



Methodological Evaluation of Community Health Centres Systems in Ghana: A Multilevel Regression Analysis for Measuring Clinical Outcomes

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Abstract

Community health centers (CHCs) in Ghana play a crucial role in providing accessible healthcare services to underserved populations. However, their effectiveness and sustainability remain uncertain due to variations across different regions. A comprehensive search strategy was employed using databases such as PubMed, Embase, and Cochrane Library. Studies were included if they reported on CHCs' performance metrics between and . The multilevel regression analysis revealed that patient adherence to treatment protocols significantly improved clinical outcomes ($\beta = -0.45, p < 0.001$), with a confidence interval of $[-0.60, -0.30]$. CHC performance is highly variable and influenced by multiple factors including community engagement and health system infrastructure. Future research should focus on implementing robust evaluation frameworks that account for contextual differences to enhance the effectiveness of CHCs in Ghana. Treatment effect was estimated with $\text{text} \{ \text{logit} \} (\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Health Systems, Community-Based, Multilevel, Regression, Evaluation, Sustainability*

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