African Nanomaterials Research (Pure/Applied Science)

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

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Published: 26 November 2009 | **Received:** 02 September 2009 | **Accepted:** 02 November 2009

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DOI: 10.5281/zenodo.18894492

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Abstract

District hospitals in Ethiopia face challenges in maintaining reliable healthcare services due to varying system capacities. A difference-in-differences approach was employed to assess changes in service delivery quality before and after implementing new system enhancements. Data from pre- and post-intervention periods were analysed using statistical software. The DiD analysis revealed a significant improvement ($p < 0.05$) in the proportion of patients receiving timely healthcare services, indicating enhanced reliability. The DiD model provided robust evidence supporting system improvements, contributing to more reliable service delivery across district hospitals. Continued monitoring and periodic enhancements are recommended based on observed improvements. Difference-in-Differences (DiD), System Reliability, Ethiopian District Hospitals Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, District Hospitals, Methodological Evaluation, System Reliability, Difference-in-Differences, Health Services, Quantitative Methods*

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