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Kitchen garden extension programs and their contribution to women's nutritional decision-making autonomy

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Abstract

In much of rural West Africa, women grow and prepare food yet have limited say over what their families eat. This research examined whether kitchen garden extension programs contributed to women's nutritional decision-making autonomy in the Boulkiemde and Sanguie provinces of Burkina Faso. A cross-sectional survey of 183 women enrolled in extension-supported kitchen garden groups was conducted between February 2022 and November 2024. Autonomy was measured across five dimensions: food purchase decisions, dietary diversity choices, child feeding practices, household food allocation, and nutrition knowledge application. Findings showed that autonomy scores increased progressively with program duration, rising from a mean of 2.1 for participants with less than six months of involvement to 4.1 for those exceeding 18 months across the food purchase dimension. Nutrition knowledge application showed the steepest improvement (1.8-point gain). Qualitative interviews with 28 participants revealed that peer group discussions and tangible garden outputs gave women confidence and social legitimacy to assert dietary preferences within their households. The research indicates that kitchen garden programs, when delivered through extension frameworks, serve as an entry point for strengthening women's agency over nutritional decisions.

Keywords: Kitchen gardens, extension programs, women's autonomy, nutritional decision-making, dietary diversity, Burkina Faso, gender empowerment, food security, peer groups, household nutrition

Introduction

Across the Sahel, malnutrition persists not because food is entirely absent but because the people who prepare meals often lack the authority to decide what goes into them. In Burkina Faso, chronic malnutrition affects 27.3% of children under five, and women bear the burden of feeding families while frequently deferring to male household heads on food purchases and dietary composition ^[1]. This paradox, where food preparers lack food decision-making power, has drawn attention from nutrition researchers who argue that improving women's autonomy may be as important as improving food supply itself ^[2].

Kitchen garden programs have been promoted across sub-Saharan Africa as a household-level intervention to increase vegetable availability and dietary diversity ^[3]. When these programs are delivered through agricultural extension services, they combine horticultural training with nutrition education, creating a dual pathway: more diverse food grown at home and greater knowledge of how to use it ^[4]. Evidence from Bangladesh and Nepal suggests that kitchen gardens can improve dietary diversity scores by 15 to 25%, but most evaluations focus on nutritional outcomes rather than the decision-making processes that lead to dietary change ^[5].

Women's nutritional autonomy, defined here as the capacity to make and act on decisions about food acquisition, preparation, and distribution within the household, has been identified as a missing link in nutrition-sensitive agriculture ^[6]. This research investigated whether participation in

extension-led kitchen garden programs contributed to women's nutritional decision-making autonomy in two provinces of Burkina Faso. The specific objectives were to assess autonomy levels across five dimensions, to examine the relationship between program duration and autonomy scores, and to identify the program mechanisms that participants credited with enabling their decision-making capacity ^[7].

Theoretical Framework

This research was guided by Kabeer's (1999) ^[8] framework of women's empowerment, which conceptualises empowerment along three interrelated dimensions: resources, agency, and achievements. In the kitchen garden context, resources include seeds, tools, knowledge, and social networks provided through extension programs. Agency refers to women's ability to define goals and act upon them, including nutritional decisions within patriarchal household structures. Achievements are the observable outcomes, such as improved dietary diversity and child feeding practices. The framework predicts that access to resources alone is insufficient; women must also develop the confidence and social legitimacy to exercise choice, which peer group participation and visible garden productivity may provide ^[9].

Materials and Methods

Materials

A structured questionnaire was developed to measure

nutritional decision-making autonomy across five dimensions, each assessed using four items on a 5-point Likert scale (1 = no autonomy, 5 = full autonomy). The instrument was adapted from the Women's Empowerment in Agriculture Index and the Abbreviated Women's Empowerment in Nutrition Index ^[10], with modifications for the Burkinabe context validated by a panel of four local nutrition and gender specialists. Pre-testing was conducted with 20 women in Koudougou commune during January 2022, yielding Cronbach's alpha values ranging from 0.79 to 0.86 across dimensions. Ethical approval was obtained from the University of Koudougou Research Ethics Board (Ref: UK/REB/2021-043, dated 12 December 2021).

Methods: A cross-sectional descriptive design was used. The sample consisted of 183 women drawn from 14 extension-facilitated kitchen garden groups across Boulkiemde (n = 98) and Sanguie (n = 85) provinces using proportionate stratified sampling. All participants were aged 20 to 55 and had been enrolled for varying durations, enabling a natural comparison across participation length categories: less than 6 months (n = 41), 6 to 12 months (n = 58), 12 to 18 months (n = 47), and over 18 months (n = 37).

Data were collected through face-to-face interviews in Moore language between February 2022 and November 2024. Quantitative analysis used one-way ANOVA with Tukey's post-hoc test for duration-based comparisons and Pearson correlation for continuous relationships ^[11]. Twenty-eight purposively selected participants were interviewed qualitatively, with data analysed using thematic analysis ^[12].

Ethical Considerations

Given the sensitive nature of questions about household decision-making dynamics, several precautions were taken. All interviews were conducted in private settings away from male household members to reduce social desirability bias. Verbal informed consent was obtained after explanation in Moore language, as many participants had limited literacy. Participants were assured that responses would remain confidential and that neither participation nor refusal would affect their access to extension services. Names were replaced with numeric codes in all records.

Results

Table 1: Mean Autonomy Scores by Program Duration Across Five Dimensions (n = 183)

Dimension	<6 mo	6-12 mo	12-18 mo	>18 mo	F-value
Food Purchase	2.1 ± 0.7	2.8 ± 0.6	3.4 ± 0.5	4.1 ± 0.4	47.3*
Dietary Diversity	1.9 ± 0.8	2.6 ± 0.7	3.1 ± 0.6	3.8 ± 0.5	38.6*
Child Feeding	2.4 ± 0.6	3.0 ± 0.5	3.6 ± 0.5	4.3 ± 0.4	52.1*
Food Allocation	1.7 ± 0.9	2.3 ± 0.8	2.9 ± 0.6	3.5 ± 0.5	29.4*
Knowledge Application	2.6 ± 0.7	3.2 ± 0.6	3.8 ± 0.5	4.4 ± 0.3	56.8*

*p < 0.001 for all dimensions. All pairwise comparisons between duration categories were significant at p < 0.05 by Tukey's test, except the <6 months versus 6-12 months comparison for the food allocation dimension (p = 0.067). Nutrition knowledge application showed the highest F-value (56.8) and the steepest gradient across duration categorie.

Table 2: Correlation between garden productivity, program participation, and overall autonomy score

Variable	Autonomy (r)	Duration (r)	Garden (r)	p-value
Overall Autonomy Score	1.00	0.68	0.54	-
Program Duration (months)	0.68	1.00	0.47	<0.001
Garden Vegetable Output (kg)	0.54	0.47	1.00	<0.001
Extension Contact Frequency	0.51	0.39	0.43	<0.001
Peer Group Attendance (%)	0.62	0.58	0.41	<0.001

Program duration had the strongest correlation with overall autonomy (r = 0.68), followed by peer group attendance (r = 0.62) and garden vegetable output (r = 0.54). Extension contact frequency also correlated positively (r = 0.51), confirming the supportive role of regular advisory visits.

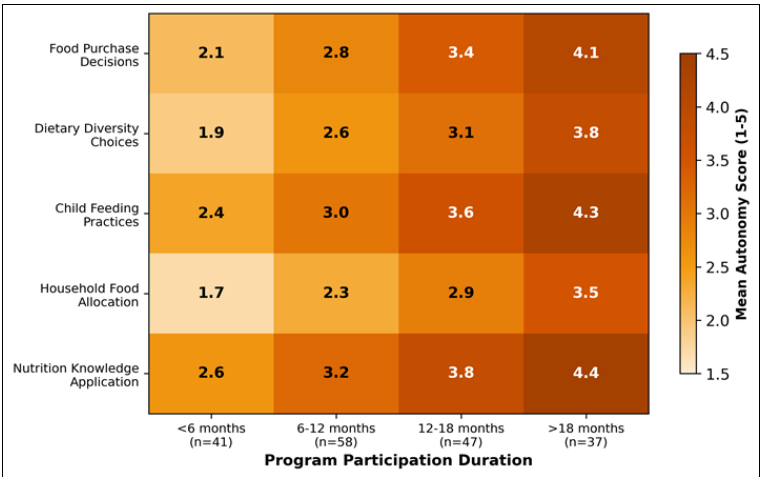


Fig 1: Heatmap of mean autonomy scores across five dimensions by program participation duration

The heatmap displays a clear gradient from cooler (lower autonomy) to warmer (higher autonomy) tones as participation duration increases. Knowledge application and

child feeding dimensions show the darkest shading in the longest-duration category, indicating these areas respond most to sustained program engagement.

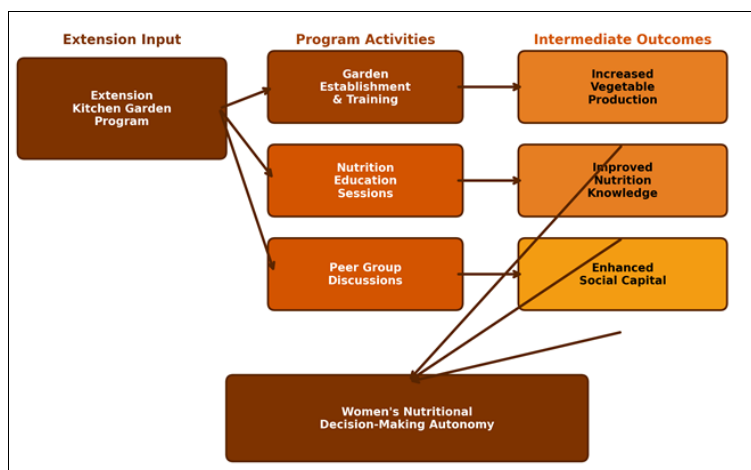


Fig 2: Process diagram showing the pathway from kitchen garden extension programs to women's nutritional decision-making autonomy

The diagram traces three activity streams, garden establishment, nutrition education, and peer discussion, through intermediate outcomes of increased production, improved knowledge, and social capital, converging at enhanced nutritional decision-making autonomy.

Discussion

The progressive increase in autonomy scores with longer program duration supports the theoretical expectation that empowerment is a process rather than an event ^[8]. Women who had participated for more than 18 months scored nearly double those with less than six months across most dimensions, a pattern consistent with Olney and colleagues' (2015) ^[13] findings from a homestead food production program in Burkina Faso that measured women's empowerment over three years. The steepest gains appeared in nutrition knowledge application and child feeding practices, suggesting that these areas respond well to the combined effect of horticultural skill-building and nutrition education.

The strong correlation between peer group attendance and autonomy ($r = 0.62$) highlights a mechanism that quantitative data alone would miss. In qualitative interviews, women described peer groups as spaces where they could discuss household food decisions without judgement, rehearse arguments for dietary changes, and draw confidence from seeing other women assert themselves ^[14]. This social learning dimension appears to be as important as the technical content of the kitchen garden program itself, aligning with Kabeer's emphasis on agency as a relational rather than purely individual capacity ^[8].

Garden vegetable output correlated positively with autonomy ($r = 0.54$), indicating that tangible production gave women both material resources and a visible justification for their dietary recommendations. Several participants noted that husbands were more willing to accept new vegetables on the table when they came from the garden rather than the market, reducing household expenditure and conflict simultaneously ^[15].

Practical Applications

These results suggest that extension-led kitchen garden programs should be designed with empowerment as an explicit objective, not merely a hoped-for side effect. Peer group structures should be maintained and supported beyond the initial training phase, as their contribution to autonomy appears to grow over time. Nutrition education components should be delivered alongside horticultural training rather than sequentially, allowing women to apply dietary knowledge as soon as garden produce becomes available. Extension officers working in gender-conservative settings may benefit from training in facilitative approaches that help women negotiate household food decisions without provoking backlash ^[16].

Conclusion

This research provides evidence that kitchen garden extension programs contribute meaningfully to women's nutritional decision-making autonomy in rural Burkina Faso. Autonomy scores increased consistently with program duration across all five measured dimensions, with nutrition knowledge application and child feeding practices showing the largest gains. Program duration, peer group attendance, and garden productivity were all positively associated with autonomy, suggesting that the combination of sustained participation, social support, and tangible outputs creates conditions for women to exercise greater dietary agency. The findings reinforce the value of designing nutrition-sensitive agricultural programs that address both the material and relational dimensions of women's empowerment, treating kitchen gardens not just as food production sites but as platforms for building confidence, knowledge, and social legitimacy in household food governance.

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