Bayesian Hierarchical Model Assessment of Community Health Centre Efficiency in Ghana,

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Abstract

Community health centers in Ghana have been established to improve healthcare access and outcomes. A Bayesian hierarchical model was employed to assess community health centre performance across different regions of Ghana. The model accounts for variability in data sources and temporal trends. The analysis revealed significant gains in efficiency among the centers, with an average improvement rate of 15% over two years. The Bayesian hierarchical model provided robust insights into community health centre performance, highlighting areas that need further attention for optimal service delivery. Investment should be directed towards enhancing infrastructure and training programmes to sustain the efficiency gains observed. Bayesian Hierarchical Model, Community Health Centers, Efficiency Gains, Ghana Treatment effect was estimated with $text\{logit\}(\pi)=beta\,0+\beta^{\rightarrow}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, Bayesian hierarchical models, Community health centres, Methodological evaluation, Quantitative methods, Statistical inference, Systematic review*

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