Methodological Evaluation of District Hospitals Systems in Kenya Using Difference-in-Differences Model for System Reliability Assessment

Kilonzimwe Wambui[1], **Gichuru Agnes**[2], **Mugendi Okeyo**[2,3]

[1] Department of Internal Medicine, Moi University

[2] Technical University of Kenya

[3] Department of Epidemiology, Jomo Kenyatta University of Agriculture and Technology (JKUAT)

Author notes

Kilonzimwe Wambui is affiliated with Department of Internal Medicine, Moi University and focuses on Medicine research in Africa.
Gichuru Agnes is affiliated with Technical University of Kenya and focuses on Medicine research in Africa.
Mugendi Okeyo is affiliated with Technical University of Kenya and focuses on Medicine research in Africa.

Abstract

This study addresses a current research gap in Medicine concerning Methodological evaluation of district hospitals systems in Kenya: difference-in-differences model for measuring system reliability in Kenya. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A mixed-methods design was used, combining survey and interview data collected over the study period. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of district hospitals systems in Kenya: difference-in-differences model for measuring system reliability, Kenya, Africa, Medicine, original research This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\neg}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Kenya, District Hospitals, Methodology, Difference-in-Differences, Evaluation, Reliability, Healthcare Systems*

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