



Methodological Evaluation of District Hospital Systems in Kenya Using Difference-in-Differences Approach to Assess System Reliability

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Abstract

District hospitals in Kenya play a critical role in healthcare delivery but face challenges related to system reliability. A DiD model was employed to analyse pre- and post-intervention data from selected hospitals, accounting for potential confounders such as patient volume and geographical variation. The DiD analysis revealed a significant improvement in system reliability following intervention, with a 25% increase in critical service delivery efficiency among the evaluated hospitals. The DiD model effectively identified improvements in district hospital systems, providing evidence for policy recommendations to enhance healthcare accessibility and quality in Kenya. Policy makers should prioritise investment in infrastructure and training programmes to sustain system reliability enhancements observed in this study. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *District Hospitals, DiD Model, Healthcare Delivery, Methodological Evaluation, Quantitative Analysis, Sub-Saharan Africa, System Reliability*

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