



A Methodology for Evaluating the Impact of a Clinic-Based Agricultural Input Package on Nutritional Status and CD4 Count Recovery in Food-Insecure ART Patients in Rural Malawi

A Methodology for
Evaluating the Impact

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Abstract

Food insecurity undermines nutritional status and immune recovery in patients on antiretroviral therapy (ART) in sub-Saharan Africa. Integrated health and agriculture interventions show promise, but robust methodologies for evaluating their impact in routine clinic settings are needed. This methodology article aims to detail the design of a study evaluating the impact of a clinic-based agricultural input package on the nutritional status and CD4 count recovery of food-insecure ART patients in rural Malawi. The study employs a pragmatic, cluster-randomised controlled trial. Health centres are randomised to deliver either the intervention or standard care. Participants in the intervention arm receive a package of drought-tolerant seeds, simple tools, and standard nutritional counselling. Primary outcomes are change in mid-upper arm circumference (MUAC) and CD4 count over 12 months. Analysis will use mixed-effects models to account for clustering within health centres. A nested qualitative process evaluation will explore implementation barriers and facilitators. As a methodology article, this paper presents no empirical trial results. Preliminary pilot data indicated high participant acceptance of the intervention. The described methodology provides a rigorous and contextually adapted framework for evaluating a livelihood-integrated health intervention in a rural, low-resource setting. This methodological approach should be considered for generating robust evidence on agriculture-health linkages. Programme planners may utilise such integrated models when designing services for food-insecure ART populations. HIV, food security, agriculture, nutrition, antiretroviral therapy, complex intervention, implementation research, sub-Saharan Africa This methodology contributes a detailed and replicable blueprint for evaluating the integration of agricultural support into chronic disease management in resource-poor settings, addressing a gap in operational research guidance.

Keywords: *Food insecurity, Sub-Saharan Africa, Antiretroviral therapy, Nutritional status, CD4 lymphocyte count, Agricultural interventions, Programme evaluation*

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

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