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Methodological Evaluation and Yield Optimisation in Kenyan Community Health Centres

A Meta-Analysis of Randomised Field Trials

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ABSTRACT

Background: Community health centres are pivotal for primary care delivery in sub-Saharan Africa, yet evidence on the efficacy of different operational models for improving agricultural yield and nutritional outcomes remains fragmented. Previous syntheses have not systematically appraised the methodological rigour of field trials in this context.

Purpose and objectives: This meta-analysis aimed to evaluate the methodological quality of randomised field trials assessing yield optimisation interventions and to quantify the pooled effect size of structured community health system models on measurable yield outcomes.

Keywords: *Community health centres, Kenya, Randomised controlled trials, Sub-Saharan Africa, Primary health care, Agricultural yield, Methodological evaluation*

Article Highlights

- Pooled analysis of 18 trials shows a moderate positive effect on yield (SMD = 0.42).
- High heterogeneity (I^2 = 78%) linked to variability in trial design quality.
- Only 33% of studies were judged as low risk for performance bias.
- Integrated programmes had greater impact than singular input models.

Core Finding

The significant positive impact of community health centre-based interventions is tempered by prevalent risks of bias in the underlying evidence.

This meta-analysis underscores the need for more methodologically rigorous field trials.