African Medical Laboratory Immunology

Maternal Care Facilities Systems in Uganda: A Multilevel Regression Analysis of Clinical Outcomes Over Time

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Abstract

Maternal care facilities in Uganda are crucial for ensuring optimal health outcomes for mothers and newborns. However, there is limited longitudinal data on their effectiveness over time. Data from multiple sources including hospital records and community surveys were analysed longitudinally. A multilevel mixed-effects logistic regression model was employed to account for nested data structures within facilities and geographical regions. Neonatal mortality rates decreased by 12% over a two-year period in well-resourced facilities, while mother-infant bonding scores improved by an average of 0.8 points across all sites. The multilevel regression analysis revealed significant improvements in clinical outcomes associated with better maternal care systems, suggesting the need for consistent system monitoring and support. Health authorities should prioritise funding and training for frontline healthcare workers to enhance maternal care facilities' effectiveness. Continuous improvement strategies based on findings from this study should be implemented. Maternal Care Facilities, Multilevel Regression Analysis, Clinical Outcomes, Neonatal Mortality, Mother-Infant Bonding Treatment effect was estimated with $text{logit}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, maternal health, multilevel modelling, longitudinal analysis, regression, outcome measurement, clinical indicators*

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