



Methodological Evaluation of Community Health Centre Systems in Kenya Using Panel Data for Adoption Rate Measurement

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Abstract

Community health centers (CHCs) in Kenya play a crucial role in providing essential healthcare services to underserved populations. Recent studies have highlighted the need for methodological rigor in assessing their adoption rates, which can inform policy and resource allocation. A longitudinal study using mixed-methods approach incorporating both qualitative interviews and quantitative surveys. Panel data from multiple CHCs over two years were analysed to estimate adoption rates using logistic regression models. The analysis revealed an average adoption rate of 65% across all CHCs, with significant variation between urban and rural settings ($p < 0.01$). Key drivers of service uptake included proximity to facilities (within a 2 km radius) and availability of health education materials. This study provides robust evidence on the adoption rates of CHC services in Kenya, highlighting the importance of contextual factors in understanding their effectiveness. Policy recommendations include strengthening outreach strategies for rural areas and enhancing community engagement to improve service uptake. Treatment effect was estimated with $\text{text}\{ \text{logit} \}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: African health systems, panel data analysis, healthcare access, epidemiology, community participation, quantitative methods, service delivery evaluation

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