Bayesian Hierarchical Model for Measuring Clinical Outcomes in District Hospitals Systems of Kenya: A Longitudinal Study,

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Abstract

This study aims to evaluate the performance of district hospitals in Kenya by measuring clinical outcomes over time. A Bayesian hierarchical model will be applied to longitudinally analyse clinical outcome data from district hospitals across Kenya. This approach accounts for both within-hospital variability and hospital differences. The study found that the proportion of patients achieving full recovery varied significantly among districts, ranging from 35% in rural areas to 48% in urban settings. The Bayesian hierarchical model provided insights into district hospital performance and highlighted disparities in clinical outcomes between different regions. Policy makers should consider regional-specific interventions based on the identified disparities to improve overall healthcare delivery. Bayesian Hierarchical Model, District Hospitals, Clinical Outcomes, Kenya Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\rightarrow}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Kenya, Bayesian Hierarchical Model, District Hospitals, Clinical Outcomes, Longitudinal Study, Methodology, Epidemiology*

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