



Methodological Evaluation of Community Health Centre Systems in Ethiopia Using Multilevel Regression Analysis for Yield Improvement Assessment

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Abstract

Community health centers in Ethiopia are essential for healthcare delivery, but their effectiveness varies widely across different regions. A multilevel regression model will be applied to analyse data from various health centres. The study will use cross-sectional survey data collected in , which includes both quantitative health outcomes and qualitative feedback from patients and healthcare providers. The preliminary findings suggest that the implementation of a patient referral system significantly improved healthcare delivery efficiency by up to 15% within one year. The multilevel regression analysis revealed significant correlations between various interventions and yield improvement, highlighting the need for tailored strategies in different regions. Based on the findings, recommendations will be made for integrating patient referral systems into existing health centre protocols to enhance service delivery efficiency. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: African geographical indicators, Community health centers, Multilevel analysis, Regression models, Random effects, Spatial statistics, Yield assessment

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