African Veterinary Public Health

Maternal Care Facility Systems in Kenya: A Multilevel Regression Analysis of Clinical Outcomes

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Abstract

Maternal care facilities in Kenya are essential for ensuring maternal health and newborn survival. However, their effectiveness varies across different regions. A multilevel regression model was employed with random intercepts for healthcare facilities nested within counties. The model includes county-level indicators such as socioeconomic status, infrastructure, and service delivery quality. The multilevel regression analysis revealed that the level of maternal care facility systems significantly influenced neonatal mortality rates by approximately 15% (95% CI: [0.07, 0.23]). This study provides evidence on how to improve maternal care facilities in Kenya through systematic evaluation. Policy makers should prioritise investment and support for underperforming systems within lower socioeconomic counties to reduce neonatal mortality rates. Maternal Care Facilities, Multilevel Regression Analysis, Neonatal Mortality Rates 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, Multilevel analysis, Regression modelling, Clinical outcomes, Public health systems, Community-based healthcare*

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