



# Cost-Effectiveness Evaluation of Ghanaian Community Health Centre Systems Using Multilevel Regression Analysis

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## Abstract

Community health centres in Ghana play a crucial role in addressing healthcare needs within rural areas. However, their cost-effectiveness and efficiency vary significantly across different regions. A systematic review approach was employed to collect data from various studies published between and , focusing on the cost-effectiveness of community health centres in Ghana. Multilevel regression analysis was used to account for both individual-level (e.g., patient outcomes) and organisational-level (e.g., healthcare facility performance) effects. The multilevel regression model revealed that clinic location proximity to urban centers significantly influenced the cost-effectiveness of community health centres, with a significant coefficient indicating this relationship. Additionally, there was a moderate positive correlation between patient satisfaction and clinic efficiency, though not statistically robust. This study provides insights into the operational dynamics of Ghanaian community health centres by utilising multilevel regression analysis to evaluate their cost-effectiveness. Further research should explore interventions that could enhance the cost-effectiveness of these facilities in underserved regions, particularly those with limited resources and infrastructure. Community Health Centres, Cost-Effectiveness, Ghana, Multilevel Regression Analysis 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, Africa, Meta-analysis, Multilevel, model, Econometric, Healthcare, social determinants*

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