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Bayesian Hierarchical Model for Evaluating Clinical Outcomes in District Hospitals Systems of Ghana

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Abstract

Clinical outcomes in Ghana's district hospitals have been evaluated through traditional statistical methods with limited success. A Bayesian hierarchical model was utilised to analyse clinical data from district hospitals in Ghana, accounting for variability across different healthcare settings and patient populations. The model identified a significant proportion (35%) of treatment discrepancies that were not previously recognised using conventional methods. The application of the Bayesian hierarchical model has improved the accuracy of clinical outcome measurements in district hospitals in Ghana. Further research should be conducted to validate these findings across additional districts and healthcare settings. Treatment effect was estimated with $text{ logit }(pi)=beta 0+vec{beta} p X_{i}$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, African, Hierarchical, Bayesian, Model, Evaluation, Outcomes*

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