African Gastroenterology

Time-Series Forecasting Model for Evaluating Maternal Care Facilities in Ghana: A Methodological Study

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Abstract

Maternal care facilities in Ghana are crucial for improving maternal health outcomes. However, there is a need to evaluate and improve these systems. A time-series forecasting model was developed using data from existing maternal care facilities. The model's effectiveness was tested through cross-validation techniques, with uncertainty quantified via robust standard errors. The forecasting model showed an average prediction error of ±5% for key clinical outcome measures such as neonatal mortality rates and post-partum hemorrhage incidence. The time-series forecasting model demonstrated the potential to predict clinical outcomes in maternal care facilities with reasonable accuracy, providing a tool for system evaluation and improvement. Maternal care facilities should use this model to forecast clinical outcomes and identify areas needing intervention. Regular updates of the model are recommended based on new data. maternal health, forecasting models, Ghana, neonatal mortality, post-partum hemorrhage Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ghanaian, MaternalHealth, TimeSeries, Epidemiology, Methodology, Evaluation, Forecasting*

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