

Evaluating the Impact of Community Health Centres on Population Health Risk in Kenya

A Quasi-Experimental Assessment

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ABSTRACT

Community health centres are a cornerstone of primary healthcare delivery in sub-Saharan Africa, yet robust evidence quantifying their causal impact on population health outcomes remains limited. This study aimed to estimate the causal effect of community health centre access on population health risk, specifically the prevalence of under-five stunting and severe febrile illness, using a quasi-experimental design. We employed a geographic regression discontinuity design, exploiting the administrative boundaries determining centre catchment areas. Household survey data were analysed using a local linear regression model: $Y_i = \beta_0 + \beta_1 T_i + f(G_i) + \epsilon_i$, where Y_i is the health outcome, T_i is treatment (centre access), and $f(G_i)$ controls for geographic location. Inference was based on robust bias-corrected confidence intervals. Access to a community health centre significantly reduced the risk of severe febrile illness by 7.2 percentage points (95% CI: 2.1 to 12.3). A reduction in stunting was also observed, though the estimate was less precise. Proximity to a community health centre causally reduces key health risks, underscoring their critical role in disease management. Health policy should prioritise the expansion and equitable spatial distribution of community health centres. Future evaluations should incorporate longitudinal data to assess long-term impacts. primary healthcare, causal inference, regression discontinuity, health systems evaluation, child health This study provides novel causal evidence on the effectiveness of community health centres using a rigorous quasi-experimental design applied to a new, spatially-referenced household dataset.

Keywords: community health centres, sub-Saharan Africa, quasi-experimental design, population health, Kenya, health systems evaluation, risk reduction

Article Highlights

- A quasi-experimental design isolates the causal impact of health centre access on population health.
- Proximity to a centre reduced severe febrile illness risk by 7.2 percentage points (95% CI: 2.1 to 12.3).
- Findings underscore the critical role of community health centres in disease management and risk reduction.
- Study employs geographic regression discontinuity with robust bias-corrected inference.

Methodological Note

The analysis uses a geographic regression discontinuity design, exploiting administrative boundaries to estimate causal effects while controlling for spatial location.

This study provides rigorous causal evidence to inform health policy and infrastructure planning.

ABSTRACT-ONLY PUBLICATION

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