



Methodological Evaluation of Community Health Centres Systems in Nigeria Using Time-Series Forecasting Models for Reliability Measurement

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Abstract

Community health centres in Nigeria face challenges related to service delivery and reliability due to varying healthcare systems. A systematic literature review was conducted, using time-series forecasting models such as ARIMA (AutoRegressive Integrated Moving Average) to analyse data from various Nigerian healthcare facilities. The analysis revealed a significant trend in the number of patient visits over two years, with an average increase of 15% per month, supporting the use of ARIMA for reliable forecasting. Time-series forecasting models like ARIMA are effective tools for assessing and enhancing the reliability of community health centre systems in Nigeria. Implementing these models can improve service delivery and resource allocation by providing data-driven insights into system performance. Community Health Centres, Time-Series Forecasting, Reliability Measurement, Nigeria 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: *Sub-Saharan, health systems, evaluation, forecasting, reliability, community, healthcare*

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