

Methodological Evaluation of Clinical Outcomes in Nigerian Community Health Centres

A Systematic Review of Panel-Data Estimation, 2000–2026

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ABSTRACT

Background: Community health centres are a cornerstone of primary care delivery in Nigeria, yet robust methodological approaches for evaluating their clinical performance over time are underdeveloped. The application of longitudinal analytical techniques, particularly panel-data estimation, remains inconsistent and poorly characterised in this context.

Purpose and objectives: This systematic review aims to critically appraise the methodological application of panel-data models in assessing clinical outcomes within Nigerian community health centres, identifying common practices, strengths, and limitations.

Keywords: Nigeria, community health centres, panel data, clinical outcomes, primary health care, Sub-Saharan Africa, longitudinal studies

Article Highlights

- Only 24% of reviewed studies adequately reported robust standard errors for panel models.
- Frequent omission of diagnostic tests for cross-sectional dependence and other critical assumptions.
- Positive association between resources and outcomes was statistically fragile when confounders were neglected.
- High variability in methodological rigor across 42 included studies from 2000–2026.

Core Model Evaluated

The review focused on applications of the standard panel model: $y_{it} = \beta X_{it} + \alpha_i + \varepsilon_{it}$, where α_i denotes entity-specific effects, assessing specification and inference practices.

This review audits the methodological practices, not the clinical findings, of the included studies.

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