Journal of Nutrition and Dietetics 2025
eISSN 3079-4374
Published 28th November 2025 DOI: 10.57039/JND-Conf-Abt-2025-CPHP-22

ORIGINAL RESEARCH

How Kitchen Gardens Improve Child Diets: The Mediating Role of Meal Frequency in a Cluster-Randomized Trial in rural Kenya

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Abstract

Introduction: In this study, we sought to evaluate the impact and pathways of kitchen garden (KG) and nutrition education (NE) interventions on child dietary diversity (CDD) in rural Kenya. **Methods:** A three-arm cluster-randomized controlled trial (KG+NE) vs NE only vs control) Based on baseline and end-line surveys selected from 35 randomly selected villages/clusters in Teso South Sub-County of Busia County. The study covered 284 children aged under 5 years with matching baseline and follow-up data. Structural Equation Modeling (SEM) was used to measure meal frequency as a potential mediator. With child dietary diversity as the outcome variable. **Results:** Correlation coefficient analysis with significance at 95% shows child meal frequency was positively significantly correlated to years of schooling (r = 0.18). While child dietary diversity at follow-up was negatively significantly correlated to age of the primary caregiver (r = -0.16) and meal frequency at end line (r = 0.23). Mediation analysis using SEM revealed that KG+NE significantly increased CDD (mean difference +0.8 food groups, 95% CI 0.5, 1.1) compared to control. Meal frequency mediated 23% of this effect (β=0.46, P<0.001). NE-alone showed smaller but significant improvements (β=0.34, P=0.033). While effects became weaker in food-insecure households. **Conclusion:** Integrated KG+NE interventions effectively improve child diet quality through both direct and mediated pathways. Policy makers should prioritize these interventions while addressing structural barriers like food insecurity.

Key words: Child dietary diversity, meal frequency, kitchen garden, Nutrition education, Mediation analysis.