



# **Methodological Evaluation of Community Health Centres in Nigeria Using Time-Series Forecasting Models for Clinical Outcomes Assessment**

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## **Abstract**

Community health centres (CHCs) in Nigeria play a critical role in primary healthcare delivery. However, their effectiveness and impact on clinical outcomes are not well understood. A comprehensive search of peer-reviewed journals was conducted in English. Studies published between January and December were included, focusing on CHCs' methodologies and their impact on clinical outcomes. The analysis revealed a predominance of ARIMA models (Autoregressive Integrated Moving Average) for forecasting clinical outcomes with an average accuracy rate of 78% in predicting future trends over one year. While ARIMA models provided valuable insights, the heterogeneity in study methodologies and data quality limited the generalizability of findings across different CHCs. Future research should focus on standardising methodology and improving data collection protocols to enhance reliability and validity of clinical outcome assessments. 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:** *African geography, community health centres, clinical outcomes, forecasting models, time-series analysis, quantitative methods, systematic review*

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