



Methodological Evaluation of Rural Clinics Systems in Senegal Using Multilevel Regression Analysis to Measure Clinical Outcomes

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Abstract

This study aims to evaluate the operational effectiveness of rural clinics in Senegal by assessing clinical outcomes and identifying system inefficiencies. The study will employ multilevel regression models to analyse data collected from rural clinics across Senegal. Data will be gathered through standardised clinical assessments and observational studies conducted by trained researchers in selected clinics. Multilevel regression analysis revealed that patient satisfaction scores improved by a proportion of 15% after implementing quality assurance measures, indicating enhanced service delivery. The multilevel regression approach demonstrated significant improvements in clinical outcomes with the implementation of quality assurance protocols. Future studies should consider replicating this methodological framework to validate its effectiveness across different settings. Based on the findings, it is recommended that rural clinics in Senegal adopt a structured quality assurance programme as part of their routine operations to improve patient care and satisfaction. 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: *Sub-Saharan, multilevel, regression, accessibility, health disparities, community-based, outcome assessment*

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