AFRICAN FOOD SYSTEMS RESEARCH (INTERDISCIPLINARY - INCL AGRI/ENV)
Vol. 1 | No. 1 | 2026

Evaluating the Adoption of Community Health Centre Systems in Ghana

A Quasi-Experimental Methodological Assessment

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Published: 02 October 2026 **Received:** 29 April 2026

Accepted: 06 August 2026 **DOI:** 10.5281/zenodo.18948895

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ABSTRACT

Background: Community health centres are a cornerstone of primary healthcare delivery in many African nations, yet robust methodological frameworks for evaluating their systematic adoption are lacking. Existing assessments often rely on descriptive statistics, which limit causal inference regarding implementation efficacy.

Purpose and objectives: This study aimed to develop and apply a novel quasi-experimental design to rigorously measure the adoption rates of integrated community health centre systems, focusing on methodological validity and the estimation of causal effects.

Keywords: *Community health centres, Ghana, quasi-experimental design, health systems evaluation, sub-Saharan Africa, implementation science, primary healthcare*

Article Highlights

- A novel difference-in-differences design isolates causal effects of health centre adoption.
- System functionality increased by 18.7 percentage points in intervention districts.
- Provides a methodological blueprint for causal evaluation in resource-limited settings.
- Demonstrates the necessity of robust designs over descriptive assessments.

Core Statistical Model

The study employed a difference-in-differences model: $Y_{(d_t)} = \beta_0 + \beta_1(Treat_{(d)} \times Post_{(t)}) + \gamma_{(d)} + \delta_{(t)} + \varepsilon_{(d_t)}$, with robust standard errors clustered at the district level.

This study advances methodological rigour for evaluating primary healthcare implementation.