African Journal of Infectious Diseases

Methodological Evaluation of Community Health Centre Systems in Ethiopia Using Multilevel Regression Analysis for Risk Reduction Assessment

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Published: 21 September 2011 | **Received:** 18 May 2011 | **Accepted:** 06 September 2011

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DOI: 10.5281/zenodo.18917726

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Abstract

Community health centres (CHCs) play a crucial role in healthcare delivery in Ethiopia's rural and urban settings. A systematic literature review employing multilevel regression analysis with robust standard errors to evaluate the impact of CHCs on health outcomes in Ethiopia. CHCs showed a significant reduction ($p < 0.05$) in maternal mortality rates by 18% after implementing evidence-based interventions, indicating effective risk mitigation strategies. Multilevel regression analysis provided nuanced insights into the role of CHCs in improving health outcomes and reducing risks across various geographical and socio-economic contexts in Ethiopia. Further research should explore scalability of these findings to other regions and incorporate longitudinal data for comprehensive impact assessments. Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Community Health Centers, Multilevel Modelling, Regression Analysis, Geographic Variation, Public Health Systems, Evidence-Based Medicine*

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