African Disaster Studies (Interdisciplinary - Social/Env/Health/Policy)

Methodological Evaluation of Community Health Centre Systems in Kenya Using Multilevel Regression Analysis for Clinical Outcomes Assessment

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Abstract

Community health centres (CHCs) play a crucial role in healthcare delivery in Kenya, particularly in underserved areas. However, their effectiveness and impact on clinical outcomes are not well understood. The study will employ multilevel regression models to analyse data from CHCs across Kenya. The first-level model will examine within-centre variations while accounting for centre differences through random effects at the second level. We expect to find significant centre variability in patient recovery rates, with a notable proportion of variance explained by centre-specific factors such as staff training and equipment availability. The multilevel regression analysis will provide insights into the strengths and weaknesses of CHCs in various regions, facilitating evidence-based policy recommendations. Policy makers should prioritise investment in training for CHC staff and ensuring adequate infrastructure to enhance clinical outcomes. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, multilevel modelling, clinical outcomes, community health centers, regression analysis, randomized controlled trials, geographic information systems*

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