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

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Abstract

Maternal care facilities in Rwanda are critical for ensuring safe childbirth practices and infant health outcomes. A multilevel regression model was employed to analyse data from multiple levels of the healthcare system (national, regional, facility). Neonatal mortality rates decreased by 15% in facilities with improved hygiene practices compared to those without such improvements. The multilevel approach revealed significant differences in clinical outcomes across different care systems. Investment should be prioritised in enhancing hygiene and infection control measures within maternal care facilities. maternal health, Rwanda, neonatal mortality, multilevel regression Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Multilevel, Regression, Maternal, Health, Outcome, Contextual*

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