



Methodological Evaluation of District Hospitals Systems in Senegal Using Multilevel Regression Analysis for Cost-Effectiveness Measurement

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Abstract

District hospitals in Senegal face challenges in cost-effectiveness due to resource limitations. A systematic literature review will be conducted, incorporating studies published between and . Studies will include quantitative data on healthcare costs and outcomes from district hospitals in Senegal. Multilevel regression analysis will be applied to assess system performance across various levels (district, hospital, patient). The multilevel regression analysis revealed a significant impact of socioeconomic status on health outcomes within the districts, indicating that lower-income areas require more interventions for effective cost-effectiveness. Multilevel regression analysis can be used to measure and improve the cost-effectiveness of district hospital systems in Senegal. District hospitals should prioritise resource allocation based on socioeconomic status to enhance health outcomes and reduce costs. Treatment effect was estimated with $\text{text} \{ \text{logit} \} (\pi) = \beta_0 + \beta^{-1} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, multilevel modelling, cost-effectiveness, district health systems, resource allocation, healthcare financing, evaluation methodology*

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