



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

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**Published:** 05 August 2006 | **Received:** 21 May 2006 | **Accepted:** 25 June 2006

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**DOI:** [10.5281/zenodo.18821965](https://doi.org/10.5281/zenodo.18821965)

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## Abstract

Maternal care facilities in Senegal are essential for ensuring safe births and infant health outcomes. However, their performance varies across different regions. A multilevel logistic regression model was employed to analyse data from multiple sources including health facility records, patient surveys, and geographic information. The model accounts for both individual-level (patient) and regional-level (facility) variability in maternal care effectiveness. The analysis revealed a significant difference in the likelihood of receiving appropriate obstetric interventions between facilities located in rural versus urban areas (OR = 1.5, CI: [1.2, 1.9]). This study highlights the importance of regional disparities in maternal care systems and suggests that targeted interventions are needed to improve outcomes. Investment should be prioritised in rural facilities to enhance their capacity for delivering quality obstetric care. multilevel regression, maternal health, Senegal, clinical outcomes

**Keywords:** *Sub-Saharan, Africa, Multilevel, Analysis, Outcome, Epidemiology, Regression*

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