Bayesian Hierarchical Model for Evaluating Risk Reduction in District Hospitals Systems in Ethiopia,

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Abstract

District hospitals in Ethiopia have faced challenges in implementing effective risk reduction strategies. A systematic literature review was conducted, utilising Bayesian hierarchical models to analyse data from Ethiopian district hospitals. The analysis revealed that implementing targeted interventions reduced patient readmission rates by an average of 20% in Ethiopia's district hospitals over a two-year period. Bayesian hierarchical models offer a robust framework for evaluating risk reduction strategies and can guide policy improvements in Ethiopian healthcare systems. District hospital administrators should prioritise the implementation of evidence-based interventions identified through this model to further reduce readmission rates. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\neg} \, p\, X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Hierarchical Modelling, Bayesian Statistics, Risk Assessment, District Health Systems, Methodology, Evidence-Based Medicine*

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