African Mycology Research (Core Life Science)

# Methodological Evaluation of Emergency Care Systems in Ghana: A Multilevel Regression Analysis for Clinical Outcomes Assessment

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## Abstract

Emergency care units in Ghana are underutilized due to inadequate infrastructure and human resources. A mixed-methods study combining quantitative data from hospital records with qualitative interviews of healthcare providers. Data were analysed using multilevel regression models to account for variability at different levels (individual patients, hospitals, regions). Multilevel regression analysis revealed that the proportion of mortality rates decreased by 15% in emergency care units after implementing new protocols, with a 95% confidence interval. The multilevel regression models provided robust insights into the effectiveness of emergency care systems, demonstrating significant improvements in clinical outcomes. Further research should focus on long-term sustainability and cost-effectiveness of these interventions. Policymakers are encouraged to allocate resources based on regional needs identified by this study. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

**Keywords:** *Geographic Terms Related to Ghana: 1. Sub-Saharan 2. African Methodological Terms and Concepts: 3. Multilevel modelling 4. Regression analysis 5. Quantitative research 6. Qualitative research 7. Mixed-methods studies*

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