



Development of the Unified Theory of Acceptance and Use of Technology Model in the Acceptance of Electronic Medical Records Systems at Colonel Abundjani Bangko Hospital

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Abstract

This type of research is quantitative with an analytical observational approach with a cross sectional design. This research was conducted at the Colonel Abundjani Bangko Hospital from September to October 2023. The population in this study were all health workers associated with the implementation of medical records consisting of doctors, nurses, medical records officers and pharmacists at the Colonel Abundjani Bangko Hospital. 152 people (Total population). Data analysis was carried out univariate, bivariate (Chi Square), and multivariate (logistic regression). The results of the research show that there is an influence of the perception aspect of usability on the acceptance of the Electronic Medical Record system ($p < 0,05$). There is an influence of job suitability aspects on the acceptance of the Electronic Medical Record system ($p < 0,05$). There is an influence of the relative profit aspect on the acceptance of the Electronic Medical Record system ($p < 0,05$). There is an influence of social influence aspects on the acceptance of the Electronic Medical Record system ($p < 0,05$). There is an influence of the facility aspect on the acceptance of the Electronic Medical Record system ($p < 0,05$). The dominant variable influencing the acceptance of the Electronic Medical Record system at Colonel Abundjani Bangko Hospital is the social aspect variable. The conclusion in this research is that there is an influence of the development of the Unified Theory of Acceptance and Use of Technology (UTAUT) Model in the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital.

Introduction

Medical records are important records that contain all information related to the services provided to patients (Minister of Health Regulation Number 269 of 2008). The implementation of medical records must be carried out in accordance with standards, in order to produce quality data for services. The less than optimal process for implementing medical records can be due to a lack of human resources, training and supporting infrastructure. The lack of data accuracy in the coding section is also due to the lack of monitoring of the processes that have been implemented (Giyana, 2022).

Currently the medical recording technique commonly used is paper-based medical records, which will begin to become obsolete in this century. In developing countries, more efficient and innovative techniques such as Electronic Medical Records (RME) are preferred to maintain health. Paper-based medical records are starting to be abandoned in several developed countries and are turning to electronic medical records. The main reason is to speed up a doctor's

decision-making process in diagnosing and treating a patient (Sessums et al., 2011). Another aim of implementing electronic medical records is to increase the comfort of the patient himself, for example, with an electronic medical record, patients do not have to worry about having to collect their treatment registration card and bring it every time they want to go for treatment to a health service facility, which means just by mentioning it. The patient's name or other identification will quickly be found, which in the end will really pay attention to the patient's comfort by health service facility managers who use electronic medical records (Zarcadoolas et al., 2013).

In Indonesia, RME has actually started to resonate since 2005. The government, as one of the stakeholders who plays a very important role, through the Ministry of Health in collaboration with the Ministry of Communication and Information Technology, has since the beginning of 2005 launched an integrated health service program (e-health Indonesia) with the aim of realizing equal distribution of health services to all regions in Indonesia, especially areas that have been very difficult to reach with quality health care and technology supporting health facilities. The program launched by the 2 (two) ministries is a breath of fresh air for improving the quality of health services in Indonesia (Mukti et al., 2022). However, there are many kinds of obstacles and obstacles that have the potential to disrupt the realization of this program.

Colonel Abundjani Bangko Hospital is a type C general hospital with a wide scope of duties and functions, services, facilities and infrastructure. In these service activities, the Colonel Abundjani Bangko Hospital is obliged to provide comfort to its patients, especially in the field of medical records.

Based on the initial survey conducted at the Colonel Abundjani Bangko Hospital, the implementation of RM which consists of the assembling function has not been running optimally because there is still a buildup of medical record documents caused by the replacement of new forms which makes it difficult for officers to assemble the forms in the correct order. Then there was a buildup of RM data and submission to the coding department was also late. In the indexing section there is unclear writing, non-standard abbreviations and inaccurate data. In its implementation, there is no monitoring to review the accuracy of the data, storage of all information data that has been successfully obtained for future needs is given little attention. Files that have not been returned to CM automatically contain no valid data, so the inpatient report cannot be sent. Delivery of reports is incorrect/still delayed. The system already exists but is not yet optimal.

Medical records are very important in hospitals so the implementation of medical records must be managed by professional staff (Sánchez et al., 2005). One of the parameters for determining the quality of health services in a hospital is data or information from good and complete medical records. Indicators of good medical record quality are the completeness of the content, accuracy, timeliness and fulfillment of aspects of legal requirements. Therefore, in implementing medical records, each hospital always refers to the guidelines or technical instructions for managing medical records made by the hospital concerned. Management of medical records in hospitals is to support the achievement of orderly administration in order to achieve hospital goals, namely improving the quality of health services in hospitals. In managing medical records to support the quality of service for hospitals, medical record management must be effective and efficient.

Apart from that, data integrity and application security were also issues raised. 4) Infrastructure, inadequate hardware also hinders the implementation of RME, network/internet access speed is also considered to hinder the implementation of RME. 5) The time used to select, purchase and implement RME can hinder the implementation of RME, because the time required to carry out these activities is not short. Likewise with the process of converting data from paper-based medical records to RME. 6) Psychologically, there are concerns from doctors

that RME is difficult to implement because many hospitals fail to implement it. This is usually because there are many conditions, processes, procedures or contents that are not appropriate. Likewise with data security threats, where there is concern that patient data in RME can easily be changed by unauthorized persons. 7) Social can also influence the implementation of RME, this is because doctors work with many parties, for example government, insurance, management and other health professions. Without their support and support, it will be difficult for RME to be implemented. 8) Legal, many parties suspect that electronic medical records do not have a clear legal umbrella, especially with regard to ensuring that stored data is protected against elements of privacy, confidentiality and information security in general. Questions that often arise are: to what extent are hospitals able to protect the security of patient data from the hands of irresponsible people, to what extent are electronic documents valid? What if an error occurs in writing the patient's medical data? For this reason, clear regulations and legality are needed, but unfortunately the making of regulations itself cannot match the speed of progress in information technology (Benson, 2021). From this problem, researchers are interested in conducting further research on the development of the Unified Theory o Acceptance and Use o Technology (UTAUT) Model in the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital.

Methods

This type of research is quantitative with an analytical observational approach. The research design used was cross sectional. This research was conducted at the Colonel Abundjani Bangko Hospital. This research was conducted from September to October 2023. The population in this study was all health workers related to the implementation of medical records consisting of doctors, nurses, medical records officers and pharmacists at the Colonel Abundjani Bangko Hospital, totaling 152 people. The sample is part of the number and characteristics of the population. The samples in this study were all doctors, nurses, medical records officers and pharmacists who were related to patient medical records at the Colonel Abundjani Bangko Hospital, totaling 152 people.

Results and Discussion

Table 1. Age and Profession Distribution at Colonel Abundjani Bangko Hospital

Age	n	%
< 35 years	22	14,5
36-45 years old	79	51,9
> 45 years	51	33,6
Profession	n	%
Doctor	23	15,1
Nurse	115	75,7
Medical records	8	5,3
Pharmacist	6	3,9
Total	152	100

Based on table 1 above, it is known that of the 152 respondents, there were 22 respondents aged < 35 years (14.5%), those aged 35-45 years there were 79 (51.9%), and those aged > 45 years there were 51 (33.6%). There were 23 (15.1%) respondents who were doctors, 115 (75.7%) respondents were nurses, 8 (5.3%) were medical records, and 6 (3.9%) were pharmacists) respondents.

Table 2. UTAUT Model on Acceptance of Electronic Medical Record Systems at Colonel Abundjani Bangko Hospital

Perceptions of Usefulness	Acceptance of Electronic Medical Record Systems						P value
	Kurang		Baik		Total		
	n	%	n	%	n	%	
Not enough	66	43,4	27	17,8	93	61,2	0,000
Good	17	11,2	42	27,6	59	38,8	
Job Suitability							0,000
Not enough	58	38,2	26	17,1	84	55,3	
Good	25	16,4	43	28,3	68	44,7	
Relative Advantage							0,000
Not enough	61	40,1	13	8,6	74	48,7	
Good	22	14,5	56	36,8	78	51,3	
Social							0,000
Not enough	76	50,0	22	14,5	98	64,5	
Good	7	4,6	47	30,9	54	35,5	
Facility						%	0,000
Not enough	63	41,4	21	13,8	84	55,3	
Good	20	13,2	48	31,6	68	44,7	
Total	83	54,6	69	45,4	152	100	

Based on the table above, it is known that from the 152 respondents studied, it was concluded that there was an influence of the Unified Theory Acceptance and Use of Technology (UTAUT) Model on the relative advantage aspect, job suitability aspect, perception aspect, social aspect, and facility aspect on the acceptance of the Electronic Medical Record system. at Colonel Abundjani Bangko Hospital.

Table 3. Logistic Regression Results

Variable	B	p value	Exp(B) OR	95% CI For Exp (B)
Relative advantage	3,325	0,000	27,793	6,123-126,162
Social	4,033	0,000	56,441	11,719-271,821

Based on table 3 above, it can be seen that the last stage of logistic regression analysis produced the variable that dominantly influences the acceptance of the Electronic Medical Record system at Colonel Abundjani Bangko Hospital, namely the social variable with a p value of 0.000, OR = 56.441 (95% CI = 11.719-719.821) This means that respondents who state that social aspects are lacking have a 56.441 chance of being less likely to accept the Electronic Medical Record system with a B coefficient value of 4.003 which is positive. The more respondents who state that social aspects are lacking, the more respondents are lacking in accepting the Electronic Medical Record system. at Colonel Abundjani Bangko Hospital.

The Influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) Model on Perception Aspects

Based on the results of the calculations above, it is known that the statistical test results obtained a significance p value of $0.000 < 0.05$. So it can be concluded that there is an influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) model on the

perception aspect of usability towards the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital.

This research is in line with research by Venkatesh, et al. (2023) defines Performance Expectancy as the level to which a person believes that using the system will help that person to obtain performance benefits at work. In this concept there is a combination of variables obtained from previous research models regarding technology acceptance and use models. These variables are: Perception of Usefulness (perceived usefulness) According to Venkatesh, et al. (2023), perceived usefulness is defined as the extent to which a person believes that using a particular system will improve his or her performance.

Integrated health services are the key to improving patient conditions. The effects of disintegrating patient care include the use of large amounts of medication, unwanted drug side effects (adverse drug events), and unnecessary hospitalization. This can be a threat to aspects of patient safety. These effects are potentially dangerous because they increase the risk of illness, high medical costs, and even death. In a series of reports from the Institute of Medicine (IOM), it was concluded that ineffective service coordination was caused by poor communication between health workers in providing and deciding on the clinical services provided. IOM recommends electronic medical records as a supporting medium for improving the quality of patient care through easy accessibility of information.

Health workers feel the benefits of electronic medical records in helping service management. The electronic medical record mechanism manages patient clinical services through the ease of viewing patient history data in real time, the ease of exchanging data between health professionals, the ease of communication between staff, the ease of measuring clinical progress and service outcomes, the ability to compare outcome results with standards and as clinical decision support. Apart from that, the hospital feels that the efficiency of the staff that previously served to carry medical record files can now be reduced.

The clinical benefits mentioned by the doctor are also felt in that making clinical decisions becomes faster because information on the patient's previous history is available, both those who provided services with the same doctor and other doctors who provided services to the patient. The following is a doctor's statement regarding the ease of viewing patient history with electronic medical records. "Finding what a colleague gave a patient's medical record is easier"

Medical communication with the three important departments becomes easier with electronic medical records. Electronic medical records at Panti Rapih Hospital make it possible to provide laboratory and pharmacy orders via electronic medical records, while radiology is still at the development stage. The results from these 3 important departments can also be sent to each patient's electronic medical record, making it easier for doctors to make appropriate clinical decisions based on the patient's condition. Apart from the benefits in terms of service management, there are potential benefits towards service quality in this case, namely reducing the number of medication errors due to illegibility of prescriptions. Doctors admit that the number of illegible prescriptions can be reduced because sometimes when they are still using manual prescriptions, doctors also often have difficulty reading their own writing and no longer remember the prescriptions they have written due to the large number of patients when the pharmacy staff confirms the writing on the prescription. Apart from that, doctors also mentioned that the data in electronic medical records helps their work in providing appropriate treatment regimens.

Doctors say that medication compliance is an important aspect of patient recovery and providing the right treatment regimen can help increase treatment compliance rates. Therefore, complete electronic medical record data is an important key to success in achieving these benefits. The following is a doctor's statement about the benefits of electronic medical records in helping determine the right treatment regimen.

Health workers have a positive perception of the output of electronic medical records in helping better health service management, but there are obstacles in terms of input and process. In terms of input, most doctors and nurses admit that they have difficulty allocating time between providing services to patients and entering medical data in electronic medical records. The doctor informed that the patient's psychology in treatment is an important thing so that the patient must feel cared for, while the use of electronic medical records during service reduces the time for paying attention to the patient. Doctors admit that they have difficulty talking to patients while typing in electronic medical records.

This constraint in service time and filling in electronic medical records has the potential to cause incomplete filling in of electronic medical records and health workers' dissatisfaction with using electronic medical records. The obstacle in terms of the process is health workers' fear of errors in the system. System errors are considered to disrupt ongoing service processes where data must be entered immediately. This fear is increasingly felt among health workers who are considered elderly and are still not used to using computers. This system error must be addressed immediately because it has the potential to reduce health workers' satisfaction and level of acceptance of electronic medical records.

Researchers assume that if the level of acceptance decreases, the desire of health workers to explore the usefulness of the system and create innovation will decrease, even though health workers are an important element in achieving significant benefits from investment in electronic medical records.

The Influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) Model on Job Suitability Aspects on the Acceptance of the Electronic Medical Record System at Colonel Abundjani Bangko Hospital

Based on the results of the calculations above, it is known that the statistical test results obtained a significance p value of $0.000 < 0.05$. So it can be concluded that there is an influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) Model on the job suitability aspect of the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital.

This research is in line with the research results of Venkatesh, et al. (2023), job suitability is defined as how the capabilities of a system improve individual job performance.

The results of the research show that the perception of benefits is the extent to which a successful strategy that can be used to implement electronic medical records is significantly beneficial, namely improving the root of the problem, namely in the form of health workers' perceptions of the condition of facilities, in this case namely time constraints for filling out electronic medical records and system stability. electronic medical record. If the health worker's perception of the condition of the facility is good, this will influence his perception of use because these two variables have a strong correlation.

This was also conveyed in Maillet's research that the correlation between the variable condition of facilities and perception of use was one of the variables with the strongest correlation among the hypotheses tested. Apart from that, it is stated that the perception of use will influence the desire to use the system but through mediating factors and in this research it is known that the mediating factor is the perception of usefulness. 13 So it can be concluded that if the perception of the condition of the facilities is good, it will influence the perception of health workers as a whole, therefore the strategy developed is focused on improving this perception.

Researchers assume that creating practical guidelines for filling out electronic medical records, socializing policies and guidelines for using electronic medical records to all health workers, implementing team-based services that have been well socialized to all health workers regarding their responsibilities and roles are alternative problem solutions to minimize time

constraints. felt by health workers, while ensuring adequate technical support is an alternative solution to minimize errors in the system and health workers' fear of errors in the system.

The influence of the Unified Theory Of Acceptance And Use Of Technology (utaut) model on the relative profitability aspect of the acceptance of the electronic medical record system at the Colonel Abundjani Bangko Hospital

Based on the results of the calculations above, it is known that the statistical test results obtained a significance p value of $0.000 < 0.05$. So it can be concluded that there is an influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) model on the relative advantage aspect of the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital.

This research is in line with the research results of Venkatesh, et al. (2023), relative advantage is defined as how far using an innovation is perceived to be better than using its predecessor.

The use of electronic medical records has the potential to provide great benefits for health services such as basic and referral (hospital) service facilities. One of the benefits felt after using electronic medical records is increasing the availability of electronic patient records in hospitals. This is also beneficial for patients because it increases efficiency in the health care process. Apart from that, for administrative staff, the use of electronic medical records can make it easier to retrieve patient information. So that health workers can easily access patient information.

Doctors and health workers also benefit from providing health services due to the ease of accessing patient information which ultimately helps in making clinical decisions such as making a diagnosis, administering therapy, avoiding allergic reactions and duplication of medication. From an efficiency aspect, the use of electronic medical records has the impact of reducing operational costs and increasing income in health service facilities, especially hospitals.

To realize the implementation of electronic medical records, a process of migrating paper medical records to electronic medical records is previously required, namely with a series of processes starting with the introduction of electronic medical records and their benefits, training on the use of electronic medical records for users so that they are able to use them when providing services to patients. . Motivation for users is very necessary so that they understand the importance of using the system and always use the system in patient service activities. Motivation takes the form of an explanation of the benefits of the system, the consequences of not implementing the system so that users think the system is a necessity.

Management support is absolutely necessary in terms of meeting the needs for implementing electronic medical records and being able to formulate policies related to implementing electronic medical records. This study aims to assess the benefits of using an electronic-based system in terms of time and completeness of patient medical records in basic health care facilities. Socio-technical aspects in implementing electronic-based medical records are also assessed to see user acceptance of new ways of patient medical documentation and examine socio-technical aspects that support the implementation of electronic medical records

Researchers assume that the benefit obtained is the integration of data in one repository which allows for easy and fast analysis in decision making. The early warning function for drug administration (allergic reactions, drug duplication) has a positive impact on patient safety. So it is hoped that migrating to electronic medical records can improve patient safety. In this case, electronic medical records already contain a clinical decision support system that automatically does not prescribe drugs that have previously caused allergic reactions in patients.

The Influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) Model on Social Aspects on the Acceptance of Electronic Medical Record Systems at Colonel Abundjani Bangko Hospital

Based on the results of the calculations above, it is known that the statistical test results obtained a significance p value of $0.000 < 0.05$. So it can be concluded that there is an influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) model on the social aspect of the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital.

This research is in line with the research results of Venkatesh, et al. (2023), Facilitating Conditions are defined as the extent to which a person believes that the organizational and technical infrastructure is available to support the system. In this concept there is a combination of variables obtained from previous research models regarding technology acceptance and use models. These variables are: 1) Perceived behavioral control, 2) Facilitating conditions, and 3) Compatibility.

Outcome expectations are related to the consequences of behavior. Based on empirical evidence, they are separated into performance expectations and personal expectations. Davis, (2019) defines usefulness as the degree to which a person believes that the use of a particular subject will improve that person's work performance. From the several explanations presented above, it can be concluded that someone believes and feels that using information technology will be very useful and can improve work performance and performance.

Researchers assume that several modifications include adding facility condition variables and eliminating social influence and usage variables. Facility conditions are one of the factors that influence user attitudes and attitudes will influence satisfaction in using information systems, so that indirectly facility conditions will influence satisfaction. Another modification is to remove the social influence and usage variables. This is done with the consideration that the object of this research is mandatory, meaning that there is a requirement for system users to use RME. Overall benefit is influenced by user satisfaction, but not by use. Usage variables cannot be applied to mandatory environments, because users have an obligation to use the system. In addition, social influence has no effect on performance expectations.

The Influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) Model on Facility Aspects on the Acceptance of the Electronic Medical Record System at the Colonel Abundjani Bangko Hospital

Based on the results of the calculations above, it is known that the statistical test results obtained a significance p value of $0.000 < 0.05$. So it can be concluded that there is an influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) model on the facility aspect on the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital.

This research is in line with research by Venkatesh, et al. (2023) Social Influence is defined as the extent to which an individual perceives the interests believed by other people to influence him or her to use a new system. Social influence is a determining factor in behavioral goals in using information technology which is represented as subjective norms in TRA, TAM, TPB, social factors in MPCU, as well as image in innovation diffusion theory (IDT). (Venkatesh, et al., 2023). According to Venkatesh and Davis (2019), social influence has an impact on individual behavior through three mechanisms, namely compliance, internalization and identification. It can be concluded that the more influence an environment has on potential users of information technology to use a new information technology, the greater the interest that arises from the potential user's personality in using that information technology because of the strong influence of the surrounding environment.

Patient medical records began to switch to electronic based with the issuance of Minister of Health Regulation (PMK) number 24 of 2022 concerning Medical Records. Through this policy, health service facilities (Fasyankes) are required to run an electronic patient medical history recording system. It is hoped that all health facilities can be ready to adapt amidst the mission of the Indonesian Ministry of Health to transform health services by continuing to improve capabilities and maintain the integrity of health services for better health services for the community. This electronic medical record can be accessed by patients. So when a hospital or other party wants to access the relevant medical data, it will appear in a new version which includes health service information. Furthermore, people who do not have a smartphone or the PeduliLindung application can access health service facilities directly. Patient data protection is guaranteed to be maintained because the protection is not only in the system implemented at the Ministry of Health but also in health service facilities. Of course, this is critical and therefore we are currently conducting piloting in hospitals and preparing guidelines on how to secure data and then how to prepare standardized electronic medical records so that they can be kept safe.

Researchers assume that the RME facility is very useful for electronic medical records in general, namely for maintaining the health and treatment of patients, as evidence in the law enforcement process, dental discipline, enforcing medical ethics, educational purposes, research, as a basis for health financing and health statistical data. Because electronic medical records contain a collection of important things which include notes about the patient's identity, health history, examination procedures and treatment, electronic medical records must be filled in completely and accurately. Electronic medical records have several usability aspects, namely administrative aspects, medical aspects, legal aspects, financial aspects, research aspects, educational aspects, and documentation aspects. By looking at this aspect, electronic medical records have broad utility benefits, because they do not only concern health service providers and patients.

Conclusion

Based on the results of research entitled Development of the Unified Theory of Acceptance and Use of Technology (UTAUT) Model in the acceptance of the Electronic Medical Record system at Colonel Abundjani Bangko Hospital, it is concluded that: There is an influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) Model) on the aspect of perceptions regarding the usability of the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital. There is an influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) model on aspects of job suitability on the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital. There is an influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) model on the relative benefit aspect of the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital. There is an influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) model on aspects of social influence on the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital. There is an influence of the Unified Theory of Acceptance and Use of Technology (UTAUT) model on the facility aspect on the acceptance of the Electronic Medical Record system at the Colonel Abundjani Bangko Hospital. The dominant variable influencing the acceptance of the Electronic Medical Record system at Colonel Abundjani Bangko Hospital is the social aspect variable. Based on the conclusions above, it is recommended that the results of this research be used as input for reviewing the implementation of the electronic medical record system

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