Multilevel Regression Analysis to Evaluate Community Health Centre Systems in Uganda: A Methodological Assessment

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Abstract

Community health centres in Uganda face challenges in delivering effective healthcare services, necessitating a methodological evaluation to assess their impact and identify areas for improvement. The research employs multilevel logistic regression models to analyse data collected from multiple levels including individuals, healthcare providers, and community settings. Uncertainty is addressed through robust standard errors. Multilevel regression revealed a significant reduction in the odds of high-risk health conditions by 20% among patients who accessed services at community health centres compared to those without access. The multilevel approach offers valuable insights into the effectiveness and need for improvement in Uganda's community health centre systems. Policy recommendations include strengthening training programmes for healthcare providers, enhancing referral mechanisms, and expanding service coverage in underserved areas. Community Health Centres, Multilevel Regression Analysis, Risk Reduction, Healthcare Systems, Uganda Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\rightarrow} p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Sub-Saharan, Community Health Centres, Multilevel Regression, Hierarchical Analysis, Quantitative Methods, Evidence-Based Medicine*

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