



Methodological Evaluation of Community Health Centre Systems in Nigeria Using Difference-in-Differences Model to Assess System Reliability Over Time

Salwa Suleiman^{1,2}, Josephine Adebola^{3,4}, Olalekan Olayiwola^{4,5}, Temitope Ajayi⁴

¹ Covenant University, Ota

² Department of Clinical Research, University of Benin

³ Department of Pediatrics, American University of Nigeria (AUN)

⁴ University of Benin

⁵ Department of Internal Medicine, Covenant University, Ota

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Correspondence: ssuleiman@aol.com

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Author notes

*Salwa Suleiman is affiliated with Covenant University, Ota and focuses on Medicine research in Africa.
Josephine Adebola is affiliated with Department of Pediatrics, American University of Nigeria (AUN) and focuses on Medicine research in Africa.
Olalekan Olayiwola is affiliated with University of Benin and focuses on Medicine research in Africa.
Temitope Ajayi is affiliated with University of Benin and focuses on Medicine research in Africa.*

Abstract

Community health centers in Nigeria face challenges in maintaining consistent service delivery over time. A longitudinal study employing a difference-in-differences approach to assess changes in service quality and efficiency across multiple centers over several years. The model will control for potential confounders such as demographic shifts and funding variations. The analysis revealed that while some centers saw improvements, others experienced declines, indicating variability in system reliability. Specifically, the average improvement rate was 15% with a confidence interval of ±3 percentage points. The difference-in-differences model provides valuable insights into the stability and adaptability of Nigeria's community health centre systems over time. Policy recommendations include targeted interventions to stabilise underperforming centers, focusing on personnel training and resource allocation strategies. community health centers, reliability, longitudinal study, difference-in-differences model Treatment effect was estimated with $text\{logit\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Nigerian, longitudinal, difference-in-differences, healthcare, reliability, intervention, evaluation, cohort

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