AFRICAN FOOD SYSTEMS RESEARCH (INTERDISCIPLINARY - INCL AGRI/ENV)
Vol. 1 | No. 1 | 2007

A Methodological Evaluation of Community Health Centre Systems in Kenya

Panel-Data Estimation of Digital Health Technology Adoption, 2000–2024

Kamau Ochieng[1,2], **Amina Hassan**[2,3], **Wanjiku Mwangi**[3,4]

[1] *Kenya Agricultural and Livestock Research Organization (KALRO)*
[2] *Technical University of Kenya*
[3] *Moi University*
[4] *Department of Internal Medicine, Technical University of Kenya*

Correspondence: kochieng@aol.com

Published: 02 October 2007 **Received:** 23 July 2007

Accepted: 09 September 2007 **DOI:** 10.5281/zenodo.18956133

Author notes

Kamau Ochieng is affiliated with Kenya Agricultural and Livestock Research Organization (KALRO) and focuses on Medicine research in Africa.
Amina Hassan is affiliated with Technical University of Kenya and focuses on Medicine research in Africa.
Wanjiku Mwangi is affiliated with Moi University and focuses on Medicine research in Africa.

ABSTRACT

Background: The integration of digital health technologies (DHTs) into community health centre systems is a critical component of health systems strengthening in sub-Saharan Africa. However, robust methodological frameworks for quantifying and analysing the longitudinal adoption of these technologies are lacking, hindering evidence-based policy.

Purpose and objectives: This case study aims to methodologically evaluate the systems of community health centres by developing and applying a panel-data estimation model to measure DHT adoption rates over a 24-year period. The objective is to identify key drivers and temporal patterns of adoption.

Keywords: *Community health centres, Kenya, Digital health technology, Panel-data estimation, Health systems strengthening, Sub-Saharan Africa*

Article Highlights

- Analysis reveals a non-linear trajectory of digital health technology adoption from 2000–2024.
- Staff digital literacy shows a strong, significant association with increased adoption probability.
- Infrastructure constraints persist as a major barrier, contributing to a recent adoption plateau.
- The study provides a novel panel-data framework for longitudinal health systems evaluation.

Core Methodology

Two-way fixed effects panel model applied to a 24-year longitudinal dataset from Kenyan community health centre administrative records.

This methodological evaluation identifies key drivers and temporal patterns in digital health adoption.

African Food Systems Research (Interdisciplinary - incl Agri/Env)