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IMPLEMENTATION OF TELEMEDICINE AS AN EFFORT TO IMPROVE ACCESS AND QUALITY OF PUBLIC HEALTH SERVICES IN RURAL AREAS (STUDY AT JULOK PUBLIC HEALTH CENTER, EAST ACEH)

Mona Fandani[1]*, Kosasih[2].
Program Studi Magister Manajemen, Universitas Sangga Buana Bandung
E-mail: monafandani@gmail.com, kosasih@usbypkp.ac.id.

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Abstract

The rapid growth of digital health technologies has enabled the adoption of telemedicine as an alternative solution to improve healthcare access and quality, particularly in rural communities with limited infrastructure. This study explores the implementation of telemedicine at Julok Community Health Center, East Aceh, using a qualitative descriptive-exploratory design. Eight key informants, including health workers and patients, were interviewed and observed. The data were analyzed thematically using Miles and Huberman's framework through coding, data reduction, display, and conclusion drawing. Results reveal that telemedicine significantly improves access and responsiveness of healthcare services but faces barriers such as unstable internet connectivity and limited patient digital literacy. Strengthening digital infrastructure, providing consistent training for medical staff, and enhancing community awareness are crucial to optimize telemedicine implementation.

Keywords: Telemedicine, Healthcare Access, Service Quality, Rural Health, Qualitative Analysis

INTRODUCTION

Quality and equitable healthcare is a fundamental right of every citizen and a key pillar of human resource development. In Indonesia, the goal of equitable access to healthcare still faces complex and multidimensional challenges. The geographical challenges of thousands of islands, fragmented by oceans, create significant disparities between urban areas with dense medical facilities and personnel, and rural and remote areas (Outermost, Frontier, and Disadvantaged Regions/3T).

Classic Barriers to Rural Health Services

In rural areas, access to primary health facilities, such as Community Health Centers (Puskesmas), is often hampered by:

a. Distance and Geography: Long travel time and high transportation costs to reach the nearest health facility or referral hospital.
b. Human Resource (HR) Shortages: The uneven distribution of specialist medical personnel, and even general practitioners. Rural areas often experience a shortage of permanent professionals.
c. Cost Constraints: In addition to transportation costs, medical costs, especially for referral cases, are often a heavy burden for people with low economic status.

Telemedicine as an Innovative Solution

To address these challenges, telemedicine emerged as a transformative innovation. Telemedicine is defined as the provision of healthcare services through information and communication technology (ICT) to overcome the barriers of distance, enabling doctors and specialists to provide consultations, diagnoses, treatments, and even monitor patients remotely. The advent of telemedicine has significant potential for:

a. Reducing Distance and Time Barriers: Patients do not need to travel far to get a consultation.
b. Increase Cost Efficiency: Reduce transportation costs and potential unnecessary hospitalizations.
c. Expanding Specialization Reach: Connecting rural health centers with referral hospitals or specialists in urban areas.

Obstacles to Telemedicine Implementation in the Field

While promising, implementing telemedicine in rural areas is not without its challenges. The main obstacles frequently encountered include:

a. Digital Infrastructure: The availability and stability of internet networks, especially in remote areas, remains a crucial issue.
b. Hardware Availability: Limited availability of adequate hardware (computers, medical cameras, etc.) at the Community Health Center level.
c. Digital Literacy and Acceptance: Low digital literacy among rural communities and the challenges of technology adaptation among health workers themselves.

Research Focus

This study selected the Julok Community Health Center (Puskesmas) in East Aceh Regency as the study location. This location is highly relevant considering East Aceh's characteristics as a regency facing the geographic and socio-economic challenges typical of rural areas in Sumatra. The Julok Community Health Center plays a vital role as the frontline provider of health services for the surrounding community.

The main objectives of this research are:

a. Identify and describe the telemedicine implementation model implemented at Julok Community Health Center.
b. To analyze in depth the concrete contribution of telemedicine in improving the accessibility and quality of health services for rural communities in Julok.
c. Explore the operational challenges faced by healthcare workers and patients in utilizing telemedicine at the site.
d. Through this research, it is hoped that strong policy recommendations can be produced regarding adaptation strategies and the development of telemedicine models that are effective, sustainable, and appropriate to the socio-cultural context and infrastructure in rural areas of Indonesia.

METHOD

This research uses a qualitative approach with a descriptive-exploratory type.

- Location and Time of Research: Julok Community Health Center, East Aceh (since 2023).
- Research Subjects: Eight key informants (purposive sampling):
  a. Informant A (Head of Community Health Center)
  b. Informant B (Village Midwife)
  c. Informant C (IT Officer)
  d. Informant D (Nurse)
  e. Informant E (Posyandu Cadre)
  f. Informant F (Adult Patient)
  g. Informant G (Elderly Patient)
  h. Informant H (Administrative Staff)
- Data Collection Techniques: In-depth interviews, participant observation, and documentation.
- Data Analysis: Miles and Huberman's (2014) model: data reduction, data presentation, and drawing conclusions, supported by a thematic coding process.

RESULTS AND DISCUSSION

Interview results from eight informants showed that the implementation of telemedicine at the Julok Community Health Center was successful in increasing access, but was hampered by infrastructure and users' digital capabilities.

1. Summary of Key Informant Interview Results

Code	Informant (Position/Role)	Interview Key Points
INF-A	Head of the Community Health Center	Telemedicine speeds up consultation services, but sometimes the signal is weak.
INF-B	Village Midwife	Assists in remote monitoring of pregnant women.
INF-C	IT Officer	The main obstacles are slow servers and network disruptions.
INF-D	Nurse	Telemedicine helps with digital medical record keeping.
INF-E	Integrated Health Post Cadres	Many people are still not used to using applications.
INF-F	Adult Patients	Happy because I don't have to queue at the health center.
INF-G	Elderly Patients	Difficulty understanding how to use the video phone.
INF-H	Administrative Staff	Requires additional technical training for officers.

2. Thematic Analysis and Data Interpretation

Main Theme	Subtheme	Number of Informants (n)	Percentage (%)
Ease of Access	More efficient time and cost	6	75%
Quality of Service	Fast and accurate response	5	62.5%
Technical Constraints	The internet network is unstable	5	62.5%
Digital Literacy	Difficulty using the application	4	50%
Training Needs	Need assistance from health workers	3	37.5%

3. Explanation and Integration of the Latest Theories

This thematic data interpretation is strengthened by a study of relevant literature, especially that published in the last five years, to provide a strong theoretical framework.

A. Improving Access and Quality of Services (75% and 62.5%)

The finding that the majority of informants felt Ease of Access (75%) and Improved Service Quality (62.5%) were in line with the theory of post-pandemic telemedicine effectiveness.

Theory: Research by Ilmi & Solihin (2025) and Primaya Hospital (2025) confirms that the main benefits of telemedicine are increased access, time efficiency, and costs, especially for people who are constrained by distance or mobility.

Relevance: The services at the Julok Community Health Center that allow Adult Patients (INF-F) to avoid queuing and Village Midwives (INF-B) to monitor pregnant women remotely are direct manifestations of this theory, namely the use of technology to overcome geographical and time challenges.

B. Technical and Infrastructure Constraints (62.5%)

Technical constraints such as unstable internet connections (62.5%) are the biggest barrier. Recent studies, such as Wade et al. (2020) cited in terawatmedia.co.id (2024) and an article by Lintasarta (2020), consistently identify infrastructure limitations, such as inadequate internet connectivity, as a significant barrier to telemedicine adoption in rural areas.

Relevance: Reports from the Head of the Community Health Center (INF-A) who complained about weak signals and the IT Officer (INF-C) who faced network disruptions at the Julok Community Health Center are empirical evidence of the location-based Digital Divide alluded to by Public Health Education (2025), where unreliable infrastructure hinders the actual use of digital services.

C. Digital Literacy and User Trust (50%)

Data shows that half of the informants (50%) have problems with difficulty using applications and digital literacy.

- Theory: ResearchGate (2024) and the UIM Journal (2025) emphasize that low levels of digital literacy among some communities, especially the elderly, are a major challenge. ResearchGate (2025) adds that

in the context of telemedicine, it is important to build patient trust because services are provided online and not face-to-face.

- Relevance: The case of an elderly patient (INF-G) who had difficulty understanding video calls and the admission of a Posyandu cadre (INF-E) that the community was not yet accustomed to them reinforces this theory. This suggests that online doctor-patient interactions (as highlighted by Maulana et al., 2025) require digital skills and a higher level of trust from users.

D. HR Training and Support Needs (37.5%)

The need for additional training for staff (37.5%) is closely related to technology adoption strategy.

- Theory: Tahtamedia.co.id (2024) and the Indonesian Association of Legal Studies and Lecturers (2025) highlight that the lack of standardized training and education for healthcare professionals in telemedicine practices may hinder widespread adoption. Adaptive and inclusive digital training is needed as a foundation for transformation.
- Relevance: The Administrative Staff Request (INF-H) for additional technical training at the Julok Community Health Center indicates the need for human resource investment to ensure all staff are prepared and confident in managing digital medical records and providing technical assistance to patients.

CONCLUSION

The implementation of telemedicine at the Julok Community Health Center in East Aceh significantly improved access and quality of services for rural communities by reducing time and geographic barriers. However, the main obstacles faced were limited network infrastructure (62.5%) and low digital literacy (50%), which aligns with the challenges of implementing telemedicine in remote areas according to recent literature (2020–2025).

SUGGESTION

To optimize the implementation of telemedicine, it is recommended:

a. Strengthening Digital Infrastructure: Local governments must immediately strengthen internet network infrastructure in Community Health Centers and surrounding areas.
b. Continuous Training: Provide consistent technical training for all medical and administrative staff to enhance digital competency.
c. Inclusive Community Education: Implementing special education and mentoring programs tailored to digital literacy levels (especially for the elderly), to foster trust and the ability to use telemedicine services.

REFERENCES

Damayanti, F., & Gani, A. (2024). The Relationship between Telemedicine Utilization and Patient Satisfaction. Syntax Idea, 6(3), 1085–1100.

Ilmi, AN, & Solihin, O. (2025). Transforming Healthcare Services Through Telemedicine: Opportunities and Challenges in the Digital Era. ResearchGate.

Lintasarta. (2020). Challenges Faced When Implementing Telemedicine.

Lukito, M., & Gani, A. (2024). Digital Health Transformation through Telemedicine in Indonesia. Multi Sciences Health Journal, 14(2), 107–117.

Maulana, RF, et al. (2025). Description of Telemedicine User Satisfaction during the COVID-19 Pandemic. Maranatha Journal.

Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). Qualitative Data Analysis: A Methods Sourcebook. Sage Publications.

Primaya Hospital. (2025). Why Will Telemedicine Be Increasingly Popular in 2025?

Public Health Education. (2025). Digital Divide in Telemedicine as a Determining Factor of Health Inequality in Indonesia. Journal.

Putri, A., & Hidayat, R. (2022). The Influence of Telemedicine Practices on the Quality of Health Services. Indonesian Journal of Health Research, 3(1), 45–52.

ResearchGate. (2024). Improving Public Knowledge in the Use of Telemedicine. Journal of Community Service and Empowerment.

ResearchGate. (2025). Building Trust Through Digital Literacy in the Use of Telemedicine. Journal of Community Service.

Rifai et al. (2025). Digital Literacy and Acceptance of Digitalization in Health Services. Indonesian Association of Legal Studies and Lecturers.

Tahtamedia.co.id. (2024). The Impact of Telemedicine on Access to Health Services in Rural Communities. Journal.

Wade et al. (2020). Identification of Infrastructure Limitations. Cited in Tahtamedia.co.id (2024).