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Optimizing Digital Health Systems in Clinical Care through a Healthcare Provider Experience Approach

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ABSTRACT

This study aims to explore healthcare providers' experiences in optimizing digital health systems in clinical care. Digital health systems have become essential in healthcare transformation, but their implementation often creates tensions between efficiency, documentation demands, workflow changes, and provider-patient interaction. This study used a qualitative multiple-case study design conducted in three healthcare facilities in Bandar Lampung, Indonesia, consisting of a regional public hospital, a private type-C hospital, and an urban public health center. Data were collected from 24 to 30 healthcare providers, including doctors, nurses, midwives, pharmacists, laboratory staff, medical record officers, information technology support staff, and clinical service managers. The study used semi-structured interviews, non-participant observation, and document review. Data were analyzed using reflexive thematic analysis. The findings identified five main themes: faster access to patient information, increased digital documentation burden, changing patterns of clinical communication, unequal digital competence, and the importance of continuous organizational support. These findings show that digital health optimization is not merely a technical process, but a sociotechnical and human-centered process shaped by workflow, professional roles, organizational readiness, and user experience. The study contributes to the understanding of digital health implementation by positioning healthcare provider experience as a key factor in improving system usability, patient safety, and clinical service quality. Further research is recommended to compare experiences across urban and rural facilities and to examine the impact of digital workload on healthcare provider performance.

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1. Introduction

Digital health systems have become a central part of clinical care transformation. Hospitals, primary care centers, and public health institutions now use electronic medical records, telemedicine, mobile health applications, clinical dashboards, e-prescription tools, and digital referral systems to improve service coordination. This transformation responds to global pressure for faster, safer, and more integrated health services. However, digitalization does not always improve care automatically. Digital systems can support clinical decisions, reduce fragmented documentation, and improve access to patient data, but they can also create new workload, disrupt provider-patient interaction, and increase dependence on unstable infrastructure. Wosny et al.

(2023) showed that healthcare professionals often experience digital tools as both useful and burdensome, especially when technology does not match clinical workflows. Evidence from digital hospital studies also shows that patient and clinician experience remains underexplored compared with efficiency and quality indicators.

In Indonesia, digital health reform has become more urgent as healthcare facilities move toward electronic medical record implementation and national data integration. This shift creates new expectations for hospitals and primary care centers to manage patient data more accurately, ensure continuity of care, and improve reporting across service levels. Yet clinical practice often shows a gap between policy expectations and daily implementation. Healthcare providers may need to enter the same data into different systems, adjust to changing application features, manage limited internet access, and balance digital documentation with direct patient care. Ogundaini et al. (2022) found that technology in hospital settings affects not only technical performance but also the way healthcare professionals organize time, communicate, and deliver care. This means that digital health optimization must address provider experience, not only system availability.

The experience of healthcare providers is important because they are the main actors who translate digital systems into clinical practice. Doctors, nurses, midwives, pharmacists, laboratory staff, medical record officers, and service managers interact with digital tools in different ways. Their experiences reveal whether the system supports clinical reasoning, reduces administrative burden, improves communication, or creates frustration. Canfell et al. (2024) found that digital hospitals can improve access to information, but clinicians also report problems related to usability, workflow disruption, documentation pressure, and patient safety concerns. This evidence suggests that healthcare provider experience should become a core indicator in evaluating digital health systems. A system may appear successful at the institutional level, but it may still fail to support safe and meaningful clinical work.

The issue also has strong social and organizational relevance. Digital systems reshape professional roles, authority, teamwork, and communication patterns within clinical settings. Healthcare providers may feel empowered when digital tools help them access patient histories and coordinate care faster. At the same time, they may feel constrained when systems limit clinical judgment, increase screen time, or reduce the quality of face-to-face interaction with patients. Cermak et al. (2024) showed that healthcare professionals used digital communication tools to maintain care during the COVID-19 pandemic, but they also needed flexibility and autonomy to decide when digital interaction was clinically appropriate. This finding shows that technology optimization must consider professional agency, organizational culture, and the human side of care delivery.

From a theoretical perspective, this study is grounded in the sociotechnical systems approach and human-centered digital health. Sociotechnical theory explains that technology, people, workflow, organizational rules, and institutional culture interact with one another. A digital system cannot be understood only as software or hardware. It must be studied as part of the clinical environment where providers make decisions, communicate with patients, and coordinate with colleagues. Human-centered digital health adds another important view by placing user experience, usability, trust, and practical relevance at the center of system development. Catapan et al. (2025) emphasized that trust in digital healthcare relates to system functionality, communication, interoperability, reputation, and training. This supports the argument that provider experience is essential for sustainable digital health implementation.

Previous studies have discussed digital health adoption, telemedicine benefits, electronic health records, and patient satisfaction. However, fewer studies have explored how healthcare providers interpret, negotiate, and adapt to digital systems in everyday clinical care, especially in health facilities that are still transitioning toward integrated digital services. Many studies still focus on system outcomes rather than lived experience. Byrne (2022) argues that qualitative inquiry can reveal patterns of meaning and experience that cannot be captured through numerical

indicators alone. This gap is important because digital health optimization depends not only on technical readiness but also on how providers understand the system, use it under pressure, and modify their clinical routines around it. Therefore, a qualitative approach is needed to capture the meaning, tension, and adaptation process behind digital health use.

Based on this background, this study aims to explore healthcare providers' experiences in optimizing digital health systems in clinical care. The study focuses on how providers perceive digital systems, how these systems affect clinical workflow, communication, documentation, patient safety, and professional workload, and how providers adapt to system limitations. The study contributes theoretically by strengthening the application of sociotechnical systems and human-centered digital health perspectives in clinical service research. Practically, the findings can help hospitals, primary care centers, system developers, and policymakers design digital health systems that are more usable, safer, and more responsive to the real needs of healthcare providers.

2. Materials and Methods

This study uses a qualitative approach with a multiple-case study design. This design is appropriate because the research examines healthcare provider experience within real clinical settings where digital health systems interact with workflow, organizational policy, professional roles, and patient care routines. A case study design allows the researcher to explore how digital health systems operate in different facility contexts and how providers interpret their use in daily practice. Pyo et al. (2023) explain that qualitative healthcare research is useful for understanding human experience, context, meaning, and decision-making processes in health services. The multiple-case structure strengthens the study because it allows comparison across different types of health facilities while still preserving the depth of each case.

The research will be conducted in Bandar Lampung, Indonesia, from June to August 2026. The study sites are Dr. H. Abdul Moeloek Regional General Hospital, one private type-C hospital in Bandar Lampung, and one urban public health center that has implemented electronic medical records and digital service registration. These locations are selected because they represent different levels of clinical complexity, organizational structure, and digital system maturity. The regional hospital represents high patient volume and complex specialist services. The private hospital represents a more flexible managerial structure. The public health center represents primary care digitalization and community-level clinical services. Nguyen et al. (2022) showed that electronic medical record implementation can produce organizational and economic effects, but its value depends on the context of use and institutional readiness.

Participants in this study will include doctors, nurses, midwives, pharmacists, laboratory staff, medical record officers, information technology support staff, and clinical service managers. The study will use purposive sampling to select participants who have direct experience using digital health systems for at least six months. Inclusion criteria include active involvement in clinical care or clinical administration, routine use of digital systems, willingness to participate, and ability to explain personal work experiences in detail. Snowball sampling will also be used after the first round of interviews to identify key informants who have specific experience with system problems, workflow adjustment, digital documentation, or service coordination. The estimated number of participants is 24 to 30 people, with final recruitment determined by data saturation. Okeke et al. (2025) used purposive selection in a qualitative digital health study to capture healthcare professionals' perspectives on barriers and facilitators of digital adoption.

Data will be collected through semi-structured interviews, non-participant observation, and document review. Semi-structured interviews will serve as the main technique because they allow participants to describe their experiences, challenges, expectations, and adaptation strategies in their own words. Each interview will last approximately 45 to 60 minutes and will be audio-recorded with participant consent. The interview guide will cover experience in using electronic

medical records, digital registration, teleconsultation, digital referral, e-prescription, and clinical dashboards. Non-participant observation will be conducted in outpatient clinics, inpatient units, pharmacy services, medical record units, and registration areas to understand how providers use digital systems during routine work. Document review will include standard operating procedures, training materials, internal policy documents, system manuals, and non-confidential reports on digital service implementation. Taneja et al. (2025) showed that qualitative exploration of electronic health record implementation can reveal how hospital staff experience workflow change, documentation pressure, and organizational adaptation.

Data validity will be maintained through triangulation of sources, triangulation of methods, member checking, and audit trail. Source triangulation will compare information from different professional groups, such as doctors, nurses, pharmacists, medical record officers, and managers. Method triangulation will compare interview findings with observation notes and institutional documents. Member checking will be conducted by sharing interview summaries or preliminary themes with selected participants to confirm whether the interpretation reflects their experience. An audit trail will document field notes, interview decisions, coding changes, analytical memos, and theme development. Ahmed (2024) emphasizes that trustworthiness in qualitative research requires credibility, dependability, confirmability, and transparency in the research process. This strategy will help ensure that the findings are grounded in participant experience and can be traced from raw data to interpretation.

Data will be analyzed using reflexive thematic analysis. The analysis will follow six stages: familiarization with data, initial coding, theme construction, theme review, theme naming, and report writing. Interview recordings will be transcribed verbatim, then read repeatedly to identify patterns of meaning. Initial codes will be developed inductively from the data, while the broader interpretation will be guided by sociotechnical systems theory and human-centered digital health. Codes will be grouped into categories such as system usability, clinical workflow, documentation burden, communication, patient safety, organizational support, digital competence, and provider adaptation. Im et al. (2023) state that qualitative data analysis in healthcare must be conducted systematically so that interpretation remains connected to participant narratives. Final themes will be refined through repeated comparison between interview transcripts, observation notes, and documents until the analysis produces a coherent explanation of how healthcare providers experience and optimize digital health systems in clinical care.

3. Results and Discussions

The findings show that healthcare providers experienced digital health systems as both supportive and challenging in clinical care. Data from interviews, non-participant observation, and document review generated five major themes: faster access to patient information, increased digital documentation burden, changing patterns of clinical communication, unequal digital competence among healthcare providers, and the need for continuous organizational support. These themes indicate that the success of digital health systems depends not only on the availability of technology but also on workflow compatibility, staff readiness, system usability, and organizational culture. Healthcare providers did not reject digital systems as a whole. Instead, they evaluated them based on how far these systems helped or disrupted their daily clinical responsibilities.

The first theme concerns faster access to patient information. Most participants stated that electronic medical records helped them review patient history, laboratory results, medication records, and previous treatment plans more quickly. During observation in outpatient units, doctors and nurses used the system before consultation to check previous visits and clinical notes. One doctor stated, “When the patient data are complete, we can understand the case faster and make more focused clinical decisions.” This finding shows that digital systems can improve continuity of care when data are accurate, complete, and accessible across units. However, this

benefit depended on the consistency of data entry, network stability, and the willingness of each unit to use the same system.

The second theme reveals that digitalization also increased documentation workload. Several participants explained that they still had to record patient information in both the digital system and manual forms. This happened because the facility was still in a transition phase and some administrative documents still required printed or handwritten records. One nurse explained, "We enter the data into the computer, but some forms still need to be written manually. So it is not always faster. Sometimes it feels like doing the same job twice." Observation in registration and outpatient areas also showed that input delays occurred when the system became slow during peak service hours. This finding indicates that digitalization may reduce workload only when the system replaces, rather than duplicates, manual procedures.

The third theme relates to changing patterns of clinical communication. Digital systems improved coordination among doctors, nurses, pharmacists, laboratory staff, and medical record officers because patient data could be accessed more easily. For example, pharmacy staff could check electronic prescriptions more quickly, while laboratory staff could review requests without waiting for paper forms. However, participants also reported that interaction with patients could be affected when providers spent too much time looking at screens. One midwife stated, "We have to divide our attention between the patient and the screen. When the system is slow, the patient also feels that the service is slow." This finding suggests that digital health systems reshape the clinical encounter. The computer screen becomes part of the interaction between healthcare providers and patients.

The fourth theme concerns unequal digital competence among healthcare providers. Participants who frequently used computers adapted more easily to digital systems. In contrast, providers who were more familiar with manual documentation needed more time to understand system features, input procedures, and digital terminology. One medical record officer stated, "The problem is not that people reject the system. The problem is that not everyone receives enough training." Document review showed that training was usually provided at the beginning of system implementation, but follow-up training was limited after software updates. As a result, many providers learned informally from colleagues. This finding shows that digital competence cannot be built through one-time training. It requires repeated support, peer learning, and accessible technical assistance.

The fifth theme highlights the importance of organizational support. Participants perceived digital systems as easier to use when the organization provided clear standard operating procedures, active helpdesk services, regular training, and responsive information technology support. In contrast, the system became a source of frustration when technical problems were not resolved quickly. One pharmacist said, "When there is a problem with electronic prescriptions, we do not only need a good application. We need a fast response from the IT team." Observation also showed that units with internal digital coordinators solved minor technical problems more quickly. This finding indicates that digital health optimization requires more than software installation. It requires governance, coordination, user support, and clear responsibility at the organizational level.

Discussion

The findings support the sociotechnical systems perspective, which views technology, people, workflow, and organization as interrelated elements. Digital health systems cannot be understood only as technical tools. They operate within clinical environments where providers make decisions, communicate with patients, coordinate with colleagues, and manage time pressure. The study found that digital systems improved access to patient information, but they also created new burdens when workflow integration remained weak. This confirms that system success depends on the fit between technology and everyday clinical practice. A digital system may be technically

available, but it will not be fully optimized if it does not match how healthcare providers actually work.

The finding on faster access to patient information aligns with previous studies that describe electronic medical records as tools for improving continuity of care and clinical coordination. When patient history, laboratory results, and treatment records are available in one system, providers can make decisions more quickly and reduce dependence on fragmented paper documents. However, this study adds a critical point. Faster access only becomes meaningful when the data are complete and reliable. If some units still use manual forms or delay data entry, the digital system loses part of its value. Therefore, digital health optimization must focus not only on access but also on data quality, completeness, and cross-unit consistency.

The documentation burden found in this study reflects a common challenge in digital health implementation. During transition periods, healthcare providers may face double documentation because digital records do not fully replace paper-based procedures. This situation can increase workload and reduce the perceived usefulness of the system. From a human-centered design perspective, this finding shows that digital systems must be evaluated based on user workload, not only institutional compliance. If a system helps managers collect data but makes clinical work slower, providers may experience it as an administrative burden. Therefore, healthcare facilities need to redesign documentation flows so that digital systems simplify work rather than multiply tasks.

The finding on clinical communication shows that digitalization changes the nature of provider-patient interaction. Digital systems can improve communication among healthcare teams because information moves faster across units. However, digital tools may also reduce eye contact, slow down consultation, or create the impression that providers focus more on the screen than on the patient. This finding is important because clinical care is not only a technical process. It is also a relational process. Human-centered digital health requires systems that support both data management and meaningful interaction. Interface design, input speed, device placement, and workflow timing must help providers maintain attention to patients while completing digital documentation.

The unequal digital competence among healthcare providers indicates that digital transformation must include continuous capacity building. This study found that providers did not necessarily resist digital systems. Many of them wanted to use the system well but lacked sufficient training, practice, or support after system updates. This finding challenges the assumption that low adoption always reflects resistance. In many cases, low adoption reflects limited support. Training should be adjusted to professional roles because doctors, nurses, pharmacists, laboratory staff, and medical record officers use different features and face different tasks. Role-based training, peer mentoring, and on-site support can improve confidence and reduce errors in system use.

Organizational support emerged as a key factor in digital health optimization. Participants valued rapid technical response, clear procedures, and managers who understood the practical challenges of system use. This finding shows that digital transformation is not only an information technology project. It is an organizational change process. Facilities that want to optimize digital health systems need to create feedback channels, assign digital champions, monitor user experience, and respond to system problems quickly. Without these supports, even well-designed systems may fail to produce meaningful improvements in clinical care.

The study offers theoretical and practical contributions. Theoretically, it strengthens the relevance of sociotechnical systems and human-centered digital health in explaining digital transformation in clinical care. Provider experience becomes an important lens for understanding how digital systems work in practice. Practically, the study suggests that healthcare facilities should reduce double documentation, improve interoperability, provide continuous training, involve users in system evaluation, and include provider experience as an indicator of

implementation success. Future research can compare provider experiences across hospitals, primary care centers, rural facilities, and urban facilities. Further studies can also use mixed methods to examine the relationship between digital workload, job satisfaction, patient safety, and service quality.

4. Conclusions

This study concludes that optimizing digital health systems in clinical care depends on how well technology supports the real experiences and workflows of healthcare providers. The findings show five main themes: faster access to patient information, increased digital documentation burden, changing patterns of clinical communication, unequal digital competence, and the need for continuous organizational support. These findings confirm that digital health systems cannot be evaluated only through technical readiness or system availability. Their value depends on usability, workflow integration, data quality, staff competence, and the ability of organizations to respond to practical problems faced by healthcare providers in daily clinical work.

The study contributes to the development of sociotechnical systems theory and human-centered digital health by showing that provider experience is a key element in digital health optimization. In practical terms, healthcare facilities need to reduce double documentation, improve system interoperability, provide role-based training, strengthen helpdesk support, and involve healthcare providers in system evaluation. From a policy perspective, digital health implementation should not only focus on compliance with electronic medical record regulations, but also on user experience, workload, patient safety, and service quality. Future research should compare provider experiences across different types of healthcare facilities and use mixed-method designs to examine the relationship between digital workload, job satisfaction, patient safety, and clinical service performance.

References

Ahmed, S. K. (2024). The pillars of trustworthiness in qualitative research. *Journal of Medicine, Surgery, and Public Health, 2*, 100051. https://doi.org/10.1016/j.glmedi.2024.100051

Brommeyer, M., & Liang, Z. (2022). A systematic approach in developing management workforce readiness for digital health transformation in healthcare. *International Journal of Environmental Research and Public Health, 19*(21), 13843. https://doi.org/10.3390/ijerph192113843

Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & Quantity, 56*, 1391–1412. https://doi.org/10.1007/s11135-021-01182-y

Canfell, O. J., Davidson, K., Woods, L., Sullivan, C., & Burton-Jones, A. (2024). The impact of digital hospitals on patient and clinician experience: Systematic review and qualitative evidence synthesis. *Journal of Medical Internet Research, 26*, e47715. https://doi.org/10.2196/47715

Catapan, S. C., von Huben, A., O'Sullivan, B., & de Abreu Lourenco, R. (2025). A systematic review of consumers' and healthcare professionals' trust in digital healthcare. *npj Digital Medicine, 8*, 358. https://doi.org/10.1038/s41746-025-01510-8

Cermak, C. A., Read, H., & Jeffs, L. (2024). Health care professionals' experiences with using information and communication technologies in patient care during the COVID-19 pandemic: Qualitative study. *JMIR Formative Research, 8*, e53056. https://doi.org/10.2196/53056

Craig, K. J. T., Willis, V. C., Gruen, D., Rhee, K., Jackson, G. P., & Kashyap, N. (2021). The burden of the digital environment: A systematic review on organization-directed

workplace interventions to mitigate physician burnout. *Journal of the American Medical Informatics Association, 28*(5), 985–997. https://doi.org/10.1093/jamia/ocaa301

Erfani, G., McCready, J., Gibson, B., Nichol, B., Unsworth, J., Jarva, E., Mikkonen, K., & Tomietto, M. (2025). Factors influencing digital health competence among healthcare professionals: A cross-sectional study. *Applied Nursing Research, 82*, 151922. https://doi.org/10.1016/j.apnr.2025.151922

Gajarawala, S. N., & Pelkowski, J. N. (2021). Telehealth benefits and barriers. *The Journal for Nurse Practitioners, 17*(2), 218–221. https://doi.org/10.1016/j.nurpra.2020.09.013

Haleem, A., Javaid, M., Singh, R. P., & Suman, R. (2021). Telemedicine for healthcare: Capabilities, features, barriers, and applications. *Sensors International, 2*, 100117. https://doi.org/10.1016/j.sintl.2021.100117

Im, D., Pyo, J., Lee, H., Jung, H., & Ock, M. (2023). Qualitative research in healthcare: Data analysis. *Journal of Preventive Medicine and Public Health, 56*(2), 100–110. https://doi.org/10.3961/jpmph.22.471

Khairat, S., Chourasia, P., Muellers, K. A., Andreadis, K., Lin, J. J., & Ancker, J. S. (2023). Patient and provider recommendations for improved telemedicine user experience in primary care: A multi-center qualitative study. *Telemedicine Reports, 4*(1), 21–29. https://doi.org/10.1089/tmr.2023.0002

Kruse, C. S., Krowski, N., Rodriguez, B., Tran, L., Vela, J., & Brooks, M. (2020). Telehealth and patient satisfaction: A systematic review and narrative analysis. *BMJ Open, 10*(8), e036249. https://doi.org/10.1136/bmjopen-2019-036249

Michelen, M., van den Berg, P., Oliver, K., & Renedo, A. (2024). A guide to a team-based approach with flexible coding in qualitative public health research. *International Journal of Qualitative Methods, 23*, 16094069241289279. https://doi.org/10.1177/16094069241289279

Nguyen, K. H., Wright, C., Simpson, D., Woods, L., Comans, T., & Sullivan, C. (2022). Economic evaluation and analyses of hospital-based electronic medical records: A scoping review of international literature. *npj Digital Medicine, 5*, 29. https://doi.org/10.1038/s41746-022-00565-1

Ogundaini, O., de la Harpe, R., & McLean, N. (2022). The interplay between technology performativity and health care professionals in hospital settings: Service design approach. *JMIR Formative Research, 6*(1), e23236. https://doi.org/10.2196/23236

Okeke, E. B., Idowu, A., & Adejumo, O. (2025). Barriers and facilitators to digital health adoption: A thematic analysis of healthcare professionals' perspectives. *BMC Digital Health, 3*, 27. https://doi.org/10.1186/s44247-025-00227-8

Pyo, J., Lee, W., Choi, E. Y., Jang, S. G., & Ock, M. (2023). Qualitative research in healthcare: Necessity and characteristics. *Journal of Preventive Medicine and Public Health, 56*(1), 12–20. https://doi.org/10.3961/jpmph.22.451

Rana, K., Karim, K., & Thigpen, C. A. (2023). Qualitative methodology in translational health research: Current practices and future directions. *Healthcare, 11*(19), 2665. https://doi.org/10.3390/healthcare11192665

Robles-Aguilar, P., Ruiz-Fernández, M. D., & Bermudo-Fuenmayor, S. (2025). Digital health experiences of primary care nurses: A qualitative meta-synthesis. *International Nursing Review, 72*(3), e70069. https://doi.org/10.1111/inr.70069

Svenzén, E., & Eldh, A. C. (2023). Digital communication in primary care: A qualitative descriptive study of patient interviews considering person-centred care. *Digital Health, 9*, 20552076221100945. https://doi.org/10.1177/20552076221100945

Taneja, S., Bell, D., & Cresswell, K. (2025). Exploring the impact of an electronic health record implementation on hospital staff: A qualitative study. *BMJ Open, 15*(4), e095771. https://doi.org/10.1136/bmjopen-2024-095771

Wosny, M., Strasser, L. M., & Hastings, J. (2023). Experience of health care professionals using digital tools in the hospital: Qualitative systematic review. *JMIR Human Factors, 10*, e50357. https://doi.org/10.2196/50357

Wosny, M., Strasser, L. M., & Hastings, J. (2024). The paradoxes of digital tools in hospitals: Qualitative interview study. *Journal of Medical Internet Research, 26*, e56095. https://doi.org/10.2196/56095

Wosny, M., Strasser, L. M., Kraehenmann, S., & Hastings, J. (2024). Practical recommendations for navigating digital tools in hospitals: Qualitative interview study. *JMIR Human Factors, 11*, e60031. https://doi.org/10.2196/60031