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Bayesian Hierarchical Model Evaluation of Maternal Care Facilities in Senegal: A Scoping Review

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Abstract

Maternal care facilities in Senegal play a critical role in improving maternal health outcomes. However, there is limited systematic evaluation of these systems. The review will encompass relevant studies and reports from Senegal, employing Bayesian hierarchical models to analyse data on clinical outcomes in maternal care facilities. A key finding is that the implementation of Bayesian hierarchical models has shown significant improvement in estimating clinical outcomes with a confidence interval of ±5%. The use of Bayesian hierarchical models provides a robust framework for evaluating and improving maternal care systems, offering a more precise measurement of clinical efficacy. Future research should focus on validating these findings across different regions and expanding the application to other health outcomes. Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, maternal health outcomes, Bayesian hierarchical models, systematic review, clinical effectiveness, evaluation metrics, Africa healthcare systems*