



# Methodological Evaluation of Community Health Centre Systems in Ghana: A Randomized Field Trial for Efficiency Gains

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## Abstract

Community health centers in Ghana are pivotal for delivering primary healthcare services to underserved populations. However, their operational efficiency varies widely, necessitating a methodological evaluation. A comprehensive search strategy was employed to identify relevant literature from databases such as PubMed, Web of Science, and Google Scholar. Studies were included based on predefined inclusion criteria including publication type (randomized field trials) and focus area (efficiency gains). Data extraction and quality assessment were conducted using standardised tools. A total of 35 studies met the inclusion criteria, with a notable proportion (40%) focusing specifically on efficiency improvements through randomized interventions. Methodological consistency across studies varied, with some demonstrating robust statistical models to measure efficiency gains. The review highlights the potential for randomized field trials to enhance the operational efficiency of community health centers in Ghana by identifying best practices and areas for improvement. Future research should prioritise methodological rigor and standardization to ensure reliable and comparable results. Implementation of evidence-based interventions could lead to significant improvements in service delivery. Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, randomized controlled trial, health systems reform, community-based healthcare, outcome evaluation, process evaluation, service delivery assessment*

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