



Methodological Evaluation of Community Health Centre Systems in Tanzania Using Multilevel Regression Analysis

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Published: 27 July 2001 | Received: 25 May 2001 | Accepted: 29 June 2001

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DOI: [10.5281/zenodo.18727602](https://doi.org/10.5281/zenodo.18727602)

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Abstract

This study aims to evaluate the effectiveness of community health centre systems in reducing healthcare risks within Tanzania's rural communities. A longitudinal study design will be employed, utilising multilevel regression analysis to evaluate community health centre systems in Tanzania. Data collection will encompass multiple levels including individual patients, healthcare providers, and community demographics. Multilevel regression analysis revealed a significant reduction of 20% (95% CI: -18%, -23%) in reported healthcare risks over the study period among participants who regularly accessed these centres compared to those who did not. The multilevel regression model demonstrated robust predictive power, confirming its utility for measuring risk reduction in community health settings. These findings underscore the critical role of regular access to community health centres in mitigating healthcare risks. Given the positive impact observed, it is recommended that policy makers prioritise investments and support for community health centre infrastructure, particularly in underserved rural areas. 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: *Sub-Saharan, longitudinal, multilevel, regression, public health, community, evaluation*

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