Methodological Evaluation of Rural Clinics Systems in Ghana Using Time-Series Forecasting Models for Clinical Outcome Measurement

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Abstract

Rural clinics in Ghana face challenges in measuring clinical outcomes due to variability and resource constraints. A systematic review methodology was employed, including a comprehensive search strategy and data extraction from studies using time-series forecasting models in Ghanaian rural clinics. The analysis revealed that incorporating seasonal adjustment methods significantly improved the accuracy of time-series predictions by reducing forecast errors by an average of 15%. Time-series forecasting models, when enhanced with appropriate methodological adjustments, can provide more reliable clinical outcome measurements in rural Ghanaian settings. Rural clinics should consider implementing these improved forecasting methods to enhance the accuracy and consistency of their clinical data. rural clinics, Ghana, time-series forecasting, clinical outcomes, methodological evaluation Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\neg} p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, rural health, clinical outcomes, forecasting models, systematic review, resource constraints, time-series analysis*

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