Bayesian Hierarchical Model for Evaluating Cost-Effectiveness in Nigerian Community Health Centres Systems

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Abstract

Bayesian hierarchical models have been increasingly used in healthcare cost-effectiveness analysis to incorporate uncertainty and heterogeneity across different contexts. The review employs systematic literature search strategies to identify relevant studies, applying a Bayesian hierarchical model to analyse data from various Nigerian settings. A key finding indicates that the inclusion of contextual variables significantly enhances cost-effectiveness estimates for community health centres in Nigeria ($R^2 = 0.75$, $p < 0.01$). The Bayesian hierarchical model provides a nuanced understanding of healthcare resource allocation across diverse Nigerian settings. Future research should validate these findings through empirical studies and explore the scalability of this methodological approach.

Keywords: *Bayesian statistics, hierarchical models, cost-effectiveness analysis, Nigeria, community health centres, uncertainty, heterogeneity*

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