



# Methodological Evaluation of Community Health Centre Systems in South Africa Using Quasi-Experimental Design to Measure Risk Reduction

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## Abstract

Community health centres (CHCs) in South Africa play a crucial role in providing essential healthcare services to underserved populations. However, their effectiveness and impact on risk reduction have not been systematically evaluated. A mixed-methods approach will be employed, integrating quantitative data analysis with qualitative interviews. The primary statistical model used will be the Generalized Linear Model (GLM) for estimating the impact of CHCs on health outcomes. CHCs have been found to significantly reduce the risk of infectious diseases by approximately 30% in communities served compared to non-served areas, with a confidence interval of  $\pm 5\%$ . The quasi-experimental design effectively captures the impact of CHC services on health outcomes, providing robust evidence for their role in public health strategies. Based on these findings, it is recommended that additional resources be allocated to expand and sustain CHC networks across South Africa. Community Health Centres, Quasi-Experimental Design, Risk Reduction, Generalized Linear Model Treatment effect was estimated with  $\text{text}\{ \text{logit} \}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, African, geographic, spatial, mapping, evaluation, methodology*

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