Methodological Evaluation of District Hospitals Systems in Senegal Using Multilevel Regression Analysis to Measure Adoption Rates

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Abstract

This study focuses on evaluating the systems of district hospitals in Senegal through a methodological lens, aiming to understand adoption rates of healthcare practices. A comprehensive literature review was conducted, analysing existing studies from various districts in Senegal. Data were collected through secondary sources such as reports and surveys. A multilevel logistic regression model was employed to measure adoption rates, accounting for district-level variations. The analysis revealed a significant variation ($p < 0.05$) in adoption rates across different regions of Senegal, with urban areas showing higher adoption compared to rural settings. This study provides insights into the effectiveness of healthcare systems in Senegalese district hospitals and highlights the need for targeted interventions to improve adoption rates in underserved regions. Based on findings, it is recommended that district health authorities prioritise resources towards improving access and quality of care in rural areas, where adoption rates are notably lower. Senegal, District Hospitals, Multilevel Regression Analysis, Adoption Rates Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\neg}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, multilevel modelling, healthcare systems, regression analysis, district hospitals, adoption rates, geographical diffusion*

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