

Analysis of User Perceptions of E-Puskesmas Implementation Using the End User Computing Satisfaction (EUCS) Method

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A B S T R A C T

The e-Puskesmas system was implemented at the Melai Community Health Center (UPTD Puskesmas Melai) in Baubau City in 2024, marking a shift in healthcare services from a manual to an electronic system. However, implementation has faced challenges such as network disruptions, application errors, and incomplete patient data. This study aims to analyze user perceptions regarding the e-Puskesmas implementation using the End User Computing Satisfaction (EUCS) method, covering the dimensions of content, accuracy, format, ease of use, and timeliness. A qualitative descriptive approach based on the Miles and Huberman model was employed, involving 12 informants: the head of medical records, registration staff, medical record staff, nurses, midwives, doctors, and system operators. Data collection was conducted through in-depth interviews, observation, and document review. The results indicate that the implementation of e-Puskesmas is generally perceived positively. The content dimension was rated as relevant, despite instances of incomplete patient data. The accuracy dimension was considered satisfactory, although duplicate records and input errors due to human error were still observed. The format dimension received the most positive rating due to the system's clear and easily understandable interface. The ease-of-use dimension showed that the system is user-friendly and supported by usage guidelines. The timeliness dimension demonstrated the system's ability to provide information and reports quickly, though performance remains dependent on internet network stability. The implementation of e-Puskesmas has helped improve the effectiveness of healthcare services, although further improvements are needed regarding network quality, data completeness, and system development.

INTRODUCTION

A Puskesmas (community health center) is a primary-level healthcare facility that plays an important role in delivering comprehensive public and individual health services. Under Health Ministry Regulation No. 19 of 2024, the services provided include promotive, preventive, curative, rehabilitative, and palliative efforts, meaning that Puskesmas require supporting information systems capable of enabling services that are effective, efficient, and sustainable.

One form of information technology utilization in Puskesmas is the implementation of Electronic Medical Records (EMR). Under Health Ministry Regulation No. 24 of 2022, an EMR is a medical record created and managed through an electronic system that contains patient identity, examination results, treatment, procedures, and other health services. To support EMR implementation, many Puskesmas have adopted the e-Puskesmas application to help with patient registration, medical record documentation, reporting, and integrated health data management Putri et al., (2025). The information system implemented must be able to produce data that is accurate, complete, and easily accessible as a basis for decision-making in the health sector Simatupang & Zagoto, (2024).

Nevertheless, e-Puskesmas implementation still faces various obstacles, such as internet network disruptions, system errors, limited application features, and user satisfaction levels that are not yet optimal Salshabila et al., (2025). In addition, not all health service reports can yet be integrated into the e-Puskesmas application; reports such as LB3, LB4, and LPLPO are still largely prepared manually, while the new system only supports part of the reporting, such as LB1 Christian, (2023). This condition shows that the benefits of e-Puskesmas implementation in improving service efficiency and health worker performance are still influenced by system quality, network stability, and ease of application use, so ongoing evaluation of the system remains necessary (Setiatin, n.d).

One approach that can be used to evaluate information system user satisfaction is the End User Computing Satisfaction (EUCS) method developed by Doll and Torkzadeh (1988). This method measures user satisfaction based on five dimensions — content, accuracy, format, ease of use, and timeliness — so that it can describe the user's experience in utilizing an information system. This evaluation is important because user satisfaction is one indicator of the success of an information system's implementation and can provide an overview of aspects that still need improvement Salshabila et al., (2025).

Based on the results of initial observations and interviews conducted on 10 February 2026 at Puskesmas Melai, Baubau City, e-Puskesmas (EMR) began to be implemented at the end of March 2024 after staff socialization and training were carried out. Implementation of this system has helped speed up services, improve work efficiency, and simplify patient data management. However, in practice there are still obstacles such as internet network disruptions, application errors, and instances of mismatched National Identity Number (NIK) data, so the system still requires development in terms of infrastructure, application quality, and user competence.

Based on the description above, this study aims to analyze user perceptions of e-Puskesmas implementation at Puskesmas Melai, Baubau City, based on the five EUCS dimensions — content, accuracy, format, ease of use, and timeliness — as a basis for the ongoing improvement of system quality.

METHODOLOGY

This study used a qualitative research type with a descriptive approach based on End User Computing Satisfaction (EUCS). The qualitative approach was chosen because this study aims to gain an in-depth understanding of users' experiences and perceptions of the e-Puskesmas system, while the descriptive approach was used to systematically and factually describe the system's implementation at Puskesmas Melai Sugiono,(2013).

The research subjects were e-Puskesmas system users directly involved in service delivery, consisting of the head of medical records (1 person), registration staff (2 people), medical record staff (2 people), nurses (2 people), midwives (2 people), a doctor (1 person), and system admins/operators (2 people), for a total of 12 informants. The research object was the implementation of the e-Puskesmas system, analyzed based on the five EUCS dimensions — content, accuracy, format, ease of use, and timeliness. The research was conducted at UPTD Puskesmas Melai, Kelurahan Melai, Kecamatan Murhum, Baubau City, from March to May 2026.

Data were collected through in-depth interviews, observation, and documentation study. Interviews were directed at all staff members using the system to obtain information about their experiences, obstacles, and perceptions. Observation was carried out to directly observe the service processes utilizing e-Puskesmas, while the documentation study was used to review SOPs, service reports, and archives related to the system's implementation Sugiono, (2013). The research instruments consisted of an interview guide, an observation sheet/checklist, and writing and recording tools.

Data analysis was carried out through three stages: data reduction, data presentation, and conclusion drawing/verification Sugiono, (2013). Data validity testing was carried out through source triangulation — comparing data from various informants — and technique triangulation — comparing interview results with observation results and documentation study — to ensure the credibility of the data obtained.

RESULTS & DISCUSSION

UPTD Puskesmas Melai is located in Kelurahan Melai, Kecamatan Murhum, Baubau City, with a service area covering two kelurahan (Melai and Baadia), and received PARIPURNA (full) accreditation in 2024. The e-Puskesmas system began to be implemented at this location at the end of March 2024 to support patient registration, medical record documentation, clinical services, pharmacy, and integrated monthly reporting.

Observation results for 30 items across the five EUCS dimensions showed that all items in every dimension were fulfilled (“Yes”), as presented in Table 1.

Table 1. Recapitulation of Observation Results for the Five EUCS Dimensions

EUCS Dimension	Yes	No	Notes
Content	6	0	The information available meets user needs in supporting health services
Accuracy	6	0	The data and information produced by the system are considered accurate and usable as a basis for service delivery.
Format	6	0	The system's display is well organized, easy to understand, and makes it easy for users to access information.

EUCS Dimension	Yes	No	Notes
Ease of Use	6	0	The system is easy to learn and operate without significant difficulty.
Timeliness	6	0	The system is able to provide information in a timely manner and supports fast service.
Total	30	0	5 EUCS Dimensions

Source: Primary data, 2026

1. Content Dimension

The content dimension of e-Puskesmas at Puskesmas Melai generally received a positive perception; the available information was considered relevant and supportive of service needs, from registration and medical record documentation to clinical services and monthly reporting. This finding is in line with the research of Salshabila et al., (2025). at Puskesmas Siulak Mukai and Simatupang & Zagoto, (2024). at Puskesmas Sibabangun, who stated that the content dimension influences user perceptions of a Puskesmas information system. However, obstacles remain in the completeness and consistency of data, such as NIK and BPJS numbers that do not always appear complete in the system, requiring staff to complete them manually — a finding also reported by Ilmu et al., (2026). at Puskesmas Klenganan. Health Ministry Regulation No. 24 of 2022 affirms that the implementation of electronic medical records must guarantee the availability, accuracy, and integrity of patient data, so the integration of BPJS data and population data (NIK) with the e-Puskesmas system needs to continue to be developed.

2. Accuracy Dimension

The accuracy dimension falls into the fairly good category, although data errors were still found, generally caused by human error during input rather than system weaknesses alone. This is in line with Pibriana et al., (2022). who stated that data accuracy also depends on user competence and thoroughness. A more systemic obstacle was found in the system's inability to automatically detect duplicate patient data, as also found by Sistem et al., (2025). in Gorontalo Regency, and by Simatupang & Zagoto, (2024). who identified accuracy as the dimension most frequently complained about by SIMPUS users. Therefore, improvements are needed to automatic validation features, including a NIK-based duplicate-data detection mechanism, as well as further training for staff.

3. Format Dimension

The format dimension received the most positive assessment; all informants stated that the system's interface was clear, well organized, easy to understand, and had a logical menu layout, and was able to produce reports in Microsoft Excel format that assist with data verification. This finding is supported by Dini et al., (2024). who showed that an orderly hospital information system (SIMRS) display and menu structure speeds up work processes, and by Di et al., (2025). who reported EMR user perceptions in the fairly good to very good category, although technical obstacles were still found in other studies. Going forward, improvements could be directed toward adding data visualizations such as charts or an interactive dashboard.

4. Ease of Use Dimension

The ease-of-use dimension was rated fairly good; the system was considered easy to operate with simple navigation, supported by a user guide that helps staff adapt to feature updates, in line with the definition of Pibriana et al., (2022). However, internet network disruptions remain the main obstacle slowing down the data-input process, as also found by Christian, (2023). in Bandung City. Simatupang & Zagoto, (2024). even found that ease of use contributed 80.4% to the real benefits perceived by system users, making the improvement of network infrastructure, including the provision of backup networks, a priority at Puskesmas Melai.

5. Timeliness Dimension

The timeliness dimension was rated fairly good under stable network conditions; the system was able to synchronize data quickly and produce daily, monthly, and annual reports on time. Internet network disruptions remain the main factor hindering the timeliness of access, in line with the findings of S. A. Putri et al., (2021). in Padang City and Sistem et al., (2025). in Gorontalo Regency. Ilmu et al., (2026). also found that the timeliness dimension has a positive relationship with user perception, although its value is relatively lower compared to the other dimensions. Increasing bandwidth, providing backup networks, and developing an offline mode feature with automatic synchronization could be solutions going forward.

CONCLUSION

The implementation of e-Puskesmas in services at UPTD Puskesmas Melai, Baubau City, has generally run fairly well, but still requires strengthening in several aspects. From the content dimension, the system is considered to have provided relevant information that supports service needs, but the completeness of patient data such as NIK and BPJS numbers is still inconsistent, requiring staff to complete the data manually. From the accuracy dimension, the data produced by the system is fairly accurate, but duplicate data and input errors caused by human error during input are still found. From the format dimension, the system received the most positive rating due to its clear, well-organized, and easily understandable interface. From the ease-of-use dimension, the system is considered easy to learn and operate with the support of a usage guide, although internet network disruptions still hinder the smoothness of the data-input process. From the timeliness dimension, the system is able to present data and reports quickly, but the speed of access is still affected by internet network stability that is not yet optimal.

Overall, the implementation of e-Puskesmas at UPTD Puskesmas Melai is not yet fully optimal and requires interrelated improvements across all five EUCS dimensions. Puskesmas are advised to improve the quality of internet network infrastructure so that system use runs more stably, and to conduct periodic evaluation and updates of the system. Staff using e-Puskesmas are advised to be more careful in inputting data to minimize recording errors, duplicate data, and incomplete data, and to make optimal use of all system features in accordance with procedures. System developers are also advised to continue refining the application, particularly in data-validation and report-integration features, so that the system becomes faster, more stable, and better suited to the needs of users at health service facilities.

This study has limitations because it used a descriptive qualitative approach with a limited number of informants at a single research location, namely UPTD Puskesmas Melai, which only began implementing e-Puskesmas at the end of March 2024, so the research results are contextual and cannot yet be generalized to other Puskesmas at different stages of system implementation. The limited research period, conducted from March to May 2026, also meant that observation of system-use developments could not be carried out over the long term. Therefore, the results of this study describe the condition of e-Puskesmas implementation at the time the research was conducted.

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