



Methodological Evaluation and Time-Series Forecasting of Community Health Centre Systems in Senegal: A Study

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Abstract

Community health centre systems in Senegal have seen varying levels of adoption over time, with some centres functioning more effectively than others. A mixed-method approach combining qualitative interviews with quantitative data analysis. A SARIMA (Seasonal AutoRegressive Integrated Moving Average) model was applied to predict adoption rates over the next five years. Community health centre adoption in Senegal has shown a steady upward trend, particularly in urban areas where more resources are available and healthcare needs are higher. The SARIMA model provided accurate forecasts of future adoption rates for community health centres in Senegal, with an estimated 20% increase expected by . Policy-makers should prioritise investment in underserved areas to ensure equitable access to healthcare services. Treatment effect was estimated with $\text{text}\{ \text{logit} \}(\pi) = \beta_0 + \beta^{-1} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, community health centres, diffusion of innovations, intervention studies, longitudinal analysis, predictive modelling, qualitative methods*

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