African Dermatology Studies

Bayesian Hierarchical Model for Evaluating Clinical Outcomes in Ethiopian District Hospitals Systems

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Abstract

Ethiopia's healthcare system faces challenges in monitoring clinical outcomes across district hospitals effectively. The review synthesizes existing studies on clinical outcomes, focusing on Bayesian hierarchical models for their ability to handle heterogeneity in hospital systems. The model accounts for variations in patient populations and healthcare practices across districts. A key finding is the significant variation in treatment success rates among hospitals (ranging from 60% to 85%), indicating the need for targeted interventions based on local conditions. The Bayesian hierarchical model offers a robust framework for assessing and improving clinical outcomes, supported by its ability to incorporate district-specific data effectively. District health authorities should prioritise implementation of the identified interventions in their respective hospitals to enhance patient care and outcomes. Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Bayesian, Hierarchical Model, Clinical Outcomes, District Hospitals, Methodology, Evaluation*

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