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Telemedicine Platforms in Rural Indonesia: A Cost-Effectiveness Analysis on Access to Critical Healthcare Services

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Abstract

Telemedicine platforms have been increasingly adopted to improve access to critical healthcare services in rural areas worldwide. In Indonesia, particularly in remote villages, telemedicine can offer solutions for underserved regions where traditional healthcare delivery is limited. A mixed-methods approach was employed, integrating quantitative data analysis with qualitative insights from interviews and surveys conducted among patients and healthcare providers. A cost-effectiveness model was constructed using a decision tree framework to evaluate the financial viability of telemedicine implementation in rural settings. The preliminary findings suggest that telemedicine platforms can significantly enhance access to critical services, particularly for emergency care and specialist consultations, with a proportion of approximately 85% of patients experiencing improved healthcare outcomes. The cost-effectiveness analysis indicates an average return on investment within two years post-implementation. Telemedicine platforms appear to be a viable solution for improving access to critical healthcare services in rural Indonesian villages, offering substantial benefits both economically and socially. Further research should explore scalability and sustainability of telemedicine models across different regions and contexts. Policy makers should consider integrating telemedicine into existing healthcare infrastructure as a strategic intervention. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \vec{\beta}\ p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Telemedicine, Rural Health, Cost-Benefit Analysis, Equity of Access, eHealth Systems, Geographic Information Systems (GIS), Sustainability Studies*

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