



# Methodological Evaluation of Community Health Centre Systems in Kenya Using Quasi-Experimental Design to Assess System Reliability

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## Abstract

Community health centers in Kenya face challenges related to system reliability and sustainability. A mixed-methods approach combining quantitative data analysis with qualitative interviews. The study employs a regression discontinuity design (RDD) to assess system performance based on geographical proximity to optimal service areas. The RDD analysis revealed that community health centers in the treatment group served an average of 12% more patients per month compared to control sites, indicating improved operational efficiency. The quasi-experimental design successfully measured system reliability and identified key factors affecting service delivery effectiveness. Implementing targeted training programmes for healthcare workers and enhancing community outreach strategies are recommended to further improve system performance. 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:** Kenya, Geographic Mapping, Quasi-Experimental Design, System Reliability, Public Health, Outcome Evaluation, Randomized Controlled Trials

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