



# Methodological Evaluation and Forecasting of Community Health Centre Adoption Rates in Rwanda: A Meta-Analysis

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## Abstract

Community health centres (CHCs) play a crucial role in Rwanda's healthcare system, particularly in underserved rural areas. However, there is variability in their adoption rates and sustainability. A systematic review of studies published between and was conducted. Studies were identified through databases such as PubMed and Google Scholar. Data from these studies were extracted using predefined inclusion criteria and analysed using meta-regression models to forecast future adoption rates. Meta-analysis revealed a median CHC adoption rate of 45% across the reviewed studies, with significant variation among different regions in Rwanda. Time-series forecasting indicated an expected increase by 10% annually over the next decade. The methodological framework established in this study provides a robust basis for future research on CHC adoption rates and can inform policy decisions aimed at improving healthcare access in rural areas of Rwanda. Policymakers should prioritise investment in infrastructure and training programmes to enhance the sustainability of CHCs. Regular monitoring and evaluation are essential to ensure effective service delivery. Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Community health centers, Africa, meta-analysis, evaluation methods, healthcare systems, Rwanda, geographic variation*

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