



Community Health Worker App Efficiency in Tuberculosis Control: A Rural Ghanaian Perspective

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Abstract

Community health workers (CHWs) play a crucial role in tuberculosis (TB) control in rural areas of Ghana. The TB burden is significant, with high rates of drug-resistant strains and low cure rates. A mixed-methods approach was employed, including surveys, interviews, and data analysis from 50 CHWs. The study used logistic regression models to analyse the impact of the app on TB outcomes. The mobile application significantly improved treatment adherence among CHWs (89% compliance). A key theme identified was the ease of use and real-time updates provided by the app, enhancing patient trust and engagement. The findings suggest that integrating digital health tools into traditional TB control strategies can lead to better outcomes in rural settings. Future research should explore scalability and cost-effectiveness. Policy recommendations include scaling up the use of CHW apps for broader implementation, conducting further research on app efficacy across different regions, and ensuring equitable access to technology. Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda \operatorname{Vert}\theta r \operatorname{Vert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: Sub-Saharan, Africa, CommunityHealthWorker, MobileTechnology, Epidemiology, TreatmentAdherence, PublicPolicy

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