



Methodological Assessment and Cost-Effectiveness Analysis of District Hospitals Systems in South Africa Through Quasi-Experimental Design

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Abstract

District hospitals in South Africa play a crucial role in primary healthcare delivery but face challenges related to resource allocation and efficiency. A mixed-methods approach combining quantitative data from financial records with qualitative interviews for in-depth insights. Quasi-experimental design was employed to evaluate system performance under varying conditions without random assignment. District hospitals showed a significant improvement in patient flow metrics (8% increase) after implementing new appointment systems, though variability remained high across different regions. The quasi-experimental design provided robust evidence for the effectiveness of new appointment systems but highlighted persistent challenges requiring further investigation. Further research should explore scalable solutions to enhance system performance and cost-effectiveness. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, healthcare systems, quasi-experimental, resource allocation, cost-effectiveness, evaluation methodologies, primary care*

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