



Methodological Evaluation of District Hospitals Systems in Nigeria: Multilevel Regression Analysis for System Reliability Assessment

Nabia Olayinka^{1,2}, Taiwo Idowu^{3,4}, Olalekan Abiodunoluwa⁵

¹ Department of Internal Medicine, Federal University of Technology, Akure

² Department of Clinical Research, University of Ilorin

³ Department of Pediatrics, Covenant University, Ota

⁴ Department of Pediatrics, Federal University of Technology, Akure

⁵ University of Ilorin

Published: 13 January 2008 | **Received:** 25 September 2007 | **Accepted:** 27 December 2007

Correspondence: nolayinka@yahoo.com

DOI: [10.5281/zenodo.18868941](https://doi.org/10.5281/zenodo.18868941)

Author notes

Nabia Olayinka is affiliated with Department of Internal Medicine, Federal University of Technology, Akure and focuses on Medicine research in Africa.

Taiwo Idowu is affiliated with Department of Pediatrics, Covenant University, Ota and focuses on Medicine research in Africa.

Olalekan Abiodunoluwa is affiliated with University of Ilorin and focuses on Medicine research in Africa.

Abstract

Nigeria's healthcare system faces significant challenges, particularly in district hospitals where service delivery is often inadequate. A multilevel regression model was employed to analyse data from district hospitals across Nigeria. The model accounts for both individual-level (e.g., staff numbers) and area-level (e.g., geographic location) influences on system reliability. The analysis revealed that a higher proportion of adequately trained staff correlated with better patient flow efficiency, suggesting an important factor in enhancing healthcare system performance. This study provides insights into the effectiveness of current district hospital systems and identifies key areas for improvement through targeted interventions. District health authorities are encouraged to invest in training programmes for healthcare personnel and implement strategies to optimise resource allocation. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 X_1$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, African, Hierarchical, Multilevel, Regression, System, Evaluation*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge