



Multilevel Regression Analysis for Measuring Cost-Effectiveness of Community Health Centres in Ethiopia: A Methodological Evaluation

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Abstract

Community health centres in Ethiopia are pivotal for healthcare delivery, yet their cost-effectiveness varies significantly across different regions and levels of service provision. A multilevel logistic regression model was employed to analyse data from 150 health centres in Ethiopia. The model accounts for both individual-level (e.g., service provision) and contextual-level (e.g., regional economic development) influences on cost-effectiveness. The analysis revealed that the proportion of patients receiving essential healthcare services was directly related to the level of investment per patient, with a coefficient estimate of 0.85 (95% CI: [0.72, 0.98]). This study provides robust evidence on the cost-effectiveness of community health centres in Ethiopia, highlighting the importance of targeted investments for optimal service delivery. Health policymakers should prioritise investments in underserved regions to ensure equitable access to essential healthcare services. multilevel regression analysis, community health centres, cost-effectiveness, Ethiopia

Keywords: *Ethiopia, Geographic Disparities, Multilevel Regression, Cost-Effectiveness Analysis, Hierarchical Models, Quantitative Methods, Data Integration*

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