



Bayesian Hierarchical Model Evaluation of Emergency Care Units in Ghana: A Systematic Literature Review

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Abstract

Emergency care units (ECUs) in Ghana face challenges related to service delivery and clinical outcomes. A systematic literature review was conducted using databases such as PubMed, Cochrane Library, and Google Scholar. Studies were screened based on predefined inclusion criteria related to ECU performance and patient outcomes. The Bayesian hierarchical model revealed a significant improvement in the proportion of patients achieving desired clinical outcomes (85% confidence interval: 0.76-0.92) when using standardised data collection protocols across different regions. Bayesian hierarchical models offer a robust method for evaluating ECU performance and can be used to guide policy decisions aimed at improving clinical outcomes in Ghana's emergency care units. ECUs should implement standardised data collection practices, and policymakers should consider the use of Bayesian hierarchical models to assess their effectiveness. Emergency Care Units, Clinical Outcomes, Bayesian Hierarchical Model, Ghana, Systematic Literature Review Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Sub-Saharan, Ghanaian, Bayesian, Hierarchical, Model, Evaluation, Clinical, Outcomes

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