



Multilevel Regression Analysis to Evaluate Clinical Outcomes in Ethiopian District Hospitals Systems,Context

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Abstract

This study evaluates clinical outcomes in Ethiopian district hospitals during a specific period. A multilevel regression model was employed to analyse data collected from Ethiopian district hospitals over two years, accounting for both individual patient-level variables and hospital-level contextual effects. The analysis revealed a significant effect of hospital bed availability on patient recovery rates, with an estimated coefficient of 0.25 (95% CI: 0.18-0.32). This study provides evidence that district hospitals in Ethiopia can improve clinical outcomes through better resource allocation. District health authorities should prioritise investments in infrastructure to enhance patient care and recovery rates. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Ethiopia, District Hospitals, Multilevel Regression, Hierarchical Analysis, Outcome Measures, Public Health Systems, Epidemiology

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