

Commentary

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Telemedicine: Solutions and Challenges for Health Workers in Rural Indonesia in the Response to the COVID-19 Pandemic

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Abstract

Technology and telemedicine are needed to provide the necessary solutions for public health in rural areas. Lack of stable internet access and digital literacy hinders the effective use of telemedicine. Governments and service providers can work together to extend coverage, increase internet speed in rural areas, and provide training and education to ensure adequate digital literacy.

Dear Editor,

Telemedicine technology has revolutionized how health care services are delivered, especially in previously isolated rural areas of Indonesia. By facilitating remote consultations, telemedicine allows patients in frontier, remote, and disadvantaged locations to communicate virtually with doctors and health workers.¹ This is especially important during the COVID-19 pandemic, as reducing physical contact is essential to inhibit the spread of the virus.² In addition, this technology opens the door to greater health care accessibility, allowing those previously hindered by distance or transport limitations to receive medical consultations.³

Telemedicine has become an essential tool in patient health monitoring, especially for those undergoing self-isolation or monitoring after hospital discharge, which often occurs during the COVID-19 pandemic.⁴ Advances in sensor technology and mobile applications allow health care workers to monitor patients' conditions in real time without physical contact.⁵ This mainly benefits patients in rural areas of Indonesia, where access to health care facilities is often difficult.⁶

In the face of limited infrastructure and energy in response to the COVID-19 pandemic, health and accessibility of medical services in several areas, such as Laowowaga village, Lukhu Lase, Meafu, Muzoi, Tefao, Tetelesi Sorowi, Tugala Luru East Lahewa sub-district, and North Nias Regency Indonesia, are challenging.⁷ However, technology and telemedicine can address the gap in several ways. Firstly, telemedicine allows health workers to provide remote service consultations to patients in frontier, remote, and disadvantaged locations.⁸ Using a phone, smart tablet, or computer, patients can contact doctors or medical personnel through video calls or online chat.⁹ This allows patients in rural locations to get medical advice directly from health professionals without travelling long distances to a health center.¹⁰

Technology and telemedicine are revolutionizing health care, especially in rural areas. Patients can consult with doctors remotely with an internet connection and a smartphone. Effective education and communication through guides, campaigns, and local support are increasing the use of telemedicine in remote areas, facilitating access to health care.¹¹ Health workers in East Lahewa, North Nias use technology to monitor patients in post-hospital self-isolation. Patients are given temperature sensors and app-connected devices for health monitoring. Instructions and training are provided for the use of the device. Health workers monitor the patient's condition in real-time through data from the device.¹²

Costs covering device purchase, software setup, and maintenance come from the Indonesian government's health care budget. Patients are taught to use the device with guides and tutorials. Technical support is available through a hotline. The patient's ability to use the technology is assessed through demonstrations and follow-up checks, ensuring effective health monitoring.¹³ Healthcare professionals review the analyzed data and send care instructions back to the patient via a smartphone or computer to receive, store, and analyze the data, and a network ensures stable internet connectivity. Costs can vary widely depending on the scale of implementation and the specific technology used; the Indonesian government's health department covers the Health Services Budget.¹⁴

Although the potential of technology and telemedicine is on the rise, several challenges exist.¹⁵ Firstly, the limited availability of telecommunication infrastructure, such as cellular networks, telecommunication stations, and electricity in several rural areas, especially in East Lahewa Sub-district, North Nias Regency, still needs to be improved.¹⁶ There is no stable internet access due to inadequate telecommunications infrastructure, such as mobile networks, telecommunication stations, and electricity. The area is remote, which makes the installation

of infrastructure more complex, thus hindering the effective use of telemedicine.¹⁷ The government of Indonesia and telecom service providers have worked together to expand coverage and improve internet speeds in rural areas.¹⁸ Second, adopting technology and telemedicine requires adequate digital literacy among health workers and rural communities.¹⁹ Continuous training and assessment are conducted to ensure that health workers effectively use the “PeduliLindungi” application.²⁰ In addition, public awareness and education on telemedicine’s benefits are also needed to improve access to these services.²¹

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