Bayesian Hierarchical Model for Measuring Adoption Rates in District Hospitals Systems, Kenya

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Abstract

This study focuses on assessing adoption rates in district hospitals within the healthcare systems of Kenya. Bayesian hierarchical models were employed to analyse data from multiple district hospitals in Kenya. This approach allowed for the incorporation of both hospital-specific and district-level variations in adoption rates, providing a nuanced understanding of the factors affecting healthcare system performance. The analysis revealed that there was a significant variation (Direction: Higher) in adoption rates between districts (Proportion: 0.25), with some areas showing higher uptake compared to others. This study highlights the importance of considering both district and hospital-specific factors when evaluating healthcare system performance, suggesting that tailored interventions could enhance overall adoption rates. Future research should focus on developing targeted strategies for districts with lower adoption rates to improve healthcare outcomes. Treatment effect was estimated with $text\{logit\}(\pi) = beta\, 0 + \vec{\beta}\, p\, X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Kenya, Bayesian, Hierarchical, Adoption, Model, Methodology, District Hospitals*

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