



Bayesian Hierarchical Model for Evaluating Clinical Outcomes in Rural Clinics Systems of Nigeria: A Methodological Assessment

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Abstract

Rural clinics in Nigeria face challenges in delivering consistent quality healthcare due to limited resources and expertise. A Bayesian hierarchical model was developed to analyse clinical data from various Nigerian clinics. Data on patient outcomes were collected through standardised surveys and observational studies. The model demonstrated an average improvement of 15% in patient satisfaction scores across all sites, with significant variability between clinics. This study validates the use of Bayesian hierarchical models for evaluating clinical performance in rural healthcare settings in Nigeria. Further research should focus on incorporating additional variables and improving data collection methods to enhance model accuracy. Bayesian Hierarchical Model, Rural Clinics, Clinical Outcomes, Nigeria Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Sub-Saharan, Methodology, Hierarchical, Bayesian, Quantitative, Evaluation*

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