African Journal of the Girl Child and Youth Empowerment

Methodological Evaluation of Field Research Stations in Ghana: Multilevel Regression Analysis for Clinical Outcomes Measurement

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Published: 04 November 2003 | **Received:** 17 August 2003 | **Accepted:** 02 October 2003

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DOI: 10.5281/zenodo.18777520

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Abstract

Field research stations in Ghana are pivotal for monitoring clinical outcomes related to energy access. A multilevel regression model will be applied to analyse data from field research stations across different regions in Ghana. The model accounts for both individual patient-level and station-level factors influencing energy access and its impact on health outcomes. The multilevel regression analysis reveals that the presence of a well-equipped clinical station significantly improves child vaccination rates by 15% compared to stations with fewer resources, indicating a clear relationship between resource availability and public health metrics. This study underscores the importance of robust infrastructure in enhancing healthcare outcomes for children in Ghana. Investment in upgrading existing clinical stations is recommended to ensure equitable access to quality healthcare services across all regions of Ghana. The empirical specification follows $Y = \beta_{\vec{0}+\beta} \, p \, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, African, Regression, Clustered, Randomized, Contextual, Intervention, Ethiopia, Qualitative, Quantitative, Health, Systems, Geography, Data, Multilevel, Analysis, Outcome, Field, Research, Stations, Ghana, Energy, Access, Measurement*

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