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Bayesian Hierarchical Model Assessment of Community Health Centre Systems in Kenya 2006

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Abstract

Community health centres in Kenya have been established to provide accessible healthcare services. However, their effectiveness varies across different regions and contexts. A Bayesian hierarchical model was employed to assess system performance by integrating data from various health centres. The model accounts for regional variability and provides robust estimates of service reliability with uncertainty quantification. The analysis revealed significant differences in the effectiveness of community health centre systems between urban and rural areas, highlighting a need for tailored interventions. Bayesian hierarchical models offer an effective tool for evaluating healthcare system performance. This study contributes to enhancing the understanding of service reliability by accounting for regional variations. Further research should focus on implementing these methodologies in diverse settings to ensure equitable health outcomes across Kenya. Community Health Centres, Bayesian Hierarchical Model, System Reliability, Kenya 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 inference, hierarchical modelling, methodological evaluation, quantitative analysis, system reliability, randomized controlled trials*

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