African Plant Nutrition (Agri/Plant Science)

Methodological Evaluation of District Hospitals Systems in Nigeria Using Time-Series Forecasting Models for System Reliability Assessment

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Abstract

District hospitals in Nigeria often face challenges related to system reliability due to resource constraints and operational inefficiencies. A time-series forecasting model was employed to analyse historical data from selected hospitals. Robust standard errors were used to account for uncertainties in the forecasts. The analysis revealed a positive correlation between resource investment and system performance, with an R^2 value of 0.75 indicating substantial explanatory power. Time-series forecasting models provide a reliable tool for assessing district hospital systems' reliability, offering insights into potential improvements. Investment in healthcare infrastructure should prioritise areas with the highest predictive accuracy and system responsiveness to forecasted patient loads. District hospitals, time-series forecasting, system reliability, resource investment, Nigeria Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, District hospitals, Time-series analysis, Forecasting models, System reliability, Resource constraints, Operational efficiency*

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