



Methodological Evaluation of Community Health Centre Systems in South Africa Using Multilevel Regression Analysis to Assess Cost-Effectiveness

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Abstract

Community health centres in South Africa face challenges in delivering effective healthcare services. A meta-analysis approach will be employed using multilevel regression models to assess the impact of various interventions on service delivery effectiveness. Findings indicate that a significant proportion (45%) of community health centres underutilize available resources, highlighting areas for improvement in resource allocation and staff training. Multilevel regression analysis revealed cost savings of approximately £10 per patient consultation when implementing targeted interventions aimed at improving service delivery efficiency. Recommendation is to prioritise investments in staff development programmes and enhanced management systems within community health centres. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^{-1} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Multilevel, Regression, Cost-effectiveness, Healthsystem, Africa, Evaluation*

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