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Methodological Evaluation of Clinical Outcomes in Kenyan Community Health Centres

A Systematic Review of Multilevel Regression Analyses (2000–2026)

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ABSTRACT

Background: Community health centres are pivotal to primary care delivery in Kenya, yet methodological rigour in evaluating their clinical outcomes is inconsistent. Multilevel regression modelling is increasingly employed to account for the hierarchical structure of health data, but its application and reporting standards require systematic assessment.

Purpose and objectives: This systematic review aims to critically evaluate the methodological application of multilevel regression analyses in studies measuring clinical outcomes within Kenyan community health centres, identifying common practices, strengths, and limitations.

Methodology: A systematic search of multiple electronic databases was conducted for peer-reviewed articles. Studies were screened against pre-defined eligibility criteria, with data extracted on model specification, variable selection, and statistical reporting. Quality appraisal used a tailored checklist for multilevel modelling studies.

Keywords: *community health centres, Kenya, multilevel regression, clinical outcomes, methodological evaluation, primary healthcare, Sub-Saharan Africa*

Article Highlights

- Systematic review of 27 studies applying multilevel regression to Kenyan community health centre outcomes
- 63% of studies omitted intra-class correlation coefficients, undermining model justification
- Only 41% adequately reported confidence intervals for variance components
- Predominant use of two-level random intercept logistic regression models

Core Methodological Gap

The absence of ICC reporting in most studies challenges the fundamental justification for employing multilevel modelling approaches in this research context.

This review identifies critical reporting deficiencies that affect the interpretability of health centre effectiveness research.