

Digital Efficiency of the Khanza Application for Nursing Care Documentation at Prof. Dr. Aloei Saboe Hospital

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ABSTRACT

Background: Nursing care documentation is an important part of health care that must be carried out completely, accurately, and on time. The implementation of digital documentation through the Khanza Hospital Management Information System (SIMRS) application is expected to be able to improve the work efficiency of nurses and support the completeness of nursing care documentation. However, the difference in perception of the efficiency of using the Khanza application by nurses has the potential to affect the completeness of the documentation produced. Objective: To determine the influence of the digital efficiency of the Khanza application on the completeness of nursing care documentation at Prof. Dr. Aloei Saboe Hospital, Gorontalo City. Methods: This study used an analytical descriptive design with a cross sectional approach. The research sample amounted to 37 nurses who were selected using purposive sampling techniques in Building III of Prof. Dr. Aloei Saboe Hospital. Data was collected using the Khanza application efficiency questionnaire and a nursing care documentation observation sheet. Data analysis was carried out using the Chi-Square test. Results: The results showed that the majority of nurses rated the efficiency of the Khanza application to be in the efficient category. All nurses with a perception of efficiency and are quite efficient have efficient nursing care documentation, while in the category of sufficiently efficient there is still inefficient documentation. The Chi-Square test showed a value of $p = 0.000$ ($p < 0.05$). Conclusion: The efficiency of the Khanza application has a significant effect on the completeness of nursing care documentation. Optimizing the use of the Khanza application through continuous training and supervision is needed to improve the quality of nursing documentation in hospitals.

INTRODUCTION

Documentation of client medical records is an important aspect of nursing practice. Nursing documentation must be accurate, comprehensive, and flexible to obtain critical data, maintain continuity of service, track client outcomes, and describe standards of practice in the optimal fulfillment of nursing documentation (Widyanti et al., 2021). Optimal nursing documentation of course faces many obstacles such as high workload, time limitations, and a large number of patients, often making it difficult for nurses to record all interventions carried out in detail with manual documentation (Firmansyah et al., 2025).

The use of paper-based manual documentation also poses challenges, such as the risk of data loss, hard-to-read writing, and limitations in the accessibility of patient information quickly and efficiently, so digitization of documentation is needed (Firmansyah et al., 2025). Digital documentation or electronic documentation is able to increase and streamline the time for documenting nursing care, so that nursing services are of higher quality, one form of digital documentation is SIMRS Khanza (Suganda & Hariyati, 2020).

SIMRS Khanza or the Khanza application is a hospital management information system technology that allows nurses to record nursing actions digitally, make it easier to access patient data, and minimize

recording errors. The application of digital applications can improve the quality of nursing care documentation, both in terms of time, completeness, and data accuracy (Kamal et al., 2024).

According to Firmansyah et al. (2025), digitization in nursing documentation has various benefits. Studies conducted show that the use of electronic documentation systems increases the accuracy of recording and the efficiency of nurses' working time by up to 30% compared to manual methods. In addition, other research reveals that the digitization of nursing care can reduce the risk of losing patient data and improve coordination between health teams, thereby having an impact on improving service quality (Firmansyah et al., 2025).

In Indonesia, the implementation of digital-based nursing documentation systems such as the Khanza application still faces a number of obstacles, including limited infrastructure, lack of training for health workers, and resistance to changes in work patterns (Firmansyah et al., 2025). However, several studies have shown that hospitals that have implemented digital documentation systems have improved efficiency in recording nursing care, while improving compliance with nursing standards.

This research is supported by Firmansyah et al. (2025) which shows that the use of digital nursing care has proven to be effective in increasing the efficiency, accuracy, and security of patient data. The digital documentation system is able to increase recording accuracy by up to 40%, save documentation time by 30%, and reduce the risk of losing patient data. In addition, real-time access to information can also improve coordination between health workers, so that it has a positive impact on the quality of nursing services."

A preliminary study conducted in September 2025 at Prof. Dr. Aloe Saboe Hospital, based on the results of interviews with the head of the G3 Surgery and Neuro room, shows that the Khanza application as a digital documentation system is very helpful and makes it easier for nurses to record nursing care. Based on interviews with the G3 Surgical and Neuro room team leader, the Khanza application can improve the accuracy and speed of documentation, reduce recording errors, improve data accessibility, and optimize data management.

Previous studies have proven the efficiency of digital documentation in general, but no one has examined the efficiency of the Khanza application for nursing care documentation at Prof. Dr. Aloe Saboe Hospital.

RESEARCH METHODS

Research methodology is a systematic procedure or step used to obtain scientific knowledge in a planned and structured manner. Research design plays an important role in determining the direction of research, because the right design allows researchers to control factors that can affect the accuracy of research results (Notoatmodjo, 2018).

This study uses an analytical quantitative design with a cross sectional approach. This design aims to analyze the effect of the efficiency of digital documentation of the SIMRS Khanza application on the completeness of nursing care documentation for nurses. Measurement of independent variables and dependent variables is carried out simultaneously at one time of data collection.

The independent variable in this study is the efficiency of the digital documentation of the Khanza application, while the dependent variable is the completeness of nursing care documentation. The efficiency of digital documentation was measured using observation sheets, while the completeness of nursing care documentation was assessed using observation sheets based on the stages of the nursing process which included assessment, diagnosis, planning, implementation, and evaluation.

This research was carried out in Building III of Prof. Dr. Aloe Saboe Hospital, Gorontalo City. The research was conducted in December 2025.

Data Analysis Techniques

Univariate analysis

Univariate analysis is data related to the measurement of one variable at a certain time (Sugiyono, 2018). This study uses univariate analysis. The presentation of the results of the data analysis will later use a frequency distribution table in the form of frequency, the percentage of characteristics of respondents of the research variable.

Bivariate analysis

Bivariate analysis in this study was used to determine the effect of the efficiency of digital documentation of the SIMRS Khanza application on the completeness of nursing care documentation. The analysis is carried out after the data has gone through the stages of editing, coding, scoring, and tabulation, according to the operational definition of the variable.

RESULTS

Univariate Analysis

Table 1. Analysis of the Khanza Application Digital Innovation

Variable	Categories	Frequency (f)	Percentage (%)
Digital Innovation of the Khanza Application	Efficient	33	89.2
	Quite Efficient	4	10.8

Based on Table 1 on the univariate analysis of digital documentation efficiency using the Khanza Application, it was found that most respondents assessed digital documentation to be in the efficient category, namely 33 respondents (89.2%). Meanwhile, only 4 respondents (10.8%) assessed that the efficiency of digital documentation was in the category of quite efficient.

These findings show that the implementation of digital documentation through the Khanza Application has gone very well and is considered to be able to increase efficiency in the nursing documentation process. The high percentage in the efficient category indicates that this application helps healthcare workers save time, make recording easier, and improve the neatness and regularity of data compared to manual documentation.

Thus, it can be concluded that the Khanza Application in general has made a positive contribution to the efficiency of digital documentation, although there are still a small number of respondents who feel that efficiency is at a sufficient level, which can be used as material for further evaluation and development.

Univariate Analysis of Nursing Care Documentation

Table 2. Univariate Analysis of Nursing Care Documentation

Variable	Categories	Frequency (f)	Percentage (%)
Nursing Care Documentation	Efficient	32	86.5
	Quite Efficient	2	5.4
	Inefficient	3	8.1

Most respondents rated digital documentation using the Khanza application as efficient, namely 32 respondents (86.5%). The majority of nurses feel the ease, speed, and time savings in the process of documenting nursing care after the use of the Khanza digital system. Khanza's digital documentation system provides structured data input features, automation of documentation formats, and real-time patient data access that improves nurses' work efficiency.

As many as 2 respondents (5.4%) rated digital documentation as quite efficient. Some nurses experience the process of adapting to the use of the system, limited technological skills, and technical constraints of networks and devices that affect the perception of efficiency. As many as 3 respondents (8.1%) rated digital documentation as inefficient. Nurses who are used to using manual documentation, have a high workload, or have difficulty using the Khanza application experience obstacles in the documentation process. This condition shows the need for continuous assistance and training for some nurses.

The Khanza application assists nurses in filling out nursing care documentation in a structured and standard manner. Digital documentation systems reduce the risk of data not being filled in or missed in nursing care records. Some nurses experience time constraints, high workloads, and system adaptation processes that cause incomplete documentation. In general, the use of digital documentation has an important role in improving the quality and completeness of nursing care documentation. Digital documentation systems require continuous evaluation and improvement so that all nurses can use them optimally.

Bivariate Analysis

Table 3. Results of the analysis of the Chi Square test of the efficiency of the Khanza application with the completeness of the documentation

Table 3. Results of the analysis of the Chi Square test of the efficiency of the Khanza application with the completeness of the documentation

Application	Complete Documentation						Total	p-value
	Efficient		Enoug		Less			
	f	%	f	%	f	%		
Khanza	Efficient		Efficient		Efficient			
Efficient	33	89.2	0	0			33	0.000
Quite Efficient	0	0	1	2.7	3	8.1	4	
Inefficient	33	89.2	1	2.7	3	8.1	37	

Based on the results of the analysis in Table 3, the relationship between the efficiency of the Khanza Application and the completeness of nursing care documentation in 37 respondents showed that all nurses who assessed the efficiency of the Khanza Application in the efficient category, namely 33 respondents (89.2%), had efficient nursing care documentation.

Among nurses who assessed the efficiency of the Khanza Application in the category of being quite efficient, there were 4 respondents (10.8%), with details of 1 respondent (2.7%) having fairly efficient documentation and 3 respondents (8.1%) having less efficient documentation.

The results of the statistical test using the Chi-Square test obtained a p-value = 0.000 ($p < 0.05$), so it can be concluded that there is a significant relationship between the efficiency of the Khanza application and the completeness of nursing care documentation. This shows that the higher the efficiency level of the Khanza application, the better the level of completeness of nursing care documentation produced by nurses.

In this analysis, the Odds Ratio (OR) value is not calculated because the contingency table used is table 3×2 and there are cells with an expected count value of less than 5, so the risk analysis does not meet statistical requirements.

DISCUSSION**Efficiency of Digital Documentation of Khanza Application**

The results of the digital efficiency measurement showed that out of 37 respondents, 33 respondents obtained a total score of ≥ 94 and were included in the efficient category, while 4 respondents obtained a total score of 92-93 and were included in the category of quite efficient. There are no respondents with a score below 63, so there are no respondents who are categorized as inefficient.

In the operational efficiency indicator, 33 respondents in the efficient category gave a score of 4 (strongly agree) on almost all items. This can be seen from the data that most respondents obtained full scores on items 1 to 16. The nurse stated that the Khanza app speeds up documentation, reduces double record-keeping, and makes daily work easier. This condition makes the operational efficiency score high and encourages respondents to enter the efficient category. In contrast, 4 category respondents were quite efficient giving a score of 3 (agree) on most operational efficiency items. The four respondents assessed that the Khanza application helped work, but did not provide maximum speed and comfort. This assessment caused a lower operational efficiency score than the efficient category respondents.

In the low implementation cost indicator, 33 respondents in the efficient category gave a score of 4 (strongly agree) to items related to ease of reporting and application benefits. Nurses assessed that the Khanza application did not increase the workload and did not cause difficulties in daily use. This assessment strengthens the total score of respondents so that it is in the efficient category. In the 4 category respondents were quite efficient, the score given was mostly 3 (agreed). Respondents assessed that the Khanza application was not burdensome, but the benefits felt were not fully optimal. This causes the low implementation cost indicator score to not reach the maximum value.

In the flexibility and customization indicators, 33 respondents in the efficient category gave a score of 4 to almost all items. Nurses assessed that the Khanza application is easy to adapt to the needs of the work unit and easy to use in nursing documentation. This condition increases the comfort of nurses in using digital systems. In the 4 respondents of the category are quite efficient, the value given is 3 on most items of flexibility and customization. Respondents are still adjusting to the digital system and have not fully utilized the app's features. This adaptation process leads to a lower indicator score.

In the indicators of multiuser support and interoperability, 33 respondents in the efficient category gave a score of 4 to the items of data integration and ease of access to information. The nurse stated that the Khanza application makes it easier to access patient data and supports interprofessional teamwork. The integration of this system supports the smooth running of nursing services. In the 4 category respondents were quite efficient, the score given was mostly 3, and in some items there was a value of 2. Respondents assessed that data integration is already underway, but the benefits have not been fully felt in daily work. This causes the indicator score to be lower than the efficient category respondents.

A total of 33 respondents were categorized as efficient because they gave a score of 4 (strongly agreed) to almost all items in the four indicators. A total of 4 respondents were categorized as quite efficient because they gave a score of 3 (agree), and on some items a score of 2, although they still considered the Khanza application useful. There were no inefficient category respondents because all respondents gave a positive assessment of the use of the Khanza application, this was influenced by the characteristics of the respondents.

The majority of respondents have a relatively adequate education in the Nurse Profession and work experience, so they have a good understanding of the nursing process and documentation flow. Higher levels of education contribute to clinical analysis skills, system understanding, and thoroughness in filling out nursing documentation. According to Adult Learning Theory, nurses with a sufficient educational background and experience will find it easier to associate the use of digital documentation systems with the needs of daily clinical practice, so that they can make more optimal and efficient use of the Khanza application.

The work experience of the respondents, who are mostly in the medium to long category, allows nurses to have a strong basis for comparison between manual and digital documentation. Long experience in manual documentation enables nurses to objectively assess the advantages of digital documentation, especially in terms of time efficiency, ease of data access, and reduction of duplication of records. However, this characteristic also explains why a small percentage of respondents still consider the system to be quite efficient or inefficient, due to old work habits and limited knowledge of using the Khanza application, especially in certain features and inputs such as the nursing evaluation section that is missed due to lack of technical understanding. This shows that individual characteristics, particularly education level, work experience, and knowledge of using the system, play an important role in shaping the perception of digital documentation efficiency.

The success of a digital documentation system is determined by the quality of the system and user satisfaction. The Information Systems Success Model states that system quality, information quality, and user satisfaction are the main factors in assessing the success of an information system. A digital documentation system with structured workflows, clear interfaces, and accurate data will improve nurse satisfaction and perception of work efficiency (DeLone & McLean, 2016). This approach is reinforced by the Human-Computer Interaction (HCI) Theory which asserts that a system design that suits user needs, simple navigation, and user-friendly appearance will increase the effectiveness and efficiency of using technology compared to manual documentation (Preece et al., 2015).

The cognitive load of nurses affects the speed and accuracy of nursing documentation. Cognitive Load Theory explains that the use of a structured and standardized digital documentation system can reduce the cognitive load of users. A decrease in cognitive load allows nurses to complete documentation more quickly and accurately, thereby improving the perception of work efficiency (Sweller et al., 2019). This statement is in line with a World Health Organization report which states that digital documentation systems are able to improve the work efficiency of health workers through reducing duplication of records, accelerating data access, and improving continuity of nursing care (WHO, 2020). Empirical findings also show that nurses who use electronic documentation consistently report higher levels of work efficiency and satisfaction than manual documentation (Alsuraihi et al., 2020).

Nursing care documentation.

In line with high digital efficiency, nursing care documentation also shows good results. At the study stage, almost all respondents achieved the maximum score. Of the 37 respondents, more than 90% obtained full scores on the study items. This high score is due to the assessment format that has been structured in the system, covering bio-psycho-social-spiritual aspects, so that it is easier for nurses to fill in the data completely and systematically.

At the nursing diagnosis stage, most respondents also obtained the maximum score. More than 85% of respondents were in the efficient category. This is because the system provides standardized nursing diagnosis options, making it easier for nurses to establish diagnoses that are appropriate to the patient's condition and reduce the risk of documentation errors.

The nursing plan stage showed a slight decrease in scores in some respondents. About 15–20% of respondents did not achieve the maximum score. This condition is mainly found in respondents with the category of sufficient and less efficient digital efficiency. Nursing plans require analytical skills and skills in

linking diagnoses to interventions, so nurses who are not yet fully familiar with digital systems tend to fill in incompletely.

At the nursing action stage, most of the respondents remained in the efficient category, but still found a score of 0 in some items. This happens to about 10–15% of respondents. The incompleteness of documentation of these actions is caused by the high workload and clinical conditions that demand rapid action, so that recording is often delayed or not done in person.

The evaluation aspect is the stage with the lowest score compared to other stages. About 20% of respondents did not complete the evaluation completely, which is reflected in the score of 0 on the evaluation item. This suggests that evaluation is often considered a final stage that is less of a priority than assessment and action, especially in high-workload conditions. In fact, evaluation is an important part of assessing the success of nursing care and determining service follow-up.

Overall, the total nursing care documentation showed that most respondents were in the efficient category, with a score of 10–11 out of a maximum total of 11. Respondents with lower scores (7–9) generally came from a group of nurses with low digital efficiency and long working hours. This shows that the higher the digital efficiency, the more complete the nursing care documentation produced.

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The digital efficiency of the Khanza application for nursing care documentation. The results of the study show that there is a significant relationship between Application Efficiency Khanza with

Completeness of nursing care documentation. The results of the Chi-Square test resulted in a p-value = 0.000 ($p < 0.05$), which indicates that the efficiency of using the Khanza application is meaningfully related to completeness documentation of nursing care performed by nurses. All nurses who assessed the efficiency of the Khanza Application in the efficient category, namely 33 respondents (89.2%), had documentation of nursing care that was also in the efficient category. These findings show that the use of applications that are easily accessible, have features that support nursing workflows, and are able to speed up the recording process, play an important role in improving the completeness of documentation at all stages of the nursing process, from assessment to evaluation.

In the group of nurses who assessed the efficiency of the Khanza Application in the category of being quite efficient, namely as many as 4 respondents (10.8%), there was still a variation in the level of completeness of documentation. As many as 1 respondent (2.7%) had documentation in the category of being quite efficient, while 3 respondents (8.1%) had documentation in the category of not being efficient. This condition shows that even though the application has been used, there are still obstacles in its optimal utilization, thus having an impact on the completeness of nursing care documentation.

Obstacles that affect the completeness of documentation in the category of efficient and inefficient can be caused by several factors, including the limitations of information technology (IT) skills in nurses, difficulties in finding and operating certain features in the application, and technical obstacles such as unstable

applications or crashes. In addition, a slow or unstable internet connection can also hinder nurses in making real-time recordings, resulting in delayed or incomplete documentation.

The efficiency of the Khanza application affects the completeness of nursing care documentation for nurses. An efficient digital documentation system makes it easier for nurses to systematically complete assessments, diagnoses, planning, actions, and evaluations. Structured electronic documentation systems increase the speed of recording and reduce the risk of missing data in nursing documentation (McGonigle & Mastrian, 2018).

Easy access to assessment data through the Khanza application helps nurses in determining nursing diagnoses that are in accordance with PE/PES data and formats. The availability of complete and easily accessible data increases the accuracy of nursing diagnoses (NANDA International, 2021). An efficient digital documentation system also supports nurses in crafting nursing planning based on problem priorities (Potter et al., 2021).

The digital recording feature on the Khanza application ensures that nurses record nursing actions according to the implementation time. An efficient electronic documentation system reduces delays in recording procedures and improves the accuracy of nursing care documentation (World Health Organization, 2020). The accuracy of recording actions supports the continuity of nursing care between nurse shifts.

The efficiency of the Khanza application also affects the completeness of nursing evaluation documentation. The easy-to-use system encourages nurses to fill out evaluations according to the objectives and outcome criteria. Complete evaluation documentation ensures the sustainability of care and facilitates subsequent nursing decision-making (Potter et al., 2021).

The perception of the efficiency of the Khanza application affects the behavior of nurses in using the digital documentation system. Perceived usefulness and perceived ease of use increase the acceptance of technology by nurses. A system that is considered efficient encourages optimal use of the system, including filling in all components of nursing documentation (Venkatesh & Davis, 2020).

Respondents' characteristics such as length of employment, education level, and experience using manual documentation influenced the nurses' adaptation to the Khanza application. Nurses with work experience and higher levels of education show better technological adaptability. A good level of adaptation increases the completeness of nursing care documentation, while the limitations of adaptation and high workload cause incomplete documentation, especially in the evaluation section (Benner, 2015; Alsuraihi et al., 2020).

These findings are in line with research in Indonesia that manual documentation takes longer and increases administrative burden, while digital documentation is more efficient because recording is more structured and easily accessible (Herlina et al., 2021). Thus, respondents' characteristics and experience of using the system support the finding that the digital documentation of the Khanza application is more efficient in documenting nursing care.

This research is supported by Sinaga and Sumartini (2025) who stated that the application of Electronic Medical Records (EMR) significantly improves the work efficiency of nurses compared to manual documentation. The results of her research show that nurses who use electronic documentation systems have more efficient working time and better documentation quality. These findings are in line with the results of this study, where the digital documentation of the Khanza application has a lower mean value and is considered more efficient than manual documentation.

This research is also supported by Saraswasta and Hariyati (2024) in a literature study which concludes that electronic-based nursing care documentation is able to reduce recording time, increase the completeness of documentation, and provide more time for nurses to provide direct care to patients. This condition explains why the majority of respondents in this study have a higher perception of the efficiency of digital documentation than manual documentation.

In addition, the research of Fajri and Arif (2025) showed that there was a significant difference between electronic and manual documentation on the time efficiency, completeness, and accuracy of nursing care documentation ($p < 0.05$). Electronic documentation systems have proven to be more effective because they are able to minimize the repetition of note-taking and writing errors. These results reinforce the research findings that the digital documentation of the Khanza application is more efficient than manual documentation.

Furthermore, Alsuraihi et al. (2020) stated that the perception of the efficiency of health workers towards digital documentation systems is influenced by the ease of use and perceived benefits, as explained in the Technology Acceptance Model (TAM). Nurses who are used to using digital systems tend to assess electronic documentation more efficiently than manual methods. This is relevant to the characteristics of the respondents in this study who have had experience using digital documentation for two years.

The results of this study confirm that the efficiency of the nursing information system plays an important role in ensuring the completeness of nursing care documentation. An efficient application not only speeds up the record-keeping process, but also assists nurses in compiling systematic, accurate, and continuous documentation. On the other hand, if the application has not been used optimally, then the completeness of nursing care documentation has the potential to decrease.

Based on the results of statistical tests, theoretical studies, and previous research support, it can be concluded that the efficiency of the Khanza application has a significant influence on the completeness of nursing care documentation. An efficient digital documentation system is able to support nurses in documenting all stages of the nursing process in a systematic, accurate, and continuous manner. In addition, the characteristics of the respondents and the experience of using the system also strengthened the adaptation of nurses to digital documentation. Therefore, optimizing the use of the Khanza application through continuous training, management support, and system improvement is an important step to improve the quality of nursing care documentation and the overall quality of nursing services.

CONCLUSION

The characteristics of nurses who use the Khanza application are dominated by female nurses with a majority level of education in the Nurse Profession and sufficient work experience. All respondents have been using the Khanza application for two years, so they have adequate experience in using digital documentation.

The efficiency of digital documentation using the Khanza application is mostly in the efficient category. This shows that the Khanza application is able to support nurses in documenting nursing care faster, easier, and more systematically.

The completeness of nursing care documentation is mostly in the complete category. The use of the Khanza application helps nurses in documenting all stages of the nursing process which includes review, diagnosis, planning, implementation, and evaluation.

The results of the Chi-Square test showed a significant influence between the efficiency of the Khanza application and the completeness of nursing care documentation ($p < 0.05$). The higher the level of efficiency of the Khanza application that nurses feel, the more efficient the level of completeness of nursing care documentation produced.

ADVICE

The results of this study are expected to be evaluation materials for health service institutions in improving the efficiency of using the Khanza application and the completeness of nursing care documentation through the provision of continuous training, strengthening supervision, and optimizing hospital information systems.

Nurses are expected to use Khanza's digital documentation consistently and attend training to make documentation more effective and efficient.

Further research is suggested to examine digital documentation with a broader scope and variables, such as documentation quality and patient safety.

This research is expected to contribute to the development of nursing science, especially in the field of nursing management and nursing informatics, in supporting the application of digital technology to improve the efficiency and quality of nursing care documentation.

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