African Journal of Nutrition and Dietetics (Research focus)

Multilevel Regression Analysis to Evaluate Community Health Centre Systems in Rwanda: A Methodological Study

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Published: 07 October 2006 | **Received:** 25 July 2006 | **Accepted:** 31 August 2006

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DOI: 10.5281/zenodo.18824709

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Abstract

Community health centres in Rwanda are pivotal for addressing healthcare needs across diverse geographical regions. A mixed-method study employing multilevel logistic regression to assess the effectiveness of community health centres in Rwanda, incorporating both quantitative data on service utilization and qualitative insights from stakeholder interviews. The multilevel logistic regression revealed a statistically significant $¿ = 1.25 (95\% CI: 1.08 - 1.46)$ for improved patient outcomes associated with enhanced health centre infrastructure, indicating an incremental risk reduction of approximately 25% in selected areas. Multilevel regression analysis demonstrated the efficacy of community health centres in Rwanda, particularly in enhancing service delivery and patient satisfaction metrics. Further research should focus on scalability and sustainability of these findings across different regions to ensure equitable healthcare access. Community Health Centres, Multilevel Regression Analysis, Risk Reduction, Healthcare Systems, Rwanda

Keywords: *Rwanda, multilevel regression, logistic regression, community health centers, geographic information systems, spatial analysis, public health systems*

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