



Bayesian Hierarchical Modelling for Yield Improvement in Community Health Centres Systems: A Systematic Literature Review in Uganda

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Abstract

Community health centers in Uganda face challenges in improving yield and effectiveness of services provided. A comprehensive review was conducted using systematic search strategies across relevant databases. Key criteria were employed to select studies, ensuring rigorous inclusion and exclusion processes. The review identified a trend towards the application of Bayesian hierarchical models in evaluating yield improvement, with some studies reporting significant positive effects on service outcomes when these models were utilised. Bayesian hierarchical models have shown promise in enhancing understanding of yield improvements within community health centre systems. Further research is recommended to validate findings and explore model applicability across different settings. Investment should be directed towards training healthcare workers on the use of Bayesian hierarchical models for data analysis, thereby improving service delivery effectiveness. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, Bayesian hierarchical models, yield improvement, community health centers, methodological evaluation, statistical methods, econometrics*

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