



Methodological Assessment and Clinical Outcomes Evaluation of Maternal Care Facilities in Ghana Using Panel Data Analysis

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Abstract

Ghana's maternal care facilities face challenges in maintaining consistent quality of care across different regions. A mixed-method approach was employed, integrating both qualitative and quantitative methods to analyse longitudinal data from multiple sites in Ghana. Panel Data Analysis (PDA) using Generalized Method of Moments (GMM) was applied to estimate the impact of various factors on clinical outcomes. Panel Data Analysis revealed significant variations in maternal health indicators over time, with a notable improvement in neonatal survival rates attributed to enhanced hygiene practices implemented by facilities. A confidence interval around the estimated coefficients indicates an 18% reduction in neonatal mortality risk associated with improved care protocols. The study underscores the importance of robust data collection and analysis methods for improving maternal health outcomes in Ghanaian facilities. Facilities should prioritise regular training on evidence-based practices, continuous quality improvement initiatives, and routine surveillance to sustain positive clinical outcomes. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_{it}$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Sub-Saharan, Maternal Health, Panel Data, Quality Assessment, Quantitative Analysis, Qualitative Research*

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