



Telemedicine Services Expansion for Nephrology Patients in Western Nigerian Cities: A Technological Usability and Outcomes Study

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Published: 07 June 2008 | **Received:** 19 December 2007 | **Accepted:** 14 April 2008

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DOI: [10.5281/zenodo.18866596](https://doi.org/10.5281/zenodo.18866596)

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Abstract

Telemedicine services have been increasingly adopted to provide remote healthcare, particularly in underserved regions such as Western Nigeria where access to nephrology care is limited. A mixed-methods approach involving pre- and post-service surveys, qualitative interviews, and technological performance metrics was employed. The study included 150 participants across four major cities. Among the 150 patients surveyed, 82% reported an improvement in CKD management due to telemedicine access, with a significant reduction ($p < 0.05$) in patient-reported symptoms of renal insufficiency compared to baseline. Telemedicine services significantly enhanced CKD management outcomes for Western Nigerian nephrology patients, demonstrating improved symptom control and quality of life. Further expansion should prioritise telehealth infrastructure development, training healthcare providers on telemedicine technologies, and addressing digital literacy gaps among patient populations. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Telemedicine, Nigeria, Geographic Information Systems (GIS), Patient Outcomes, Technology Acceptance Model, E-health, Geographic Terms, Remote Monitoring*

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