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

Olufemi Oyelola[1], **Sunday Nwankwo**[2,3], **Chinedu Obiora**[3]

[1] Department of Internal Medicine, Ahmadu Bello University, Zaria

[2] Ahmadu Bello University, Zaria

[3] University of Maiduguri

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Correspondence: ooyelola@outlook.com

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Author notes

Olufemi Oyelola is affiliated with Department of Internal Medicine, Ahmadu Bello University, Zaria and focuses on Medicine research in Africa.

Sunday Nwankwo is affiliated with Ahmadu Bello University, Zaria and focuses on Medicine research in Africa.

Chinedu Obiora is affiliated with University of Maiduguri and focuses on Medicine research in Africa.

Abstract

This study examines the adoption rates of new medical technologies in Nigerian district hospitals over a decade. A Bayesian hierarchical model was employed to analyse data on technology adoption across multiple districts. The model accounts for heterogeneity in hospital systems while estimating adoption proportions with uncertainty quantified through credible intervals. The analysis revealed that the rate of new medical device adoption varied significantly between hospitals, ranging from 30% to 80% among sampled facilities. Bayesian hierarchical models offer a robust framework for understanding variability in technology diffusion across healthcare systems. Further research should explore factors influencing adoption rates and the impact of these technologies on patient outcomes. Adoption Rates, Bayesian Hierarchical Models, District Hospitals, Nigeria Treatment effect was estimated with $text\{logit\}(\pi)=beta0+\vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Nigerian, Bayesian, Hierarchical, Adoption, Technology, Model, Analysis*

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