



Methodological Evaluation of District Hospitals Systems in Kenya: Panel Data Estimation for Adoption Rates Assessment

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Abstract

District hospitals in Kenya play a crucial role in healthcare delivery, particularly for primary care services. However, their performance and adoption rates have not been systematically evaluated. Panel data from four districts were analysed to estimate adoption rates of healthcare services within district hospitals. A linear mixed-effects model was employed to account for temporal and spatial dependencies among the districts. The estimated panel-data regression model revealed that the proportion of patients accessing preventive care services varied significantly across districts, with a median adoption rate of 45%. This study provides insights into the variability in healthcare service adoption within district hospitals and highlights the importance of context-specific interventions to improve system effectiveness. Policy recommendations include targeted training programmes for health workers and community engagement initiatives to enhance preventive care services. Panel data, District hospitals, Adoption rates, Linear mixed-effects model, Healthcare systems 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, Kenya, Health systems, Panel data, Adoption rates, Methodology, Evaluation*

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