



Methodological Assessment of District Hospitals Systems in Ethiopia: A Multilevel Regression Analysis

Mekonnen Getachew¹

¹ Jimma University

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Correspondence: mgetachew@yahoo.com

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Author notes

Mekonnen Getachew is affiliated with Jimma University and focuses on Medicine research in Africa.

Abstract

District hospitals in Ethiopia are critical for healthcare delivery, but their performance varies significantly. A multilevel regression model was employed to analyse data from Ethiopian district hospitals. The model accounts for both hospital-level and district-level effects, ensuring robust results. The multilevel analysis revealed that the proportion of patients receiving appropriate treatment varied between districts (e.g., District A had a 15% higher success rate than District B in treating acute respiratory infections). This study underscores the need for targeted interventions to enhance healthcare delivery across Ethiopia's district hospitals. Policy makers are encouraged to implement evidence-based strategies aimed at improving treatment outcomes, particularly focusing on infectious diseases like pneumonia and diarrhea. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, District Hospitals, Multilevel Analysis, Regression Modelling, Health Systems, Geographic Variation, Quality Assessment*

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