Methodological Evaluation of Community Health Centres Systems in Kenya Using Multilevel Regression Analysis for Clinical Outcomes Measurement,

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Abstract

This study evaluates the operational effectiveness of community health centers (CHCs) in Kenya, focusing on their ability to deliver quality clinical care. A multilevel regression model was employed, incorporating both individual-level (patient characteristics) and facility-level (operational metrics) variables to analyse the impact on clinical outcomes. The multilevel analysis revealed that patient adherence to prescribed medications significantly improved by 15% when CHCs implemented targeted health education programmes. This finding supports the effectiveness of such interventions in enhancing treatment efficacy. CHCs play a crucial role in delivering quality healthcare, with specific evidence supporting the use of educational initiatives for improving patient outcomes. Given the positive findings, it is recommended that CHC managers integrate health education programmes into their standard operating procedures to further enhance clinical performance and patient satisfaction. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\rightarrow}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Kenya, Community Health Centers, Multilevel Regression, Clinical Outcomes, Evaluation Framework, Data Analysis, Geographic Information Systems*

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