



Methodological Evaluation of South African Community Health Centre Systems Using Multilevel Regression Analysis to Measure Adoption Rates

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Abstract

Community health centres in South Africa have been established to provide primary healthcare services. These facilities aim to improve access and quality of care for underserved populations. Multilevel regression analysis was employed to assess the adoption rates of community health centres. Data were collected from various healthcare facilities across different regions in South Africa, including demographic data, service utilization patterns, and administrative records. The multilevel model revealed that socioeconomic status significantly influenced the adoption rate of community health centres, with a 25% increase observed for every 10,000 rise in household income. This finding suggests that economic disparities affect access to healthcare services. The logit model is defined as $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: African geography, community health centres, multilevel analysis, regression models, data triangulation, qualitative methods, geographic information systems

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