

Understanding Nurse Behavior And The Factors That Influence It In Receiving Electronic Medical Records

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Abstrak . Background: The implementation of Electronic Medical Records (RME) in healthcare facilities still faces a high failure rate, with more than 50% of RME systems not being used optimally. Sawah Besar Hospital, which began implementing RME in August 2023, recorded 1,500 cases of errors in a year, with 60% of system errors and 30% of user errors. This study aims to analyze the factors that affect the intention of using RME by nurses by integrating the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB). This quantitative research uses a census method by involving 70 nurses as respondents. Data were collected through questionnaires and analyzed using path analysis. The results showed that perceived ease of use, perceived usefulness, subjective norm, perceived behavioral control, and attitude toward use simultaneously affected the intention to use RME ($F=77.917$, $p<0.05$). Attitude toward use acts as a mediator in the relationship between perceived ease of use and perceived usefulness to the intention to use RME. These findings have important implications for hospital management in optimizing the implementation of RME through improving technical aspects and forming positive user attitudes.

Keywords: Electronic Medical Records, Technology Acceptance Model, Theory of Planned Behavior,

1. INTRODUCTION

In the era of digitalization of the health system, Electronic Medical Records (EMR) has become one of the important innovations to improve the efficiency and accuracy of patient information recording. However, although many health facilities have adopted EMR, the failure rate of its implementation is still high. Studies show that more than 50% of EMR systems fail or are not used optimally. This failure not only hinders the goal of efficiency, but can also have serious impacts on patient safety and the sustainability of hospital management.

The purpose of this study was to analyze the factors that influence nurses' intention to use EMR, focusing on the variables of perceived ease of use, perceived usefulness, subjective norm, perceived behavioral control, and attitude toward use. This study combines the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) approaches to provide a more comprehensive understanding of technology adoption in the health context.

The motivation for this study came from the high number of errors in the use of EMR at RSUD Sawah Besar, which recorded 1,500 error cases in one year, as well as the results of an initial survey that showed low confidence and comfort of nurses in using this system. These findings indicate that the problem in adopting EMR is not solely a matter of

Received : 19 February, 2025;
Revised : 16 March, 2025;
Accepted : 19 April, 2025;
Published : 02 May , 2025

Curr. Ver.: 24 April, 2025



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technology, but is closely related to user behavior and attitude factors. Understanding these factors is important for formulating more effective and sustainable implementation strategies. This study uses a quantitative approach with a survey method involving nurses at RSUD Sawah Besar. The data collected will be analyzed to examine the direct and indirect influence of the factors studied on the intention to use RME, as well as to explore the mediating role of attitude toward use.

Through this study, it is expected to gain deeper insight into the key factors that support or hinder the acceptance of RME technology. The findings of this study will not only enrich the development of technology acceptance theory in the health sector, but also provide practical implications for hospital management to increase the level of adoption, effectiveness of use, and success of RME implementation in the future.

2. LITERATURE REVIEW

Electronic Medical Records (EMDR) is a digital transformation in healthcare documentation that serves as a secure repository of patient health information and facilitates real-time clinical decision-making. The Healthcare Information and Management Systems Society (HIMSS) defines an EMR as a patient-centered information resource that enables real-time access to patient health data to support clinical decision-making. EMR encompasses multiple aspects of care, such as medical history, diagnosis, treatment plan, laboratory results, and radiology images. Several other definitions emphasize that an EMR is a computer-based system that brings together patient health data in an integrated manner for access at the point of care.

This study uses a combined theoretical framework, namely the Technology Acceptance Model (TAM) and the Theory of Planned Behavior (TPB), to understand the factors that influence nurses' behavioral intentions in adopting RME. TAM focuses on the extent to which perceived usefulness and perceived ease of use shape attitudes toward technology use. Meanwhile, TPB adds an element of perceived behavioral control to capture external factors that may influence technology adoption. The integration of these two models is expected to provide a more comprehensive understanding of technology adoption behavior in nursing.

In the context of this theoretical framework, several key constructs reviewed include behavioral intention to use, attitude toward use, perceived usefulness, perceived ease of use, subjective norms, and perceived behavioral control. Behavioral intention is divided into three dimensions, namely desire to use, plan to continue using, and urge to recommend. Meanwhile, attitude toward use includes cognitive, affective, and behavioral aspects. Perceived usefulness and ease of use are important determinants in forming a positive attitude toward using RME.

In addition to behavioral and technological aspects, the adoption of RME in nursing practice in Indonesia is also influenced by national regulations, as stated in the Decree of the

Minister of Health of the Republic of Indonesia No. HK.01.07/MENKES/425/2020. This regulation establishes electronic-based standards for diagnosis (SDKI), intervention (SIKI), and nursing outcomes (SLKI), which must be integrated into the nursing process. These standards aim to improve the consistency, quality, and security of nursing care documentation, as well as facilitate the evaluation of health service outcomes.

This literature review demonstrates the importance of understanding both technological and behavioral factors in adopting RME in nursing settings. By integrating TAM and TPB, this study not only summarizes but also critically evaluates previous findings, identifies gaps, and suggests future research directions. Critical evaluation of previous literature is essential to build a strong theoretical foundation, including considering the limitations of the model and the context of its application. This systematic approach is expected to enrich the understanding of factors that influence the success of RME implementation in nursing practice.

3. RESEARCH METHODS

This study uses a quantitative approach with a causality research type to analyze the factors that influence the intention to use Electronic Medical Records (EMDR) among nurses. This approach was chosen because it is able to test the causal relationship between independent variables (perceived ease of use, perceived usefulness, subjective norms, and perceived behavioral control), intervening variables (attitude toward use), and dependent variables (intention to use EMR). The study was conducted at Sawah Besar Regional Hospital, Central Jakarta, in August–November 2024. The study population was all nurses at Sawah Besar Regional Hospital, totaling 70 people, with a sampling technique using the census method so that the entire population was involved as respondents.

The research instrument was developed from constructs that have been validated in previous studies to ensure the validity and reliability of the data. The data obtained were analyzed to test the established research model. The model describes the relationship between technological and behavioral factors in predicting the intention to use RME by nurses.

4. RESEARCH RESULTS

A. Demographic data

No.	Demografi	Kategori	Frekuensi	Persentase (%)
1	Usia	20-30 Tahun	46	65,7
		31-40 Tahun	22	31,4
		> 40 Tahun	2	2,9
Total			70	100
2	Jenis Kelamin	Laki-Laki	3	4,3
		Perempuan	67	95,7
Total			70	100
3	Pendidikan	D3	64	91,4
		S1/Ners	6	8,6
Total			70	100
4	Lama Kerja	2-3 Tahun	38	54,3
		4-5 Tahun	29	41,4
		> 5 Tahun	3	4,3
Total			70	100

Based on table above, The results of the analysis showed the dominance of nurses aged 20-30 years (65.7%), reflecting a relatively young workforce. The majority of respondents were women (95.7%), with education dominated by D3 (91.4%). In terms of work experience, 54.3% had 2-3 years of work experience, indicating that most nurses have relatively new work experience.

B. Path Analysis Results

The coefficient of determination (Adjusted R Square) is 0.848, which indicates that Perceived Ease of Use, Perceived Usefulness, Subjective Norm, Perceived Behavioral Control, and Attitude towards Use explain 84.8% of the variance in EMR usage intention, while 15.2% is explained by external factors.

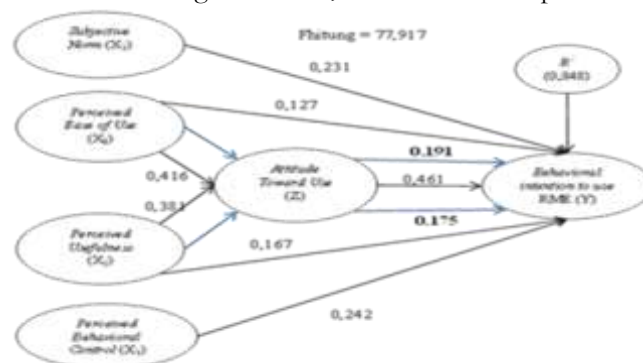


Figure 1. About the Path Analysis Result Model

Hypothesis Test Results

Uji F (Simultaneous Hypothesis)

The results of the F test showed that the calculated F of 77.917 was greater than the F table of 2.51 with a significance level of 0.000 (<0.05), which confirmed the simultaneous significant influence of all independent variables on the intention to use Electronic Medical Records (EMR). Further t-test revealed that perceived ease of use significantly influenced attitudes toward using EMR ($\beta = 0.416$; $t = 5.644$; $p < 0.05$) and perceived usefulness also significantly influenced attitudes toward using EMR ($\beta = 0.381$; $t = 4.505$; $p < 0.05$). In addition, perceived ease of use significantly influenced the intention to use EMR ($\beta = 0.127$; $t = 2.064$; $p < 0.05$), as did perceived usefulness ($\beta = 0.167$; $t = 2.459$; $p < 0.05$). Attitude towards use was shown to have a significant influence on EMR usage intention ($\beta = 0.461$; t

= 5.121; $p < 0.05$). In addition, subjective norms ($\beta = 0.231$; $t = 2.267$; $p < 0.05$) and perceived behavioral control ($\beta = 0.242$; $t = 2.399$; $p < 0.05$) also showed a significant influence on EMR usage intention.

Mediation Analysis

The analysis shows that attitude toward use mediates the relationship between perceived ease of use and perceived usefulness with EMR usage intention. The indirect effect of perceived ease of use through attitude (0.191) is greater than its direct effect (0.127). Similarly, the indirect effect of perceived usefulness through attitude (0.175) exceeds its direct effect (0.167)

5. DISCUSSION

This study aims to analyze the factors that influence the intention to use Electronic Medical Records (EMR) among nurses by integrating the Technology Acceptance Model (TAM) and Theory of Planned Behavior (TPB) frameworks. The focus of the study is reflected in the influence of perceived ease of use, perceived usefulness, subjective norms, and perceived behavioral control on attitudes towards use and intention to use EMR.

The main findings of the study indicate that all independent variables have a significant influence on the intention to use RME simultaneously. Partially, the results of the analysis revealed that perceived ease of use and perceived usefulness significantly affect nurses' attitudes towards using RME, which then act as mediators in increasing the intention to use. These results are in line with previous theories and studies that emphasize the critical role of both factors in technology adoption.

This study strengthens the contribution of TAM and TPB by proving that attitudes, subjective norms, and perceived behavioral control also have a positive influence on intention to use. The results of the study support previous findings (e.g. Davis et al., 1989; Ajzen, 1991) which state that perceived ease and usefulness and social support significantly affect the adoption of information systems. This study also reveals a gap in the perception of ease of use, indicating usability challenges even though the system has been running well.

Managerial implications of these findings suggest that to increase RME adoption, healthcare organizations need to prioritize improving system interface design, providing comprehensive training, and developing strong social support. Improving the perception of usefulness and ease of use can be done through competency development programs, strengthening communication of EMR benefits, and support from management in the change process. This is very important so that nurses can internalize positive attitudes towards the technology they use.

Although the results of this study provide a comprehensive picture of the factors that influence RME adoption intentions, there are several limitations, such as the use of self-report methods that are prone to bias and regression analysis that may not capture the full

complexity of the relationships between variables. Future studies are recommended to use more complex analysis methods, such as Structural Equation Modeling (SEM), and expand data collection through direct observation to increase internal and external validity. Future research opportunities can also include exploring other contextual factors that moderate the relationship between TAM and TPB variables in technology adoption in various healthcare settings.

6. CONCLUSION

This study concludes that the intention to use Electronic Medical Records (EMR) among nurses at Sawah Besar Regional Hospital is significantly influenced by perceived ease of use, perceived usefulness, and attitude toward use as the strongest mediators. Although the intention to use is relatively high, there are still obstacles in the aspects of ease of use and perceived usefulness. The research model is able to explain 84.8% of the variance in the intention to use EMR, confirming that the success of implementation does not only depend on technology, but also on user behavior and attitudes. Based on these findings, it is recommended to develop attitude-based training, simplify the system interface, form a technical support team, reward system, and routine evaluation to improve the use of EMR in a sustainable manner.

7. RESEARCH LIMITATIONS

This study has several limitations that need to be acknowledged. First, the use of self-report instruments through questionnaires can cause perception bias, where respondents may give more positive answers than their actual conditions. This has the potential to affect the accuracy of the results in measuring ease of use, usefulness, attitudes, and intentions to use RME.

Second, the design of this study is cross-sectional, so it is unable to capture changes in attitudes and intentions to use over time. In addition, the research model only focuses on internal factors based on the integration of TAM and TPB, without considering external factors such as organizational support and technological readiness, which may also influence the adoption of RME.

Despite these limitations, researchers have tried to minimize them through instrument validation and representative sampling. Recognition of these limitations is expected to provide a more appropriate context in interpreting the results, as well as being a basis for developing more comprehensive further research.

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