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### Author for correspondence:

Kristian Momongan

E-mail: [kristian.momongan@student.umn.ac.id](mailto:kristian.momongan@student.umn.ac.id)

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# The Impact of Functional, Psychological, and Context-Specific Barriers on Resistance to the Use of Electronic Medical Records in Banten Province

<sup>1</sup>Kristian Momongan, <sup>2</sup>Florentina Kurniasari T., <sup>3</sup>Amanda Setiorini

<sup>1,2,3</sup>Multimedia Nusantara University, Indonesia

In the midst of technological advances in the world of healthcare, it is inevitable that there is a rejection of the Hospital Information System, especially Electronic Medical Record (EMR). This is illustrated by the large number of medical personnel who have not maximized in implementing EMR. This study aims to see the barriers that affect the resistance of medical personnel in using EMR. The method used was quantitative by conducting a survey of 250 respondents of medical personnel in type B, C, and D hospitals in Banten area guided by the innovation resistances theory. The results of this study found that functional barriers, psychological barriers, and also context-specific barriers affect resistance to EMR utilization. It's just that the effect is obvious when the three obstacles are combined.

# 1. Introduction

Digital transformation in the healthcare sector is a crucial aspect of the hospital industry. Innovations in information technology (IT) such as telemedicine, big data, artificial intelligence, and technology-based medical devices have significantly enhanced the efficiency of health services, especially in rural and remote areas of Indonesia (Suryanto et al., 2017; Mahajan et al., 2023). Despite these advancements, the implementation of IT in healthcare faces several challenges, including issues related to data security, technology adaptation, and regulatory compliance (Usman & Qamar, 2020; Ahmed et al., 2020). One of the key IT innovations in healthcare is the Electronic Medical Record (EMR), which facilitates the electronic storage of patient information and improves the overall quality of healthcare services. However, the adoption of EMR in developing countries, including Indonesia, still encounters many obstacles (Ahmed et al., 2020; D. J. P. K. Ministry of Health, 2023).

This study aims to explore the influence of functional, psychological, and context-specific barriers on the resistance to using EMR among medical personnel in Banten Province. It seeks to understand whether functional barriers impact the resistance of medical personnel in utilizing EMR, and whether psychological barriers also play a role in this resistance. Additionally, the study examines the effect of context-specific barriers on the resistance to EMR and investigates the simultaneous influence of all three types of barriers on medical personnel's resistance. The research also aims to determine if psychological barriers have a positive effect on functional and context-specific barriers.

The objectives of this research are to identify the effects of functional barriers on the resistance of medical personnel to using EMR, to assess the impact of psychological barriers, and to understand the influence of context-specific barriers. Furthermore, the study aims to analyze the combined effect of functional, psychological, and context-specific barriers on resistance to EMR. It also seeks to determine the positive influence of psychological barriers on both functional and context-specific barriers.

This research is expected to make significant academic contributions to the study of technology management in the healthcare sector, particularly in relation to innovation resistance theory. On a practical level, the results of this study can provide valuable insights

for healthcare institutions in tackling the challenges of digital transformation and EMR adoption. It can help identify effective strategies to overcome barriers to technology adoption, thereby facilitating smoother implementation and utilization of EMR systems in healthcare settings.

## 2. Method

This document details the research methods employed to investigate the factors influencing resistance to Electronic Medical Records (EMR) adoption in Banten Province. The study follows a positivist paradigm, aiming to establish causal relationships through rigorous scientific methods. Utilizing a quantitative approach, it measures variables such as functional, psychological, and context-specific barriers among healthcare providers in type B, C, and D hospitals.

The research focuses on e-health innovations, particularly EMR systems for documenting patient records. The study population comprises medical personnel, including doctors, nurses, midwives, pharmacists, physiotherapists, and nutritionists actively involved in EMR usage. The choice of Banten Province is strategic, considering its demographic dynamics, human development indices, responses to pandemics, health risk factors, and water accessibility challenges.

Sampling techniques employ stratified sampling to ensure representation across hospital types and roles, aligned with Structural Equation Modeling (SEM) requirements. Data collection involved distributing questionnaires with Likert scale-based items to gauge respondents' perceptions and experiences related to functional, psychological, and context-specific barriers.

Data analysis utilizes IBM SPSS Statistics for preliminary tests and SmartPLS 4.0 for main analysis. Techniques include descriptive statistics to summarize responses, measurement model analysis to validate questionnaire reliability and validity, and structural model analysis via SEM-PLS to test hypotheses on relationships between variables. Key analyses include determination coefficients ( $R^2$ ), path coefficients, mediation tests, and assessments for multicollinearity.

By employing these methods, the study aims to gain deeper insights into the challenges hindering EMR adoption in Banten Province. The findings are expected to inform strategies aimed at overcoming these barriers and promoting more effective integration of health technologies for improved patient care and operational efficiencies in healthcare settings.

### 3. Result and Discussion

The structural model analysis using SEM-PLS provided a comprehensive examination of the interrelationships among variables to understand resistance towards adopting Electronic Medical Records (EMRs) in healthcare contexts. The findings highlighted that functional barriers play a crucial role in influencing resistance. These barriers encompass various challenges such as usability issues, perceptions of the EMR's value in clinical workflows, and concerns about potential risks associated with its implementation.

Functional barriers, as evidenced by the analysis, significantly affect healthcare professionals' resistance to EMR adoption. These barriers often stem from practical difficulties in using the system effectively, concerns about disruptions in workflow efficiency, and uncertainties regarding the benefits versus drawbacks of EMR integration.

In contrast, psychological barriers, which include factors like resistance to change, fear of technology, and skepticism towards new practices, showed a lesser impact on resistance. Similarly, context-specific barriers related to socio-demographic factors or environmental constraints were found to have minimal influence on EMR resistance among healthcare providers.

The study also addressed methodological concerns such as multicollinearity, confirming that each variable provided distinct and valuable insights without significant redundancy or overlap in explanatory power.

Strategies to mitigate these barriers were discussed, emphasizing the importance of targeted training programs, ongoing technical support, customization of EMR systems to fit specific healthcare environments, and effective communication campaigns aimed at demonstrating the tangible benefits of EMR adoption.

Overall, the research underscores the complex nature of resistance to EMR adoption, highlighting the multifaceted influences of functional, psychological, and context-specific barriers. It suggests that interventions tailored to address these barriers holistically are

essential for promoting successful EMR implementation and utilization in healthcare settings. Such efforts are crucial for realizing the potential benefits of EMRs in improving patient care, operational efficiency, and healthcare outcomes.

## 4. Conclusion

Chapter V of this document presents the conclusions of the research on the influence of functional, psychological, and context-specific barriers on the resistance to the use of Electronic Medical Records (EMR) in Banten Province, and provides suggestions for overcoming these barriers.

**Conclusion** This study found several important points. First, functional barriers such as difficulty in use, lack of added value, and risk perception related to innovation in the health sector, especially EMR, have a significant influence on the resistance to EMR use. These practical factors determine whether the user will accept or reject the technology.

In contrast, psychological barriers associated with individual images and traditions had no significant influence on resistance to EMR use. This suggests that the user's subjective feelings are not strong enough to inhibit the acceptance of EMR in daily practice by medical personnel. The same applies to context-specific barriers, which include organizational, environmental, self-efficacy, system, and patient engagement issues.

However, the strongest influence on resistance to EMR use occurs when functional, psychological, and context-specific barriers are considered simultaneously. These findings suggest that a combination of different types of barriers can create a combined effect that is strong enough to inhibit the adoption of EMR by medical personnel in hospitals in Banten Province.

This conclusion is in line with the Innovation Resistance Theory put forward by Ram and Seth (1989), which states that resistance to innovation can come from various sources, including functional and psychological barriers. Research by Iyanna (2022) also supports these findings, suggesting that the continued adoption and use of technological innovations such as EMR can be hampered by a variety of factors, especially when these barriers are concomitant. It can be concluded that although hospitals have used large funds and advanced technology,

the implementation of EMR will not be optimally successful if resistance from medical personnel is not detected and addressed. This study can be used by hospitals to measure the performance of EMR use by looking at the resistance of medical personnel in its application.

5.2 Advice To accelerate digital transformation in the health sector, it is important for policymakers to initiate and support progressive policies that strengthen technological infrastructure and facilitate the integration of technological innovations in daily health practices. This policy can include providing incentives for healthcare workers who demonstrate significant progress in implementing EMR, which serves as a reward and motivation for other healthcare workers.

Employee competence is also an important thing that must be considered by hospital management. Adequate and continuous training needs to be provided to improve the skills and confidence of medical personnel in using EMR. This training should cover the technical and practical aspects of EMR, as well as ways to integrate it in patient care. Medical personnel must be involved in the EMR design and implementation process to ensure that the developed system can effectively handle the challenges faced in daily practice.

Technology developers also play an important role in ensuring that the products developed are not only innovative but also user-friendly. Fast and accessible technical support should be an integral part of the existing service to ensure users can easily resolve any issues that arise. Further research can expand the research population to get a broader and more comprehensive picture of the perception of medical personnel towards the use of EMR. Qualitative approaches such as in-depth interviews or case studies can also provide additional insight into functional, psychological, and context-specific barriers encountered in the implementation of EMR.

With the implementation of these suggestions, it is hoped that the barriers identified in the research can be overcome, and the adoption and sustainable use of technological innovations in the health sector can be significantly improved, not only limited to the use of EMRs but also in utilizing technology for patient care more broadly.

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USA%0Avvenkatesh@vvenkatesh.us 1

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