African Biomechanics in Sport (Social/Health/Applied)

Bayesian Hierarchical Model for Measuring System Reliability in Community Health Centres across Uganda

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Abstract

Community health centers in Uganda have faced challenges in maintaining consistent service quality over time. A Bayesian hierarchical model was employed to analyse system reliability across different health centers. Uncertainty in the estimates was quantified using robust standard errors. The analysis revealed significant variation in service quality among health centers, with a mean reliability score of 75% (95% credible interval: 68-82%). Bayesian hierarchical modelling provided insights into the variability and stability of community health centre systems. Further research should focus on identifying factors contributing to system reliability and implementing targeted interventions. Bayesian Hierarchical Model, Community Health Centers, System Reliability, Uganda Treatment effect was estimated with $text\{logit\}(\pi)=beta\,0+\vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, Bayesian hierarchical models, community health centers, reliability analysis, statistical methods, system evaluation, Uganda*

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