

Replication of a Randomised Field Trial for Maintenance Depot Risk Reduction

A Methodological Evaluation in Kenya

Wanjiku Mwangi¹

Kenya Medical Research Institute (KEMRI)

Correspondence: wmwangi@gmail.com

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ABSTRACT

Background: Randomised field trials (RFTs) are an established methodology for evaluating engineering safety interventions, yet their application and methodological rigour in low-resource infrastructure settings, such as transport maintenance depots, remain under-examined.

Purpose and objectives: This study aimed to methodologically replicate a prior RFT designed to measure risk reduction in depot systems. The primary objective was to evaluate the feasibility and validity of the original trial's design and measurement protocols within the Kenyan context.

Keywords: *Randomised field trials, methodological evaluation, transport maintenance depots, risk reduction, Sub-Saharan Africa, engineering safety interventions, replication study*

Article Highlights

- Replication revealed significant challenges in protocol adherence, causing high treatment group attrition.
- Estimated treatment effect was statistically non-significant ($\beta_1 = 2.4$, 95% CI [-0.8, 5.6]).
- Mid-level management buy-in emerged as critical for intervention fidelity.
- Study highlights difficulty of implementing original RFT methodology with fidelity in the Kenyan context.

Core Limitation

The methodological evaluation suggests implementation failure, not intervention ineffectiveness, as the primary driver of non-significant results.

This replication study questions the direct transferability of experimental designs across contexts.

ABSTRACT-ONLY PUBLICATION

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