


# Bridging Perception and Practice: How User Attitude Shapes EMR Utility, Convenience, and Self-Efficacy for Greater Adoption

Reka Indrayani<sup>1</sup>, Supriyantoro<sup>2</sup>, Rian Adi Pamungkas<sup>3</sup>

Master of Hospital Administration, Faculty of Health Sciences, Universitas Esa Unggul

Article info	Abstract
<p><b>Article history:</b>            Received: December 31<sup>th</sup>, 2024            Revised: May 05<sup>th</sup>, 2025            Accepted: May 25<sup>th</sup>, 2025</p> <hr/> <p><b>Corresponding author:</b>            Name: Supriyantoro            Address: Jl. Arjuna Utara No.9, Duri            Kepa, Kec. Kb. Jeruk, Kota Jakarta            Barat, Daerah Khusus Ibukota Jakarta            11510            E-mail: <a href="mailto:Supriyantoro@esaunggul.ac.id">Supriyantoro@esaunggul.ac.id</a></p> <hr/> <p>International Journal of Nursing and            Health Services (IJNHS)            Volume 8, Issue 3, June 20<sup>th</sup>, 2025            DOI: 10.35654/ijnhs.v8i3.859            E-ISSN: 2654-6310</p>	<p><b>Background:</b> The implementation of Electronic Medical Records at the Tangerang Regency Hospital has been since September 2023, but in its implementation in November 2023 it has only reached 70.44%, the target set by the hospital is 100%, this is due to the actual use that is not optimal. <b>Objective:</b> The purpose of this study is to analyze the influence of perception of utility, perception of convenience, and self-efficacy on the actual use of electronic medical records through user attitudes as intervening variables in the Outpatient Installation of Tangerang Regency Hospital. <b>Method:</b> A cross-sectional study was applied in this study. The sample in this study totaled 83 with a sampling technique using the total sampling method. Data was obtained through questionnaires. <b>Result:</b> The results of the Path Coefficients hypothesis test, the results of <math>t &gt; 1.96</math> and <math>p &lt; 0.05</math> were obtained. The results of data analysis and direct hypothesis testing found that there was an influence on the perception of utility, perception of convenience, self-efficacy and user attitude towards actual use. Testing the indirect hypothesis found that there was an influence of the perception of utility, perception of convenience, and self-efficacy on actual use with the attitude of the user as a mediator. <b>Conclusion:</b> the attitude mediated the perception of utility, perception convenience, and self-efficacy on improving the actual usage EMR. <b>Recommendation:</b> the management of hospital need to consider all factors to implement the effective EMR.</p> <p><b>Keywords:</b> actual use, user attitude, perceived usefulness, perceived ease of use, self-efficacy</p>
	<p>This is an Open Access article distributed under the terms of the <a href="https://creativecommons.org/licenses/by-nc/4.0/">Creative Commons Attribution-Non-Commercial CC BY-NC 4.0</a></p>

## INTRODUCTION

Medical records are essential and confidential documents that record detailed patient health information, serving as a crucial resource for healthcare providers involved in delivering medical services (1). The rapid advancement of information and communication technology has now permeated nearly all sectors globally, including the healthcare industry. This technological proliferation has facilitated the adoption of health information systems aimed at enhancing the quality and efficiency of healthcare services (2).

In this context, Electronic Medical Records (EMRs) have emerged as a vital component of modern healthcare systems. EMRs are digital repositories that store comprehensive information about a patient's health conditions and the medical services. These records are systematically maintained to ensure accessibility by authorized personnel, thereby supporting more efficient and coordinated care delivery (3).

Electronic Medical Records (EMRs) are highly recommended for implementation in hospitals due to their potential to enhance overall hospital performance, improve the quality of services provided, and increase the efficiency of patient care (4). EMRs offer a wide range of benefits, including accurate and comprehensive data documentation, quicker and more efficient information retrieval, reduced risk of errors in patient data recording, and streamlined communication and collaboration among healthcare professionals (5).

The implementation of RME has become a national priority. The implementation of Electronic Medical Records at the Tangerang Regency Hospital has been since September 2023, but in its implementation in November 2023 it has only reached 70.44%, the target set by the hospital is 100%, this is due to the actual use that is not optimal. In the implementation of the new system, there are obstacles in the adaptation process, due to differences in perception regarding the benefits and ease of use of the new system, doctors who are not used to using the system, feel uncomfortable or not trained in operating the system (6).

Although it provides many conveniences, the implementation of Electronic Medical Records is still not effective because not all health facilities can implement it. Although Electronic Medical Record Systems are designed to support collaboration, their implementation in hospitals can pose barriers if not handled properly (7). The main obstacles in the implementation of EMR are lack of knowledge or experience in using the system and the refusal of staff to use the system (4). Therefore, it is important to consider individual factors (e.g., perceptions, beliefs, attitudes) and organizational/environmental factors (e.g., incentives, technological quality, professional norms) in understanding and overcoming barriers to EMR acceptance (8).

Electronic Medical Record Systems must have an easy-to-use, intuitive user interface that considers the user experience and minimizes barriers to use. Users, in this case doctors, need to be given a good understanding of the system's workflow and features so that doctors can master the system well. Active user participation is very important, using RME in actual is a sign of successful RME implementation. To understand the factors that affect RME acceptance, this study uses the Technology Acceptance Model (TAM) approach introduced by Davis in 1987. This study also modified the TAM model by adding the Self- efficacy variable from the Bandura theory (1977), which is a framework for understanding human behavior, social influences, and learning processes in the context of technology acceptance (8).

The focus of this research is on doctors as users of the EMR system in the outpatient installation of Tangerang Regency Hospital. This selection is based on the fact that doctors are the key to the successful implementation of EMR. Without the support of the user, the system will not be able to run properly, so the huge investment that has been spent by the management will be in vain. The limitation of the study is the use of actual as a dependent variable; perception of utility, perception of convenience, self-efficacy as independent variables; User attitude as an intervening variable

## OBJECTIVE

The study aimed to examine the relationship between perception of utility, perception of convenience, and self-efficacy on the actual use of electronic medical records through user attitudes as intervening variables in the Outpatient Installation of Tangerang Regency Hospital

## METHOD

### Design

The study was carried out by Tangerang Regency Hospital in June 2024, targeting doctors working in the Outpatient Installation as its population. It employed a quantitative research design with a cross-sectional approach. This method was selected to examine the correlation of risk factors through observation and data collection conducted at a single point in time.

### Sample, sample size, & sampling technique

The study involved a total of 83 participants, selected using the total sampling method to ensure all eligible individuals were included. The inclusion criteria such as 1) doctors working in the Outpatient Installation at the Tangerang Regency Hospital during the study period; 2) active service providers during the data collection period. Participants who failed to complete the questionnaire fully or accurately would be excluded in this study.

### Data collection process

Data collection was carried out through the use of structured questionnaires, designed to gather comprehensive information relevant to the research objectives. This approach ensured a thorough assessment of the variables under investigation, enhancing the reliability of the findings. The process would be conducted within one month.

This study aims to determine the influence of Perception of Usefulness (X1), Perception of Convenience (X2), Self-efficacy (X3) on the Actual Use of Electronic Medical Records (Y) with User Attitude (Z) as an

intervening variable. The research instrument used a questionnaire with a Likert scale of 4 points, ranging from 1 (Strongly Disagree) to 4 (Strongly Agree). Number of questionnaire statements 51 statements.

Convergent validity measurement is carried out by looking at the value of the loading factor of each item on the latent variable. The value of the loading factor is said to meet the requirement if it is greater than 0.7. Validity and reliability measurements are also carried out by looking at the Average Variance Extracted (AVE) indicator which has a requirement greater than 0.5.

	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
Actual Usage	0.955	0.962	0.737
Perceived Usefulness	0.951	0.959	0.700
Perceived ease of use	0.937	0.947	0.643
Self-efficacy	0.948	0.954	0.635
User Attitude	0.960	0.966	0.738

### Data Analysis Methods

The analysis of the description of the respondents' answers was carried out to get an overview of the respondents' understanding of the statements in the questionnaire. This picture is obtained from the total frequency of respondents who answered each statement that measured the research variable. This study applied the path analysis with Partial Least Square (PLS) to explain the association between the independent variables with the dependent variables. The classically assumption also was tested to ensure the normally distribution of data.

The Goodness of Fit (GoF) criterion test is used to evaluate the structural model and measurement model. The GoF test is conducted to test the goodness of fit in the structural model or inner model. Inner model assessment means evaluating the relationship between latent constructs through observing the results of the path parameter coefficient estimates and their

significance levels. In this study, the Goodness of Fit (GoF) test of the structural model was evaluated by considering R-square (R2) and Q-square (Q2).

**RESULT**

**Direct effect among variables**

Table 2 described about the direct effect among variables. The results found that there are positive association between the perceived usefulness with attitude user (p-value < .05), and actual use (p-value < .05). The result found that there are positive association between perceived ease of use with attitude user (p-value < .05) and actual use (p-value < .05). Other result found that there are positive association between self-efficacy with attitude user (p-value < .05), and actual use (p-value < .05). Positive association also has been noted between attitude user with actual use (p-value < .05).

the User Attitude (Z) variable model is 0.886, which can be explained by the variables of perception of utility, perception of convenience and self-efficacy of 88.6%, and the remaining 13.4% is obtained by the influence of other variables that are not included in this model.

The Q-Square value (Q2) is one of the tests in looking at the goodness of the structural model, which shows how good the observation value produced by the model and the estimation of its parameters. According to Ghazali & Latan (2015), the Q2 value is 0.02; 0.15; and 0.35 indicates weak, moderate and strong. The Q-Square value for the structural model of this study:

$$Q^2 = 1 - (1 - R1^2) (1 - R2^2)$$

$$= 1 - (1 - 0,881) (1 - 0,886)$$

$$= 1 - ((0,119) (0,134)) = 0,984$$

The calculation of Q-square (Q2) yields a value of 0.984 which is greater than zero, which means that the model has good predictive relevance. A value of Q2 close to 1 indicates that

**Table 2 Direct effect among variables**

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P-values
Association between perceived usefulness with attitude user	0.434	0.443	0.068	6.342	0.000
Association between perceived usefulness with actual use	0.169	0.168	0.076	2.220	0.026
Association between perceived ease of use with attitude user	0.348	0.344	0.084	4.128	0.000
Association between perceived ease of use with actual use	0.205	0.201	0.087	2.345	0.019
Association between self-efficacy with attitude user	0.242	0.237	0.083	2.906	0.004
Association between self-efficacy with actual use	0.271	0.278	0.084	3.248	0.001
Association between attitude user with actual use	0.369	0.366	0.127	2.898	0.004

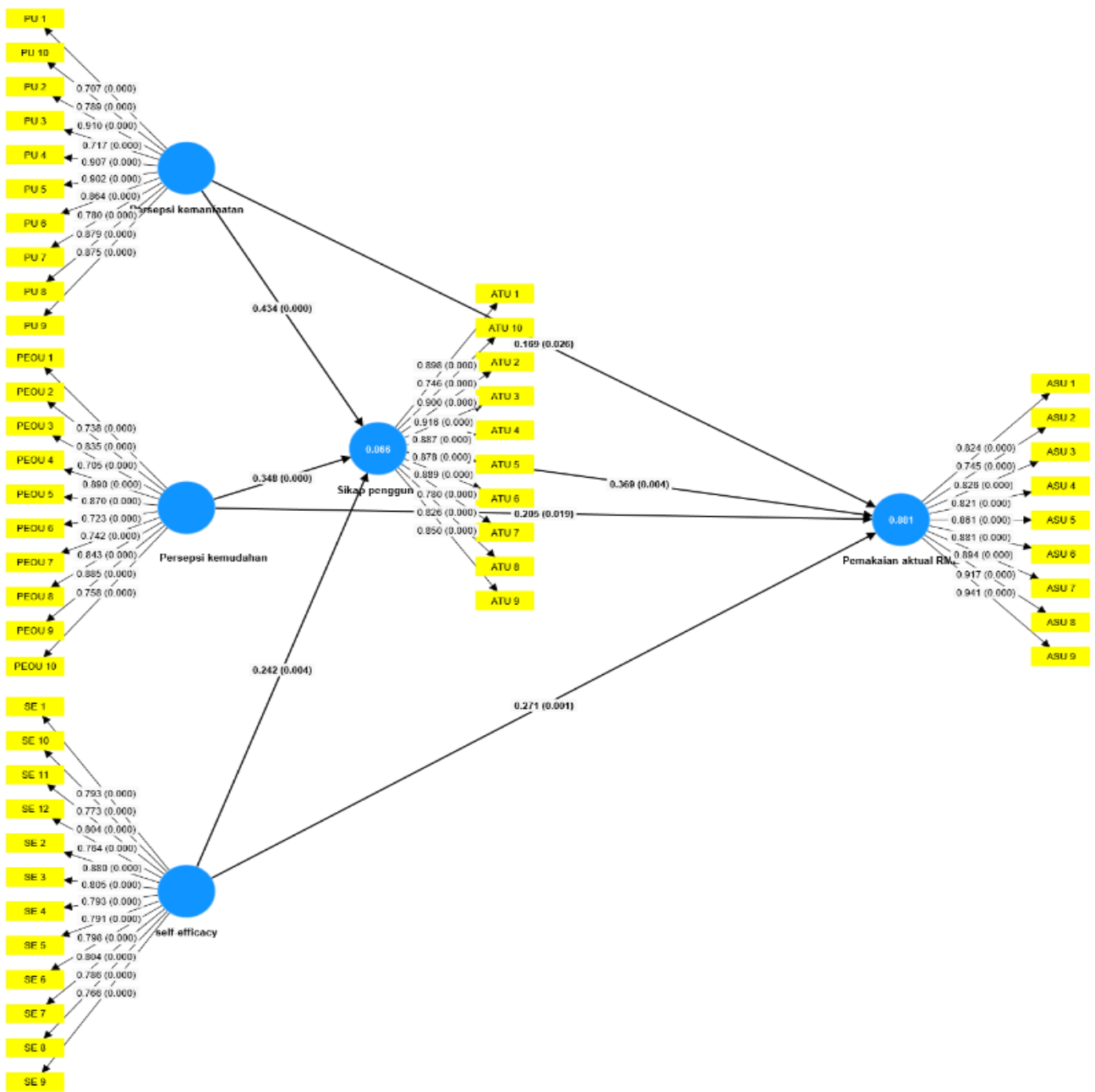
the structure model has a good fit with the data

**Coefficient Value (R-Square)**

The result shows the value of the determination coefficient (R-square) that appears in the Actual Usage (Y) variable model of 0.881. This value can be interpreted that the Actual Usage variable (Y) can be explained by the independent variables in the research model of 88.1%, while 11.9% is obtained from the influence of other variables that are not included in this research model. The determination coefficient (R-square) in

**Determination Coefficient Value (R-Square)**

	R-square	R-square adjusted
Actual Usage	0.881	0.875
User Attitude	0.866	0.861



**Indirect effect**

Perception of benefits has a positive and significant effect on actual usage through user attitudes. Perception of convenience has a positive and significant effect on actual usage through user attitudes. Self-efficacy has a positive and significant effect on actual usage through user attitudes

index, meaning that users have a less positive perception of benefits. Users may be reluctant to accept or use the RME system optimally. A previous study mentioned that perceived usefulness significant factors predicting on quality of medical record used (10).

Another by Kurniawati, also explained that the perception of benefits has a direct and significant effect on user attitudes (11). Therefore,

**Table 3. Indirect effect among variables**

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ( O/STDEV )	P-values
Association between perceived usefulness with actual use and attitude user as intervening variables	0.160	0.163	0.065	2.458	0.014
Association between perceived ease of use with actual use and attitude user as intervening variables	0.128	0.130	0.062	2.070	0.039
Association between self-efficacy with actual use and attitude user as intervening variables	0.089	0.083	0.035	2.547	0.011

**DISCUSSION**

**The Effect of perceived of usefulness on the attitude of electronic medical record users**

In the first hypothesis test, the coefficient score of influence of perceived of usefulness on user attitude has a positive effect on user attitude. The results of the t-count test were greater than the t-table and the p-value was less than 0.05. It was indicated higher the level of Perception of Benefit that users feel, the more positive the user's attitude towards the system. Understanding the factors that affect the perception of benefits is important in order to increase the positive attitude of users.

The variable of perception of usefulness in the Reliability Dimension has the lowest index, which means that the system is less consistent, less reliable and still needs to improve quality and better performance, so it is likely to have a negative impact on user attitudes. The user attitude variable in the Benefit Perception dimension has the lowest

in this study, the authors conclude that the

perception of usefulness has a positive and significant effect on the attitude of EMR users. The higher the user's perception that the system is useful and can improve its performance, the more positive the user's attitude towards the use of the system.

**The effect of perception of usefulness on the actual use of electronic medical records**

In the second hypothesis test, the coefficient score influence of perception of benefit has positive effect on actual use. The results of the t-count test were greater than the t-table and the p-value was smaller than 0.05, corroborating this finding.

The Benefit Perception variable in the Reliability dimension has the lowest index, meaning that users can tend to reduce the actual use of the system if the user feels that

the system is unreliable and inconsistent in providing benefits. The actual usage variable that has the lowest dimension is the Usage Frequency,

this can be interpreted that the system has not been fully utilized effectively by the user.

These results are in accordance with the theory by Davis which shows that users will be more likely to accept the new system and adapt quickly if they find the system useful and can help them in achieving their goals (12). If users find the system useful and improve their performance, then they will be more likely to use the system in an actual and sustainable manner. A previous found that relationship between the perception of benefits and the use of electronic medical records (13). Another study explained that perceived usefulness and ease of use are strongly correlated, resulting in nurses' greater acceptance of EMRs (14).

#### **The Effect of perception of convenience on the attitude of electronic medical record users**

In the third hypothesis found that coefficient score of perception of convenience on user attitude has a positive influence on user attitude. The results of the t-count test were greater than the t-table and the p-value was smaller than 0.05, corroborating this finding. This result means that user attitudes are greatly influenced by the perception of convenience, the higher the level of perception of convenience felt by users, the more positive the user's attitude towards a system.

The Ease of Perception variable in the Ease of Learning dimension has the lowest index, this can have a negative influence on user attitudes. When the User feels that the system is difficult to learn and use, it is possible that the user may tend to have a negative attitude towards the use of the system. The User Attitude variable in the benefit perception dimension has the lowest index, users view the system as having limited benefits. The low dimension of benefit perception can be related to ease of use.

This hypothesis is strengthened by the research of Pamuji et al., show that the perception of convenience affects the user's attitude in implementing EMR (14). People were most positive about features that

increased convenience, such as making appointments and refilling prescriptions (15).

In the fourth hypothesis show coefficient score of the influence of perception of convenience on actual use has positive influence on Actual Use. The results of the t-count test were greater than the t-table and the p-value was smaller than 0.05, corroborating this finding. This result means that the Actual Usage is getting higher, if the level of perception of convenience perceived by users is getting higher. Users who find the system easy to use will be more encouraged to use the system in a real and sustainable way.

These results are in accordance with a study described that the perception of ease of use has a significant and positive impact on the actual use of information technology systems (16).

#### **Effect of Self-efficacy on the attitude of electronic medical record users**

In the fifth hypothesis test, the coefficient of self-efficacy on user attitude has positive effect. the results of the t-count test were greater than the t-table and the p-value was smaller than 0.05, corroborating this finding. this result means that the higher the self-efficacy that the user has towards his ability to use the system, the more positive the user's attitude towards the system.

This result is in accordance with the Bandura's study mentioned that the self-efficacy of health workers in using information technology has a significant positive influence on their readiness to receive technology in health facilities (17).

In order hand, self-efficacy also has positive effect on the actual use of electronic medical records. Understanding the factors that affect self-efficacy is important in order to improve the actual use of the system.

Tsai et al, self-efficacy is an important factor influencing the adoption of electronic medical records among doctors (18). Where self-efficacy related to health technology has a direct effect on the perception of convenience which will further affect the actual acceptance or use of the EMR system by doctors.

#### **The Effect of Perception of Utility, Perception of Convenience, Self-efficacy on Actual Use with User Attitude as an Intervening Variable**

In the eighth hypothesis test: the perception of usefulness has a positive and significant effect on actual usage through user attitudes; the perception of convenience has a positive and significant effect on actual usage through user attitudes; Self-efficacy has a positive and significant effect on actual usage through user attitudes. From the results described above, it is proven that 'Perception of Utility, Perception of Convenience, Self-efficacy has a positive and significant effect on the Actual Use of RME through the mediation of User Attitude'. This means that the perception of utility, perception of convenience, and self-efficacy can affect the formation of positive user attitudes, so that in the end it can increase the actual use of the system.

The Actual Usage variable in the Usage Frequency dimension has a low index, meaning that users do not use the system regularly, this is likely influenced by the user's negative attitude, this is caused by the perception of utility, perception of convenience, low self-efficacy.

This result is based on a theory built by Fred Davis in the Technology Acceptance Model (TAM), to analyze and understand the factors that affect the acceptance of technology (12). According to the TAM model, the overall attitude of potential users towards the actual use of the system, is hypothesized to be the main determinant of whether the user actually uses it or not. Attitudes towards use, in turn, are a function of two important variables, namely the perception of usefulness and the perception of convenience. These two cognitive variables proposed by TAM are the core in predicting user acceptance attitudes towards technology. Amplified by Albert Bandura in his phenomenal Theory of the Social Model, self-efficacy plays a key role in behavior change. In the context of behavior change theory, self-efficacy can affect an individual's motivation, perseverance, and effectiveness in achieving goals.

### Limitation

The literature is limited from the results of previous research which is still lacking for researchers from both foreign and domestic scientific journals, so it is weak in finding references. Researchers are limited in terms of research time. It is hoped that the shortcomings and limitations in this study can be overcome as a reference for future researchers to improve this research.

### References

- (1) Bali A, Bali D, Iyer N, Iyer M. Management of medical records: facts and figures for surgeons. *J Maxillofac Oral Surg.* 2011 Sep;10(3):199-202. doi: 10.1007/s12663-011-0219-8
- (2) Almunawar MN, Anshari M. Health information systems (HIS): Concept and technology. (2012); 1203.3923
- (3) Honavar SG. Electronic medical records - The good, the bad and the ugly. *Indian J Ophthalmol.* 2020 Mar;68(3):417-418. doi: 10.4103/ijo.IJO\_278\_20
- (4) Hasanain RA, Vallmuur K, Clark M. Electronic medical record systems in Saudi Arabia: knowledge and preferences of healthcare professionals. *Journal of Health Informatics in Developing Countries.* 2015; 9(1).
- (5) Quinn M, Forman J, Harrod M, Winter S, Fowler KE, Krein SL, Gupta A, Saint S, Singh H, Chopra V. Electronic health records, communication, and data sharing: challenges and opportunities for improving the diagnostic process. *Diagnosis (Berl).* 2019 Aug 27;6(3):241-248. doi: 10.1515/dx-2018-0036. PMID: 30485175
- (6) Ajami S, Bagheri-Tadi T. Barriers for Adopting Electronic Health Records (EHRs) by Physicians. *Acta Inform Med.* 2013;21(2):129-34. doi: 10.5455/aim.2013.21.129-134
- (7) Vos JF, Boonstra A, Kooistra A, Seelen M, Van Offenbeek, M. The influence of electronic health record use on collaboration among medical specialties. *BMC health services research.* 2020; 20: 1-11
- (8) Gagnon MP, Talla PK, Simonyan D, Godin G, Labrecque M, Ouimet M, Rousseau M. Electronic health record acceptance by physicians: testing an integrated theoretical model. *Journal of biomedical informatics.* 2014;48: 17-27

- (9) Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*. 1977; 84(2): 191
- (10) Lee S. Effect of Electronic Medical Record Quality on Nurses' Perceived Usefulness and Ease of Use. *Comput Inform Nurs*. 2022 Aug 1;40(8):562-570. doi: 10.1097/CIN.0000000000000845
- (11) Kurniawati K. The Effect of Perception of Usefulness and Perception of Ease of Use on the Attitude of Using Electronic Medical Records. In *Proceedings of the National Seminar on Business Economics*. 2023; 1(1): 363-370
- (12) Davis FD. Technology acceptance model: TAM. Al-Suqri, MN, Al-Aufi, AS: *Information Seeking Behavior and Technology Adoption*. 1987; 205: 219
- (13) Maryati Y. Evaluation of the Use of Outpatient Electronic Medical Records at Husada Hospital with a Technology Acceptance Model. *Journal of Health Information Management Indonesia*. 2021; 9(2), 190-190.
- (14) Pamuji A, Igianny PD, Andriani R. Systematic literature review: factors affecting the implementation of electronic medical records. *Prepative: Public Health Journal*. 2024; 8(1): 1023-1033
- (15) Zarcadoolas C, Vaughn WL, Czaja SJ, Levy J, Rockoff ML. Consumers' perceptions of patient-accessible electronic medical records. *J Med Internet Res*. 2013 Aug 26;15(8):e168. doi: 10.2196/jmir.2507.
- (16) Spatar D, Kok O, Basoglu N, Daim T. Adoption factors of electronic health record systems. *Technology in Society*. 2019; 58, 101144
- (17) Bandura A. Self-efficacy: toward a unifying theory of behavioral change. *Psychological review*. 1977; 84(2), 191.
- (18) Tsai MF, Hung SY, Yu WJ, Chen CC, Yen, DC. Understanding physicians' adoption of electronic medical records: Healthcare technology self- efficacy, service level and risk perspectives. *Computer Standards and Interfaces*, 2019. 66. <https://doi.org/10.1016/j.csi.2019.04.001>