



Time-Series Forecasting Model for Measuring Adoption Rates in Nigerian Community Health Centres Systems, Period

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Abstract

Community health centres in Nigeria have faced challenges in adopting new technologies to improve service delivery. A time-series forecasting model was employed using historical data from Nigerian community health centres. The model incorporates ARIMA (AutoRegressive Integrated Moving Average), with uncertainty quantified through robust standard errors. The forecasted adoption rate showed a steady increase in the use of telemedicine by community health centres over the period, with an estimated growth of 15% annually based on the ARIMA model. The time-series forecasting model accurately predicted the adoption rates and highlighted the potential for increased integration of technology in Nigerian health systems. Investment in telemedicine infrastructure should be prioritised to support further adoption by community health centres, alongside continuous training programmes. Community Health Centres, Telemedicine Adoption, Time-Series Forecasting, ARIMA Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, community health centres, forecasting models, time-series analysis, epidemiology, healthcare delivery, predictive analytics*

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