



# Methodological Assessment of Maternal Care Facilities in Tanzania Using Panel Data to Measure Clinical Outcomes

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## Abstract

In Tanzania, maternal care facilities play a crucial role in improving birth outcomes and reducing neonatal mortality rates. Panel data from multiple years were collected to assess variations in clinical outcomes across different facilities. A fixed effects regression model was employed to control for unobserved heterogeneity and estimate the impact of facility-level interventions on neonatal mortality rates. The analysis revealed a significant reduction ( $p < 0.05$ ) in neonatal mortality rates associated with improved prenatal care coverage, indicating that maternal care systems are effective in improving clinical outcomes. This study provides evidence supporting the efficacy of current maternal care systems in Tanzania and highlights areas needing further improvement. Further research should focus on identifying best practices for facility management to enhance overall health outcomes. Maternal Care, Panel Data Analysis, Neonatal Mortality, Fixed Effects Model Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** Tanzania, Maternal Health, Panel Data, Clinical Outcomes, Regression Analysis, Cross-Sectional Study, Geographic Information Systems

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