



# Methodological Assessment of Rural Clinics Systems in Rwanda Using Panel Data for Clinical Outcome Measurement

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## Abstract

Rural clinics in Rwanda face challenges in providing consistent clinical outcomes due to varying levels of infrastructure and human resources. A mixed-method approach was employed, integrating quantitative panel-data analysis with qualitative assessments to evaluate clinic systems in Rwanda. Panel data were collected from five randomly selected rural clinics over two years, using outcome measures such as patient satisfaction and treatment efficacy. The panel data revealed a significant improvement ( $p < 0.05$ ) in patient satisfaction scores across the evaluated clinics compared to baseline levels, indicating effective interventions have been implemented. This study provides evidence that systematic methodological assessments can enhance understanding of rural clinic performance and inform policy development for improved healthcare delivery. Rural health policymakers should consider implementing consistent training programmes for staff and expanding telemedicine options to address resource limitations. 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:** Rwanda, Sub-Saharan, Panel, Quantitative, Qualitative, Infrastructure, ServiceDelivery

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