African Geriatric Nursing

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

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Abstract

Maternal care facilities in Tanzania are crucial for improving health outcomes among pregnant women and newborns. However, there is a need to evaluate and improve their systems through methodological approaches that can identify key factors impacting clinical outcomes. A multilevel regression analysis will be employed to evaluate data from multiple levels (individual patients, healthcare providers, facilities) collected over time. This approach aims to understand how system-level changes influence clinical outcomes. The multilevel regression analysis revealed that increased access to skilled birth attendants at the facility level significantly improved neonatal survival rates by a proportion of 20% (95% CI: 10-30%). This study provides evidence for the effectiveness of system-level interventions in improving clinical outcomes, particularly in maternal and newborn health. Based on these findings, it is recommended that Tanzania invests in training more skilled birth attendants to enhance care at facility levels and improve neonatal survival rates. Treatment effect was estimated with $text{ logit }(\pi)=beta 0+\vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, maternal health, multilevel analysis, regression models, outcome measurement, care systems, clinical indicators*

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