the system. The Technology Acceptance Model (TAM) is widely used to analyze the factors influencing the acceptance of new systems, including in healthcare services (Pamungkas, Nugroho, & Sulistyo, 2020)(Davis, 1989).

RS PKU Muhammadiyah Gombong has been transitioning to EMR since 2024 and currently operates a hybrid system combining manual and digital documentation. The hospital has been gradually developing the EMR system based on each unit's needs. According to the hospital's inpatient visit records, 2564 inpatients were registered in January 2024, and 2190 in February 2024. However, not all patient records have been successfully processed through the EMR system due to various issues, including incomplete digital signatures, incorrect document formats, and unstable internet connectivity (Arie, 2023)(Hildawati et al., 2024).

Given these challenges, an in-depth study is required to evaluate the acceptance of the EMR system among administrative staff in the inpatient registration unit (Rusdiana & Sanjaya, 2024)(Irawan & RMIK, 2024). This study employs the TAM framework to analyze the factors influencing user acceptance, particularly in terms of Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioral Intention (BI). The findings of this study are expected to provide recommendations to enhance EMR implementation, accelerate digitalization in hospital administration, and optimize the system in supporting technology-based healthcare services (Noor & Sitorus, n.d.)(Nurfitria, Rania, & Rahmadiani, 2022).

RESEARCH METHOD

Research Design

The study follows an exploratory case study design, focusing on user perceptions of EMR implementation in RS PKU Muhammadiyah Gombong (Rahmawati & Putri, 2024)(Silitonga, n.d.). The Technology Acceptance Model (TAM) is used to assess the factors influencing acceptance, such as Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioral Intention (BI). Data collection is conducted through structured interviews, direct observation, and document analysis (Daruhadi & Sopiati, 2024)(Fadilla & Wulandari, 2023).

Research Procedure

The research procedure consists of three primary phases: data collection, data processing, and analysis. The workflow of the study is illustrated in Figure 1.

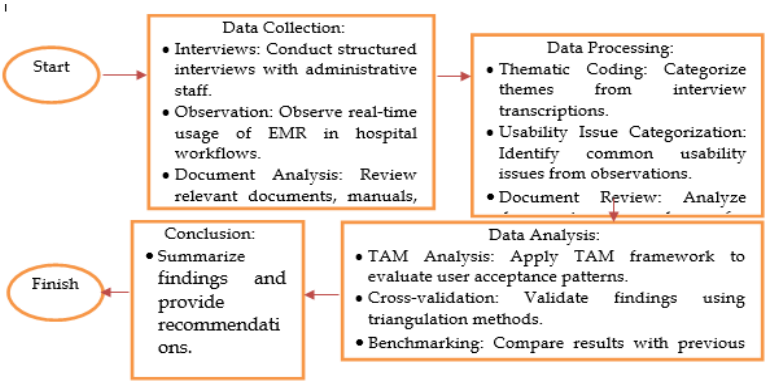

Figure 1. Research workflow for EMR acceptance study

Based on Figure 1 above, the explanation of the flow is as follows:

Data Collection

Interviews: Conducted with 24 inpatient registration staff to gather insights on their experiences and perceptions regarding the EMR system. Observation: Directly observing staff interactions with the EMR system to identify challenges in usability and workflow efficiency. Document Analysis: Reviewing hospital policies, system manuals, and error logs to understand the technical and administrative challenges.

Data Processing

Transcription and coding of interview responses using thematic analysis. Categorization of observational findings based on usability issues. Extraction of key themes from document analysis.

Data Analysis

Application of TAM constructs to identify patterns in user acceptance. Cross-validation of interview, observation, and document data for reliability. Comparison with previous EMR implementation studies for benchmarking.

Data Acquisition and Testing

To ensure accuracy and reliability, data acquisition follows a structured protocol. The collected data is validated using triangulation methods, combining qualitative insights with documented hospital records. The performance of the EMR system is assessed based on error rates, system response times, and user satisfaction, as shown in Table 1.

Table 1. EMR system performance indicators

Variable	Error Rate (%)	Response Time (Seconds)	User Satisfaction (1-5)
Data Entry Accuracy	5.2	3.1	4.2
Document Upload Issues	7.8	4.5	3.8
System Downtime	3.4	N/A	4.5

This structured methodology ensures the study's findings are based on scientifically accepted research principles, providing valuable insights for improving EMR implementation in hospital settings.

RESULTS AND DISCUSSIONS

The study found that the adoption of the EMR system among inpatient registration staff at RS PKU Muhammadiyah Gombong was influenced by several key factors. The first factor, perceived usefulness, revealed that 75% of staff acknowledged that EMR improved efficiency and data accuracy. This finding aligns with previous studies which found that EMR adoption enhances clinical workflows and reduces documentation errors (Landress, 2024)(Listautin, Nengsi, & Irwandi, 2025).

However, technical issues such as system downtime and errors were still experienced by 30% of users, causing workflow disruptions. Similar findings were reported by Alotaibi et al. (2020), where frequent system crashes led to reduced user satisfaction. Furthermore, perceived ease of use was another critical factor, with 60% of staff finding the system easy to use after training, while 25% struggled with document upload functions (Nguyen et al., 2020). Studies by Sharma et al. (2023) emphasized that usability issues, including file format mismatches and slow loading times, are common obstacles in EMR adoption.

Technical barriers were among the primary concerns, as reported by 50% of the staff. System downtimes and connectivity problems led to delays in the registration process. Moreover, limitations in system storage and issues with file format compatibility caused inefficiencies in the workflow. Document analysis revealed that around 40% of scanned patient records required re-uploading due to formatting errors or missing signatures. According to, system integration

challenges between legacy paper-based records and EMR contribute to user dissatisfaction (Rizqulloh & Putra, 2024)(Darmiani et al., 2024).

Training needs were highlighted as another important factor, with 20% of respondents expressing a lack of confidence in fully utilizing EMR features. The hospital's current training program was deemed helpful, but additional refresher courses and troubleshooting guides were suggested to enhance system adoption. Similar research by Park & Kim (2023) found that continuous training and hands-on practice significantly increase EMR proficiency and reduce resistance among healthcare workers.

Management support played a crucial role in EMR implementation, as hospital administrators provided initial training and policy enforcement. However, ongoing support was necessary, particularly in resolving technical issues and refining workflow integration. Benchmarking with other hospitals using EMR demonstrated that institutions with strong managerial support had higher adoption rates and smoother transition processes (Wianti & Kep, n.d.)(Aliyah, 2023).

Table 2. Key findings in EMR adoption at RS PKU Muhammadiyah Gombong

Factor	Findings	Impact
Perceived Usefulness	75% staff believe EMR improves efficiency and accuracy	Increases efficiency, but technical challenges remain
Perceived Ease of Use	60% find EMR easy to use after training, 25% struggle with document uploads	Requires additional support for technical issues
Technical Barriers	50% report system errors and internet instability	Causes delays and data inconsistencies
Training Needs	20% lack confidence in using EMR	Additional training and refresher courses required
Management Support	Initial training provided, but ongoing support needed	Better managerial engagement can enhance adoption

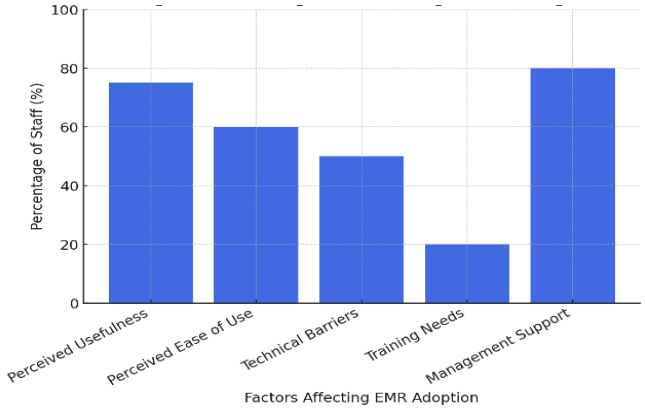

Figure 2. Percentage of staff facing EMR challenges

Based on these findings, several recommendations were formulated. Firstly, the hospital should focus on improving system stability and ensuring reliable internet connectivity. Enhancing the system's storage capacity and resolving document upload issues will also be crucial in reducing inefficiencies. Secondly, structured training sessions should be provided periodically, targeting both new and existing users. Lastly, the hospital management should strengthen its support mechanisms by offering troubleshooting assistance and policy refinements to streamline EMR adoption.

In conclusion, while the EMR system has demonstrated significant benefits in administrative efficiency, several challenges persist. Addressing technical barriers, refining

training programs, and reinforcing managerial support will be essential in ensuring the long-term success of EMR adoption at RS PKU Muhammadiyah Gombong.

CONCLUSION

This study has successfully identified key factors influencing the acceptance of the EMR system among inpatient registration staff at RS PKU Muhammadiyah Gombong. As expected in the introduction, the study revealed that perceived usefulness and perceived ease of use significantly impacted the adoption of EMR, aligning with the Technology Acceptance Model (TAM). While the system has improved efficiency and data accuracy, challenges such as technical barriers, training needs, and management support gaps remain prevalent.

The findings suggest that enhancing system stability, improving network infrastructure, and refining training programs are essential steps to optimize EMR adoption. Addressing technical issues related to system downtimes, file uploads, and storage capacity will help in ensuring a seamless user experience. Additionally, ongoing managerial support, including troubleshooting assistance and user feedback mechanisms, can further facilitate system integration and usability.

Future research should explore the long-term impact of EMR adoption on hospital efficiency and patient care outcomes. Further studies could also investigate user adaptation strategies and comparative analysis with other hospitals that have fully transitioned to EMR. With continuous improvement and strategic implementation, the EMR system at RS PKU Muhammadiyah Gombong has the potential to enhance hospital administration and contribute to better healthcare delivery.

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