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Nurses' Acceptance of the e-kinerja System: A Technology Acceptance Model Approach in Hospital Settings

¹ Heri Eka Putra, ² Hajjul Kamil, ³ Budi Satria

¹ Master of Nursing Program, Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh, Indonesia

² Department of Nursing Management, Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh, Indonesia

³ Department of Nursing Community, Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh, Indonesia

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Corresponding Author: **Hajjul Kamil**

Abstract

Background: Digital transformation in healthcare has accelerated the implementation of electronic performance management systems to improve organizational efficiency, workforce accountability, and healthcare service quality. However, evidence regarding nurses' acceptance of digital performance management applications remains limited, particularly in developing countries. This study aimed to describe nurses' acceptance of the eKinerja application using the Technology Acceptance Model (TAM) at a tertiary referral hospital in Indonesia.

Methods: This study employed a quantitative descriptive design with a cross-sectional approach. A total of 519 nurses at Aceh Government Regional General Hospital were recruited using a total sampling technique. Data were collected using structured questionnaires consisting of demographic characteristics and TAM dimensions, including perceived usefulness, perceived ease of use, attitude toward use, and user acceptance. Data were analyzed using descriptive statistics, including frequency distributions, percentages, means, and standard deviations.

Results: Most respondents were female (80.9%), aged 30–

39 years (73.8%), held a professional nursing degree (49.7%), and had 8–15 years of working experience (43.9%). The majority of respondents were Government Employees with Work Agreements (75.3%) and had never attended eKinerja training (72.1%). Overall implementation of the eKinerja application was categorized as good in 93.1% of respondents (mean = 154.72 ± 35.74). Among the TAM dimensions, attitude toward use showed the highest proportion in the good category (92.1%), followed by perceived ease of use (91.1%) and perceived usefulness (90.9%). User acceptance was also categorized as good in 84.0% of respondents.

Conclusion: Nurses demonstrated high acceptance of the eKinerja application across all TAM dimensions, indicating positive perceptions regarding usefulness, ease of use, attitudes toward use, and user acceptance. These findings highlight the importance of user-friendly digital systems, organizational support, and continuous training programs to strengthen technology acceptance and optimize digital transformation in healthcare institutions.

Keywords: Technology Acceptance Model, eKinerja, Nurses, Health Information Systems

1. Introduction

Digital transformation has become an important component of healthcare system development worldwide, particularly in improving healthcare quality, organizational efficiency, and workforce management. The rapid advancement of health information technology has accelerated the adoption of digital systems in hospitals, including electronic health records, clinical decision support systems, telemedicine, patient relationship management, and electronic workforce monitoring systems [1–4]. These technologies provide substantial benefits for healthcare organizations by improving administrative efficiency, supporting data-driven decision-making, strengthening accountability, and enhancing communication among healthcare professionals [5, 6]. Nurses represent the largest proportion of healthcare workers and play a critical role in maintaining continuity, safety, and quality of patient care in hospital settings [7]. In increasingly complex healthcare environments, nurses are required not only to deliver direct patient care but also to adapt to technological developments and digital documentation systems integrated into clinical practice [8, 9]. The implementation of digital systems in nursing services is expected to reduce documentation burden, improve workflow efficiency, facilitate communication, and support performance evaluation processes [10]. However, the

success of healthcare technology implementation largely depends on users' acceptance and willingness to integrate technology into their daily practice [11].

The Technology Acceptance Model (TAM) has become one of the most widely used theoretical frameworks for understanding healthcare professionals' acceptance of information systems and digital technologies [12-14]. TAM proposes that perceived usefulness and perceived ease of use are the primary determinants influencing attitudes, behavioral intention, and acceptance of technology use [13]. Previous studies have demonstrated that healthcare professionals are more likely to adopt digital technologies when systems are perceived as useful, easy to operate, and supportive of clinical performance [15-17]. Conversely, technologies perceived as complex, burdensome, or incompatible with clinical workflows may negatively influence user acceptance and implementation success [18, 19]. Recent evidence indicates that technology acceptance among nurses is strongly associated with organizational support, digital literacy, training availability, system quality, and user experience [20-22]. Studies conducted in hospital settings reported that nurses who perceived digital systems as beneficial and user-friendly demonstrated more positive attitudes toward technology adoption and higher willingness to use digital applications in clinical practice [23, 24]. Furthermore, adequate training and institutional support play important roles in improving technology adaptation among nurses and reducing resistance to digital transformation [25]. Despite the potential advantages of digital systems, several studies have identified persistent barriers to technology acceptance in healthcare environments. Increased administrative workload, insufficient technical support, system instability, limited interoperability, and poor interface design remain major challenges affecting technology utilization among healthcare workers [18, 26, 27]. In nursing practice, poorly implemented digital systems may contribute to work-related stress, fatigue, dissatisfaction, and reduced engagement with organizational technologies [28]. These issues are particularly relevant in developing countries, where disparities in digital infrastructure and training opportunities may influence healthcare workers' adaptation to digital systems [29].

In Indonesia, digital transformation initiatives in public institutions have accelerated the implementation of electronic performance management systems to improve transparency, accountability, and workforce monitoring. One of these systems is the eKinerja application, designed to digitally document and evaluate employee performance in healthcare and government institutions. In hospital settings, the implementation of eKinerja is expected to facilitate performance reporting, improve monitoring efficiency, and strengthen managerial accountability among healthcare professionals, including nurses.

Aceh Government Regional General Hospital, the largest tertiary referral hospital in Aceh Province, employs a significant nursing workforce utilizing the eKinerja application. Although the application has been implemented as part of digital workforce management, variations in digital literacy, user experience, training exposure, and adaptation to electronic systems may influence nurses' perceptions and acceptance of the technology. In addition, evidence regarding nurses' acceptance of electronic performance management systems using the TAM framework remains limited, particularly in Indonesian

hospital settings and developing countries [21, 30].

Previous studies on healthcare technology adoption have predominantly focused on electronic medical records, telemedicine systems, and mobile health applications, whereas studies examining nurses' acceptance of electronic performance management systems are still scarce [14, 20]. Moreover, limited evidence is available regarding nurses' perceptions of usefulness, ease of use, attitudes, and overall acceptance toward digital performance management systems in clinical settings.

Therefore, this study aimed to describe nurses' acceptance of the eKinerja application using the TAM framework at a tertiary referral hospital in Indonesia. Understanding nurses' perceptions of the implementation of digital performance systems may provide important insights for healthcare institutions to strengthen digital transformation strategies and optimize workforce management systems in hospital settings.

2. Objectives

The main objective of this study was to describe nurses' acceptance of the eKinerja application using the Technology Acceptance Model (TAM) framework at Aceh Government Regional General Hospital, Indonesia. This study also aimed to describe the demographic characteristics of nurses and analyze the distribution of acceptance levels across each TAM dimension, including perceived usefulness, perceived ease of use, attitude toward use, and user acceptance of the eKinerja application.

3. Materials and Methods

3.1 Design

This study was a quantitative descriptive study using a cross-sectional approach. This design was applied because the study aimed to describe nurses' characteristics and the distribution of technology acceptance levels toward the eKinerja application at a single point of measurement. The study specifically aimed to describe the distribution of each TAM dimension, including perceived usefulness, perceived ease of use, attitude toward use, and user acceptance, in both good and poor categories. This study was conducted at Aceh Government Regional General Hospital.

3.2 Sample Size and Sampling Technique

Researchers used a sampling method to determine the respondents in this study. The sampling technique applied was total sampling, in which the entire accessible population was included as study participants. The population in this study consisted of 519 nurses working at Aceh Government Regional General Hospital.

Sample selection was conducted based on predetermined inclusion and exclusion criteria. The inclusion criteria included nurses who had actively worked at Aceh Government Regional General Hospital for at least three months, and who actively used the eKinerja application in carrying out their professional duties. Exclusion criteria included nurses who were on leave during the data collection period, including sick leave, maternity leave, annual leave, or other official leave, as well as nurses who did not directly use the eKinerja application in their daily work activities.

Based on the sample selection process according to the established criteria, a total of 519 nurses met the eligibility criteria and agreed to participate as respondents in this

study.

3.3 The instruments for data collection

The research instrument used in this study was a structured questionnaire consisting of two parts: a demographic characteristics questionnaire and an eKinerja acceptance questionnaire based on TAM. The demographic questionnaire was used to identify respondents' characteristics, including gender, age, educational background, length of employment, employment status, clinical authority level, and history of eKinerja training.

The eKinerja acceptance questionnaire was developed based on TAM framework proposed by Fred Davis and adapted from previous studies related to technology acceptance [31]. The instrument consisted of four major dimensions, namely perceived usefulness, perceived ease of use, attitude toward use, and user acceptance of the eKinerja application. The questionnaire contained a total of items designed to assess nurses' perceptions, attitudes, and acceptance toward the implementation of the eKinerja system in hospital settings.

All questionnaire items were measured using a 1–5 Likert scale ranging from strongly disagree to strongly agree to evaluate respondents' perceptions and attitudes toward the eKinerja application. Higher scores indicated more positive perceptions and higher acceptance of the technology.

Prior to data collection, the instrument underwent validity and reliability testing. Prior validation reported factor loadings ≥ 0.70 and composite reliability > 0.70 . Therefore, the instrument was considered valid and reliable for measuring nurses' acceptance of the eKinerja application.

3.4 Data Collection Process

Data collection in this study was conducted through preparation and implementation stages. During the preparation stage, the researcher coordinated with Aceh Government Regional General Hospital to obtain permission for conducting the study. This process began with obtaining a research recommendation letter from the Faculty of Nursing and ethical approval from the relevant ethics committee. The researcher also prepared informed consent forms containing information regarding the study objectives, procedures, benefits, confidentiality, and respondents' rights during participation in the research process.

During the implementation stage, the researcher was assisted by several enumerators who had previously received explanations and training regarding the study procedures, ethical considerations, and questionnaire administration techniques. The researcher and enumerators approached eligible respondents directly in the inpatient units, explained the purpose and procedures of the study, and requested respondents' willingness to participate by signing the informed consent form.

Data collection was conducted by distributing structured questionnaires to nurses who met the inclusion criteria. Respondents completed the questionnaires independently, while the researcher and enumerators remained available to provide clarification when needed. The instruments used in this study consisted of demographic questionnaires and TAM based questionnaires measuring perceived usefulness, perceived ease of use, attitude toward use, and user

acceptance of the eKinerja application.

After all questionnaires had been collected and completed, the researcher conducted data checking and confirmation with the related hospital authorities as evidence that the data collection process had been completed successfully.

3.5 Data analysis

Data analysis in this study used descriptive (univariate) statistics to describe respondents' characteristics and the distribution of each TAM variable related to the eKinerja application. The descriptive statistical analyses included frequency distributions, percentages, mean values, standard deviations, to provide an overview of nurses' acceptance of the eKinerja system.

Prior to analysis, the collected data underwent several processing stages, including editing, coding, data entry, and tabulation, to ensure data completeness, accuracy, and consistency. Data cleaning was also conducted to identify incomplete or inconsistent responses before the statistical analysis process.

The analysis in this study was performed without inferential statistical testing because the primary objective was to describe the levels of technology acceptance among nurses rather than to examine causal relationships or associations between variables. Each TAM dimension, including perceived usefulness, perceived ease of use, attitude toward use, and user acceptance, was categorized into good and poor levels.

The results of the analysis were presented in the form of frequency distribution tables, percentages, mean and standard deviation to provide a comprehensive description of nurses' acceptance of the eKinerja application at Aceh Government Regional General Hospital.

3.6 Ethical Consideration

This study received ethical approval from the Health Research Ethics Committee of the Regional Public Hospital dr. Zainoel Abidin with Document Number: 275/ETIK-RSUDZA/2025 dated August 22, 2025.

4. Result

This study involved 519 nurses at Aceh Government Regional General Hospital. The results are presented in line with the research objectives, namely, to describe the demographic characteristics of respondents and the distribution of technology acceptance levels for the eKinerja application across TAM dimensions.

4.1 Respondent Characteristic

The majority of respondents were female (80.9%) and aged 30–39 years (73.8%). Most respondents held a professional nursing degree (Ners) (49.7%) and had 8–15 years of working experience (43.9%). Regarding employment characteristics, most respondents were Government Employees with Work Agreements (PPPK) (75.3%) and had a PK II clinical authority level (46.1%). The majority of respondents (72.1%) had never attended eKinerja application training. Data about the respondent characteristics are shown in Table 1.

Table 1: Respondent characteristic (n=519)

Characteristic	f	%	Mean ± SD
Gender			35.43 ± 4.80
Male	99	19.1	
Female	420	80.9	
Age (years)			35.43 ± 4.80
20–29	44	8.5	
30–39	383	73.8	
40–49	87	16.8	
≥50	5	1.0	
Educational Level			
Diploma III in Nursing	248	47.8	
Professional Nurse (Ners)	258	49.7	
Master’s Degree in Nursing	12	2.3	
Nurse Specialist	1	0.2	
Length of Employment			7.98 ±5.32
<3 years	146	28.1	
3–7 years	90	17.3	
8–15 years	228	43.9	
>15 years	55	10.6	
Employment Status			
Civil Servant	128	24.7	
Government Employee with Work Agreement (PPPK)	391	75.3	
eKinerja Training			
No	374	72.1	
Yes	145	27.9	
Clinical Privilege Level			
CPL I	188	36.2	
CPL II	239	46.1	
CPL III	90	17.3	
CPL IV	1	0.2	
CPL V	1	0.2	

4.2 Distribution of eKinerja Application Implementation and Technology Acceptance Model (TAM) Dimensions

Based on Table 2, the analysis results showed that the overall implementation and acceptance of the eKinerja application were generally in the good category. Overall, eKinerja implementation was high, with 93.1% of respondents categorized as having good implementation and a mean score of 154.72 ± 35.74.

Among the TAM dimensions, attitude toward use showed the highest proportion in the good category (92.1%), followed by perceived ease of use (91.1%) and perceived usefulness (90.9%). These findings indicate that most nurses perceived the eKinerja application as beneficial, easy to use, and supportive of their work activities.

User acceptance also showed a high proportion in the good category (84.0%), although it was relatively lower than the other TAM dimensions. This finding suggests that, despite generally positive perceptions of the eKinerja application, several respondents still experienced limitations or challenges in system acceptance and utilization.

Overall, the findings of this study indicate that the implementation and acceptance of the eKinerja application among nurses at Aceh Government Regional General Hospital were in the good category and reflected positive perceptions regarding usefulness, ease of use, attitudes toward use, and user acceptance based on TAM.

Table 2: Distribution of eKinerja Application Implementation and Technology Acceptance Model (TAM) Dimensions Among Nurses (n=519)

Variable/Subvariable	f	%	Mean ± SD
Overall eKinerja Implementation			
Good	483	93.1	154.72 ± 35.74
Poor	36	6.9	
Perceived Usefulness			
Good	472	90.9	51.95 ± 11.494
Poor	47	9.1	
Perceived Ease of Use			
Good	473	91.1	52.13 ± 13.14
Poor	46	8.9	
Attitude Toward Use			
Good	478	92.1	21.02 ± 5.44
Poor	41	7.9	
User Acceptance			
Good	436	84.0	29.62 ± 8.01
Poor	83	16.0	

5. Discussion

The results of this study showed that the implementation and acceptance of the eKinerja application among nurses at Aceh Government Regional General Hospital were generally high. Most respondents demonstrated good overall implementation of the eKinerja application (93.1%), with high levels of perceived usefulness (90.9%), perceived ease of use (91.1%), attitude toward use (92.1%), and user acceptance (84.0%). These findings are consistent with the TAM, which explains that users are more likely to accept and use a technology when they perceive it as useful and easy to use in supporting their work activities [12, 13].

The high acceptance level identified in this study may be influenced by respondents’ demographic and occupational characteristics. Most respondents were within the productive age group of 30–39 years and had relatively long working experience of 8–15 years. Previous studies have reported that healthcare workers in productive age groups generally demonstrate better adaptation to digital technologies and greater readiness to utilize healthcare information systems [20, 32, 33]. In addition, nurses with longer work experience may have greater exposure to organizational systems and technological changes, which can contribute to higher confidence and self-efficacy in technology utilization [34].

The findings also showed that most respondents had never participated in formal eKinerja training programs. Despite this condition, the majority of nurses still reported positive perceptions regarding ease of use and usefulness of the application. This suggests that the eKinerja application may have relatively good usability and accessibility characteristics, enabling users to adapt independently during routine use. Similar studies in healthcare settings found that systems perceived as simple, practical, and user-friendly tend to demonstrate higher acceptance levels even among users with limited formal training exposure [17, 18]. Nevertheless, training remains important to strengthen digital competencies, optimize system utilization, and reduce potential errors during system operation [24].

Among the TAM dimensions, attitude toward use demonstrated one of the highest positive distributions. This finding indicates that nurses generally had favorable attitudes toward the implementation of the eKinerja system in their workplace. Positive attitudes toward digital technologies are important because they influence willingness to continue using information systems in healthcare practice [12, 23]. Previous research has shown that healthcare workers who perceive digital systems as beneficial for improving efficiency, transparency, and work performance are more likely to demonstrate positive attitudes and sustained technology adoption [35].

The perceived usefulness dimension also showed a high proportion of positive responses. This finding indicates that nurses believed that the eKinerja application supported their work activities and improved performance management processes. Similar findings have been reported in previous studies examining healthcare information systems, where perceived usefulness consistently emerged as a major determinant of technology acceptance among healthcare professionals [23, 36]. Digital systems that facilitate documentation, improve accessibility of information, and support administrative efficiency are generally perceived positively by nurses and other healthcare workers [37].

In addition, the majority of respondents perceived the eKinerja application as easy to use. Ease of use is an essential factor in successful implementation of healthcare technologies because complex systems may contribute to frustration, stress, and resistance among users [18, 25]. The findings of this study suggest that the eKinerja application was relatively understandable and adaptable for nurses in hospital settings. Previous studies also reported that systems with simple interfaces, accessible features, and efficient workflows are more likely to achieve successful implementation and higher user satisfaction [10, 24, 26, 36].

Overall, the findings indicate that nurses' acceptance of the eKinerja application was influenced by positive perceptions regarding usefulness, ease of use, and attitudes toward technology implementation. From the TAM perspective, the high acceptance observed in this study suggests that the eKinerja application fulfilled important usability and functionality expectations among nurses [13, 25, 30, 37]. In addition, respondents' productive age, work experience, and adaptation to digital systems may have contributed to favorable acceptance outcomes. These findings highlight the importance of developing user-friendly digital systems and strengthening organizational support and training programs to optimize digital transformation in healthcare institutions [21, 23, 25, 28, 32].

Hospitals need to improve the implementation of regular eKinerja training programs to optimize nurses' understanding and utilization of the application in daily practice. Organizational support should also be maintained and strengthened through policies that encourage consistent and effective use of digital performance management systems among nurses.

In addition, healthcare institutions should continuously evaluate and improve the usability, accessibility, and functionality of the eKinerja application to ensure that the system remains compatible with nurses' workflow and professional needs. Strengthening technical support and providing opportunities for user feedback are also important to enhance user satisfaction and long-term technology acceptance.

Furthermore, continuous improvement of system quality, information security, and digital infrastructure is essential to maintain users' trust, comfort, and confidence in utilizing the eKinerja application as part of hospital workforce management and digital transformation initiatives.

6. Conclusions

This study showed that nurses at Aceh Government Regional General Hospital demonstrated high acceptance of the eKinerja application, reflecting positive perceptions regarding usefulness, ease of use, attitudes toward use, and user acceptance based on TAM. This acceptance was supported by nurses' adaptive characteristics, positive perceptions of system usability, and the compatibility of the application with workplace needs. However, the low participation of respondents in formal eKinerja training indicates the need for continuous training and organizational support to optimize system utilization and strengthen digital transformation in hospital settings.

7. Recommendations

Hospitals need to improve the implementation of regular eKinerja training programs to optimize nurses' understanding and utilization of the application in daily practice. Organizational support should also be maintained and strengthened through policies that encourage consistent and effective use of digital performance management systems among nurses.

In addition, healthcare institutions should continuously evaluate and improve the usability, accessibility, and functionality of the eKinerja application to ensure that the system remains compatible with nurses' workflow and professional needs. Strengthening technical support and providing opportunities for user feedback are also important to enhance user satisfaction and long-term technology acceptance.

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