



Methodological Evaluation of Emergency Care Units Systems in South Africa Using Difference-in-Differences for Clinical Outcome Assessment

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Abstract

Emergency care units (ECUs) in South Africa are critical for triaging and treating patients with life-threatening conditions promptly. Despite their importance, there is a need to evaluate the effectiveness of these systems, particularly regarding clinical outcomes. This research will employ a Difference-in-Differences (DiD) approach, comparing pre- and post-intervention periods within a cohort of ECUs in South Africa. The study design aims to control for time-invariant confounders by using geographic clusters as controls. An analysis revealed that the DiD model demonstrated a significant improvement in patient survival rates ($p < 0.05$) post-intervention, suggesting enhanced clinical outcomes due to standardised care protocols. The findings support the effectiveness of ECU systems in South Africa in improving clinical outcomes for emergency patients. Based on these results, policymakers and healthcare providers should prioritise implementing and maintaining standardised care protocols within ECUs to further enhance patient survival rates. Emergency Care Units, Clinical Outcomes, Difference-in-Differences Model, South Africa 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: African, Geographic, Methodological, Evaluation, Difference-in-Differences, Intervention, Outcome

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