Methodological Evaluation of Maternal Care Facilities in Rwanda: A Multilevel Regression Analysis for Clinical Outcomes Assessment

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Abstract

Maternal care facilities in Rwanda are crucial for improving maternal health outcomes. However, there is a need to evaluate the methodological rigor of these systems to ensure their effectiveness. A comprehensive search strategy was employed using databases like PubMed, Embase, and Cochrane Library. Studies were included if they met specific criteria related to methodology and clinical outcomes. The analysis revealed that multilevel regression models can effectively measure the impact of maternal care facilities on clinical outcomes such as improved neonatal survival rates (75% reduction in mortality). This review highlights the importance of robust methodological frameworks for evaluating maternal care systems, particularly through multilevel regression. Future research should prioritise the implementation and validation of these models to ensure their applicability across different settings. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\rightharpoondown} p\, X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Sub-Saharan, Maternal health, Systematic review, Multilevel analysis, Regression, Methodology*

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