Methodological Evaluation of District Hospitals' Clinical Outcomes in Kenya Using Difference-in-Differences Analysis

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Abstract

District hospitals in Kenya play a critical role in healthcare delivery, particularly for underserved rural populations. However, their clinical outcomes are often suboptimal due to various systemic issues. Clinical outcome data from a sample of district hospitals in Kenya were analysed over two time periods: before and after implementing quality improvement measures. DiD analysis was employed to estimate treatment effects, accounting for unobserved heterogeneity. The difference-in-differences model revealed a statistically significant positive impact on patient recovery rates ($p < 0.05$) in the intervention group compared to controls. Our analysis supports the efficacy of DiD modelling as a robust method for evaluating healthcare system improvements, with notable benefits observed in district hospital clinical outcomes. Future studies should consider expanding the DiD model application and incorporating additional variables to enhance its predictive accuracy. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\rightarrow}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Kenya, District Hospitals, Clinical Outcomes, Difference-in-Differences, Evaluation, Metrics, Analytics*

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