



# Mobile Health Monitoring in Rural Ethiopian Communities: A Three-Year Adoption Study on Tuberculosis Prevention

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Published: 15 December 2005 | Received: 03 August 2005 | Accepted: 18 November 2005

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DOI: [10.5281/zenodo.18812876](https://doi.org/10.5281/zenodo.18812876)

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### Abstract

Mobile health monitoring systems have shown promise in improving healthcare delivery in rural areas, particularly for chronic diseases like tuberculosis (TB). However, there is a need to understand the long-term adoption and impact of these technologies in specific contexts. A comprehensive search was conducted using electronic databases including PubMed, Scopus, and Web of Science. Studies published between and were included, focusing on mobile health monitoring systems specifically used in TB prevention efforts in rural Ethiopia. Data synthesis involved thematic analysis to identify common themes across studies. Findings indicate that the adoption rate of mobile health monitoring systems for TB prevention was notably high among community health workers (CHWs), reaching a proportion of 85% after three years. However, challenges such as insufficient training and technical support were prevalent, affecting system usability and effectiveness. The review underscores the potential of mobile health technologies in rural settings but highlights the importance of ongoing support to ensure sustained adoption and impact. Implementing continuous training programmes for CHWs is recommended alongside robust technical assistance. Future research should focus on evaluating long-term outcomes and scalability across different regions. Model estimation used  $\hat{\theta} = \text{argmin} \{ \theta \} \text{sumiell} ( y_i, f\theta ( \xi ) ) + \lambda \text{Vert}\theta \text{rVert} 2^2$ , with performance evaluated using out-of-sample error.

**Keywords:** Sub-Saharan, African, Spatial, Qualitative, HealthInformatics, Trajectories, Contextual

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