African Plant Breeding and Genetics (Agri/Plant Science)

Multilevel Regression Analysis of District Hospitals Systems in Kenya: Methodological Evaluation and Cost-Effectiveness Assessment

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Abstract

District hospitals in Kenya play a critical role in healthcare delivery, yet their systems are underfunded and understaffed, leading to inefficiencies and inequities. A longitudinal study employing multilevel logistic regression models to assess system performance over time. District-level data from to will be analysed using robust standard errors for uncertainty quantification. Significant variation in hospital efficiency was observed, with a proportion of hospitals achieving cost-effectiveness ratios above 1 indicating better resource utilization. The multilevel regression analysis provides insights into the determinants of hospital performance and offers recommendations for improving system effectiveness. Investment strategies should focus on enhancing human resources and infrastructure to align with cost-effectiveness targets, thereby improving overall healthcare delivery in Kenya. District Hospitals, Multilevel Regression Analysis, Cost-Effectiveness, Healthcare Systems Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *District Hospitals, Kenya, Multilevel Regression, Hierarchical Analysis, Cost-Effectiveness, Resource Allocation, Quality Assessment*

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