



Multilevel Regression Analysis of Adoption Rates in District Hospitals Systems in Rwanda: A Longitudinal Study

Kabuye Nshuti¹

¹ Rwanda Environment Management Authority (REMA)

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Correspondence: knshuti@gmail.com

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Author notes

Kabuye Nshuti is affiliated with Rwanda Environment Management Authority (REMA) and focuses on Medicine research in Africa.

Abstract

This study examines adoption rates in district hospitals systems within Rwanda's healthcare infrastructure. A longitudinal study design was employed, collecting data from multiple sources including administrative records and surveys conducted among healthcare providers. Multilevel regression models were used to analyse the data, accounting for both hospital-level (district) and individual provider-level variations. The analysis revealed a significant increase in adoption rates over two years from an initial baseline of 45% to 60%, with substantial variation observed across different districts. Multilevel regression models effectively captured the complex interplay between district-specific factors and provider-level practices, contributing to a more nuanced understanding of healthcare system dynamics. Future studies should consider longitudinal data collection methods for continuous monitoring and evaluation of adoption rates in Rwanda's district hospitals systems. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Rwanda, Multilevel, Regression, Analysis, Infrastructure, Methodology*

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