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Evaluation of the CASCADE Programme in Uganda

BASELINE REPORT

November 6, 2024

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American Institutes for Research (AIR)

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Acronyms

Acronym	Full Term
AFRII	African Innovations Institute
AIR	American Institutes for Research
A-WEAI	Abbreviated Women's Empowerment in Agriculture Index
CASCADE	CAtalyzing Strengthened policy aCtion for heAlthy Diets and resilience
CBO	Community-Based Organization
CDO	Community Development Officer
DHS	Demographic and Health Surveys
DiD	difference-in-differences
DQQ	Diet Quality Questionnaire
DR	Dalberg Research
EIBF	early initiation of breastfeeding
FFBS	Farmer Field Business School
FRA	Food Rights Alliance
FSIN	Food Security Information Network
GAIN	Global Alliance for Advanced Nutrition
HFIAP	Household Food Insecurity Access Prevalence
HFIAS	Household Food Insecurity Access Scale
ICC	intraclass correlation
IYCF	infant and young child feeding
LGA	Local Government Area
LSMS	Living Standard and Measurement Survey
MDD	minimum dietary diversity
MDD-W	minimum dietary diversity for women
MDG	Millennium Development Goals
MIYCF	maternal, infant, and young child feeding
NLSS	Nigeria's Living Standards Survey
OFSP	orange-fleshed sweet potato
OLS	ordinary least squares
OPHI	Oxford Poverty and Human Development Initiative
PDM	Parish Development Model

PSFU	Private Sector Foundation Uganda
PSP	private service provider
RCT	randomized-controlled trial
SD	standard deviation
SMD	standardized mean difference
SSA	Sub-Saharan Africa
ToC	theory of change
UNAP II	Uganda Nutrition Action Plan II
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VSLA	Village Savings and Loans Association
WASH	water, sanitation, and hygiene
WHO	World Health Organization
WRA	women of reproductive age

1. Introduction

The Global Alliance for Advanced Nutrition (GAIN) and CARE, with support from the Netherlands Ministry of Foreign Affairs, developed the CAtalyzing Strengthened policy aCtion for heAlthy Diets and resilience (CASCADE) programme application. The overarching goal of CASCADE is to improve food security and reduce malnutrition for at least 5 million women of reproductive age (WRA) and children in Benin, Nigeria, Uganda, Kenya, Ethiopia, and Mozambique between June 2022 and December 2026.

AIR® partnered with GAIN and CARE to design and conduct rigorous mixed methods impact evaluations of the CASCADE programme in the six target countries. The evaluations will answer questions about CASCADE's causal impact, strengths, and challenges. The impact evaluation focuses on those aspects of the programme that are implemented at the beneficiary level. The evaluation team will also conduct, in 2027, a process evaluation to assess policy and systems-level change as well as implementation fidelity with support from local country teams.

The primary purpose of this baseline report is to document and describe the study sample in Uganda prior to the start of the programme, and to test for equivalence at baseline between the treatment and comparison groups. This report first explains the context, details, and motivation behind the CASCADE programme. Subsequently, it explains the theory of change (ToC), research questions, study design, baseline data collection, sample description, baseline measures of key indicators and domains, and baseline equivalence between the treatment and comparison groups. Lastly, the report provides insights about the nutritional status at baseline of the target population and identifies key areas to guide activities by the programme implementation team.

2. Evaluation Background

2.1. Background and Scope of Work

Background

Promoting the uptake and consumption of healthy diets is an essential strategy for improving the nutritional status and food security of marginalized communities in Sub-Saharan Africa (SSA). This strategy is also of first-order importance for solving some of the pressing maternal and child health challenges in the region. Rates of nutrient deficiency are high across many parts of SSA, especially among pregnant and nursing women and children under the age of 5. According to the Joint Child Malnutrition Estimates by the United Nations Children's Fund (UNICEF), the World Health Organization (WHO), and the World Bank (2023), the prevalence of stunting among children under five years old in SSA remains critically high. Despite global declines, the region shows insufficient progress with an average stunting rate among surveyed countries standing at about 31.3%. In contrast, the stunting rates in upper-middle income and high-income countries are below 8%. Moreover, the wasting rate in SSA is 6% compared to a global rate of 1.9%, indicating a persistent challenge in acute malnutrition. Further, 75% of Africans cannot afford healthy diets and

fewer than 20% of infants and young children meet minimum criteria for acceptable diets.[a] Micronutrient deficiencies, particularly in iron, vitamin A, and zinc, remain widespread, exacerbating health risks like anemia, impaired immunity, and developmental delays, further hindering progress in improving nutritional outcomes across the region (UNICEF, 2023; FSIN, 2023). Lastly, challenges with breastfeeding practices also persist, with only 48% of infants in SSA exclusively breastfed during the first six months—well below the global target of 70%—contributing to poor infant nutrition and increasing susceptibility to infections (WHO, 2023; UNICEF, 2023).

Various causes contribute to these critical levels of malnutrition. The main drivers of malnutrition in SSA are deeply intertwined with socio-economic, environmental, and health-related factors such as high rates of infectious diseases (e.g., malaria, diarrhea, and respiratory infections). Poverty is a significant factor, as limited financial resources restrict access to nutritious foods and healthcare, affecting dietary diversity and food security (UNICEF & WHO, 2023). Inadequate maternal and child health services contribute to high rates of malnutrition, exacerbated by insufficient prenatal and postnatal care, which affects both mothers and their children's nutritional status (Tamir et al, 2024). Environmental factors, including frequent droughts and conflicts, disrupt food production and distribution, leading to food shortages and higher rates of acute malnutrition. In marginalized communities, agricultural biodiversity is limited and the more widely consumed staple crops are often too expensive to purchase regularly. When staple crops are readily available, they often make up too large a part of the diet, limiting nutritional diversity. Additionally, the effects of climate change are intensifying food insecurity across the region, with lasting adverse effects. Recent shocks such as the COVID-19 pandemic and the war in Ukraine have increased food and fertilizer prices and depressed incomes, raising the number of people suffering from malnutrition and unable to meet basic food consumption needs (FSIN, 2023). Lastly, poor maternal knowledge regarding Maternal, Infant, and Young Child Nutrition (MIYCN) also plays a critical role, as mothers may lack information on appropriate breastfeeding, complementary feeding, and childcare practices, further contributing to malnutrition in early childhood. These knowledge gaps often result in suboptimal feeding behaviors, such as delayed introduction of complementary foods or inadequate dietary diversity, further contributing to malnutrition (Muluye et al., 2020).

The consequences of these compounding crises are especially problematic for the development of young children and WRA, who face additional challenges to access healthy diets because of cultural norms. Together, these elements form a complex web that perpetuates nutritional deficiencies across the region.

CASCADE Programme

CASCADE has been designed to improve access to healthy diets for WRA and their children. Specifically, CASCADE focuses on the following strategic objectives: 1) increase access to and consumption of healthy diets; and 2) increase the resilience of the nutritional situation of household members to shocks, with a focus on WRA and children.

[a] The State of Food Security and Nutrition in the World, 2021. https://www.fao.org/publications/sofi/2021/en/

To achieve these two objectives, CASCADE seeks to unleash changes across five domains by supporting the implementation of nutrition-related policies and activities prioritized by the governments of each country and involving four key **actors**:

Domain 1 (D1): Activities in this domain will aim to support and strengthen **government** capacity to implement existing nutrition-related policies at the local and national levels.

Domain 2 (D2): Activities will aim to engage **private service providers (PSPs)** to improve the implementation of existing nutrition-related policies by offering accessible and affordable products and services.

Domain 3 (D3): Activities will aim to strengthen **community structures** (e.g., Farmer Field Business Schools (FFBS) and Village Savings and Loans Associations (VSLA) members, advocates, and government frontline service providers) to increase women's agency and opportunity to produce, acquire, prepare, and consume healthy diets.

Domain 4 (D4): Activities will aim to empower **women** so that they have increased knowledge, skills, and resources to produce, acquire, prepare, and consume healthy diets by improving social safety nets and training women in climate-resilient agriculture and methods to consume and prepare nutritious food.

Domain 5 (D5): Activities aim to promote synergies between relevant actors through data sharing, learning, strengthened coordination, and linkages, including with GAIN's A1 programme, "Market-based solutions to improve diet quality and resilience for bottom-of-the-pyramid consumers."

To assess the impact of the programme at the beneficiary level, we collect data at the community and household levels with a focus on domains 3 and 4. Our process evaluation at endline will allow us to investigate other domains of interest that include programme activities at the government (domain 1) and PSP (domain 2) levels, as well as synergies across relevant actors (domain 5). Thus, this baseline report for the impact evaluation focuses on data collected for domains 3 and 4.

2.2. Theory of Change

CASCADE's global ToC (CARE, GAIN, and the Ministry of Foreign Affairs of The Netherlands, 2023) guides our approach to design the evaluation of the programme. In line with CASCADE's long-term outcomes, the ToC asserts that if the capacity of stakeholders at all levels (community, subnational, and national) to implement existing nutrition policies is strengthened, then national governments in Nigeria, Benin, Ethiopia, Kenya, Uganda, and Mozambique will be able to deliver food and nutrition programmes that facilitate greater access to and consumption of healthy diets and increase nutritional resilience, particularly for WRA and children.

The innovations implemented under CASCADE fall into the five domains described above. The first four domains target key stakeholders implicated in food systems and food security—government bodies, PSPs, community structures, and Bottom of Pyramid consumers—whereas the last (developing synergies) targets the coordination and linkages among stakeholders. These activities can lead to better coordination among different governmental bodies (e.g., ministries), more partnerships between the public and private sectors, the strengthening of food systems infrastructure (e.g., input supply chain), the mutual reinforcement of policy/programmeming at all levels, and the mainstreaming of gender equality and women's empowerment in food and nutrition policies. These outputs, in turn, could create stronger institutional capacity to implement policies at the national, subnational, and local levels. The prioritization of nutrition at higher levels of government and the ability of government actors to coordinate the various nutrition-related sectors could moderate the success of the programme to achieve these outcomes (see Figure 2.2-1). CASCADE's overall goal is to strengthen pathways to high-quality policy implementation and programme delivery in the food and nutrition sectors, thereby contributing to food security and the reduction of malnutrition.

Figure 2.2-1. Understanding the CASCADE Impact Pathways

Many CASCADE activities focus on improving nutrition-sensitive policy coordination and decision making (D1, D2, D5) and strengthening capacity, approaches, and responsiveness of nutrition-sensitive services (D4). The project also works directly with communities by engaging with community structures (D3) or through hands-on training of government frontline workers.

CASCADE primarily works to support existing government structures rather than working directly with communities. To achieve its intended impact, CASCADE thus assumes that government can and will replicate (or cascade) improved approaches via front-line workers and empowered/resourced by well-coordinated local government action.

By working together with local governments for the implementation of activities under D3 and D4, CASCADE seeks to help governments contextualize and internalize approaches designed to improve nutrition outcomes for communities.

CASCADE in Uganda. The CASCADE's policy focus in Uganda is the Uganda Nutrition Action Plan II (UNAP II) (2020 – 2025). The UNAP II's overall goal is to improve the nutritional status of children under five years of age, school age children, adolescents, pregnant and lactating women, and other vulnerable groups by 2025. CASCADE in Uganda is implemented in three regions: Karamoja, Acholi and Tooro. The project will focus primarily on WRA, children under five years of age, and refugees – groups often overrepresented in Bottom of Pyramid numbers. In total, CASCADE expects to impact 928,116 people, of which 399,090 WRA and children. The primary implementing partners for CASCADE project activities will be the Food Rights Alliance (FRA), African Innovations Institute (AFRII), and Kyambogo University.

D1 activities will focus on mainstreaming nutrition into key policy frameworks and local governance structures such as the Parish Development Model (PDM), supporting multisectoral coordination around nutrition, and facilitating dialogues through workshops, convenings, and trainings.

D2 activities will aim to strengthen or establish new PPPs by recruiting and training SBN members, collaborating with the Private Sector Foundation Uganda (PSFU) and other relevant stakeholders to implement nutrition campaigns, and convening multi-stakeholder dialogues to advocate for a stronger enabling environment for the participation of the private sector in the nutrition space.

Under D3, CASCADE will develop a behavioral change communication strategy aimed at improving food handling and dietary practices and eliminating harmful social norms and behaviors regarding nutrition. Local government structures (at the district and lower levels) and CBOs, in particular, women's collective will be trained on the implementation of the behavioral change communication strategy in their communities. The project will also conduct leadership and advocacy training for women networks and collectives, support women networks and collective's advocacy for the creation of customized gender-inclusive spaces at national and local government levels, to demand for essential nutrition-related services. In addition, CASCADE will adapt and apply the CSC approach to the local context and improve the linkages between women and children with health service providers for essential nutrition services.

D4 aims to increase women's access to and control over resources, strengthening the knowledge and skills of women small-scale producers and increasing household knowledge, attitudes, and practices in nutrition and safe foods consumption. Some of the key activities under this domain include implementing the FFBS model, targeting small-scale female farmers, and support and training frontline health service providers on healthy diets and MIYCN.

Finally, D5 activities will aim to strengthen coordination mechanisms in Uganda by generating evidence to support food systems actors and processes and by disseminating nutrition related information and data (e.g., Integrated Food Security Phase Classification [IPC] data) through various forums such as dialogue meetings and international, national, and sub-national forums.

2.3. Research Questions

This report focuses on the data collected at baseline at the household level. The data at the household level will inform research questions that are mostly related to the implementation of Domains 3 and 4. For completeness, however, Table 2.3-1 presents all of the research questions that will guide all evaluation components. This report summarizes and analyzes the data collected at baseline that will be used to answer the impact evaluation questions, namely, R2.1 to R2.4, that also correspond to Domains 3 and 4.

Taking into account the CASCADE main objectives, the ToC, and the scope of work of this study, we propose to investigate implementation (Research Area 1) and programme impacts (Research Area 2), guided by a preliminary set of research questions presented in Table 2.3-1, below. The research questions reflect the five domains articulated in the RFP

and ToC: government bodies, private sector, community structures, women and children, and synergies. For each research question, we list the different methods to use and examples of indicators to address the research question.

Table 2.3-1. Research Questions

Research questions	Evaluation type/ leading actor	Examples of possible indicators (quantitative) and patterns of evidence (qualitative)
Research Area 1: Implementation		
R1.1 How does CASCADE strengthen the implementation of nutrition-related policies by governments at the national and local levels?	Endline process evaluation to be conducted by AIR. Implementation assessment at other times to be conducted by country teams with support from AIR qualitative team.	• Perceived capacity gains of government actors in policy implementation (qualitative) • Perceived improvements in accountability and responsiveness of government actors (qualitative)
R1.2 What are the key challenges and facilitators for government actors to implement nutrition-related policies?	Same as in R1.1	• Perceived challenges and facilitators at relevant levels of government (qualitative)
R1.3 How does CASCADE promote better linkages between private and public actors involved in the implementation of nutrition-related policies?	Same as in R1.1	• Composition of multisectoral platforms (i.e., representation of private and public actors in platforms) • # of public–private partnerships • Perceived improvements in public–private coordination (qualitative)
R1.4 What are the key challenges and facilitators that shape public–private partnerships in the nutrition space?	Same as in R1.1	• Perceived challenges and facilitators (qualitative)
R1.5 How does CASCADE strengthen the capacities of public service providers and community organizations such as women's collectives, farmer groups, and VSLAs in delivering nutrition-related services and communication?	Same as in R1.1	• Perceived capacity gains of public service providers and community organizations (qualitative) • Uptake/participation of public service providers and community-based organizations in relevant CASCADE activities • # of capacity-strengthening training sessions
R1.6 What are the key challenges and facilitators for public service providers and community organizations to implement nutrition-related services?	Same as in R1.1	• Perceived challenges and facilitators (qualitative)
R1.7 What are the challenges and facilitators for community leaders, local organizations, and women in shifting social	Same as in R1.1	• Perceived challenges and facilitators (qualitative)

Research questions	Evaluation type/ leading actor	Examples of possible indicators (quantitative) and patterns of evidence (qualitative)
and gender norms regarding nutritional practices?		
R1.8 To what extent have government actors, private sector actors, and community organizations engaged with and/or implemented the CASCADE programme as originally designed?	Same as in R1.1	• Participation in community groups and associations (VSLAs, farmer groups, women's collectives) • Number of meetings with nutrition activities • Length of meetings with nutrition activities • Number of WRA who attended meetings with nutrition activities
R1.9 How does implementation of CASCADE affect the effectiveness of the programme? How do contextual factors affect programme success?	Same as in R1.1	• Implementation fidelity
Research Area 2: Programme impacts		
R2.1 What is the impact of CASCADE on the *food and nutrition security* status of women of reproductive age and children? How do these impacts differ across contexts?	Impact evaluation	• Household Food Insecurity Access Scale (HFIAS) • Minimum Dietary Diversity (MDD) for WRA • Minimum Dietary Diversity for children 6–23 months • Access and consumption of iron-fortified and biofortified foods (selected countries) • Consumption of specific focused foods promoted by CASCADE
R2.2 To what extent does CASCADE improve the nutritional resilience of women and children to price- and climate-related shocks? How do these impacts differ across contexts and implementation models?	Impact evaluation	• Types of shock-coping strategies • Women's ownership of assets
R2.3 What is the impact of CASCADE on behaviors affecting the nutritional status of women and children? How do these impacts differ across contexts and implementation models?	Impact evaluation	• Women's input in productive decisions • Women's control over use of income • Women's knowledge of proper young infant and child nutrition practices • Incidence of proper young infant and child nutrition practices
R2.4 What is the impact of CASCADE on services provided to strengthen community structures?	Impact evaluation	• Type, frequency, and perceived quality of services provided to grassroot organizations and women's collectives
R2.5 How does the CASCADE programme affect the implementation of existing nutrition-related policies? Through what causal pathways did this impact occur?	Contribution analysis	• Perceived association between CASCADE activities in Domain 1 and observed impacts on policy implementation (i.e., strengthened capacities of nutrition-related policy makers, increased accountability and responsiveness of government actors) [Qualitative].
R2.6 How does the CASCADE programme affect the involvement of private sector	Contribution analysis	• Perceived association between CASCADE activities in Domain 2 and observed impacts on

Research questions	Evaluation type/ leading actor	Examples of possible indicators (quantitative) and patterns of evidence (qualitative)
providers in the implementation of existing nutrition-related policies and programmes?		private sector engagement (i.e., new PPPs established, existing PPPs strengthened)
R2.7 How did the CASCADE programme affect the coordination and linkages between relevant nutrition actors? Through what causal pathways did this impact occur?	Contribution analysis	• Perceived association between CASCADE activities in Domain 5 and observed impacts on coordination mechanisms (i.e., data collection and dissemination, connections between nutrition-related programmes and networks)

2.4. Domains of Interest

For the evaluation of the programme, the evaluation team worked closely with the CASCADE global team and the country teams to map the immediate, intermediate, and long-term outcomes of interest, as determined from the research questions and the ToC with indicators that are standardized and feasible to collect in household surveys. Thus, the indicators and questionnaire modules used in the evaluation come from pre-validated and internationally/nationally tested survey modules. Moreover, where possible, modules and indicators follow those already used in Uganda (e.g., Demographic and Health Surveys [DHS] and Diet Quality Questionnaire [DQQ]) or from similar related evaluations (e.g., A-WEAI).

Below, we provide a summary description of the main outcomes of interest used in the evaluation and the source of the modules used to collect data on those outcomes. We provide a detailed explanation of those outcomes (i.e., how they are defined and analyzed) in sections 6 and 7.

Immediate and Intermediate Outcomes

As discussed, the CASCADE impact evaluation at the beneficiary level focuses on domains 3 and 4. As shown in Annex B, Domain 3 has to do with community structures as drivers of change to improve implementation of nutrition-related policies and practices. The immediate outcomes for this domain are: 1) shift in social norms that impact nutrition practices; 2) strengthening advocacy capacities of CBOs and women's groups; and 3) public providers effectively implementing nutrition-related services. In terms of Domain 4, which aims at empowering women through increased knowledge, skills, and resources to produce, acquire, prepare, and consume healthy diets, the immediate outcomes of interest are: 1) Increased access and control over resources; 2) increased knowledge and skills to produce nutritious foods; and 3) increased knowledge and skills to adopt healthy diets.

Women Empowerment. Our household level survey includes different modules to capture aspects related to these immediate and intermediate outcomes. First, we used some relevant modules from the Abbreviated Women's Empowerment in Agriculture Index (A-WEAI), a streamlined version of the original WEAI that was developed by the International Food Policy Research Institute in collaboration with the United States Agency for International Development (USAID) and the Oxford Poverty and Human Development Initiative (OPHI). The WEAI is designed to measure the empowerment, agency, and inclusion of women in the agriculture sector. The A-WEAI survey focuses on several critical domains

of women's empowerment in agriculture including the role that women have in household decision-making; access to and control over resources; control over use of income; leadership in the community, including women's involvement in community groups and associations, such as farmers' groups, cooperatives, and other local organizations; and time allocation.

For the CASCADE evaluation, we used four modules from the A-WEAI. First, we rely on module G2 that looks at the role of women in household decision-making around production and income generation, capturing the extent of their influence and participation. Second, we rely on module G5 to assess group membership of female respondents, exploring their involvement in various social and economic groups within their communities. We draw from module G3A to understand access to productive capital, determining the availability and utilization of resources such as land, livestock, and equipment. Lastly, we use module G3(B) to examine access to credit, identifying the sources, amounts, and conditions of financial resources available to households. We describe in detail the data collected from these modules in Section 7.4.

Nutrition Knowledge. In addition to the different aspects of women empowerment, we collect detail information on nutrition and feeding knowledge to gather information on the respondents' understanding of nutritional practices and feeding strategies, crucial for assessing the programme's impact on dietary practices.

Women Groups. Lastly, we collect detailed information on experience with women's groups, because of the predominant role that these groups have in the implementation of programme activities.

Long-Term Outcomes

At the beneficiary level, the CASCADE programme focuses on supporting WRA. The long-term outcomes of the evaluation are healthier diets for WRA and increased resilience of the nutritional situation for WRA and their households.

Healthier Diets. To assess diet quality, a set of target foods were identified for each country. Increased consumption of these foods constitutes our measure for improved diet quality. This is measured with a questionnaire on the number of servings consumed of focus foods over the past 7 days before the survey. Collecting data on food consumption with recall periods longer than the day before the survey is a common practice in Food Frequency Questionnaires (FFQ) whenever there are limited food items that are a source of nutrients related to the particular dietary exposures under study. Thus, FFQs rely on a longer recall period in order to capture foods that are not consumed every day but are still part of the individual's typical

Target Foods: CASCADE MEAL and country teams worked together to identify foods that meet several criteria: they meet critical nutrient deficiencies in the target population, they are currently consumed in inadequate amounts, and they are being promoted for production and/or consumption in the interventions. These foods include locally available nutrient dense foods as well as fortified and biofortified foods.

diet, and as a result, are a more valid indicator of the relationship between diet and health outcomes than those 24-hour dietary recalls. [b]

In sum, asking about food consumption patterns over the past 7 days or even longer periods provides both advantages and limitations when compared to surveys focused on just the previous day. One primary benefit of using a 7-day recall period is its ability to reduce the impact of day-to-day variability in diets, offering a more stable and representative picture of typical food consumption. Additionally, it captures foods that might be consumed occasionally rather than daily, making it easier to account for non-daily foods. This period also reduces the recall burden on participants who rarely consume specific food groups, minimizing "zero" responses for such foods on a given day. Moreover, the 7-day recall offers insights into habitual consumption patterns, helping researchers identify regular versus irregular intake of certain food groups like fruits and vegetables. However, this approach has its drawbacks, primarily related to recall bias. Participants may find it difficult to remember their exact intake over a full week, especially if they do not keep track of their meals, which can lead to inaccurate reporting. Overall, the evaluation team, in coordination with the Global CASCADE team decided to use a 7-day recall period for the focus foods. We present the target foods in the table below for all countries.

In addition, we apply the DQQ, developed by the Global Diet Quality Project, a standardized tool to estimate dietary patterns. With data from the DQQ module, we can construct a number of different diet measures. Of particular interest for CASCADE is minimum dietary diversity for women (MDD-W), which is an indicator of micronutrient sufficiency that reflects whether respondents ate at least five of 10 specific food groups during a day. MDD-W is a well-validated, widely used, and comparable across contexts. However, this indicator of diet diversity may not be responsive to many improvements in diet quality, such as increased quantities and/or diversity within a given food group or increases in the number of food groups consumed from 3 to 4, but not past the adequacy cut-off of 5.

For children aged 6 to 23 months, we also collect data on the number of servings consumed of focus foods over the past 7 days before the survey. We complement these data with the DQQ for infant and young child feeding (IYCF), a standardized tool for collecting data to calculate IYCF indicators (WHO and UNICEF 2021) that is also aligned with the food group consumption data collected from the DQQ for adults and the general population. The IYCF DQQ is designed for infants and young children aged 6-23 months and the information is provided by the primary caregiver of the infant or young child. The main IYCF-DQQ indicators assessed are: (1). Breastfeeding indicators (i.e., ever breastfed (EvBF); early initiation of breastfeeding (EIBF); exclusively breastfed for the first two days after birth (EBF2D)); and (2). MDD for 6-23 months.

[b] International Dietary Data Expansion Project. https://inddex.nutrition.tufts.edu/data4diets/data-source/food-frequency-questionnaires-ffq (visited on November 5, 2024)

Table 2.4-1. CASCADE Target Foods Included in Survey by Country

Country	Target Foods
Kenya	• Iron rich beans • Dark green leafy vegetables such as Sukuma wiki, Ethiopian kale, spinach, manage, terere, saget or kunde • Any dairy products: milk, cheese, fermented milk, yogurt
Uganda	• Iron rich beans • Dark green leafy vegetables such as nakati, sukuma wiki, spider plant leaves, green amaranth, hibiscus leaves, and ensuga • Orange-fleshed sweet potato • Orange maize
Mozambique	• Pigeon peas (Peas) • Cowpeas • Soybeans • Orange fleshed sweet potato • Carrots • Pumpkin • Cabbages • Tomatoes • Okra • Beet root
Nigeria	• Poultry (meat or egg) • Orange-fleshed sweet potato • Dark green leafy vegetables such as amaranthus, gboma sika, garden egg leaves, okra leaves, spinach, cabbage, lettuce • Habanero pepper (atta rodo), sorrel
Benin	• Soya beans and soy-based products such as soy porridge, soy milk, soy cheese, soy meat/skewers, and soy cookies • Dark Green Leafy Vegetables such as hibiscus leaves, moringa leaves, bean leaves, and okra leaves • Orange-fleshed sweet potato • Carrots
Ethiopia	• Dark green leafy vegetables such as Ethiopian kale, Swiss chard, spinach, cabbage, or sweet potato leaves • Vitamin A rich fruits and vegetables such as Swiss chard, carrot, cabbage, and orange fleshed sweet potato • Iron and zinc rich haricot beans

Nutritional Situation Resilience. The CASCADE programme also aims at increasing the resilience of the nutritional situation of household members to shocks. For this purpose, we use the HFIAS module, developed by USAID.[c] Several factors support the use of the HFIAS to assess household-level resilience in terms of nutrition. First, the HFIAS captures data on the availability and accessibility of food within a household, which is a critical component of nutritional resilience, as it reflects a household's ability to consistently access sufficient and nutritious food. Second, by identifying levels of food insecurity, HFIAS helps in

[c] Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator Guide, 2007. https://www.fantaproject.org/sites/default/files/resources/HFIAS_ENG_v3_Aug07.pdf

understanding the vulnerability of households to food shortages and nutritional deficits. This information is crucial for assessing resilience, as more resilient households are better able to withstand and recover from food access challenges. Third, the module provides insights into the coping strategies households adopt when faced with food insecurity, such as reducing portion sizes, skipping meals, or consuming less preferred foods. These behaviors are indicative of the household's capacity to manage and adapt to food scarcity, which is a key aspect of resilience. Overall, the HFIAS module provides valuable data that can be used to assess and enhance the nutritional resilience of households by identifying food insecurity patterns, vulnerabilities, and coping mechanisms. We complement the resilience analysis with a standard module on shocks and coping mechanisms faced and used by the household in the last 12 months before the survey.

3. Evaluation Methodology

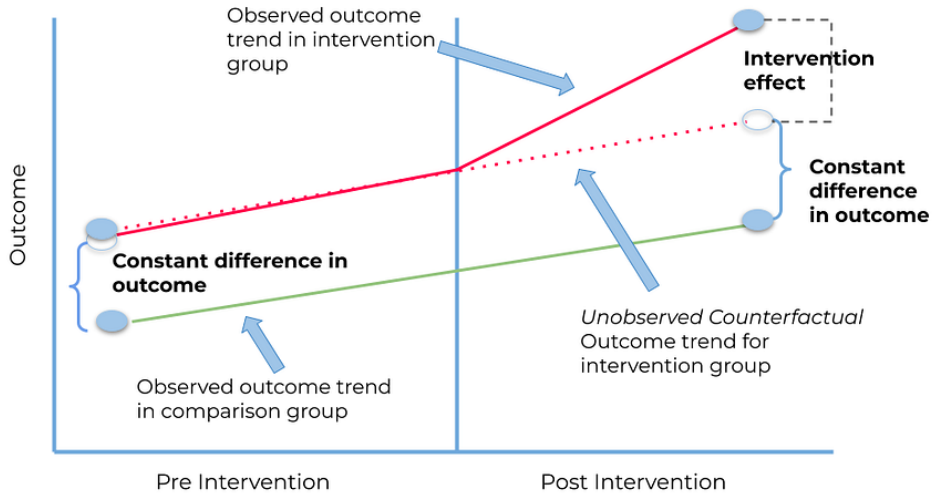
3.1. Identification Strategy

In this section, we focus on providing details of our impact evaluation approach to estimate the causal effects of CASCADE activities under Domains 3 and 4.[d] Specifically, we present an overview of the design, sampling, data collection tools and plan, and analysis. The evaluation team is using the same identification strategy in all of the six CASCADE countries to facilitate comparison of estimated programme impact by country at the end of the evaluation.

Establishing a clear counterfactual is necessary to conduct a valid assessment of the impact of CASCADE. This requires rigorous methodologies that enable us to address the question of what would have happened in the absence of the intervention. By eliminating selection bias and bias from confounding variables, a randomized-controlled trial (RCT) is the strongest design for making causal claims about programme impacts. For this study, however, an RCT is not feasible because treatments areas and community-based groups (e.g., VSLAs, farmers' groups, women's rights organizations) targeted by activities in Domains 3 and 4 were already (or are in the process of being) purposefully selected. Instead, **the evaluation relies on a difference-in-differences (DiD) approach combined with statistical matching,** a robust quasi-experimental approach that is widely used to estimate the causal impact of a programme of policy intervention. The combination of DiD (which compares the average change over time for the treated group to the average change over time for the comparison group (see Figure 3.1-1) and a matching approach (which uses background data to model selection into participation in a particular programme) is a robust alternative for determining the impacts of CASCADE activities for Domains 3 and 4 on household-level outcomes.

[d] It is not possible to conduct an impact evaluation of the activities under Domains 1, 2, and 5 as they are expected to have country-wide effects.

Figure 3.1-1. Difference-in-Differences Approach



The key identification assumption underpinning the DiD approach is that there is no systemic, unobserved, time-varying difference between the treatment and comparison units. In addition, treatment and comparison units should not be exposed to different shocks (e.g., climate shocks, migration) throughout the evaluation period. We worked closely with the country teams to identify comparison areas in the vicinity of treatment locations while limiting the potential of spillovers and contamination. We selected comparison areas that are close enough to treatment settlements such that they are likely to be simultaneously affected by any regional shocks, and, at the same time, far enough such that contamination of the comparison group is unlikely.

To implement the DiD approach, we need to collect data at two or more points in time (i.e., at baseline in 2024 and endline in 2027) for both the treatment and comparison households. We will collect data for the same households in both time periods. At endline, we will estimate programme impacts by comparing changes in outcomes over time between treatment and comparison units. DiD entails calculating the change in outcomes, such as women's dietary diversity or HFIAS, between baseline and endline, and comparing the magnitude of these changes between the treatment and comparison groups. We will estimate the following equation via Ordinary Least Squares (OLS):

$$y_{hgt} = \alpha + \beta_0 Endline_t + \beta_1 Treat_{hg} + \beta_2 Endline_t \cdot Treat_{hg} + D\gamma + \varepsilon_{hgt}$$

Where the variables are defined as

- y_{hdc} is the value of an outcome of interest, for household h, who belongs to group g, at time t, which is either baseline or endline.
- $Endline$ is an indicator variable that equals 1 if t equals endline, and zero otherwise.
- $Treat$ is an indicator variable equal to 1 if the household is located within a CASCADE programme area.
- *D* is set of variables that identify the geographic area where the household lives (i.e., region fixed effects)

- ε is a random error component.

Here, β_2 is the coefficient of interest and corresponds to the programme's impact on a given outcome.

To estimate programme impacts, we will use cluster-robust standard errors to account for a lack of independence with respect to assignment to treatment across observations pertaining to the same women's groups.[1]

3.2. Overall Sampling Approach and Power Calculations

We employed a stratified, two-stage random sampling approach, where we first stratified the sample at the regional level to ensure representativeness of programme activities; then, within each treatment and comparison locality/community, we selected groups formed by at least 10 women (e.g., community-based organizations, VSLAs, or female farmer groups) based on household lists provided by the CASCADE country teams for both treatment and comparison areas. In cases without household lists, we worked with the CASCADE country team to determine the criteria that they will use to identify households that are eligible for programme activities and ask our data collection partners to use these criteria in both treatment and comparison areas. Lastly, within the selected groups, we select female members of reproductive age as the main respondent for the survey. In groups with several female members (i.e., more than 15 female members), we randomly selected the members to participate in the interview. For groups with fewer female members, we interviewed up to 10 based on respondents' availability.

Table 3.2-1. CASCADE Treatment Areas by Country

Country	Treatment areas	
	Regional/Provincial/State Level	Local Level
Benin	Department of Atacora, Alibori, Couffo, Ouémé, Borgou, and Zou departments	20 municipalities within the 6 departments
Ethiopia	Amhara Province, South Gondar Zone	Intensive activities will be focused on 4 woredas: Ebinat, Libokemke, LayGayint, and Tach Gayint.
Kenya	Counties of Nakuru, Nyandarua, and Nairobi	12 sub counties; 4 within each county
Mozambique	Nampula province, districts of Nacaroa, Erati, and Nampula	75 communities across the three districts
Nigeria	States of Kebbi, Nasarawa, Bauchi, and Jigawa	16 Local Government Areas (LGAs); 4 within each state. Within each LGA, CASCADE will target selected wards.
Uganda	Subregions of Tooro, Acholi, Lango, Busoga, Karamoja	16 districts and 3 cities

We conducted power calculations to determine the sample size required to assess programme impacts. Our calculations indicated the need to collect data for 1,200 women across 120 clusters in order to have an 80% chance of detecting a treatment effect of at least 0.2 standard deviations (SD) for an outcome like the Household Food Insecurity Access Score. For this analysis, we assumed an intraclass correlation (ICC) of 0.15 and an R squared of 0.25. Our assumed ICC is above the typical values for outcomes related to child nutrition,

household food expenditures, and household food security for some countries in sub-Saharan Africa, including Kenya (Seidenfeld et al, 2023). ICC values tend to be low (< 0.10) for indicators of nutrition and food expenditures, which are critical CASCADE outcomes. Furthermore, using data from Nigeria's 2018–2019 Living Standard and Measurement Survey (LSMS) and 2018 Nigeria's Living Standards Survey (NLSS), we estimated LGA-level ICCs for some of our outcomes of interest and find that they are in line with the evidence from Seidenfeld and colleagues, varying between 0.03 and 0.15 (Table 3.2-2).

Table 3.2-2. LGA-Level Intra-Cluster Correlations by Indicator

Indicator	ICC at LGA-level	Data source
Women's decision-making power over agricultural activities	0.15	LSMS
Women's control over income	0.07	LSMS
HFIAS	0.03	NLSS

Source: LSMS 2018–2019, NLSS 2019. AIR calculations.

3.3. Sample Selection in Uganda

In this section, we summarize the process the CASCADE country team undertook to identify treatment areas and CBOs. Thereafter, we explain how we leveraged this information 1) to draw our treatment sample and 2) to identify comparison areas and CBOs for the CASCADE Uganda impact evaluation.

Treatment and Comparison Area Selection. First, the CASCADE country team identified 18 districts for programme implementation, and within these 18 districts, they selected sub-counties for programme implementation through a consultative process with local government officials. Broadly put, the CASCADE country team sought to select sub-counties where women and children faced the highest burden of malnutrition but where there was also a low saturation of nutrition-specific or nutrition-sensitive interventions. Specifically, they used four main criteria to select treatment sub-counties:

- **District local government participation**. Consultations with the leadership of the 18 local governments to recommend/guide on sub-counties of focus.
- **Prevalence of high levels of malnutrition in select sub-counties** compared to other areas/sub-counties. Reference to secondary literature/reports from the respective district health information management systems.
- **Saturation of similar food and nutrition security projects/interventions.** Areas with the most need and less interventions on food and nutrition by nongovernmental organizations and government.
- **General levels of vulnerability.** e.g Remote/distant sub-counties far from administrative centers amid limited services, neglected populations.

The CASCADE country team sorted selected treatment areas into two treatment groups: those that will receive CASCADE activities under domains 1, 2, 3, 4, and 5 (i.e., Intervention

1) and those that will receive CASCADE activities under domains 1, 2, 3, and 5 (i.e., Intervention 2).

To select comparison areas, the CASCADE country team used the aforementioned criteria as well as an additional criterion, that there are not already interventions similar to CASCADE in the area. Unlike the selection of treatment subcounties, comparison area selection was *not* conducted in a consultative process with local government officials, primarily due to budget and time constraints. Therefore, for the impact evaluation, the AIR team selected comparison districts that bordered treatment districts, with the aim of identifying comparison areas that were close enough to treatment settlements such that they were likely to be simultaneously affected by any regional shocks, and, at the same time, far enough such that contamination of the comparison group is unlikely. Figure C-1 in Annex C presents the treatment and comparison districts for the impact evaluation sample.

CBO Mapping and Selection in Treatment Areas. After identifying CASCADE treatment areas, the CASCADE Uganda team identified CBOs within treatment areas, conducting a mapping and profiling exercise to collect detailed information on the number, type, size, activities, and members of CBOs in treatment areas.

As initial inputs for this mapping and profiling exercise, the CASCADE country team obtained lists of CBOs at the subcounty level from Community Development Officers (CDO). Using the CDO lists, the CASCADE country team purposefully selected CBOs for profiling based on seven main criteria relevant for CASCADE programme implementation:

1. Groups participating in agricultural activities with women memberships in the community (at least 60% or more women membership)
2. Groups with women within the reproductive age category (15-49 years) with children under 5 years
3. Groups previously supported by CARE in previous projects
4. Women groups in malnutrition hotspots,
5. Women groups in locations with low NGO presence
6. Women groups identified during scoping missions (VSLA groups, Producer groups, marketing groups, farmer groups, male action groups, and a combination of these categories)
7. Groups recognised by the offices of the CDO (should be registered at the district or subcounty or in the process to be registered)

Local data collection teams profiled the purposively selected groups from the CDO lists, collecting detailed information at the group and group member level. Data collection efforts for this profiling exercise primarily occurred in two phases: from March through April 2023 and from November through December 2023.[e] Local councils and chiefs were instrumental in facilitating these data collection efforts by connecting the local data collection teams with

[e] For sampling purposes, AIR had access to the list of profiled groups that was collected between November and December 2023.

the selected CBOs and, in some cases, accompanying the teams during data collection and/or organizing these CBOs in preparation for data collection activities.

At the time of baseline data collection, all profiled groups were expected to participate in the CASCADE programme. Considering this and the aforementioned criteria applied to purposefully select groups for profiling, the AIR team used the following criteria to include groups in the impact evaluation sample:

1. **Group size:** Groups needed to have at least 10 members.
2. **Group composition:** Groups needed to have members who were adult WRA (i.e., 18–49 years old).
3. **Group organizing purpose:** Groups' organizing purposes needed to be oriented toward either farming or savings or both. Specifically, groups needed to be classified as VSLAs or farmer groups (among other possible classifications) according to the group type variable from the profiling data.
4. **Group contact information:** Groups needed to have at least one valid phone number from the profiling data. This could include a phone number associated with group leadership or with any group member.
5. **Group GPS coordinates:** Groups needed to have at least one set of GPS coordinates from the profiling data.
6. **Group treatment areas:** Groups needed to be based in areas that were designated for CASCADE Uganda "Intervention 1" treatment, which includes activities under CASCADE domains 1, 2, 3, 4, and 5.
7. **Group proximity to comparison districts:** Groups needed to be close to borders shared with comparison districts (i.e., approximately within 100 kilometers).[f]

CBO Selection in Comparison Areas. Since profiling data on CBOs in comparison areas was not available prior to baseline data collection, the AIR team instructed its data collection partner to select CBOs that met the minimum sample requirements and that were closest to the selected treatment CBOs. Table 3.3-1 presents the number of treatment and comparison districts as well as the number of sampled CBOs by region.

Table 3.3-1. Number of Sampled Groups by Region

Region	Treatment Districts	Comparison Districts	Treatment Groups	Comparison Groups
North	5	5	28	28
East	1	1	7	7
West	3	3	25	25

For a full list of treatment and comparison districts, see Figure C-1 in Annex C.

[f] As previously mentioned, the AIR team sought to select comparison areas that were close enough to treatment settlements such that they were likely to be simultaneously affected by any regional shocks, and, at the same time, far enough such that contamination of the comparison group is unlikely.

4. Baseline Data Collection

Data collection was carried out by Dalberg Research (DR) with technical assistance and support from researchers at AIR and the CASCADE country team in Uganda.

DR recruited staff for data collection from its pool of enumerators in Uganda. The team composition included one field manager from the DR head office, one supervisor, three team leaders, and 15 enumerators. The enumerator training took place from 10 April to 14 April 2024 in Kampala. The pilot was conducted on April 12th.

AIR availed the English version of the questionnaire, and the DR scripting team programmemed the tool for use with tablets/phones using the SurveyCTO programme. The DR team then translated the questionnaire in three local languages (Rutooro, Karamajong, and Acholi) and uploaded it for use with tablets/phones. The scripts were validated by the scripting team and the programme and field managers. During training, the whole team used and confirmed that the scripts aligned with the hardcopy tools in content and flow, as well as the corresponding versions in the local languages. After this, the tool was certified and ready for deployment in data collection.

Data collection took place over a 4-week period. The team collected data in 18 districts from the following regions/subregions: Northern, Karamoja, West Nile, Western, and Eastern Regions (See Annex C for more details). We contacted 120 groups, equally divided between treatment and comparison areas, and interviewed 8-12 women in each group for 1,205 respondents. AIR and DR maintained close communication throughout fieldwork through a WhatsApp channel. AIR staff, enumerators, supervisors, and DR staff conducted frequent debrief meetings during the survey and leveraged the WhatsApp channel to resolve urgent issues.

5. Sample Description

We provide a baseline sample description to understand eligible beneficiaries' initial conditions. We summarize the demographic characteristics of potential programme beneficiaries, namely, WRA (18–49 years old). Throughout the report, we present baseline levels for both the treatment and comparison households to check for equivalence between groups. In sections 5 to 7, we use figures to describe the average characteristics of the main respondent or the households, disaggregated by treatment condition.

Unless otherwise indicated, all figures in the report present information in terms of statistically significant differences between the treatment and comparison groups. More specifically, to assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for region fixed effects to effectively compare treatment and comparison observations within subregions. In all figures, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households using the following significance levels: * $p < 0.1$; ** $p < 0.05$, and *** $p < 0.01$. The absence of stars for a given outcome indicates that there is baseline equivalence for that outcome. Given that for most outcomes in the report there is baseline

equivalence, we report in the text the average of the outcome using all observations (i.e., for the treatment and comparison groups combined). Note that those averages are not reported in the figures, but in the tables presented in Annex D.

For completeness, all figures in the report are based on estimation tables presented in Annex D. In those tables, we first provide the mean and SD for each outcome of interest for three groups: the full sample (All), the treatment group (Treat), and the comparison group (Comp.). In column 4 of each table, we present the standardized mean differences (SMD), which quantify the magnitude of the difference between the two groups in terms of SDs. We also include significance levels whenever there is a statistically significant difference between the two groups. When assessing equivalence between treatment and comparison, we follow the What Works Clearinghouse guidance on equivalence, which states that only SMD greater than 0.25 SD are considered relevant in terms of balance. This means that outcomes with an SMD lower than 0.25 SD are considered statistically equivalent.

For some key outcomes of interest, we also present averages by subregion (i.e., West Nile, Acholi, Karamoja, Western and East Central) to provide a more comprehensive description of the regional differences. However, we do not conduct baseline equivalence tests by subregion as the relatively small sample sizes for each subregion do not allow for meaningful comparisons.

5.1. Overall Sample

We interviewed a total of 1,205 households, where our main respondents were WRA drawn from 120 groups. The treatment group comprises 603 households and the comparison group includes 602 households. At the subregion level, the largest proportion of observations was from Western at 41.74%, Acholi 23.4%, Karamoja, 13.28%, East central 11.62% and West Nile 9.96% of the total sample.

Table 5.1-1. Sample Distribution by Treatment and Subregion (Number of HHs)

Region/Subregion	Treatment	Comparison	Overall
Western	252	251	503
Acholi	141	141	282
Karamoja	80	80	160
East Central	70	70	140
West Nile	60	60	120
Total	603	602	1,205

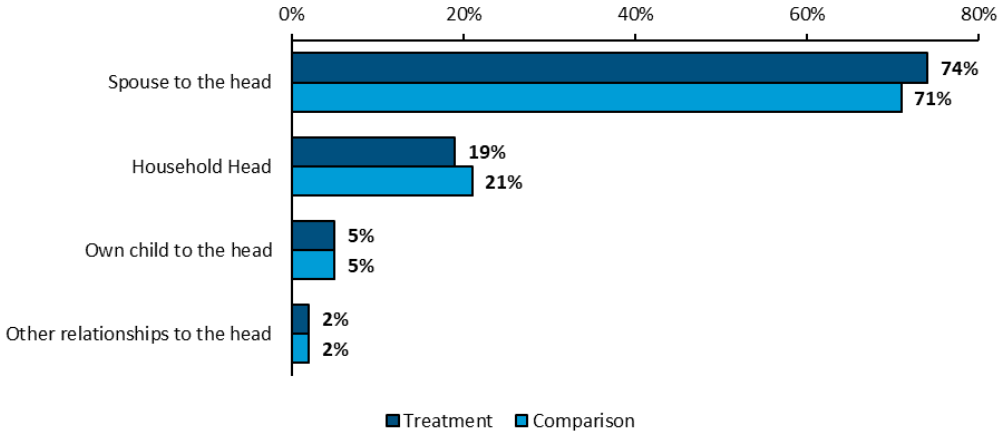
5.2. Household Composition

Understanding the household's sociodemographic characteristics and those of the main respondents is important for programme implementation. We collected data for the main respondent and her spouse (when applicable) in terms of age, education level, as well as household size and distribution by age.

Respondent Characteristics

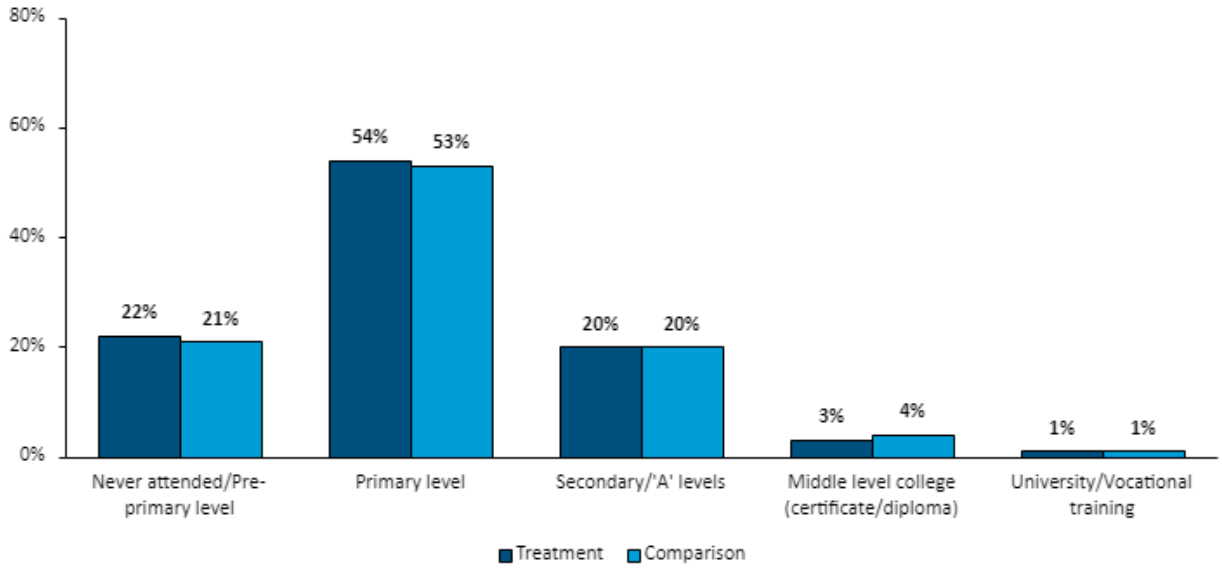
In terms of the respondent's characteristics, the average age in our sample is 34 years (min=18; Q1=27; Q2=34; Q3=40; max=49). Seventy-three percent of respondents are spouses to the household heads and 20% are household heads. Fifty-three percent of respondents had primary education as their highest education level attained. Twenty percent have secondary schooling, while only 5% went beyond secondary education. There were 22% who did not attend school at all or had only attended pre-primary.

Figure 5.2-1. Distribution of Relationship of Main Respondent



Note. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant difference between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Figure 5.2-2. Main Respondent's Highest Level of Education by Treatment



Note. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes

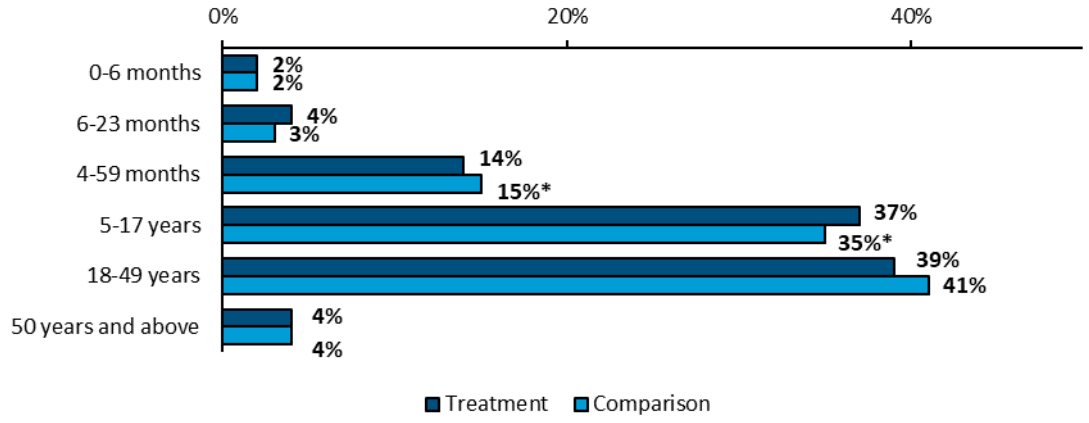
for which there are statistically significant difference between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Household Characteristics

We also collected information in terms of gender, age, and level of education of the household head and present the information in Annex D, Table D-5.2-2. Men are the dominant household head overall. The average age of the household head is 41 years old. Most household heads have primary level as the highest education attained (47%) followed by secondary level (28%). The comparison group had a statistically significant higher proportion for middle college education (7%) relative to the treatment group (3%). We observed significant differences between treatment and comparison groups for Primary and middle college education levels respectively. The treatment group had a statistically significant higher proportion for primary education (51%) relative to the comparison group (44%), while the comparison group had a statistically significant higher proportion for middle college education (7%) relative to the treatment group (3%).

We also obtained the age distribution of different household members. The most dominant age group in the households was 18 to 49 years (40%) followed by 5 to 17 years (36%). While approximately three quarters of households had at least one child under 5 years old (74% treatment versus 76% comparison), children who are 6–23 months old are only 3% of the household population. There is a relatively small statistically significant difference for the percentage of members in the 24–59 months and 5 to 17 years ($p < 0.1$) age groups. Results were consistent across subregions apart for the share of households with any children below the age of 5, which varied from 68% in the western subregion to 85% in Karamoja and East Central, respectively. We also collected information on the household size. The average household size was 6.5 members. There was a statistically significant difference in household size between treatment at 6.72 and comparison group at 6.28 members ($p<0.05$).

Figure 5.2-3. Household Members Age Distribution by Treatment



Note.

Note. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

5.3. Housing Conditions

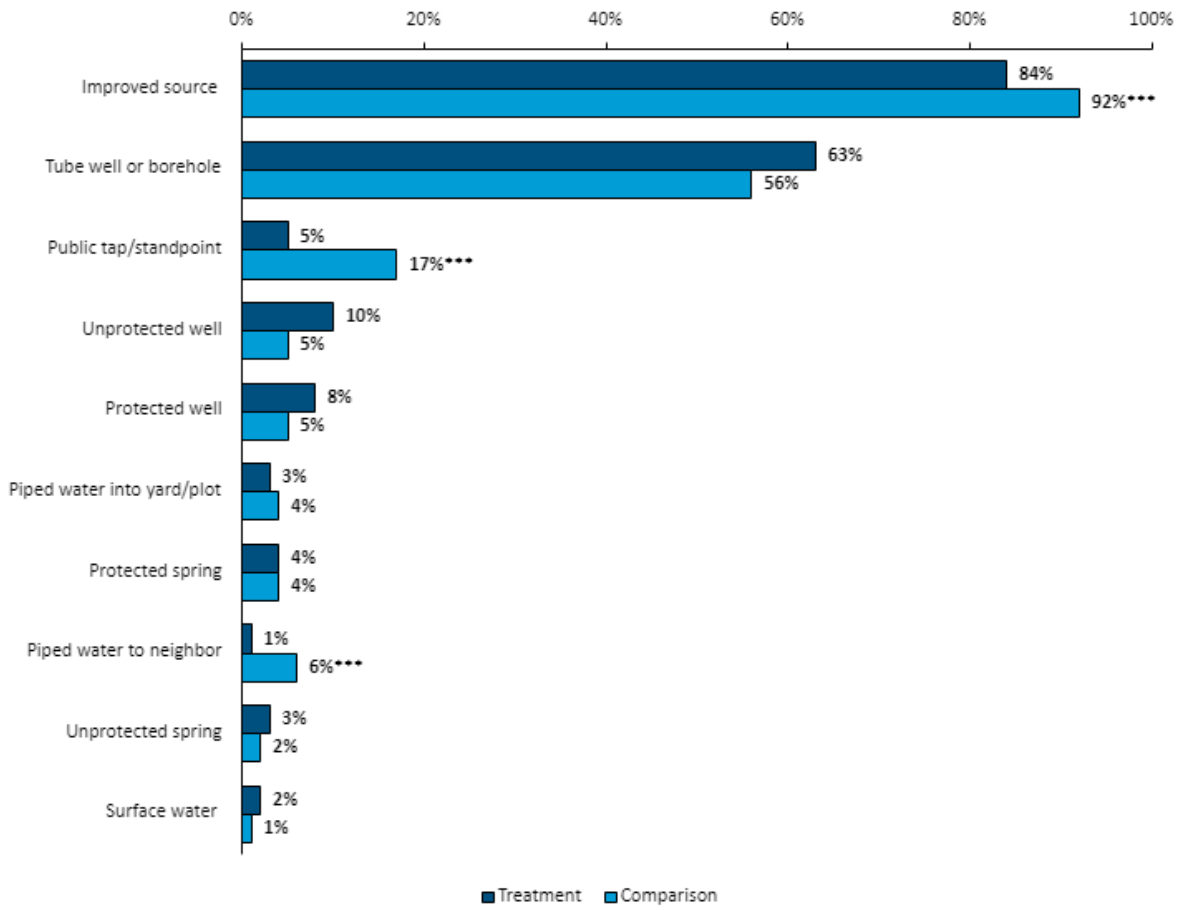
To gain further insights on the socioeconomic characteristics of the household population, we collected information on housing conditions. We used the housing condition indicators from the Uganda DHS for the year 2022. The information collected included housing characteristics, access to water and sanitary facilities, household possessions, and use of clean fuels and technologies (related to cooking, heating, and lighting).

Access to Water for Drinking and Other Purposes

We classified the sources of drinking water into two main categories: improved sources (piped into dwelling, piped water into yard/plot, piped water to neighbor, public tap/standpoint, tube well or borehole, protected well, protected spring, rainwater, tanker truck, car with small tank, and bottled water) and unimproved sources (unprotected well, unprotected spring, surface water such as lakes, river, irrigation channels, dams, steams, and canals) based on the DHS guidelines based on WHO Millennium Development Goals (MDG) of 2018. Overall, 88% of the households had access to an improved source of drinking water, where the most common source was tube well/borehole at 60%. The comparison group had a statistically significantly higher chance of accessing improved sources of water at 92% compared to treatment group at 84%, which were manifested through statistically significant difference in using piped water to neighbor and public tap. Twelve percent of the households did not have access to improved water sources, with the majority (6%) of them relying on unprotected wells as the main source of drinking water. Similar results were observed between treatment and comparison groups.

We also asked the source of water used for other purposes in the household. The results showed that households use almost the same sources of water for drinking and other purposes. Many of the households (88%) used improved sources of water for other purposes, where the main source was piped water into the yard/plot. The results remained similar between the treatment and comparison group.

Figure 5.3-1. Water sources by Treatment



Note. *N* = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Proximity of Water Sources

For respondents who did not have access to piped water into dwelling, nor piped into plot/yard, nor piped into neighbor's compound, we asked the location of the main water source. Ninety-four percent of respondents said that the water source was located elsewhere outside the dwelling's compound and the remaining 6% had the water located in their own yard/plot. The results remained similar between the treatment and comparison groups.

Water Treatment Methods

We also asked the respondents if their household treated water before drinking. Less than 50% had any form of water treatment. Boiling was the main treatment method for 78% of the households. There was a higher probability of adding chlorine to water by households in the comparison group (23%) compared to the treatment group (8%). Covering water with a container was more likely among the treatment group (10%) compared to comparison group (5%).

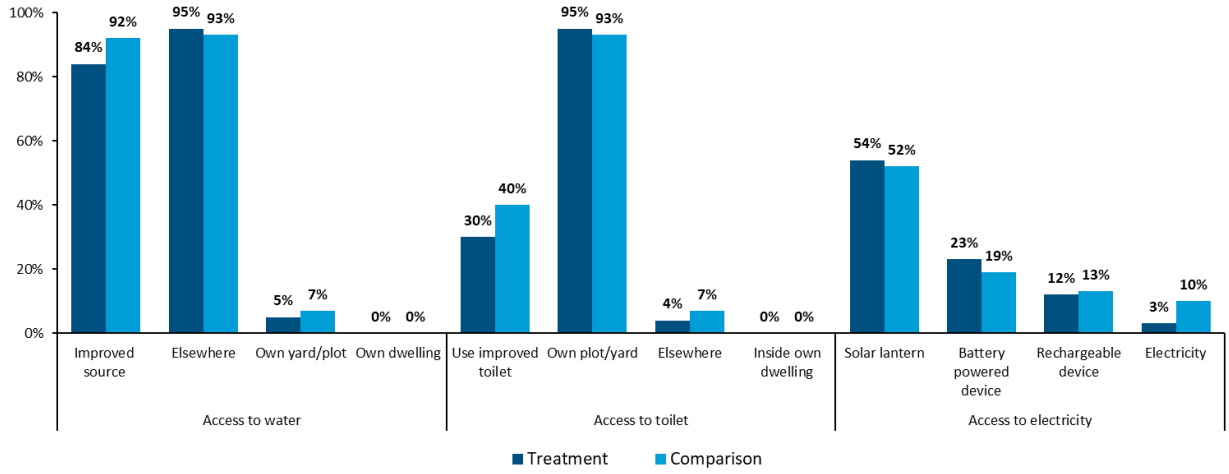
Access to Sanitation/Toilet Facilities

Apart from access to clean water, we also assess access and type of toilet facilities used by households as an indicator of living conditions. The baseline results indicate that only 35% of households had access to improved toilet facilities. In our classification, based on WHO's 2018 MDG, improved toilets include: flush to piped sewer system, flush to septic tank, flush to pit latrine, flush (don't know where), ventilated improved pit latrines, pit latrine with slab, and composting toilet. The households used just two improved toilets, the pit latrine with slab (32%) and ventilated improved pit latrine (3%). The most used unimproved toilet is pit latrine without slab (56%). Forty percent of the comparison group reported using improved toilet, showing a statistically significant difference with the treatment group (30%). Pit latrine with slab showed significant difference between the treatment and comparison groups (27% treatment versus 36% comparison).

Household Lighting

Most households use solar lanterns (53%) and battery powered flashlight (21%) as their source of light. Only 6% of the households had access to electricity as their source of lighting. We observed that the comparison group had relatively higher access to electricity (10%) relative to the treatment group (3%).

Figure 5.3-2. Summary of Access to Water Toilet Electricity by Treatment



Note. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Sharing and Proximity of the Toilet Facility

We also collected information on whether households share toilet facilities. Approximately 27% of the overall households shared a toilet facility. On average, there were about 4 households sharing a toilet facility. We observed statistically significant difference in the probability of sharing toilet facilities between treatment group (30%) and comparison group (25%). As for the location of the toilet, 94% of the households had the toilet facilities in their own yard/plot.

Household Cooking Conditions

We obtained information about the types of cooking device, fuel, and conditions of the devices. As shown in Annex D, 78% of the households use three stone/open fire stove as main cooking device. Around 15% of the households used the traditional solid fuel stove as their main device for cooking. There was statistically significant difference in use of three stone between treatment (82%) and comparison group (74%), so was the use of manufactured solid fuel stove (treatment, 3% versus comparison, 7%). There is no use of electric stove as a main device for cooking. Seventy-six percent of households use firewood as cooking fuel (83% for the treatment against 68% for the comparison groups). With regards to where exactly the cooking takes place, 71% of all households cook in a separate building, as 76% have kitchen in separate room.

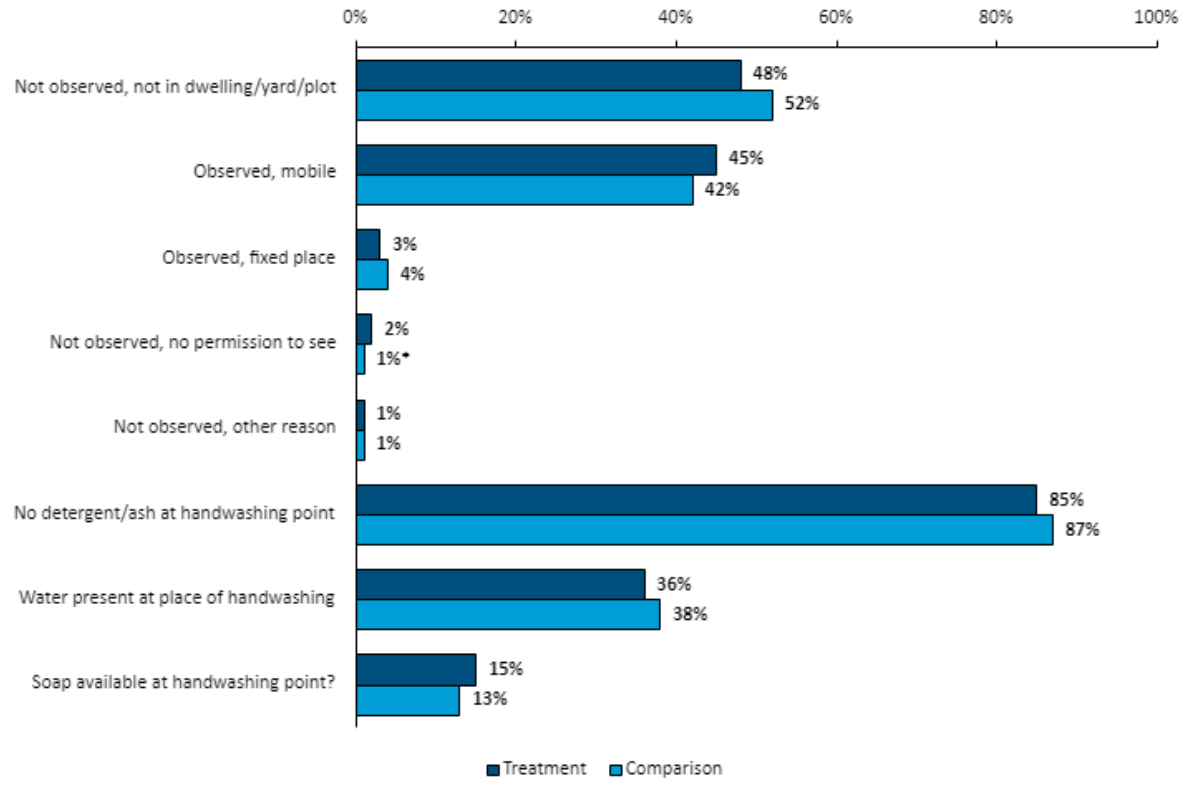
Household Dwelling and Land Ownership

In terms of tenure of the dwellings and land where the dwelling is located, 88% of the sample owns the dwelling. The ownership status for the land was like that of the dwelling. Overall, 86% owns the land where the structure is situated, whereas 9% rents/leases the land. The average number of rooms in the dwelling is two rooms per house.

Presence of Handwashing Point in Dwelling

Enumerators were instructed to observe the handwashing point in the dwelling. There were no handwashing points in 48% of all dwellings. Four percent had fixed points and 44% had mobile points. There was presence of water in 37% of the handwashing points. There was no detergent or soap in 86% of the sample.

Figure 5.3-3. Characteristics of Handwashing Point by Treatment



Note. To assess baseline differences between treatment and comparison groups for each outcome, we use

linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Main Floor Material

In terms of floor materials, 73% of the sample have natural floors (earth/sand, cow dung) and 27% have a finished floor, with a small statistically significant difference between the treatment and comparison groups. Earth/sand is the most common finished floor material used by 51% of the households followed by cement at 26%. Main Roofing Material

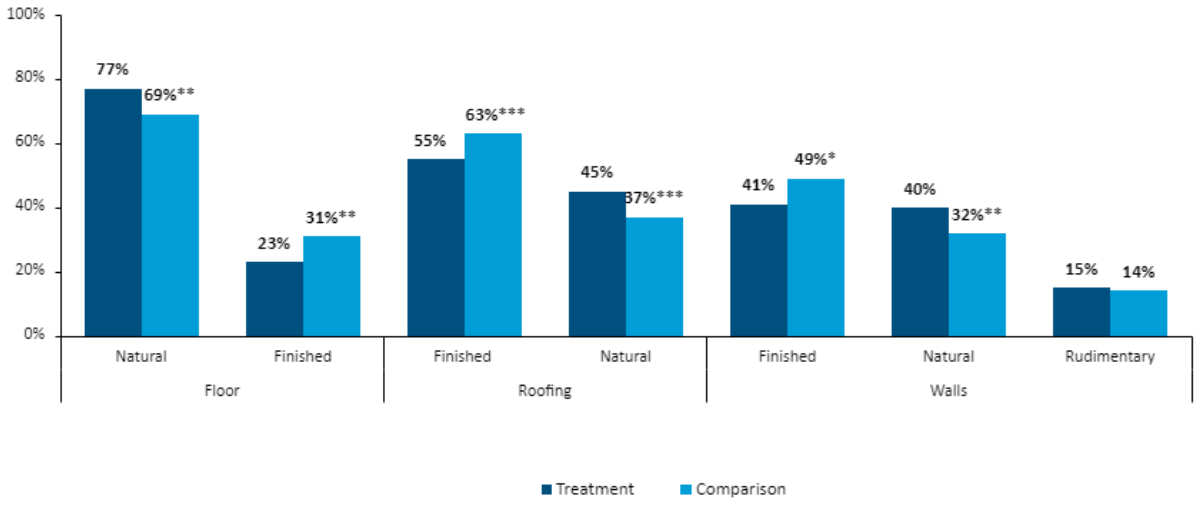
Main Roofing Material

The results of the main roofing material show that 59% of the overall sample had finished roofing material with iron sheet as the main specific material used, whereas 41% had natural roofing (thatch/grass/makuti as the main material). There was a small significant difference in use of natural roofing material and finished roofing material between treatment and comparison group.

Main Wall Material

Thirty-six percent of the households live in houses with natural walls (specifically dirt at 36%) where the treatment group was more likely to live in houses with such walls (40%) compared to the comparison group (32%). Rudimentary walled houses were at 15% (mainly bamboo with mud at 12%) where the treatment group was more likely to live in such walls (39%) compared to the comparison group (30%). Only 45% of the sample had finished walls (mainly bricks at 19%; cement at 14%) where comparison group are more likely to live in houses with finished walls (49%) compared to treatment group (41%). The comparison group are more likely to stay in houses with stone with lime/cement as main wall material

Figure 5.3-4. Main Material for Dwelling by Treatment



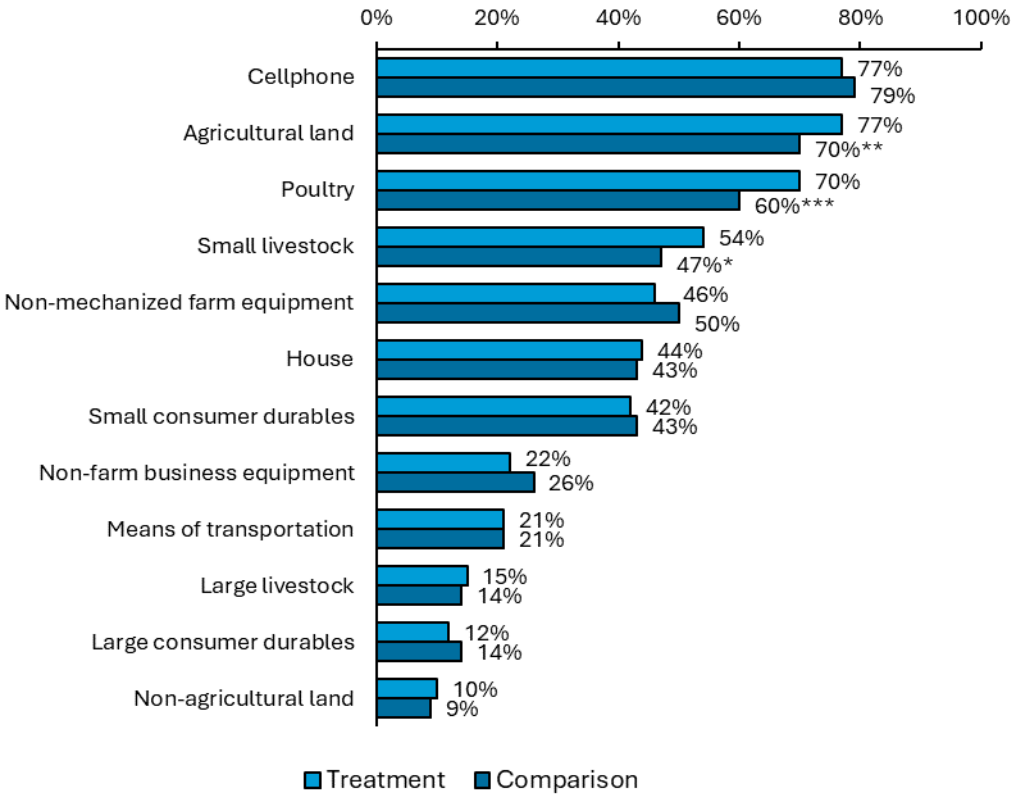
Note. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

5.4. Household Asset Ownership

We asked the respondent about the households' ownership and access to various productive assets, which the household can use to generate income. In terms of agricultural assets, 89% had access to productive land; 68% owned poultry; 17% owned large livestock (e.g., oxen, cattle), whereas 55% had small livestock (sheep, pigs, goats). Disaggregation by treatment shows that the treatment group has a higher percentage ownership of agricultural land (92% versus 87%), poultry ownership (72% versus 63%) and fishpond ownership (3% vs 0%). We also found that 51% owned non-mechanized farm equipment, whereas 50% owned a house or other structures. In terms of other household assets, Cellphones were owned by 88% of the households where the comparison group was more likely to own a phone (90%) relative to the treatment group (85%).

Small consumer durables such as radio and cookware are owned by at least 47% of both treatment and comparison groups. Thirty-one percent of households owned means of transport such as bicycles, motorcycles and/or cars. The average household owns a little over five different types of assets.

Figure 5.3-5. Asset Ownership by Treatment



Note. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. $N = 1,228$.

5.5. Credit Access

In terms of access to credit, 4% of the sample had no household member who could qualify for any form of credit. In terms of actual access to credit, 87% of the households had a member who took credit in the last 12 months averaging 1.9 loans per household. The results show that most households believe they can access credit (96%) when needed.

5.6. Experience with Women's Groups

In addition to collecting information about their households, we also asked women about their experience with CBOs, specifically about the group through which they were selected into this study's sample.

The average group in our sample was formed 6.5 years ago and has a little over 35 members, most of whom are women (80%). In particular, approximately two-thirds of CBO members in our sample are WRA (61%), on average. In terms of their primary organizing purposes, most CBOs are devoted to savings, credit, and microfinance (95%) and agricultural and livestock activities (68%). Women's rights, women's empowerment, and advocacy are not commonly cited as primary groups objectives.

Table 5.6-1. CBO Characteristics

	Mean (SD)				
	All	Treatment	Comparison	SM Diff	N
Approximate group age (years)	6.54	6.37	6.70	-0.07	1,028
	(5.80)	(5.84)	(5.76)	[0.14]	
Approximate number of male and female group members	35.34	33.32	37.40	-0.18	1,158
	(21.97)	(15.75)	(26.71)	[0.16]	
Proportion of female group members	0.80	0.79	0.81	-0.12	1,115
	(0.16)	(0.17)	(0.16)	[0.14]	
Proportion of WRA (15-49 years female) group members	0.61	0.60	0.62	-0.07	1,052
	(0.22)	(0.21)	(0.23)	[0.11]	
Group activities: Agriculture/Livestock Production and/or Marketing	0.68	0.70	0.66	0.09	1,205
	(0.47)	(0.46)	(0.47)	[0.13]	
Group activities: Savings, credit or microfinance	0.95	0.96	0.95	0.05	1,205
	(0.21)	(0.20)	(0.22)	[0.11]	
Group activities: Mutual help/insurance	0.18	0.18	0.17	0.02	1,205
	(0.38)	(0.39)	(0.38)	[0.09]	
Group activities: Trade/Business	0.08	0.07	0.10	-0.12	1,205
	(0.27)	(0.25)	(0.30)	[0.09]	
Group activities: Women's Rights/Empowerment	0.06	0.07	0.04	0.13	1,205
	(0.23)	(0.26)	(0.20)	[0.08]	
Group activities: Advocacy	0.02	0.03	0.01	0.15**	1,205
	(0.15)	(0.18)	(0.11)	[0.07]	

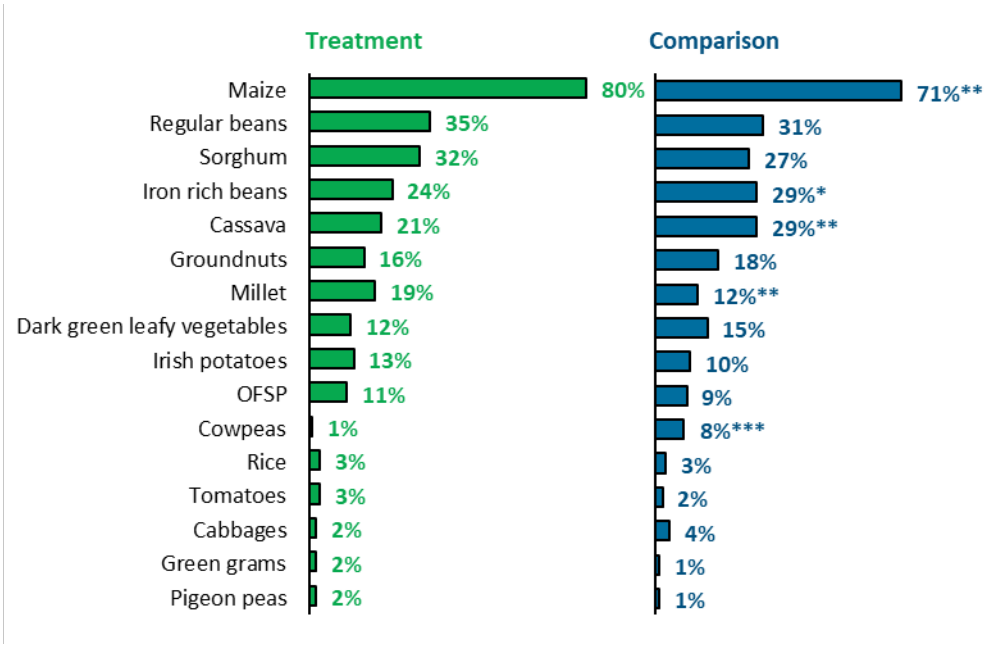
Note. Standardized mean difference (SMD) estimated using linear regressions with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. The table also presents significance levels for those outcomes for which there is a statistically significant difference between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

6. Household-Level Outcomes

6.1. Agricultural Production

In terms of agricultural production, 95% of households reported producing at least one crop, with an average of 2.9 crops produced. For households that engage in agricultural production, the most common crops households in our sample produce are maize (75%), regular beans (33%), sorghum (30%), iron rich beans (27%), and cassava (25%). There are no differences in terms of the probability of producing at least one crop of the number of crops produced. We observe a 9 percentage-point statistically significant difference in maize production between treatment and comparison groups. While there are some differences in the production of other crops (i.e., iron rich beans, cassava, millet, and cowpeas), these differences are small in magnitude with SMDs below 0.2 SD. Overall, the data show that households in the sample have very low levels of agricultural production diversity, as most households only produce maize and potatoes and very few produce fruits or vegetables. We also investigated the proportion of main crops that were consumed by the household. On average, households consumed 54% of their maize production, 58% of their regular beans production, and 70% of their sorghum.

Figure 6.1-1. Agricultural Production

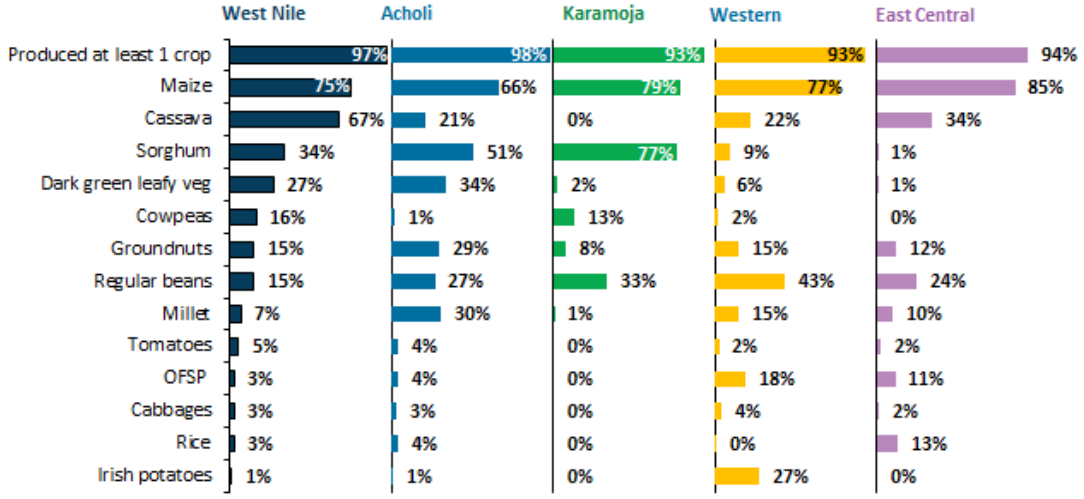


Note. N = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

In terms of regional agricultural characteristics, the baseline data show that more than 93% of households from all areas produce at least one crop. Regarding crops produced, there is some regional variability. In terms of cereals, maize is one of the major crops in all areas. However, other cereals like sorghum and millet are only produced in some areas. Another

crop that is relatively common in all areas is regular beans. West Nile is the region with relatively lager crop diversity, with high levels of production of cereals, legumes, and vegetables. In contrast, Karamoja tends to have the lowest crop production diversity as most of the crops produced are cereals (maize and sorghum) and regular beans.

Figure 6.1-2. Agricultural Production by Region/Subregion



Note. N = 1,205. Figure presents the proportion of households producing at least one crop and the crops produced by region. No balance equivalence tests are conducted by region given the study was not designed to detect differences by geographic areas.

6.2. Food Insecurity

We used the HFIAS module to assess food insecurity at the household level. The HFIAS module is based on the idea that food insecurity causes predictable reactions and responses that can be captured and quantified through a survey and summarized in a scale. The HFIAS questionnaire consists of nine occurrence questions that represent a generally increasing level of severity of food insecurity, and nine "frequency-of-occurrence" questions that are asked as a follow-up to each occurrence question to determine how often the condition occurred. That is, the respondent is first asked whether the situation in the question occurred at all in the past four weeks (yes or no). If the respondent answers "yes" to an occurrence question, a frequency-of-occurrence question is asked to determine whether the situation occurred rarely (once or twice), sometimes (three to 10 times) or often (more than 10 times) in the past four weeks.

Some of the nine occurrence questions ask about how the respondents feel about food vulnerability or stress (e.g., did you worry that your household would not have enough food?) and others ask about the respondents' behavioral response to food insecurity (e.g., did you or any household member have to reduce the number of meals in a day due to insufficient food?). The questions consider the condition of all household members and do not separate adults from children or adolescents.

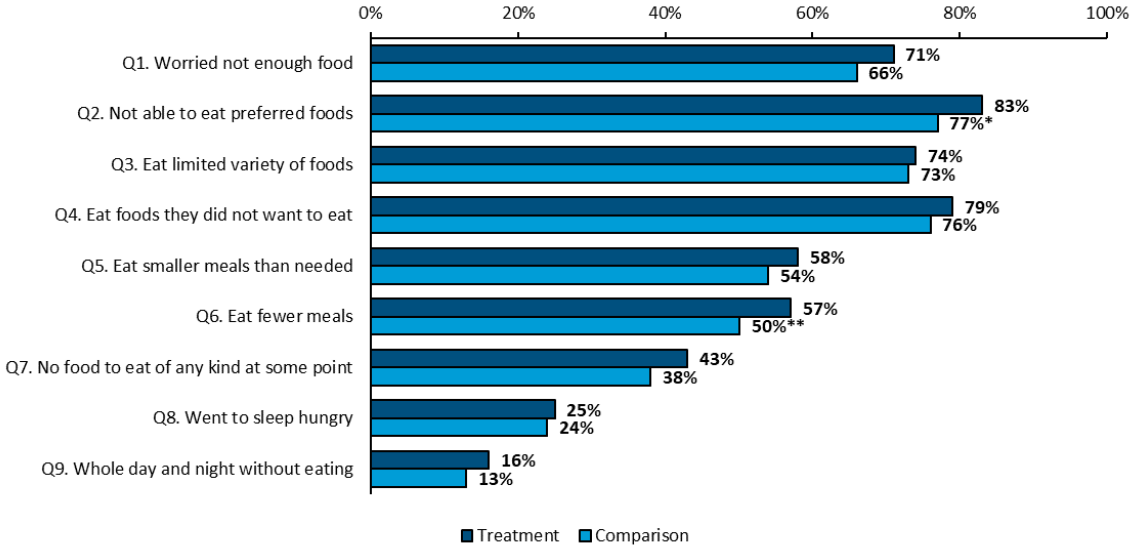
The HFIAS module was developed to construct four types of indicators to assess the characteristics of and changes in household food insecurity in the target population. These four indicators provide information on:

- Household Food Insecurity Access-Related Conditions
- Household Food Insecurity Access-related Domains
- Household Food Insecurity Access Prevalence (HFIAP)
- Household Food Insecurity Access Scale Score

HFIA-Related Conditions. These indicators provide disaggregated information about household behaviors and perceptions. The indicators present the percentage of households that responded affirmatively to each one of the nine questions in the module, regardless of the frequency of the experience. Thus, they measure the percentage of households experiencing the condition at any level of severity. We present the results for the nine conditions in Figure 6.2-1. The data presented reflect significant levels of food insecurity among respondents, as indicated by the high percentages across various indicators. A substantial majority, 80%, reported an inability to consume their preferred foods, whereas 77% had to eat foods they did not desire. Additionally, 74% experienced a limited variety of foods. Concerns about food sufficiency were prevalent, with 69% of respondents expressing worry about not having enough food. The data also show that 56% of individuals had to consume smaller meals than needed, and 54% had to reduce the number of meals they ate. Severe levels of food insecurity were evident, with 41% of respondents having no food at any point, 24% going to sleep hungry, and 14% enduring a whole day and night without eating.

In terms of baseline balance, the results show that the treatment and comparison groups have similar levels of food insecurity. Two conditions, Q2 and Q6, presented marginally statistically significant differences, although both with SMD below 0.15 SD as shown in Annex D. Overall, the results indicate that there is baseline equivalence in terms of food insecurity.

Figure 6.2-1 Household Food Insecurity (% HHs responding Yes)



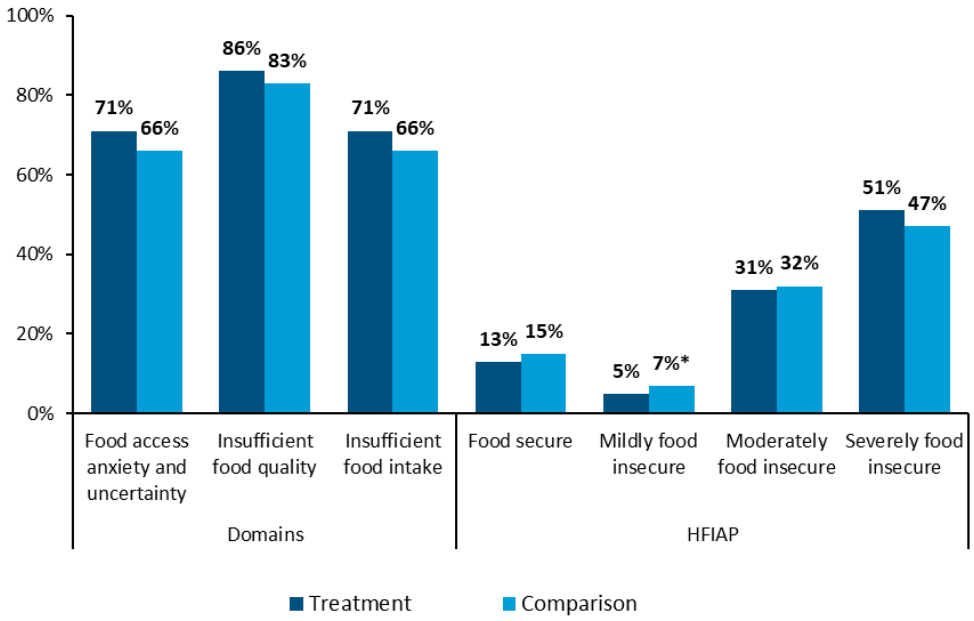
Note. N = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those

outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

HFIA-Related Domains. The nine HFIAS occurrence questions relate to three different domains of food insecurity, namely: (a) anxiety and uncertainty about the household food supply (Q1 in Figure 6.2-1); (b) insufficient food quality (Q2, Q3, and Q4); and (c) insufficient food intake and its physical consequences (Q5 to Q9). We present the results in the left-hand side of Figure 6.2-2.

The data indicate that 69% of households experience food access anxiety and uncertainty, reflecting significant concerns and unpredictability regarding food availability. Additionally, 84% of households face insufficient food quality, indicating a widespread issue with the nutritional adequacy and desirability of the food consumed. Furthermore, 68% of households suffer from insufficient food intake, meaning they do not consume enough food to meet their dietary needs. All three domains are balanced at baseline.

Figure 6.2-2. Food Access Domains and Levels of Food Insecurity (% HHs)



Note. N = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

HFIA Prevalence. The final indicator is known as the Household Food Insecurity Access Prevalence (HFIAP) Status indicator. The HFIAP indicator categorizes households into four levels: food secure, and mild, moderately, and severely food insecure. Households are categorized as increasingly food insecure as they respond affirmatively to more severe conditions and experience those conditions more frequently.

A food secure household experiences none of the food insecurity (access) conditions, or just experiences worry, but rarely. A mildly food insecure household worries about not having enough food sometimes or often, and/or is unable to eat preferred foods, and/or eats a more unvaried diet than desired and/or eats some foods considered undesirable, but only rarely, but it does not cut back on quantity nor experience any of three most severe conditions (running out of food, going to bed hungry, or going a whole day and night without eating). A moderately food insecure household sacrifices quality more frequently, by eating a monotonous diet or undesirable foods sometimes or often, and/or has started to cut back on quantity by reducing the size of meals or number of meals, rarely or sometimes, but it does not experience any of the three most severe conditions. A severely food insecure household has graduated to cutting back on meal size or number of meals often, and/or experiences any of the three most severe conditions (running out of food, going to bed hungry, or going a whole day and night without eating), even as infrequently as rarely. In other words, any household that experiences one of these three conditions even once in the last four weeks (30 days) is considered severely food insecure.

We present the results on the levels of food insecurity at the household level in the right-hand side panel of Figure 6.2-2. Only 14% of households are classified as food secure, experiencing none of the food insecurity (access) conditions or just infrequent worry. In contrast, 6% of households are mildly food insecure, occasionally worrying about food sufficiency, unable to eat preferred foods, or consuming a monotonous or undesirable diet, but without cutting back on food quantity or experiencing severe conditions. A significant 31% of households are moderately food insecure, more frequently sacrificing food quality and beginning to reduce meal size or number of meals, though they do not face the most severe conditions. The largest proportion, 49%, of households are severely food insecure, regularly reducing meal size or number and/or experiencing the most severe conditions, such as running out of food, going to bed hungry, or going a whole day and night without eating. These figures underscore the extensive prevalence of food insecurity in the target population, with more than half of the households facing moderate to severe challenges in accessing sufficient and nutritious food. As with other indicators, there is balance between the treatment and comparison groups in terms of the HFIAP indicators as the imbalance in the moderately food insecure category represents a difference of only 0.1 SD and is only statistically significant at the 10% level.

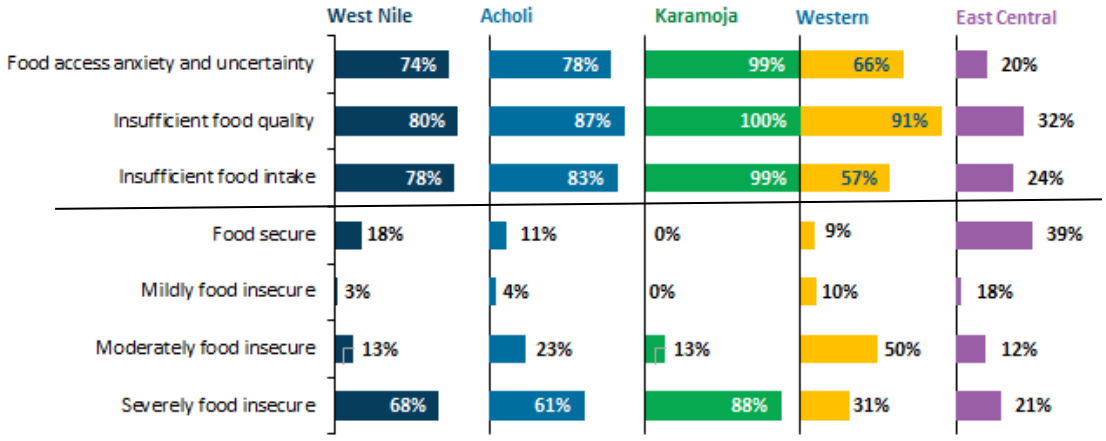
HFIAS Score. The HFIAS score is a continuous measure of the degree of food insecurity. This score is calculated for each household by summing the frequency-of-occurrence question using the following convention: 0 for all cases where the answer to the corresponding occurrence condition was “no”; 1 if the frequency is “rarely” (once or twice in the past 4 weeks); 2 if “sometimes” (three to 10 times in the past 4 weeks); and 3 if “often” (more than 10 times in the past 4 weeks). The maximum score for a household is 27 (the household response to all nine frequency-of-occurrence questions was “often.” The minimum score is 0 (the household responded “no” to all occurrence questions). The higher the score, the more food insecurity the household experienced.

The data indicate that the average HFIAS score is 9.05. This score suggests that many households are facing significant challenges in accessing adequate food. The treatment group has a HFIAS score of 9.62 and the comparison group 8.48 (see Table D.6.4.2 in Annex D). This difference is lower than 0.2 SD.

Geographic Comparison. We now compare the levels of food insecurity using the indicators presented above for the target regions/subregions. As before, we did not conduct statistical tests of equivalence at baseline between the regions due to sample size limitations.

In the top panel of Figure 6.2-3, we compare the HFIA-related domains and the HFIA Prevalence Indicators in the five target subregions: West Nile, Acholi, Karamoja, Western, and East Central. In terms of HFIA-related domains, the results show that only 20% of the households in East Central face food access anxiety and uncertainty; West Nile, Acholi, and Western have higher rates between 66% to 78%; Karamoja has a significantly higher rate at 99%. This indicates that households in Karamoja experience the highest levels of concern and unpredictability regarding their food supply. When looking at food quality, 100% of households in Karamoja report having insufficient food quality; West Nile, Acholi, and Western with rates around 80 to 91%; East Central exhibits the lowest rate at 32%. This indicates that, except for East Central, a large proportion of households in the other subregions face major issues related to the nutritional adequacy and desirability of their food. The results on insufficient food intake are very similar in terms of the regional differences describe above, which again implies that a considerable proportion of households in the sample do not consume enough food to meet their dietary needs, a situation more severe in Karamoja relative to the other areas.

Figure 6.2-3. Food Access Domains and Levels of Food Insecurity (% HHs) by Region



Note. N = 1,205. Figure presents the proportion of households that fall in each food security category by geographic area. No balance equivalence tests are conducted by region given the study was not designed to detect differences by geographic areas.

Regarding HFIA prevalence, the data in the lower panel of Figure 6.2-3 also highlights significant differences in food security levels across the 5 areas. Karamoja has the most critical situation as none of its households being food secure. This is in stark contrast to East Central, where 39% of households are food secure. When examining moderate food insecurity, Western has a 50% rate, with the other subregions exhibiting rates between 12% to 23%. Lastly, 88% of households in Karamoja are severely food insecure; followed by West Nile (68%) and Acholi (61%); and then by Western (31%), and East Central (21%).

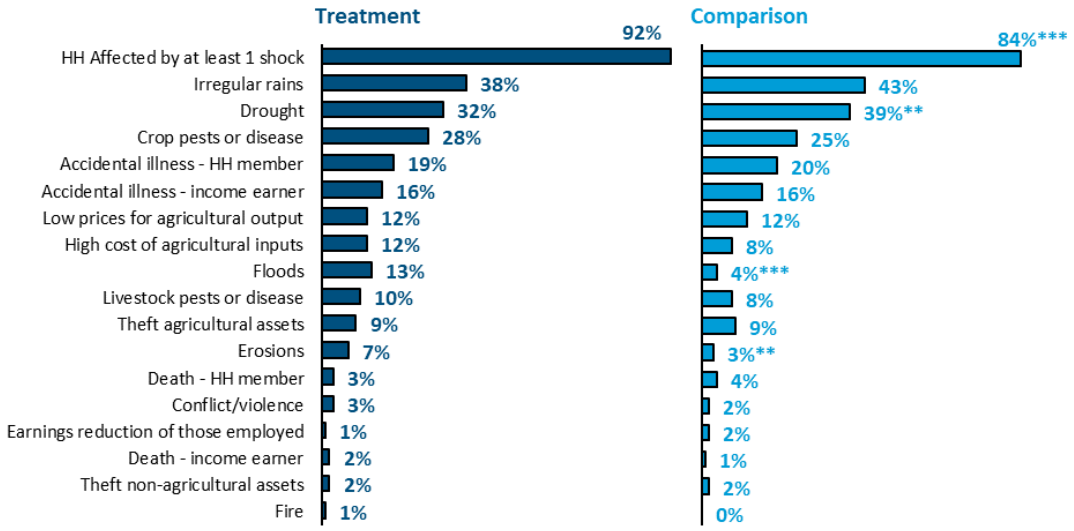
In summary, Karamoja consistently exhibits the highest levels of food insecurity across all dimensions, indicating severe challenges in food access, quality, and intake. West Nile and

Acholi also face significant issues, but to a lesser extent. Lastly, Western and East Central exhibit are in a better overall situation.

6.3. Shocks and Coping Mechanism

We also investigate the incidence of negative shocks at the household level and the main coping strategies used. The data reveal that 88% of households reported experiencing a negative shock in the 12 months preceding the survey. The most commonly reported shocks are irregular rains (40%), drought (36%), crop pests or disease (26%), and accidental illness of a household member (19%). Overall, households in our sample face a wide variety of shocks. The results indicate a difference between the treatment and comparison groups in terms of being affected by a shock, although the SMD is less than 0.25 SD. Apart from floods, where treatment households faced a much higher incidence, there was no meaningful statistically significant difference between treatment and comparison households regarding specific shocks.

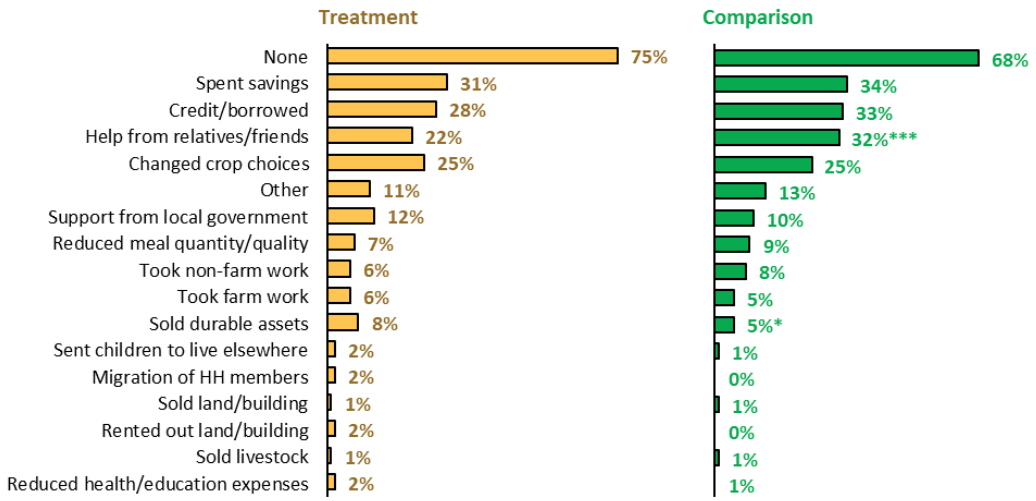
Figure 6.3-1. Experience of Negative Shocks



Note. N = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

We also explored the mechanisms that households used to cope with the negative shocks faced. The data show that a large proportion of households did not have a strategy to cope with the shock (72%). The main strategies that households use to cope with these negative shocks are using their own savings (32%), asking for credit (31%), and receiving help from friends and relatives (27%). Noticeably, some used strategies that may affect the nutritional status of the households in the short and medium term such as changing crop choices (25%) or reducing meal quantity or quality (8%). In terms of statistical balance, relative to the treatment group, none of the coping mechanisms exhibit SMD larger than 0.25 SD even though some mechanisms were statistically significant.

Figure 6.3-2. Coping Strategies (Among HH Facing a Shock in the Last 12 Months)



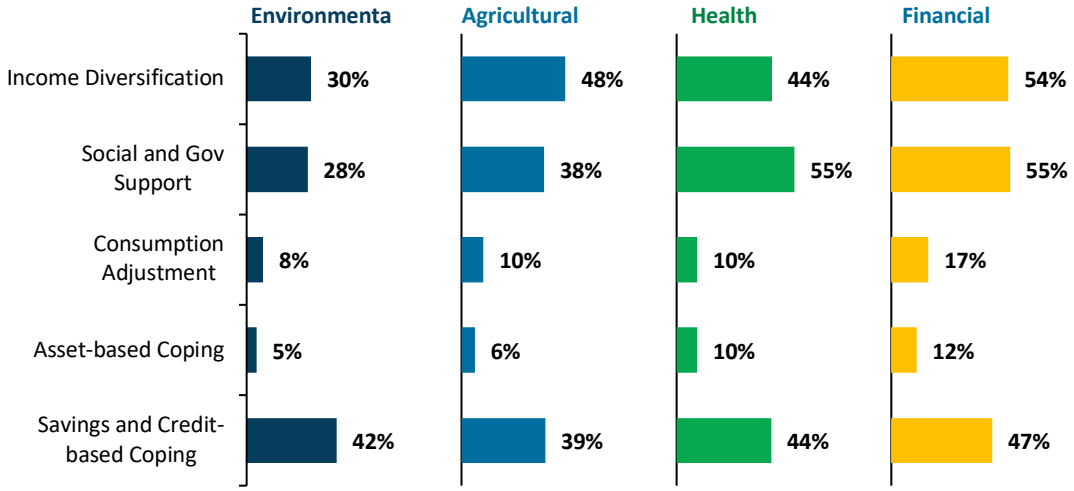
Note. N = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present p-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Lastly, we also linked shocks to their corresponding coping strategies to assess how households in our sample respond to shocks. We grouped the shocks into four categories: **Environmental Shocks**, which include droughts, irregular rains, floods, landslides, and erosions; **Agricultural Shocks**, encompassing crop pests, livestock diseases, high input costs, and low agricultural output prices; **Health Shocks**, such as illnesses, accidents, or deaths within the household; and **Financial Shocks**, including reductions in income, theft, conflict, or fire. On the other hand, we grouped the coping mechanisms into six strategies: **Income Diversification** (taking on farm/non-farm employment or migration); **Social and Government Support** (receiving help from relatives, friends, or government); **Consumption Adjustment** (reduction in food or essential expenditures, sending children elsewhere); **Asset-based Coping** (selling household/agricultural assets or renting property); **Savings and Credit-based Coping** (reliance on savings or obtaining credit); and nothing.

The figure below shows how households employ coping strategies for different types of shocks. In the sample, 62% of households reported experiencing an environmental shock, 31% an agricultural shock, 27% a health shock, and 12% a financial shock. Income diversification is especially prominent for financial shocks (54%) and agricultural shocks (48%), indicating that households seek to stabilize income when facing market disruptions. Social and government support plays a critical role in both health (55%) and financial (55%) shocks, reflecting the importance of external aid during personal or economic crises. Savings and credit-based coping is a popular strategy across all categories, particularly for environmental (42%) and health (44%) shocks, suggesting that households lean on financial reserves and loans to handle disruptions. Consumption adjustment is more common for financial shocks (17%) but less so for other types (8-10%), implying that households are more likely to cut expenditures when facing economic hardships. Lastly, asset-based coping remains relatively low across all shock categories, with slightly higher use in health (10%)

and financial shocks (12%), indicating that selling assets is a less preferred strategy but may be necessary in severe crises.

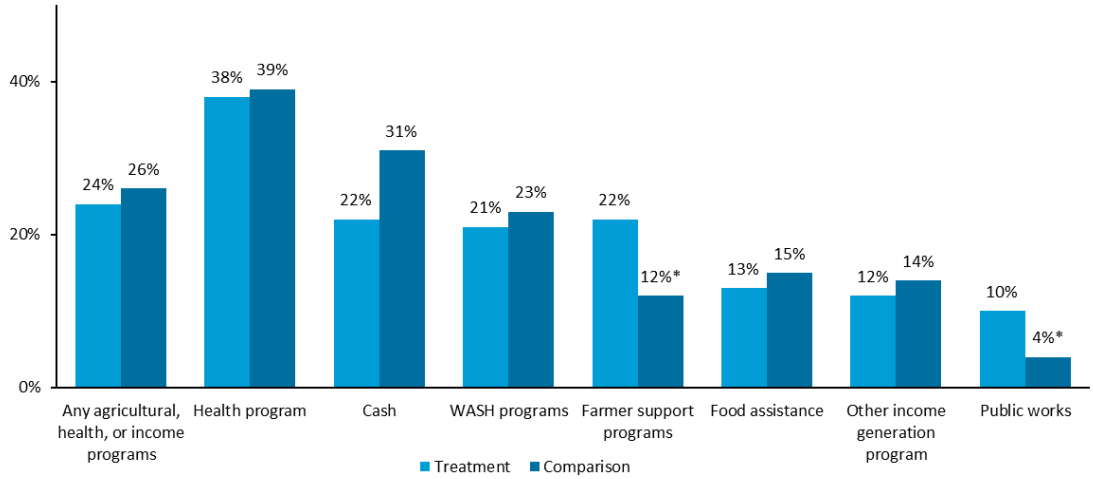
Figure 6.3-3. Shock-Specific Coping Strategies



6.4. Access to Programmes and Nutrition Services

Figure 6.4-1 describes access to social programmes and differences by treatment status. Around 24% of households in the treatment group and 26% of households in the comparison group reported having access to any agricultural, health, or income programme in the 12 months before the survey. Of those who had access to at least one programme, the most important programmes were health programmes (39%); cash assistance programmes (26%); and water, sanitation, and hygiene (WASH) programmes (22%). There are no statistically significant differences between treatment and comparison households in terms of access to social programmes or services with SMD larger than 0.25 SD.

Figure 6.4-1. Access to Social Programmes



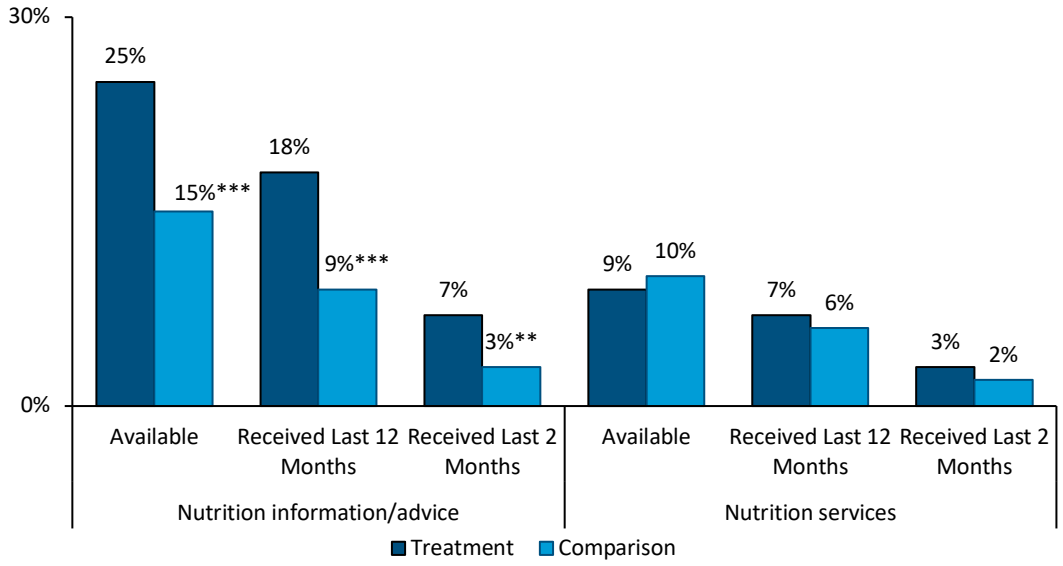
Note. N = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those

outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

We also asked whether households in our sample had been exposed to advice or information about nutrition. Specifically, we asked households whether the government or other organizations offered nutrition-related advice or information and if any member of the household had received any nutrition advice information in the past 12 months and the past two months. Baseline data show that up to 25% of households know about the availability of nutrition-related advice in their communities, up to 18% have accessed information through at least one of their household members during the last 12 months, and only up to 7% have done so in the two months before the survey (Figure 6.4-2).

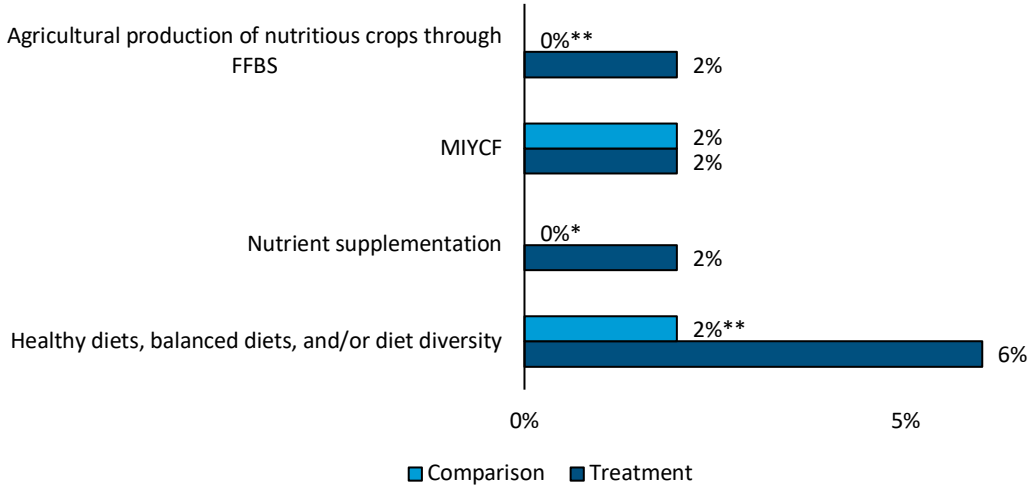
In terms of the kind of nutrition-related information accessed during the last two months, up to 6% of the sample received information on healthy diets, and up to 2% received information on topics such as agricultural production of nutritious crops through the FFBS approach, on Maternal, Infant, and Young Child Feeding (MIYCF) Practices, and nutrient supplementation (Figure 6.4-3). No one in the sample reported receiving other nutrition-related information during the last two months, such as food fortification and social norms around nutrition and diets. There are no meaningful statistically significant differences between treatment and comparison households on these variables.

Figure 6.4-2. Access to Nutrition Services



Note. N = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Figure 6.4-3. Nutrition Information Received During the Last Two Months

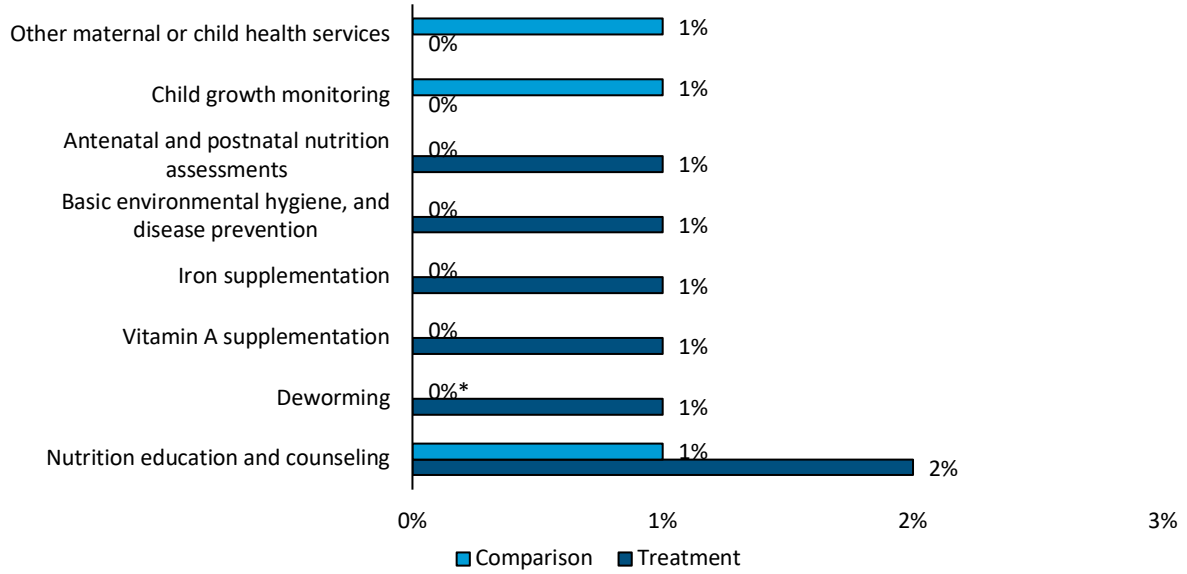


Note. N = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

We also inquired about the availability of nutrition services in the communities and whether someone from the household had received nutrition-related services during the last 12- and 2-month periods (Figure 6.4-2). Similarly to nutrition-related information, the availability of and access to nutrition-related services are low among households in our sample. Up to 10% of households were aware of nutrition services in their communities, up to 7% used any during the last 12 months, and only up to 3% accessed services two months before the survey. Regarding the types of nutrition-related services accessed during the last two months, up to 2% of the sample received nutrition counseling, and up to 1% received other types of services such as Vitamin A supplementation, iron supplementation, deworming medication, and child growth monitoring environmental hygiene services (Figure 6.4-4). Less than one percent of the sample reported nutrition referrals for management of acute malnutrition. No one in the sample reported receiving other types of nutrition-related services during the two months prior to the survey, such as planting material, fertilizers, and other agricultural inputs. There are no meaningful statistically significant differences between treatment and comparison households on these variables.

Overall, these findings show that a small proportion of households in our sample have access to nutrition-related information and services that are central to CASCADE.

Figure 6.4-4. Nutrition Services Accessed During the Last Two Months



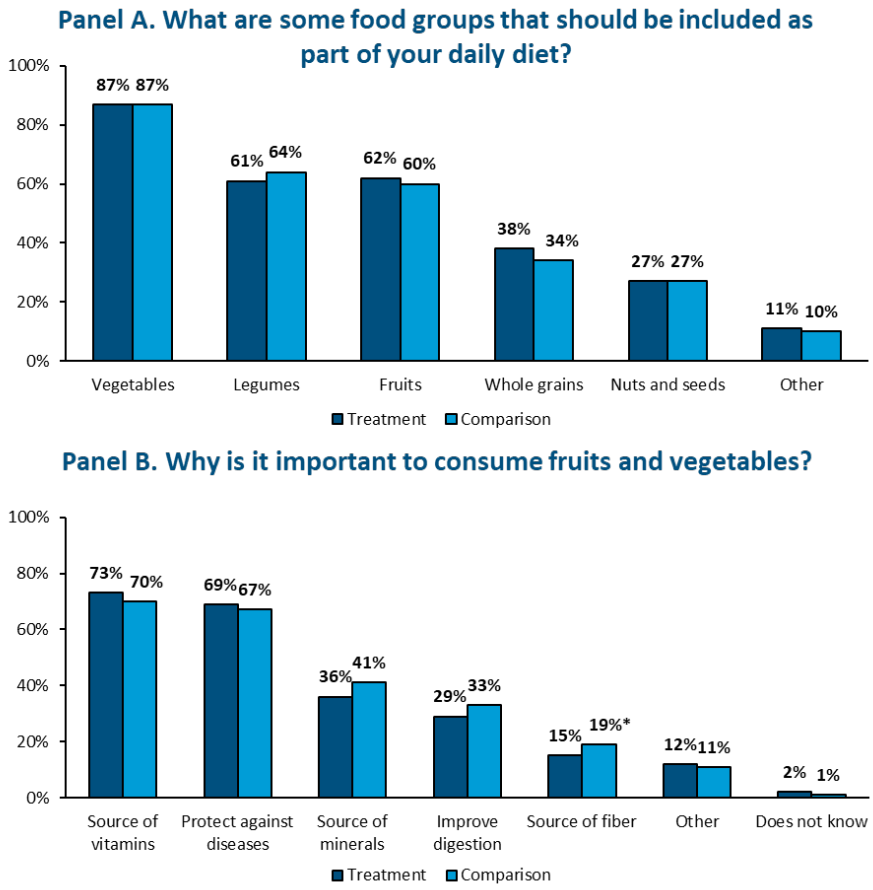
Note. N = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present p-values for those outcomes for which there are statistically significant differences between treatment

7. Women of Reproductive Age Outcomes

7.1. Nutrition Feeding and Knowledge

At baseline, respondents in treatment and comparison areas generally demonstrated similar knowledge about nutritious diets—both in terms of recommended diet composition (Panel A, Figure 7.1-1) and in terms of the underlying benefits of fruit and vegetable consumption (Panel B, Figure 7.1-1). Respondents generally exhibited similar perceptions for key food groups that they thought should be included in their daily diet, such legumes (61% treatment versus 64% comparison) and fruits (62% treatment versus 60% comparison). Additionally, most respondents—regardless of treatment status—cited similar reasons for the importance of consuming fruits and vegetables (Panel B, Figure 7.1-1) though respondents in comparison areas more frequently indicated that these foods are important sources of fiber (15% treatment versus 19% comparison, $p < 0.10$).

Figure 7.1-1. Knowledge of Nutritious Diets

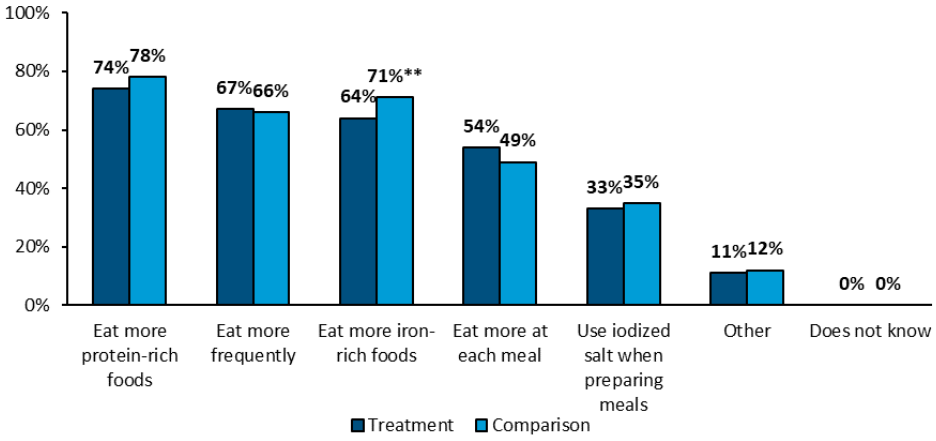


Note. N = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for regional fixed effects to account for regional differences. In the figure, we present p-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * p < 0.1; ** p < 0.05; *** p < 0.01.

Apart from general knowledge on nutritious diets, respondents also indicated basic knowledge of the causes and consequences of one form of malnutrition, namely, iron deficiency. At baseline, most respondents were able to cite at least one iron-rich food (96%), implication of iron deficiency on child development (97%), and cause of anemia (86%). Their capacity to do so did not vary meaningfully by treatment status, suggesting the average respondent has at least basic knowledge about the role of a key micronutrient (i.e., iron) in promoting maternal and infant health. Knowledge of recommended maternal feeding practices underscore this finding, with 67% of surveyed women indicating the importance of iron-rich food consumption among pregnant and breastfeeding women (Figure 7.1-2).[g]

[g] Though surveyed women in comparison areas more frequently indicated the importance of pregnant and breastfeeding women eating more iron-rich foods (64% treatment versus 71% comparison, $p < 0.05$), the SMD (-0.16) suggests this difference by treatment status is not meaningful.

Figure 7.1-2. Normative Maternal Feeding Practices: How Pregnant and Breastfeeding Women Should Eat in Comparison to Those Who Are Neither Pregnant nor Breastfeeding



Note. *N* = 1,228. The figure depicts responses to the following question: "How should a pregnant or breastfeeding woman eat in comparison with a woman who is not pregnant or breastfeeding?" Not all responses to this question are considered a recommended maternal feeding practice but, rather, reflect the general need for more calories; nutrients (e.g., iodine); and—in some cases—vitamins (e.g., iron).[h] To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for region fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Target Food Knowledge

To assess target food knowledge and attitudes, we asked respondents about the benefits of each target food and about recommended practices for target food consumption. For benefits, we specifically sought to gauge the perceived value of the target foods—as measured by whether surveyed women believed that there were any benefits associated with the consumption of each target food and the specific perceived benefits of each target food. For the latter, we calculated knowledge scores for each target food based on prespecified lists[i] of benefits; these scores represent the proportion of benefits that respondents cited from these specific lists. For recommended practices for target food consumption, we specifically sought to capture knowledge on foods that should be avoided or included when consuming target foods to enhance iron uptake. While these measures do not exhaustively capture knowledge and attitudes regarding target food consumption, they highlight specific aspects of target food knowledge relevant to their adoption and optimal use and yield suggestive evidence on target food perceptions that may undermine behavior change relevant to CASCADE activities.

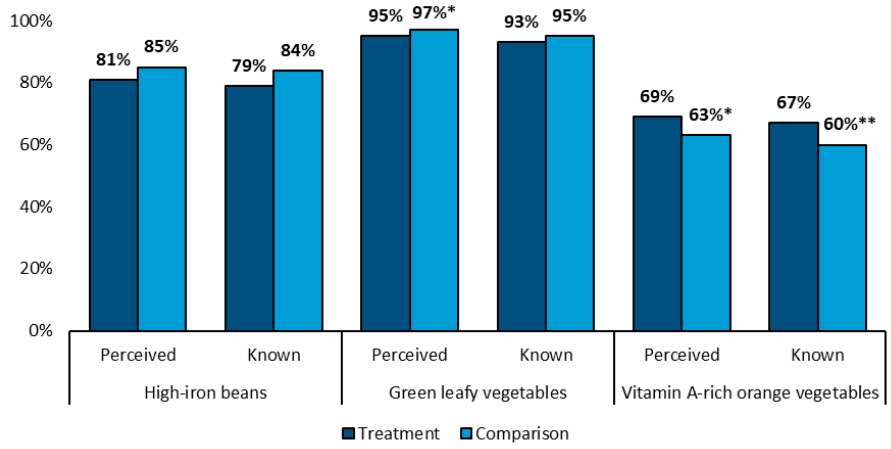
On average, most surveyed women perceived target food consumption as beneficial and were able to cite at least one benefit of each target food from prespecified lists (Figure 7.1-

[h] Maternal Diet and Breastfeeding. Center for Disease Control and Prevention, 2024. https://www.cdc.gov/breastfeeding-special-circumstances/hcp/diet-micronutrients/maternal-diet.html

[i] These lists were collaboratively developed with GAIN. Enumerators were instructed to ask respondents "What are the benefits of consuming [target food]?" without reading aloud the items from the prespecified lists. The items in each list are detailed in Figure 7.1-4.

3). Despite being cognizant of at least one benefit, the average surveyed woman only cited 2 benefits per target food, suggesting knowledge gaps and opportunity for CASCADE to deepen their understanding of target food benefits. From a prespecified list of 8 benefits, most surveyed women were able to cite at least one benefit of iron-rich beans (81%) though they only reported 2 benefits (1.7), on average, or 21% of the 8 prespecified benefits. Likewise, while about two-thirds of surveyed women cited at least one benefit of vitamin A-rich orange vegetable consumption from a prespecified list of 9 benefits (64%), most only cited 2 benefits (1.65), on average, or 18% of the 9 prespecified benefits. Baseline findings suggest that surveyed women knew slightly more about the benefits associated with green leafy vegetable consumption: nearly all surveyed women could cite at least one benefit (94%), listing an average of 2 benefits (2.29) or 33% of the 7 prespecified benefits. While respondents in treatment areas were more likely to perceive and cite at least one benefit of vitamin A-rich orange vegetable consumption, on average, differences by treatment status were marginal in terms of SMDs. Also, there were no statistically significant differences by treatment status in the number or share of benefits listed per target food.

Figure 7.1-3. Perceived Benefits of Target Foods

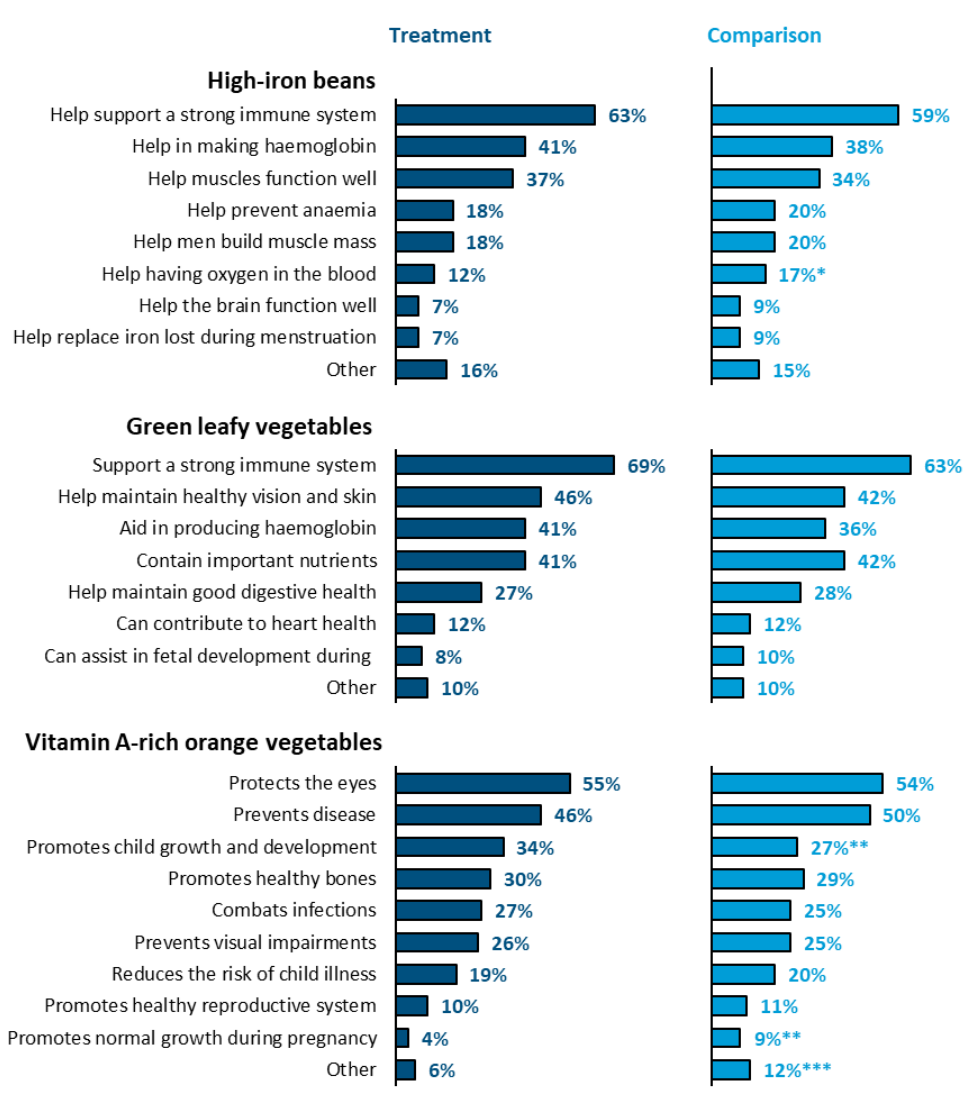


Note. *N* = 1,205. For perceptions, the figure depicts responses to questions on whether there are any benefits of consuming each target food. For knowledge, the figure depicts whether respondents cited at least one benefit from a prespecified list of benefits associated with each target food. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for region fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Figure 7.1-4 depicts the specific benefits respondents indicated for each target food, conditional on indicating that there are *any* benefits associated with their consumption. For high-iron beans, surveyed women predominantly cited their role in supporting a strong immune system (61%), followed by their role in making hemoglobin (39%) and helping muscles function well (36%). For green leafy vegetables, surveyed women frequently indicated that this target food supports a strong immune system (63%), maintains healthy vision and skin (44%), contains important nutrients (41%), and aids in producing hemoglobin (38%). For vitamin A-rich orange vegetables, most respondents emphasized their role in protecting the eyes (54%), preventing disease (48%), and promoting child growth and

development (31%). While there were some statistically significant differences by treatment status in benefits cited, particularly for vitamin A-rich orange vegetables, the SMDs were marginal.

Figure 7.1-4. Cited Benefits of Target Foods

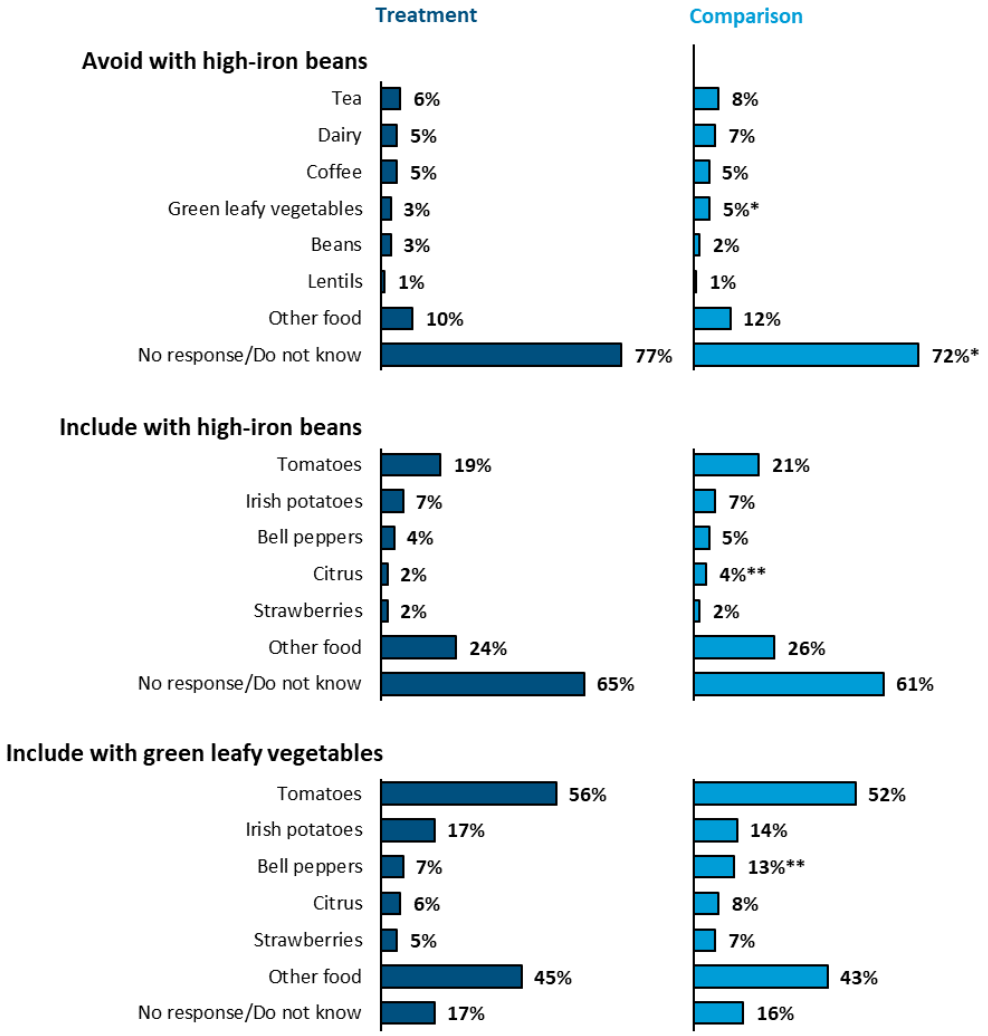


Note. *N* = 1,003 for high-iron beans; 1,156 for green leafy vegetables; and 793 for vitamin A-rich orange vegetables. Respondents were only asked to list specific benefits of each target food if they previously indicated that consumption of these foods has any benefits. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for region fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Apart from knowledge of target food benefits, baseline findings also indicate wide knowledge gaps and, in some cases, misconceptions regarding foods that pair well with target foods. While most surveyed women did not know which foods to avoid or include when consuming high-iron beans to enhance iron uptake, most believed they possessed this knowledge for green leafy vegetables. Specifically, when asked about which foods to avoid

when consuming high-iron beans, few respondents, on average, cited coffee, tea, or calcium-rich foods. Likewise, when asked about which foods to include when consuming high-iron beans to enhance iron uptake, few respondents mentioned vitamin C-rich fruits and vegetables such as citrus or bell peppers. By contrast, most surveyed women indicated that green leafy vegetables should be consumed with vitamin C-rich fruits and vegetables like tomatoes to enhance iron uptake. Statistically significant differences by treatment status for these knowledge questions were marginal in terms of magnitude, with SMDs between -0.25 and 0.25, exclusive.

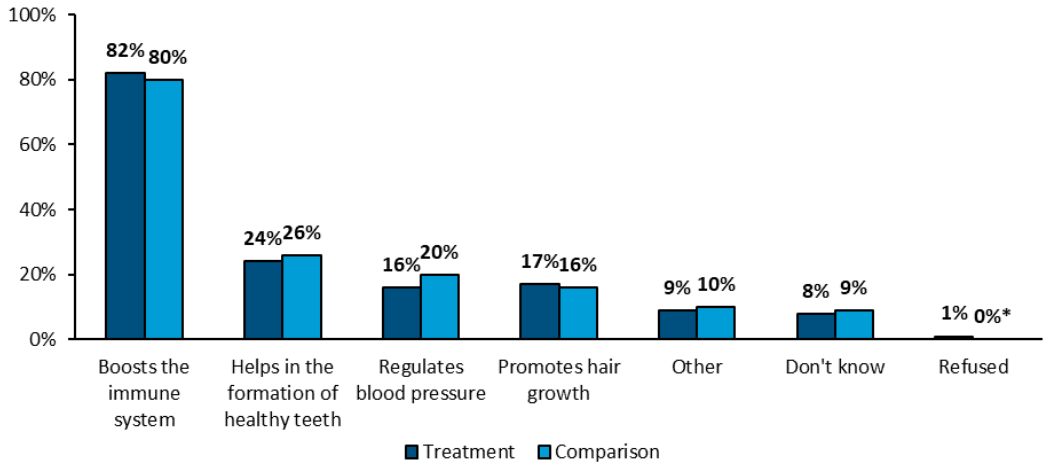
Figure 7.1-5. Foods and Beverages to Avoid or Include with Target Foods to Enhance Iron Uptake



Note. *N* = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for region fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

When asked how vitamin A contributes to child health, most surveyed respondents mentioned its role in boosting the immune system (81%) and infrequently mentioned other reasons such as its role in helping the formation of health teeth (25%), regulating blood pressure (18%) and promoting hair growth (17%) (Figure 7.1-6). Few respondents reported not knowing any ways in which vitamin A contributes to child health (9%). Among surveyed women who perceived vitamin A-rich vegetable consumption as beneficial, most recognized the benefit of vitamin A for mothers and children in particular in terms of its ability to improve vision (80%) and bone strength (64%).

Figure 7.1-6. Perceived Benefits of Vitamin A for Child Health



Note. *N* = 1,205. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for region fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

7.2. Diet Quality

To measure dietary adequacy at baseline, we administered the DQQ, which is a standardized tool that aims to assess dietary patterns and trends in the general population.[j] We also administered a companion DQQ for infants and young children between 0 and 24 months old. To assess diet quality among adult WRAe age in our sample, we used DQQ data to calculate MDD-W, which is an indicator of micronutrient adequacy that captures whether respondents consumed at least five of 10 specific food groups[k] over the course of a day. Similarly, we calculated MDD for children 6–23 months old, which measures whether

[j] Diet Quality Questionnaire (DQQ) Indicator Guide. Global Diet Quality Project, 2023. https://drive.google.com/file/d/1eplRm9i5_109-a5Ac1Lqj-lUI3VgVIFx/view

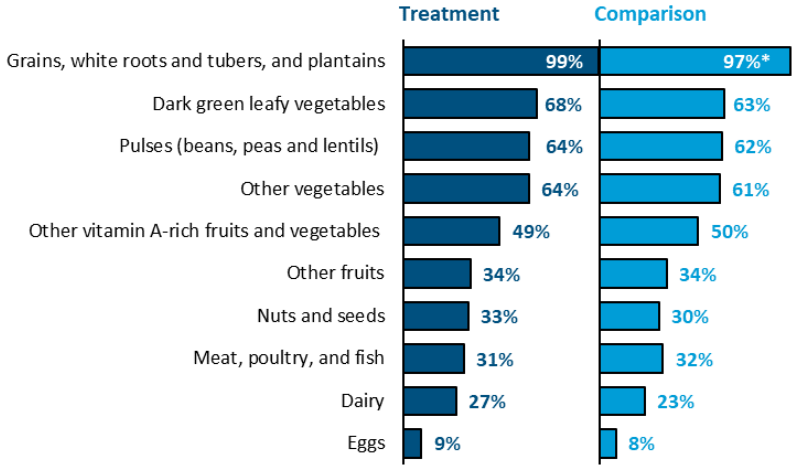
[k] As defined by the Global Diet Quality Project (2023), the 10 MDD-W food groups include 1) grains, white roots and tubers, and plantains; 2) pulses (beans, peas, and lentils); 3) nuts and seeds; 4) dairy; 5) meat, poultry, and fish; 6) egg; 7) dark green leafy vegetables; 8) other vitamin A-rich fruits and vegetables; 9) other vegetables; and 10) other fruits.

children consumed at least five of eight defined food groups during the previous day.[l,m] For children in this age range, we also calculated a series of breastfeeding indicators, which we discuss later in this section.

Women of Reproductive Age

On average, half of surveyed women met the MDD-W threshold (52% treatment versus 48% comparison), suggesting these women likely have adequate micronutrient intake. Of the 10 MDD-W food groups, most respondents reported consuming grains, white roots and tubers, or plantains (98%); dark green leafy vegetables (65%); pulses (63%); other vegetables (63%); and other vitamin A-rich fruits and vegetables (50%) the day before their survey date. By contrast, less than a third of surveyed women consumed nuts and seeds (31%); meat, poultry, or fish (31%); dairy (25%); or eggs (9%) in the previous day. As illustrated in Figure 7.2-1, there were minimal differences by treatment status in average diet composition as measured by MDD-W food group consumption in the previous day.

Figure 7.2-1. MDD-W Food Group Consumption in the Previous Day, by Treatment Status



Note. *N* = 1,228. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for region fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

At the sub-region level, baseline findings suggest that surveyed women in West Nile and the Western sub-region maintain more diverse diets relative to those in other sub-regions, with 61% and 73%, respectively, consuming minimally diverse diets. By contrast, less than half of surveyed women in Acholi (39%), East Central (26%), and Karamoja (11%) reported as such, suggesting surveyed women in these sub-regions are less likely to have adequate

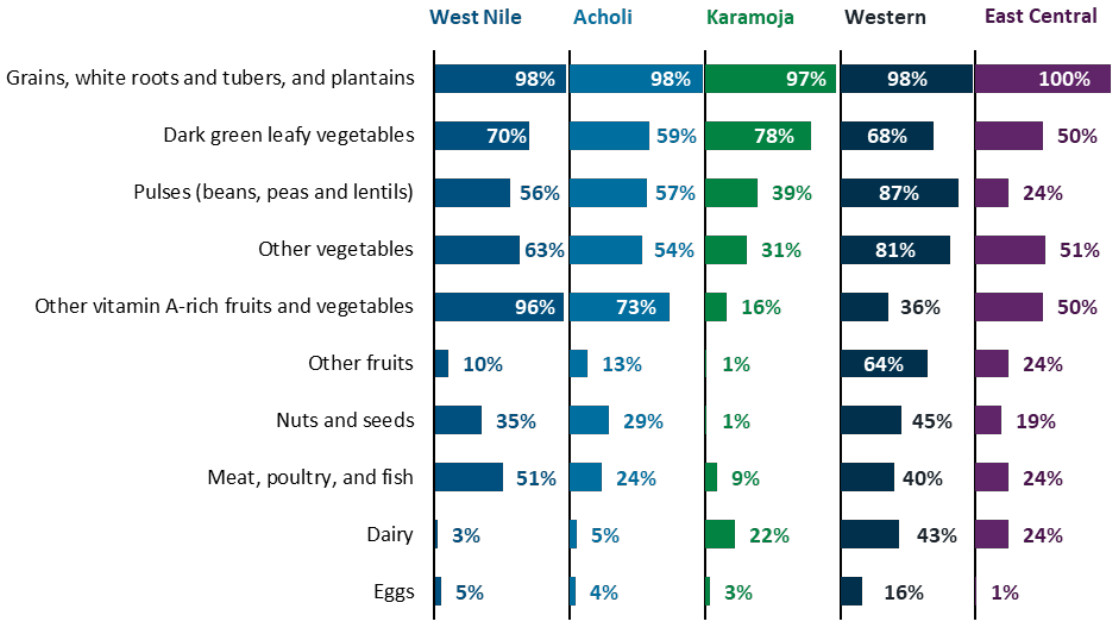
[l] As defined by the World Health Organization and UNICEF (2021), the eight MDD food groups for children 6–23 months old include 1) breast milk; 2) grains, roots, tubers, and plantains; 3) pulses (beans, peas, lentils), nuts, and seeds; 4) dairy products (milk, infant formula, yogurt, cheese); 5) flesh foods (meat, fish, poultry, organ meats); 6) eggs; 7) vitamin-A rich fruits and vegetables; and 8) other fruits and vegetables.

[m] Indicators for assessing infant and young child feeding practices: definitions and measurement methods. Geneva: World Health Organization and the United Nations Children's Fund (UNICEF), 2021. License: CC BY-NC-SA 3.0 IGO; https://creativecommons.org/licenses/by-nc-sa/3.0/igo

micronutrient intake, on average. In Karamoja, consumption was below average for all MDD-W food groups except for dark green leafy vegetables (78%). In Acholi and East Central, consumption was below average for all MDD-W food groups except for 1) other vitamin A-rich fruits and vegetables and 2) grains, white roots and tubers, and plantains. For the former food group, consumption was above average in Acholi (73%) and on par with average in East Central (50%). For the latter food group, consumption was on par with average in Acholi (98%) and above average in East Central (100%).

Consumption disparities across sub-regions were widest for other vitamin A-rich fruits and vegetables, with most surveyed women in West Nile (96%), Acholi (73%), and East Central (50%) reporting consumption of this food group the previous day whereas a comparatively smaller share did so in the Western sub-region (36%) and Karamoja (16%) (Figure 7.2-2). Though less pronounced, there were also distinctive sub-region consumption trends for pulses and for other vegetables.

Figure 7.2-2. MDD-W Food Group Consumption in the Previous Day, by Sub-Region



Note. *N* = 120 in West Nile, 282 in Acholi, 160 in Karamoja, 503 in Western, and 140 in East Central.

To develop a more nuanced and contextualized understanding of diet quality among surveyed women, we benchmarked their MDD-W values against national averages, using the most recent available data from the Global Diet Quality Project. Based on 2021 estimates, the average woman in Uganda consumed a minimally diverse diet, with more than half meeting the MDD-W threshold (59%).[n] Estimates indicate women more often met the MDD-W threshold in urban (67%) rather than rural (52%) areas, on average, in 2021. By comparison, the 2021 estimates suggest that the women in our sample potentially face stronger barriers to achieving nutritionally adequate diets than the average woman in

[n] Diet Quality Questionnaire (DQQ) Indicator Data. Global Diet Quality Project, 2021. https://www.dietquality.org/countries/uga

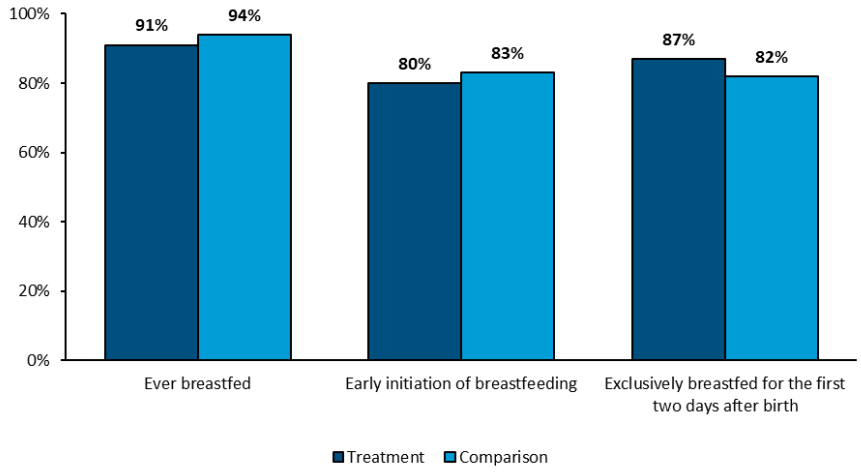
Uganda. Mere comparisons to 2021 averages, however, are imperfect and oversimplify both national- and sample-level (mal)nutrition dynamics. Even so, they imply that women in our sample and, by extension, the average CASCADE participant are disproportionately affected by malnutrition.

Diet Quality of Children 0–24 Months

As previously mentioned, we administered a companion DQQ for infant and young child feeding (IYCF) to households with at least one child 6–23 months old (*n* = 236) in order to capture breastfeeding and complementary feeding practices for children in this age range at baseline.[o] For households with more than one child in this age range (i.e., 6–23 months old), we instructed enumerators to administer the DQQ for IYCF for the youngest child in this age range in the household. For shorthand, we refer to this child as the reference child when describing results.

Most households with at least one child 6–23 months old (*n* = 236) reported following recommended post-natal breastfeeding practices for their youngest child in this age range. Nearly all reported that this reference child was ever breastfed (92%), and for this reference child, most reported early initiation of breastfeeding (EIBF)[p] (82%) and exclusive breastfeeding for the first two days after birth (85%). There were no statistically significant differences in reported use of these practices by treatment status (Figure 7.2-3).

Figure 7.2-3. Post-Natal Breastfeeding Practices for Reference Children, by Treatment Status



Note. N = 236. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for region fixed effects to account for regional differences. In the figure, we present p-values for those

[o] In addition to capturing children's consumption of solid, semi-solid, or soft foods in the previous day, the DQQ for IYCF captures breastfeeding practices in the previous day and post-natal. Please refer to the DQQ Indicator Guide (2023) for additional details.

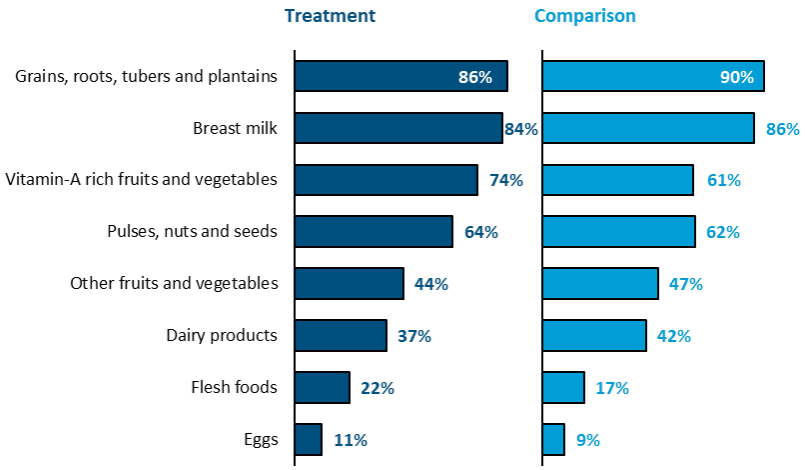
[p] As defined by WHO and UNICEF (2021), EIBF captures whether children born in the last 24 months were put to breast within 1 hour after birth. Given differences in question wording and survey instrument design, our EIBF indicator captures whether the youngest child between 6–23 months in the household was put to breast in *less than 1 hour* after birth.

outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * p < 0.1; ** p < 0.05; *** p < 0.01.

When recalling feeding practices for the previous day, most households reported their youngest child between 6–23 months old was breastfed (85%) *and* fed solid, semi-solid, or soft foods (95%). By treatment status, there were no statistically significant differences in the propensity to breastfeed the reference child (84% treatment versus 86% comparison) or to give them solid, semi-solid, or soft foods (96% treatment versus 93% comparison) in the previous day. However, a larger share of households in comparison areas reported any bottle-feeding in the previous day (23% treatment versus 40% comparison, $p < 0.05$).

Among households with at least one child 6–23 months old ($n = 236$), under half reported that their youngest child within this age range consumed a minimally diverse diet in the past day (38%). Minimum dietary diversity for children 6–23 months old was more common in treatment areas than in comparison areas (40% treatment versus 36% comparison, $p < 0.10$), on average, though differences by treatment status were small in magnitude (SMD = 0.22).[q] Among the MDD food groups, over half reported that the reference child consumed grains, roots, tubers, or plantains (88%); breast milk (85%); vitamin-A rich fruits and vegetables (69%); and pulses or nuts and seeds (63%). By contrast, consumption of animal-source foods was comparatively less common, specifically for consumption of dairy products (39%), flesh foods (20%), and eggs (10%). Apart from vitamin A-rich fruit and vegetables (74% treatment versus 61% comparison, $p < 0.10$), there were no statistically significant differences by treatment status in reference children's MDD food group consumption (Figure 7.2-4). Nor were there meaningful differences in their propensity to consume any animal-source foods (55% treatment versus 50% comparison, $p < 0.10$) or any fruit or vegetable (84% treatment versus 79% comparison).

Figure 7.2-4. Children 6–23 Months Old MDD Food Group Consumption in the Previous Day, by Treatment Status



Note. N = 236. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control

[q] Among reference children who were fed solid, semi-solid, or soft foods in the previous day (95%), 40% met the MDD threshold, on average, and the difference by treatment status was not statistically significant (42% treatment versus 38% comparison).

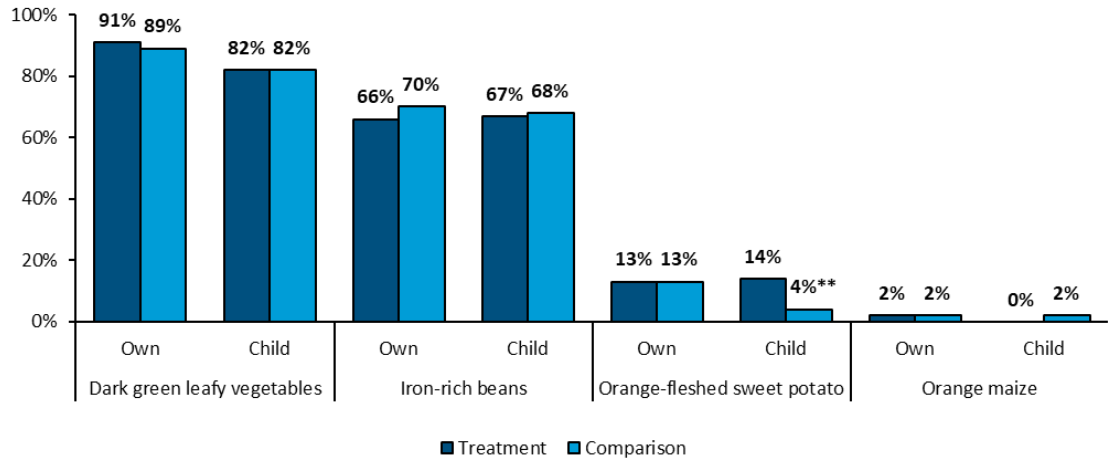
for region fixed effects to account for regional differences. In the figure, we present p-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * p < 0.1; ** p < 0.05; *** p < 0.01.

Among the youngest child 6–23 months old (n = 236) in surveyed households, consumption of foods and beverages associated with risk of non-communicable diseases (e.g., ultra-processed beverages, salty or fried snacks, sweet foods) was infrequent. Less than a fifth of reference children in our sample consumed salty or fried snacks (19%) or any sweet food (i.e., baked, grain-based, or other sweets) (13%) on the previous day. Although nearly half of reference children in our sample reportedly consumed any sweet beverages in the previous day (46%) (i.e., soft drinks, fruit drinks, fruit juice, or sweetened tea/milk/coffee), few consumed soft drinks specifically (15%), suggesting children 6–23 months old in our sample do not consume ultra-processed beverages.

7.3 Consumption of Target Foods

In terms of CASCADE Uganda target crops, consumption of dark green leafy vegetables and iron-rich beans was commonplace among surveyed women and children 6–23 months old alike (Figure 7.3-1). According to self-reports, most surveyed women consumed dark leafy green vegetables (90%) and iron-rich beans (68%) in the last 7 days of their survey date whereas few reported consuming orange-fleshed sweet potato (OFSP) (13%) or orange maize (2%). As reported by respondents with at least one child 6–23 months old in their household (*n* = 236), most reference children consumed dark green leafy vegetables (82%) and iron-rich beans (68%) in the last 7 days of their survey date and few consumed OFSP (9%) or orange maize (1%). OFSP consumption was significantly more frequent among reference children in treatment areas relative to comparison areas (14% treatment versus 4% comparison, $p < 0.05$).

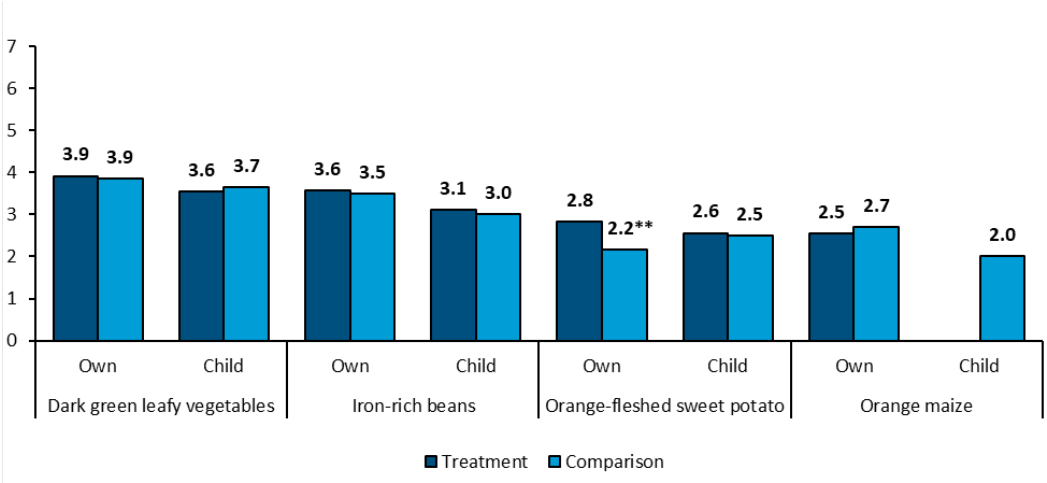
Figure 7.3-1. Target Crop Consumption in the Last 7 Days, by Treatment Status



Note. N = 1,205 for own consumption and 236 for child consumption. Own consumption refers to the respondent's consumption, whereas child consumption refers to the youngest child 6–23 months old, if applicable. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for region fixed effects to account for regional differences. In the figure, we present p-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * p < 0.1; ** p < 0.05; *** p < 0.01.

To gauge the extent to which surveyed women and reference children consumed target foods, we asked them about the frequency of their target food consumption in the past week. In the last 7 days of their survey date, surveyed women and reference children consumed dark green leafy vegetables most days. Among those who consumed any dark green leafy vegetables in the last 7 days, both women and reference children consumed them 4 out of 7 days, on average. Among those who consumed any iron-rich beans in the last 7 days, women reported consumption 4 out of 7 days, on average, whereas reference children reportedly consumed this target crop 3 out of 7 days, on average. For OFSP and orange maize consumption, surveyed women reported an average of 3 days, respectively. The average reference child in treatment areas consumed OFSP 3 days whereas the average reference child in comparison areas consumed OFSP 2 days ($p < 0.05$).

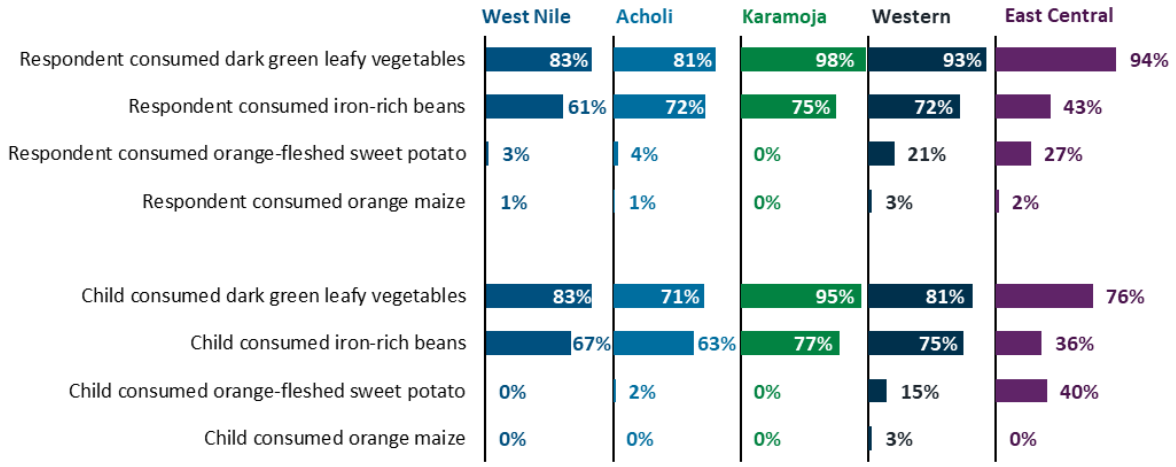
Figure 7.3-2. Target Crop Consumption in the Last Seven Days: Average Days Consumed, by Treatment Status



Note. For own consumption, *N* = 1,083 for dark green leafy vegetables; 817 for iron-rich beans; 155 for OFSP; and 23 for orange maize. For child consumption, *N* = 194 for dark green leafy vegetables, 160 for iron-rich beans, 22 for OFSP, and 2 for orange maize. No reference children consumed orange maize in treatment areas. Respondents were not asked how many days they consumed each of the foods if they did not report ever consuming those foods in the last 7 days. To assess baseline differences between treatment and comparison groups for each outcome, we use linear regression models with observations clustered at the women's group level. Estimations control for region fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households at the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Across sub-regions, the propensity to consume the two most common target crops (i.e., dark green leafy vegetables, iron-rich beans) in the last 7 days was greatest in Karamoja. Among surveyed women, dark green leafy vegetable consumption was above average in Karamoja (98%), East Central (94%), and the Western sub-region (93%); and iron-rich bean consumption was above average in Karamoja (75%), Acholi (72%), and the Western sub-region (72%). Among reference children, dark leafy vegetable consumption was above average in Karamoja (95%) and West Nile (83%), and iron-rich bean consumption was above average in Karamoja (77%) and the Western sub-region (75%). Given the small sample of reference children, sub-regional differences should be interpreted with caution.

Figure 7.3-3. Target Crop Consumption in the Last 7 Days, by Sub-Region



Note. For own consumption, N = 120 for West Nile, 282 for Acholi, 160 for Karamoja, 503 for Western, and 140 for East Central. For child consumption, N = 30 for West Nile, 49 for Acholi, 57 for Karamoja, 75 for Western, and 25 for East Central. Own consumption refers to the respondent's consumption whereas child consumption refers to the youngest child 6–23 months old if applicable.

The large share of surveyed women and target children reportedly consuming target crops at baseline raises questions regarding ceiling effects. In some instances, baseline findings cast doubt on the availability of target foods and, relatedly, the capacity of surveyed women and reference children to consistently consume these foods on a year-round basis. For example, baseline evidence indicates that most households do not source target foods for consumption from their own production: a small share of households reportedly harvested iron-rich beans (27%), dark green leafy vegetables (14%), or OFSP (10%) in the last agricultural harvest.[r] Insofar as own production is an indication of a more stable supply, baseline findings suggest that access to these three aforementioned target foods and the stability, adequacy, and quality of their supply may be precarious, as most surveyed households seemingly access these foods from external sources. To this end, even if dark green leafy vegetable and iron-rich bean consumption were widespread in the last 7 days of their survey date, it does not imply that respondents have secure access to these target foods. Respondents may, for example, experience inadequate access to these target foods on a periodic basis (e.g., due to food price instability, adverse weather conditions). How and how often they access these foods merits further inquiry.

7.4. Women's Empowerment

Following CASCADE's ToC, we now present the evaluation sample descriptive statistics on outcomes related to women's empowerment. Specifically, we present outcomes and indicators related to four of the five empowerment domains that are part of the A-WEAI: (a) women's participation in productive activities, (b) women's asset ownership and access to

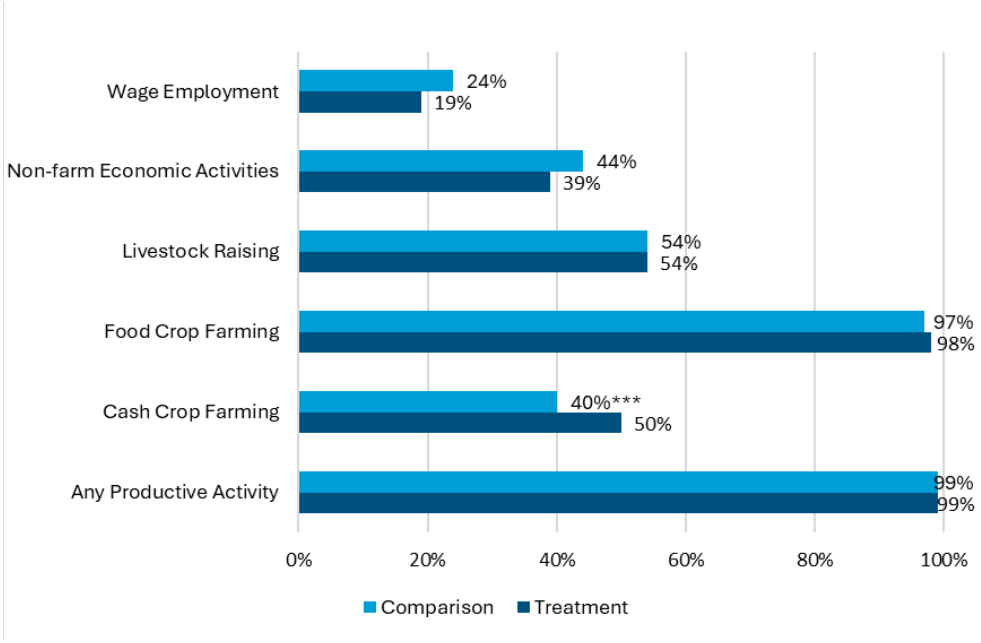
[r] On average, three-quarters of surveyed households reported harvesting maize, but baseline data does not capture the maize varieties (e.g., white maize, orange maize). Thus, the extent to which surveyed households harvested orange maize at baseline is unknown.

and decisions on credit, (c) women's control over the use of income, and (d) women's leadership.[s]

Women's Participation in Productive Activities

This first dimension concerns decisions around productive activities: agricultural production, livestock raising, fisheries, non-farm economic activities, and wage employment. Virtually all women in our sample participate in at least one of these types of activities (99%). Agricultural production, specifically, food crop farming, is the most common activity, with about 98% of women having participated in it over the last 12 months. Livestock raising is the second most common activity, with about 54% of women taking part in it. Over 40% of women in our sample are employed for a wage, and little over one-quarter engage in non-farm economic activities. Less than 1% of women in our sample participate in fishing or fishpond culture. Overall, we observe a good statistical balance for activity participation outcomes as women in the treatment and comparison groups tend to engage at similar rates in the same activities. Cash cropping seems to be the only exception, with treatment women participating slightly more in this activity than their comparison counterparts, although the corresponding SMD is not meaningfully large (0.18 SD).

Figure 7.4-1. Women's Participation in Productive Activities



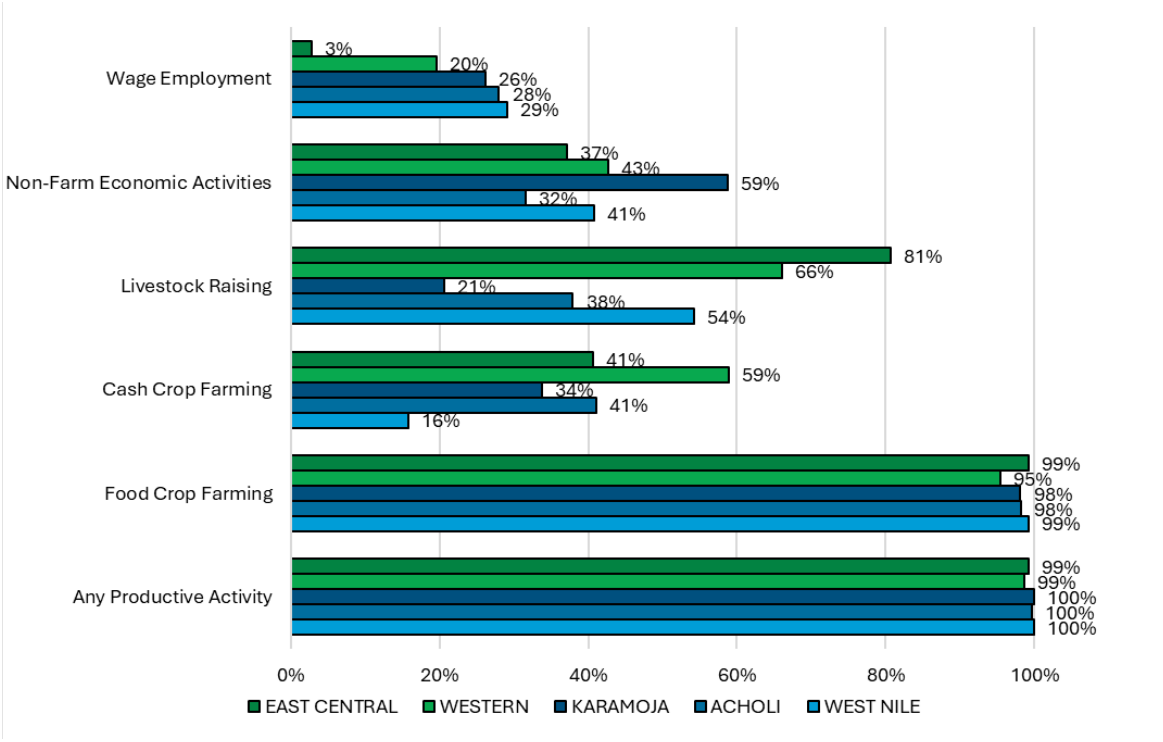
Note. We use linear regression models with observations clustered at the women's group level to assess baseline differences between treatment and comparison groups for each outcome. Estimations control for region-fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households, with the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Baseline data also reveals interesting findings in terms of participation in productive activities across locations. Although food crop farming is the most common activity across

[s] We did not collect information on workload, which corresponds to the fifth empowerment domain: women's allocation of time.

all regions, with virtually all women engaging in it, other frequent activity tends to differ by area. In all regions, the second most common activity is related to farming or livestock raising, except in Karamoja, where most females perform non-farm economic activities (59%). Conversely, in East Central, Western, and West Nile regions, livestock raising is the second most common activity, with the majority of women engaging in it -- 81%, 66%, and 54%, respectively. Across all regions, at least a third of the sample engages in non-farm economic activities, and between 20-30% of women are employed for a wage, except in East Central, where wage employment in uncommon (3%).

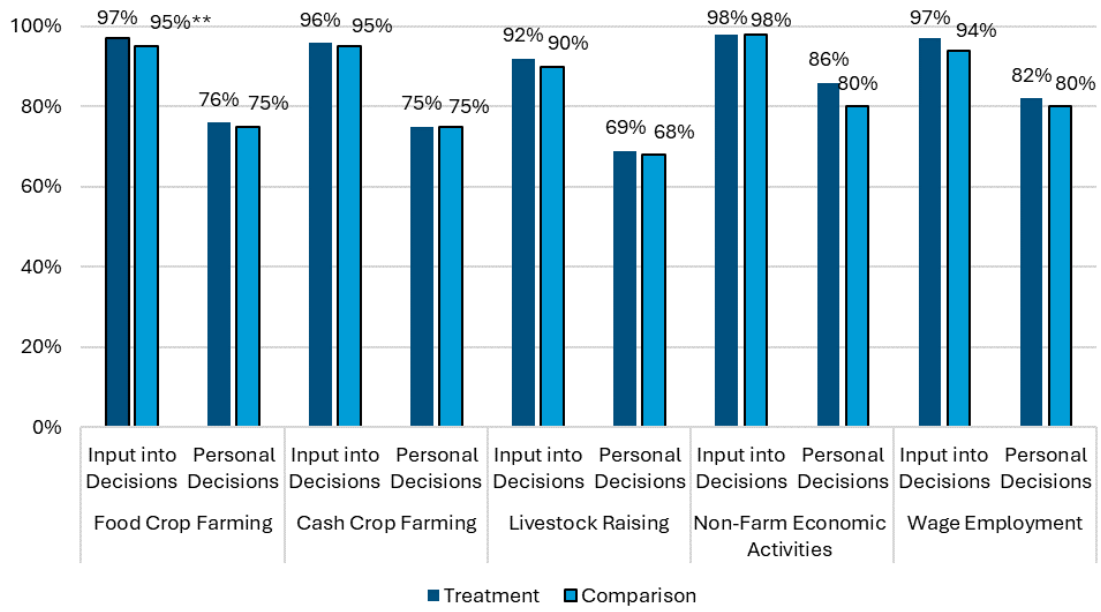
Figure 7.4-2. Women's Participation in Productive Activities by Region



Note. No balance equivalence tests are conducted by county, given the study was not designed to detect differences by geographic areas within the country.

The majority of women in our sample are involved in the decisions around the productive activities they participate in. Most of the women who participate in an activity also provide meaningful input into decisions about that activity, as they feel they have input in some, most, or all decisions. Furthermore, for all activities, at least 68% and up to 86% of women feel they can, to a medium or high extent, make their own personal decisions about it if they want to. We observe a statistically significant difference between the treatment and comparison groups for input into decisions around food crop farming; nonetheless, the corresponding SMD is not meaningful (0.13 SD).

Figure 7.4-3. Women's Decision-Making About Productive Activities



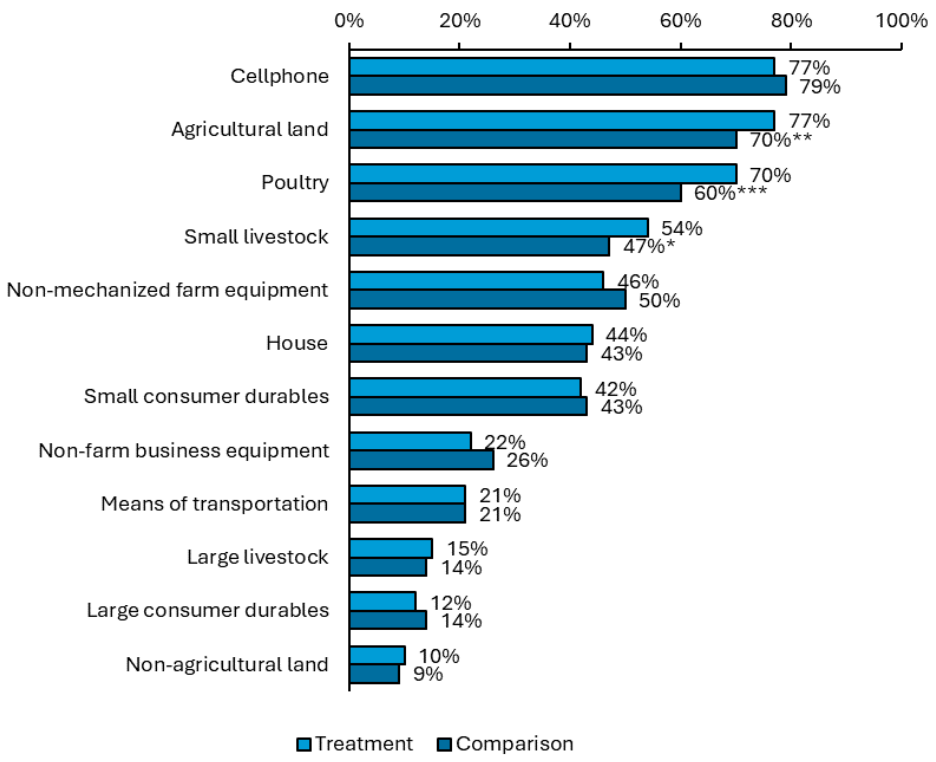
Note. The statistics were estimated using only the subsample of women participating in each activity, therefore the number of observations differs by type of activity: Food Crop Farming (1,172), Cash Crop Farming (542), Livestock Raising (650), Non-Farm Economic Activities (499), and Wage Employment (259). We use linear regression models with observations clustered at the women's group level to assess baseline differences between treatment and comparison groups for each outcome. Estimations control for region fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households, with the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Women's Asset Ownership and Access To and Decision On Credit

This second dimension of empowerment concerns ownership of and access to productive resources such as land, livestock, agricultural equipment, consumer durables, and credit. In terms of assets, the average woman solely or jointly owns 4.8 different types of assets out of the 14 types we asked about in the survey. This is close to the number of types of assets owned by the average household (5.5 assets; see Section 5.4), suggesting that women in our sample may have similar levels of access to assets as other household members. Cellphones are the most widely owned type of asset, with 78% of females owning at least one device. The second, third, and fourth most commonly owned assets are agricultural land (74%)[t], poultry (65%) and small livestock (50%). We observe only few statistical imbalances regarding asset ownership between treatment and comparison women, but only one of them is somewhat meaningful in terms of its standardized mean. Treatment women are 10 percentage points more likely to own poultry than comparison females, a mean difference that corresponds to 0.22 SD.

[t] We did not ask women to show a proof of ownership. As such, this variable captures *perceived* land ownership.

Figure 7.4-4. Women's Asset Ownership



The majority of households in our sample have credit access since, in 87% of them, at least one household member took a loan from a formal or informal lender in the last 12 months. On average, households with credit access took loans from 1.9 different formal or informal lenders during the last 12 months, and women were involved in the decision to borrow from 1.8 of these sources. During the past 12 months, 94% of women living in households with credit access were involved in the decision to borrow from at least one lending source, and 94% were involved in deciding what to do with the borrowed resources from at least one lending source. Overall, these findings suggest that a significant proportion of women in our sample live in households that have access to credit and participate in their households' credit decisions, while 13% of women live in households without credit access.

Table 7.4-1. Access To and Decisions on Credit

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Someone in HH took a loan in the last 12M	0.87	0.89	0.85	0.09	1,205
	(0.34)	(0.32)	(0.35)	[0.08]	
Num. of loan sources accessed by HH in the last 12M	1.88	1.93	1.84	0.12	1,048
	(0.92)	(0.91)	(0.92)	[0.08]	
Num. of loan sources woman was involved in borrowing decision	1.75	1.76	1.73	0.06	1,048
	(0.97)	(0.99)	(0.95)	[0.08]	
Woman involved in decision to borrow from at least one of the lending sources	0.94	0.93	0.96	-0.10	1,048
	(0.23)	(0.26)	(0.21)	[0.07]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Woman involved in deciding what to do with cash/item borrowed from at least one lending sources	0.94	0.93	0.96	-0.15**	1,048
	(0.23)	(0.26)	(0.19)	[0.06]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD are presented in square brackets. Observations are clustered at the women's group level. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Women's Control Over the Use of Income

The third empowerment dimension concerns women's control over the use of income from productive activities and decision making around expenditures. Regarding expenditures, 39% of women in our sample feel they can make their own personal decisions around minor household expenditures, such as food for daily consumption or other small household needs. Conversely, major household expenditures, like buying a valuable household asset (e.g., bicycle or land), seem to require the involvement of other household members, as only 7% of women feel they can make their own personal decisions about these, whereas the vast majority feel they cannot.

Baseline data also show that 97% of women in our sample provide input into some, most, or all of the decisions about how to use income from a productive activity they participate in. Considering that 99% of women participate in at least one productive activity (see Table 7.4-1), this suggests that nearly all women who engage in a given activity are also part of the decisions regarding the use of the income generated from the activity. Lastly, we see no significant differences between the treatment and the comparison group for outcomes on this dimension.

Table 7.4-2. Control Over Use of Income

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Can make personal decisions around major household expenditures	0.07	0.06	0.07	-0.03	1,205
	(0.25)	(0.24)	(0.26)	[0.07]	
Can make personal decisions around minor household expenditures	0.39	0.40	0.37	0.06	1,205
	(0.49)	(0.49)	(0.48)	[0.08]	
Input into how to use income from at least one productive activity	0.97	0.97	0.97	0.02	1,205
	(0.17)	(0.16)	(0.17)	[0.07]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD are presented in square brackets. Observations are clustered at the women's group level. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Women's Leadership

This domain aims to capture women's potential for leadership and influence in their communities. Recognizing the value of social capital, the A-WEAI uses active group membership as a proxy for that potential. Given the sampling approach of this study, which was designed considering that CBOs are central structures for the implementation of

CASCADE, all women in our sample are active members of at least one group. In fact, the average woman in our sample is a member of 2.4 groups, with no significant differences between treatment and comparison women.

A-WEAI Domains

The A-WEAI conceptualizes women's empowerment with different indicators for each of the five dimensions of empowerment. We now present the baseline values of five of the six indicators that make up the A-WEAI, namely: 1) the proportion of women with adequate input into productive decisions, 2) the proportion of women with adequate ownership of assets, 3) the proportion of women with adequate access to and decisions on credit, 4) the proportion of women with adequate control over the use of income, and 5) the proportion of women with adequate group membership.

We constructed the A-WEAI adequacy indicators following Malapit et al. (2020). A woman is considered adequate on input into productive decisions if she participates in at least one production activity,[u] has at least some input in decisions on that activity, makes decisions, or feels she could make them to a medium extent if she wanted to.[v] A woman is adequate on ownership if she owns at least one asset, as long as it is not only chickens, ducks, turkeys, pigeons, nonmechanized farm equipment, or small consumer durables. To have adequacy regarding access to and decision on credit, a woman must belong to a household that has used a source of credit in the past year and must have participated in at least one decision about it. The adequacy threshold for control over the use of income is met when an individual participates in at least one productive activity (including non-farm economic activities and wage employment) and provides input into the decisions on how income from that activity is used. The adequacy threshold for this indicator can also be met if the individual feels they can make their own personal decisions regarding one of the following activities: major household purchases, minor household purchases, wage employment, or non-farm economic activities. Lastly, an individual is considered adequate on leadership if they are an active member of at least one community-based group.

Most women in our sample meet the cutoff of the five adequacy indicators, and virtually all women (at least 95%) are adequate in terms of input into productive decisions, ownership of assets, control over use of income, and leadership. Among the five indicators, the proportions of women considered adequate on credit access are the lowest. Regarding input into productive decisions, this is explained by the fact that only 80% of households in our sample engage in agricultural production. If we restrict the sample to agricultural households, 93% of women meet the adequacy cutoff for this indicator. With respect to adequate access to and decisions on credit, as described earlier, 20% of women live in households where none of the members have access to any formal or informal lending sources.

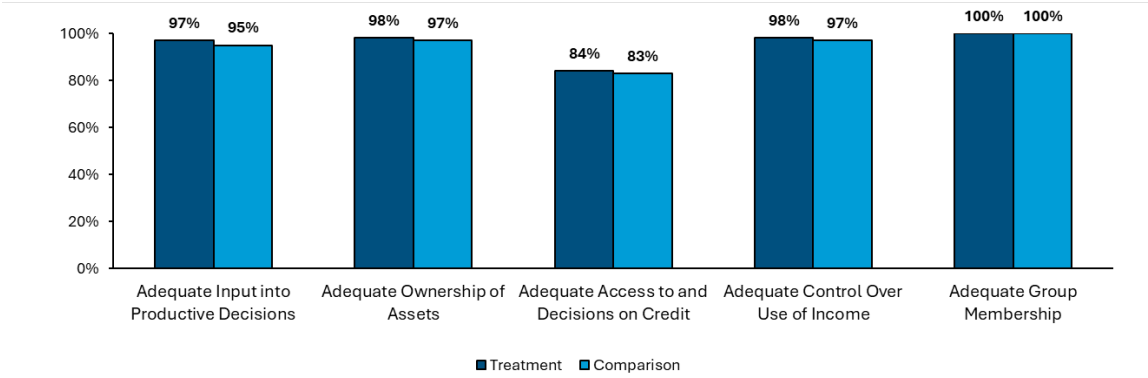
Although 98% of women are considered adequate on control over the use of income, this is mostly driven by the fact that most women who participate in a productive activity also

[u] Cash Crop Farming, Food Crop Farming, Livestock Raising, and Fishing/Fishpond Culture.

[v] Note that households or individuals who are not involved in agriculture but are involved in other nonagricultural enterprises might appear disempowered in this domain because the indicator focuses on agriculture and does not capture all other economic activities.

provide input into the decisions on how income from that activity is used. Conversely, the other variables composing this indicator tell a different story. Indeed, as shown in Table 7.4-2, only 22% of women in our sample feel they can make their own personal decisions around minor household expenditures, and about 7% feel they can make their own personal decisions around major household purchases. Lastly, we do not observe any significant differences between the treatment and comparison groups on these indicators.

Figure 7.4-5. A-WEAI Adequacy Indicators



Note. We use linear regression models with observations clustered at the women's group level to assess baseline differences between treatment and comparison groups for each outcome. Estimations control for region fixed effects to account for regional differences. In the figure, we present *p*-values for those outcomes for which there are statistically significant differences between treatment and comparison households, with the following significance levels: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

8. Discussion

The main objectives of this baseline report for the evaluation of the CASCADE Programme are threefold: 1) to document baseline data collection processes and achievements; 2) to provide a description of the initial conditions of the study sample and their characteristics and nutrition outcomes, before programmeme implementation begins; and 3) assess the comparability of the treatment and comparison samples with statistical tests of equivalence. In addition to these main objectives, the report details the pathways and evidence behind the programmeme logic framework and presents the methodology behind the DiD approach, which will be used to estimate programme impacts at the final beneficiary level.

The baseline data collection undertaken by the research team was successful. In total, questionnaires were administered to 1,205 households, where our main respondents were WRA drawn from 120 groups. The treatment group comprises 603 households and the comparison group includes 602 households. Data collection took place over a 4-week period. The team collected data in 18 districts from the following regions/subregions: Northern, Karamoja, West Nile, Western, and Eastern Regions.

Following the programme logic framework, in addition to background characteristics of the study sample, outcomes are presented at two main levels: 1) Household-level outcomes; and 2) Women of reproductive age outcomes. Overall, households have an average size of 6.5 members. Men are the dominant household head overall, with only 26% of the

households being headed by females. The average age of the household head is 41 years old, and the average age of the female main respondent is 34 years old. Most household heads have primary level as the highest education attained (47%) followed by secondary level (28%). For the main respondent, 53% of respondents had primary education as their highest education level attained and only 20% have secondary schooling. The age distribution of household members shows that the most dominant age group in the households was 18 to 49 years (40%) followed by 5 to 17 years (36%). Children who are 6–23 months old are only 3% of the household population. Households in our sample are in both rural and peri-urban areas, with mixed levels of infrastructure and amenities. The reliance on solar lanterns, the lack of access to water and toilets inside the dwelling, and the significant percentage of natural flooring and walls point towards households with low levels of living standards.

In terms of the nutrition-related outcomes, our data show there are significant challenges in terms of diet diversity and food security among the sampled households. Only about half of the women report having minimally diverse diets, and a substantial 80% live in moderately or severely food-insecure households. Further, 84% of these households report insufficient food quality, with 74% consuming a limited variety of foods and 68% facing insufficient food intake. Despite 95% of households engaging in agricultural production, the diversity of production remains low, with an average of only 2.9 crops per household.

Regarding women empowerment, despite the A-WEAI indicators showing that most women in our sample meet the minimum adequacy cutoff across four key empowerment domains (production, resources, income, and leadership), there is considerable room for improving some empowerment indicators that may support programme activities such as being able to make personal decisions around minor household expenditures, including food expenditures.

Access to nutrition information and related services is critically low, highlighting a significant area for intervention to enhance diet diversity and overall food security. Overall, these findings across outcome levels and domains, paired with other background characteristics of the sample, reinforce the idea that the programme is reaching a poor and vulnerable segment of the population.

Recommendations. Drawing upon the findings of this baseline report, we offer a set of initial recommendations based on the planned programme activities. These recommendations are organized in terms of the programme's immediate outcomes, as presented in the ToC in Annex B. We expect to refine these recommendations after disseminating the baseline findings to the CASCADE global and country teams.

Table 8.1. Initial Recommendations by Immediate Outcomes

Immediate Outcomes Domains 3 and 4	Recommendation
D.3.1 Shifts in social norms that	Normative perspectives on diet composition (e.g., food groups that should be a part of respondents' daily diet, how pregnant and breastfeeding women should eat) results suggest gaps in the perceived importance and uptake of

Immediate Outcomes Domains 3 and 4	Recommendation
impact nutrition practices	certain nutrient-dense foods (e.g., fruit, nuts and seeds, eggs). **Better understanding these underlying mechanisms and tailoring messaging accordingly could facilitate the adoption of healthier diets among CASCADE participants**.
D.3.2. Strengthened advocacy capacities of CBOs and women collectives	As shown in Section 5.6, most Community-Based Organizations (CBOs) in the sample are not primarily focused on women's rights, empowerment, or advocacy objectives. Additionally, many CBOs are not fully dedicated to agricultural production. The CASCADE programme has the opportunity to **strengthen these areas within the CBOs, potentially increasing their advocacy capacity in terms of women's empowerment and agricultural production**.
D.3.3 Public service providers effectively implement nutrition related services	The availability of and access to nutrition-related services are very low for households in our sample. While the CASCADE programme has the potential to enhance the skills and knowledge of frontline health workers on healthy diets and Maternal, Infant, and Young Child Nutrition (MIYCN), **additional support, including human resources, may be needed to reach most community members, as existing frontline workers may be overburdened with their ongoing administrative responsibilities**.
D.4.1 Women (small-scale producers) increase access and control over resources	Although most women in our sample live in households with credit access and participate in their households' credit decisions, a small but still important number (13%) live in households without access to formal or informal credit. Credit access may be critical for women to invest (or increase their involvement) in nutrition-sensitive and resilient productive activities. **By strengthening the savings and lending capacities of women's groups through VSLA training, CASCADE could increase credit access for the group of women who most need it.**
D.4.2 Women increase knowledge and skills to produce year-round nutritious foods	Results from Section 6.1 show that households produce very few fruits and vegetables that provide essential nutrients. **The CASCADE programme has the opportunity to significantly support the production of new crops such as vitamin A rich foods (OFSP and orange maize) by providing seeds and planting materials to help the adoption of gardening projects at the household of community level.** This approach can improve access to fresh produce and provide practical knowledge about growing and using these foods. Importantly, households in the sample report high consumption levels of dark green leafy vegetables, which is one of the foods the programme plans to promote among beneficiaries. **The data suggest that the programme can focus on other crops, different from dark green leafy vegetables, that are less frequently consumed.**
D.4.3 Women (small-scale producers) increase knowledge and	While most surveyed women, on average, consumed minimally diverse diets, their reference children did not. To this end, baseline findings imply that children, in particular, are at risk of micronutrient deficiencies, which can have long-term implications on their physical and cognitive development. The CASCADE team could consider prioritizing programmeming related to IYCF in

Immediate Outcomes Domains 3 and 4	Recommendation
skills to adopt healthy diets	the early stages of programme implementation, especially considering the time horizons typically associated with improved health outcomes.

Baseline Equivalence. Using the What Works Clearinghouse guidance on equivalence, we calculated significance levels and SMDs for all indicators between the treatment and comparison groups. As discussed in Sections 5 to 7, although for some outcomes and characteristics there are statistically significant differences between the treatment and comparison groups, only 15 out of 345 outcomes tested (or approximately 4.3%) show differences of magnitude higher than 0.25 SD. Where significant differences are observed, no discernable pattern is observed in terms of favoring treatment or comparison samples (in other words, there is no group which is clearly consistently better or worse off). For indicators with significant SMDs over 0.25 SD, additional controls will need to be added to the regression analysis to produce unbiased effects. However, because these are few, we conclude that the study sample is balanced sufficiently for future analysis of programme impacts.

This report lays the foundation to estimate programme impacts after 36-months (endline scheduled for the first quarter of 2027). Given our proposed methodology to estimate programme impacts, we will collect indicators at endline identical to the ones collected at baseline to control for baseline levels.

Annex A. References

Abadie, A. Athey, S., Imbens, G., Woolridge, J. When Should You Adjust Standard Errors for Clustering?, The Quarterly Journal of Economics, Volume 138, Issue 1, February 2023, Pages 1–35

CARE, GAIN, and the Ministry of Foreign Affairs of The Netherlands (2023). CAtalyzing Strengthened policy aCtion for heAlthy Diets and resiliencE (CASCADE). Global Inception Report.

Center for Disease Control and Prevention. (2024). Maternal Diet and Breastfeeding. https://www.cdc.gov/breastfeeding-special-circumstances/hcp/diet-micronutrients/maternal-diet.html

FSIN and Global Network Against Food Crises. 2023. GRFC 2023. Rome in https://www.fsinplatform.org/global-report-food-crises-2023

Global Diet Quality Project. (2023). Diet Quality Questionnaire (DQQ) Indicator Data. https://www.dietquality.org/countries/moz

Global Diet Quality Project. (2023). Diet Quality Questionnaire (DQQ) Indicator Guide. https://drive.google.com/file/d/1eplRm9i5_109-a5Ac1Lqj-lUI3VgVIFx/view

Muluye SD, Lemma TB, Diddana TZ. Effects of Nutrition Education on Improving Knowledge and Practice of Complementary Feeding of Mothers with 6- to 23-Month-Old Children in Daycare Centers in Hawassa Town, Southern Ethiopia: An Institution-Based Randomized Control Trial. J Nutr Metab. 2020 Aug 24;2020:6571583. doi: 10.1155/2020/6571583. PMID: 32908694; PMCID: PMC7469077.

Seidenfeld, D., Handa, S., de Hoop, T., & Morey, M. (2023). Intraclass Correlations Values in International Development: Evidence Across Commonly Studied Domains in sub-Saharan Africa. Evaluation Review

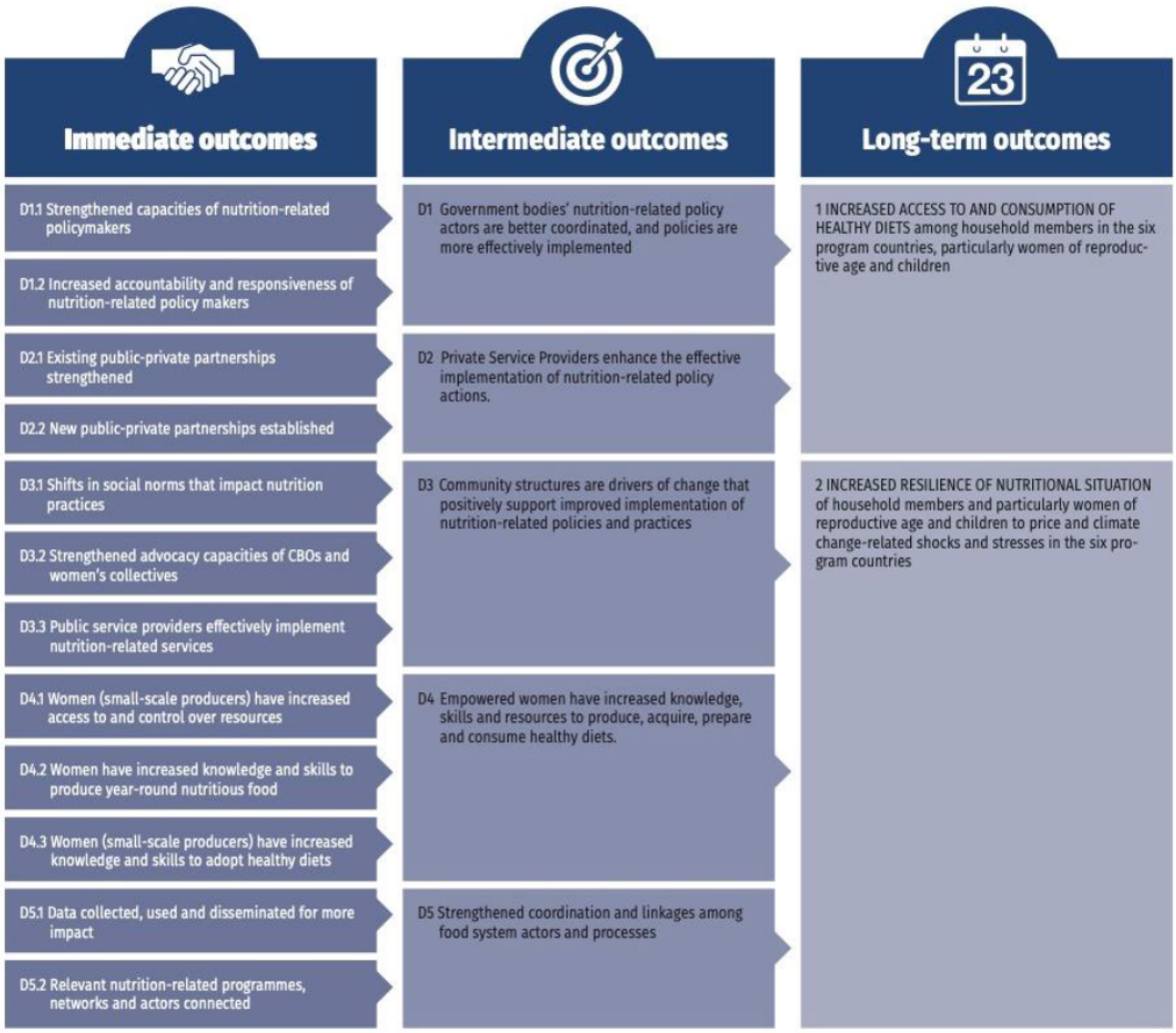
Tamir TT, Gezhegn SA, Dagnew DT, Mekonenne AT, Aweke GT, Lakew AM (2024) Prevalence of childhood stunting and determinants in low and lower-middle income African countries: Evidence from standard demographic and health survey. PLoS ONE 19(4): e0302212.

United Nations Children's Fund (UNICEF), World Health Organization (WHO), International Bank for Reconstruction and Development/The World Bank (2023). Levels and trends in child malnutrition: UNICEF / WHO / World Bank Group Joint Child Malnutrition Estimates: Key findings of the 2023 edition. New York

World Health Organization and the United Nations Children's Fund. (2021). Indicators for assessing infant and young child feeding practices: definitions and measurement methods. License: CC BY-NC-SA 3.0 IGO; https://creativecommons.org/licenses/by-nc-sa/3.0/igo

Annex B.
CASCADE Global Theory of Change

Figure B-1. CASCADE Global Theory of Change



Annex C. Sample

Table C-1. CASCADE Uganda Impact Evaluation Planned Sample

Region	Sub-Region	Treatment			Comparison		
		District	Group n	Respondent n	District	Group n	Respondent n
North	West Nile	Adjumani	6	60	Obongi	6	60
North	Acholi	Kitgum	7	70	Agago	7	70
North	Acholi	Gulu	2	20	Omoro	7	70
North	Acholi	Nwoya	5	50			
North	Karamoja	Napak	8	80	Nabilatuk	8	80
East	East Central	Kamuli	7	70	Buyende	7	70
West	Western	Kabarole	7	70	Bunyangabu	7	70
West	Western	Kamwenge	13	130	Kitagwenda	13	130
West	Western	Kyenjojo	5	50	Kagadi	5	50

Annex D. Balance Tables

Table D-5.2-1. Main Respondent's Characteristics by Treatment

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Household Head	0.20	0.19	0.21	-0.05	1,205
	(0.40)	(0.39)	(0.41)	[0.06]	
Spouse to the head	0.73	0.74	0.71	0.06	1,205
	(0.45)	(0.44)	(0.45)	[0.07]	
Own child to the head	0.05	0.05	0.05	-0.02	1,205
	(0.22)	(0.21)	(0.22)	[0.06]	
Other relationships to the head	0.02	0.02	0.02	-0.02	1,205
	(0.14)	(0.13)	(0.15)	[0.06]	
Age of respondent in years	34.04	33.85	34.23	-0.04	1,205
	(8.45)	(8.35)	(8.55)	[0.07]	
Respondent ever attended school	0.83	0.82	0.85	-0.07	1,205
	(0.40)	(0.41)	(0.38)	[0.07]	
Pre-primary level	0.03	0.03	0.04	-0.08	1,205
	(0.18)	(0.16)	(0.20)	[0.07]	
Primary level	0.53	0.54	0.53	0.01	1,205
	(0.50)	(0.50)	(0.50)	[0.06]	
Secondary levels	0.20	0.20	0.20	-0.02	1,205
	(0.40)	(0.40)	(0.40)	[0.07]	
Middle level college (certificate/diploma)	0.04	0.03	0.04	-0.04	1,205
	(0.19)	(0.18)	(0.20)	[0.08]	
University/Vocational training	0.01	0.01	0.01	-0.03	1,205
	(0.10)	(0.09)	(0.11)	[0.06]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-5.2-2. Household Head Characteristics by Treatment

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Female household head	0.26	0.25	0.28	-0.08	1,205
	(0.44)	(0.43)	(0.45)	[0.06]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Age of the household head in years	41.05	40.85	41.26	-0.04	1,205
	(11.04)	(10.38)	(11.68)	[0.06]	
Number of household members	6.50	6.72	6.28	0.16**	1,205
	(2.68)	(2.86)	(2.47)	[0.07]	
0-6 months	0.02	0.02	0.02	0.01	1,205
	(0.06)	(0.06)	(0.06)	[0.06]	
6-23 months	0.03	0.04	0.03	0.07	1,205
	(0.08)	(0.08)	(0.08)	[0.07]	
4-59 months	0.14	0.14	0.15	-0.11*	1,205
	(0.13)	(0.13)	(0.14)	[0.06]	
5-17 years	0.36	0.37	0.35	0.12*	1,205
	(0.21)	(0.21)	(0.20)	[0.07]	
18-49 years	0.40	0.39	0.41	-0.07	1,205
	(0.17)	(0.17)	(0.18)	[0.07]	
50 years and above	0.04	0.04	0.04	-0.04	1,205
	(0.08)	(0.08)	(0.08)	[0.06]	
Below 5 years	0.75	0.74	0.76	-0.05	1,205
	(0.43)	(0.44)	(0.43)	[0.06]	
Household head ever attended school?	0.86	0.87	0.86	0.05	1,205
	(0.35)	(0.34)	(0.36)	[0.07]	
Pre-primary level	0.02	0.02	0.02	-0.06	1,205
	(0.14)	(0.13)	(0.16)	[0.08]	
Primary level	0.47	0.51	0.44	0.13**	1,205
	(0.50)	(0.50)	(0.50)	[0.06]	
Secondary levels	0.28	0.28	0.28	-0.00	1,205
	(0.45)	(0.45)	(0.45)	[0.07]	
Middle level college (certificate/diploma)	0.05	0.03	0.07	-0.16**	1,205
	(0.22)	(0.18)	(0.25)	[0.06]	
University/Vocational training	0.03	0.03	0.03	-0.02	1,205
	(0.17)	(0.17)	(0.17)	[0.07]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table D-5.3-1. Household Main Sources of Drinking Water

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Improved source for drinking water	0.88	0.84	0.92	-0.25***	1,205
	(0.32)	(0.36)	(0.27)	[0.09]	
Piped into dwelling	0.00	0.00	0.00	-0.06	1,205
	(0.03)	(0.00)	(0.04)	[0.06]	
Piped water into yard/plot	0.04	0.03	0.04	-0.06	1,205
	(0.19)	(0.17)	(0.20)	[0.08]	
Piped water to neighbor	0.03	0.01	0.06	-0.28***	1,205
	(0.18)	(0.09)	(0.23)	[0.10]	
Public tap/standpoint	0.11	0.05	0.17	-0.40***	1,205
	(0.31)	(0.21)	(0.38)	[0.11]	
Tube well or borehole	0.60	0.63	0.56	0.15	1,205
	(0.49)	(0.48)	(0.50)	[0.11]	
Protected well	0.06	0.08	0.05	0.12	1,205
	(0.24)	(0.27)	(0.21)	[0.08]	
Protected spring	0.04	0.04	0.04	0.01	1,205
	(0.20)	(0.20)	(0.20)	[0.08]	
Rainwater	0.00	0.00	0.00	-0.00	1,205
	(0.06)	(0.06)	(0.06)	[0.06]	
Unprotected well	0.08	0.10	0.05	0.18**	1,205
	(0.27)	(0.30)	(0.22)	[0.09]	
Unprotected spring	0.02	0.03	0.02	0.08	1,205
	(0.16)	(0.17)	(0.13)	[0.09]	
Surface water (lakes, river, irrigation channels, dams, steams, canals)	0.01	0.02	0.01	0.14	1,205
	(0.12)	(0.15)	(0.08)	[0.08]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-5.3-2. Household Main Sources of Water for Other Purposes

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Improved source of water for other purpose	0.88	0.84	0.92	-0.25***	1,205
	(0.32)	(0.36)	(0.27)	[0.09]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Piped into dwelling	0.00	0.00	0.00	-0.06	1,205
	(0.03)	(0.00)	(0.04)	[0.06]	
Piped water into yard/plot	0.04	0.03	0.04	-0.06	1,205
	(0.19)	(0.17)	(0.20)	[0.08]	
Piped water to neighbor	0.03	0.01	0.06	-0.28***	1,205
	(0.18)	(0.09)	(0.23)	[0.10]	
Public tap/standpoint	0.11	0.05	0.17	-0.40***	1,205
	(0.31)	(0.21)	(0.38)	[0.11]	
Tube well or borehole	0.60	0.63	0.56	0.15	1,205
	(0.49)	(0.48)	(0.50)	[0.11]	
Protected well	0.06	0.08	0.05	0.12	1,205
	(0.24)	(0.27)	(0.21)	[0.08]	
Protected spring	0.04	0.04	0.04	0.01	1,205
	(0.20)	(0.20)	(0.20)	[0.08]	
Rainwater	0.00	0.00	0.00	-0.00	1,205
	(0.06)	(0.06)	(0.06)	[0.06]	
Unprotected well	0.08	0.10	0.05	0.18**	1,205
	(0.27)	(0.30)	(0.22)	[0.09]	
Unprotected spring	0.02	0.03	0.02	0.08	1,205
	(0.16)	(0.17)	(0.13)	[0.09]	
Surface water (lakes, river, irrigation channels, dams, steams, canals)	0.01	0.02	0.01	0.14	1,205
	(0.12)	(0.15)	(0.08)	[0.08]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-5.3-3. Household Water Source Location and Water Treatment Methods

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Water source in own dwelling	0.00	0.00	0.00	-0.06	1,121
	(0.03)	(0.00)	(0.04)	[0.06]	
Water source in own yard/plot	0.06	0.05	0.07	-0.06	1,121
	(0.24)	(0.23)	(0.25)	[0.07]	
Water source is elsewhere	0.94	0.95	0.93	0.07	1,121
	(0.24)	(0.23)	(0.25)	[0.07]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Make water safer to drink?	0.42	0.40	0.45	-0.10	1,205
	(0.49)	(0.49)	(0.50)	[0.07]	
Boiling	0.78	0.82	0.75	0.02	509
	(0.41)	(0.38)	(0.44)	[0.08]	
Add bleach/chlorine	0.16	0.08	0.23	-0.27***	509
	(0.37)	(0.27)	(0.42)	[0.10]	
Strain water through a cloth	0.01	0.01	0.00	0.10	509
	(0.09)	(0.11)	(0.06)	[0.09]	
Use water filter	0.03	0.04	0.01	0.17	509
	(0.16)	(0.20)	(0.12)	[0.13]	
Cover drinking water with a container	0.08	0.10	0.05	0.26*	509
	(0.27)	(0.31)	(0.22)	[0.14]	
Number of water treatment methods	1.06	1.07	1.06	0.03	509
	(0.25)	(0.25)	(0.24)	[0.09]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-5.3-4. Toilet/Sanitation Facility

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Use improved toilet	0.35	0.30	0.40	-0.21**	1,205
	(0.48)	(0.46)	(0.49)	[0.09]	
Flush toilet to pit latrine	0.00	0.00	0.00	0.06	1,205
	(0.03)	(0.04)	(0.00)	[0.06]	
Flush toilet, don't know where	0.00	0.00	0.00	-0.06	1,205
	(0.03)	(0.00)	(0.04)	[0.06]	
Ventilated improved pit latrine	0.03	0.02	0.03	-0.06	1,205
	(0.17)	(0.16)	(0.18)	[0.06]	
Pit latrine with slab	0.32	0.27	0.36	-0.20**	1,205
	(0.47)	(0.45)	(0.48)	[0.09]	
Flush to somewhere	0.00	0.00	0.00	0.06	1,205
	(0.03)	(0.04)	(0.00)	[0.06]	
Pit latrine without slab/open pit	0.56	0.59	0.53	0.11	1,205
	(0.50)	(0.49)	(0.50)	[0.09]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Bucket toilet	0.00	0.00	0.00	-0.06	1,205
	(0.03)	(0.00)	(0.04)	[0.06]	
Other specify	0.00	0.00	0.00	0.03	1,205
	(0.05)	(0.06)	(0.04)	[0.06]	
Share toilet facility	0.27	0.30	0.25	0.13*	1,099
	(0.45)	(0.46)	(0.44)	[0.07]	
Number of households using the toilet facility	3.96	3.67	4.28	-0.11	302
	(3.64)	(3.22)	(4.04)	[0.12]	
Toilet inside own dwelling	0.00	0.00	0.00	0.00	1,099
	(0.06)	(0.06)	(0.06)	[0.07]	
Toilet in own plot/yard	0.94	0.95	0.93	0.08	1,099
	(0.24)	(0.22)	(0.26)	[0.06]	
Toilet facility located elsewhere	0.06	0.04	0.07	-0.09	1,099
	(0.23)	(0.21)	(0.25)	[0.06]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-5.3-5. Household Cooking Conditions

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Piped natural gas stove	0.00	0.00	0.00	-0.06	1,205
	(0.03)	(0.00)	(0.04)	[0.06]	
Manufactured solid fuel stove	0.05	0.03	0.07	-0.19**	1,205
	(0.22)	(0.17)	(0.26)	[0.08]	
Traditional solid fuel stove	0.15	0.13	0.17	-0.11	1,205
	(0.35)	(0.33)	(0.37)	[0.08]	
Three stone stove/open fire	0.78	0.82	0.74	0.19*	1,205
	(0.41)	(0.38)	(0.44)	[0.10]	
No food cooked in household	0.00	0.00	0.00	0.06	1,205
	(0.03)	(0.04)	(0.00)	[0.06]	
Other (specify)	0.02	0.02	0.02	0.02	1,205
	(0.13)	(0.14)	(0.13)	[0.08]	
Cooking device has a chimney?	0.70	0.63	0.77	-0.03	465
	(0.94)	(0.91)	(0.96)	[0.11]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Cooking stove has a fan?	0.74	0.66	0.80	-0.03	465
	(0.97)	(0.94)	(0.98)	[0.11]	
Cook using Charcoal	0.18	0.15	0.21	-0.14	1,203
	(0.38)	(0.36)	(0.41)	[0.10]	
Cook using Wood	0.76	0.83	0.68	0.34***	1,203
	(0.43)	(0.38)	(0.47)	[0.09]	
Use straw/shrubs/grass	0.06	0.02	0.11	-0.38***	1,203
	(0.24)	(0.13)	(0.31)	[0.10]	
Use Agricultural crop residue	0.00	0.00	0.00	-0.06	1,203
	(0.03)	(0.00)	(0.04)	[0.06]	
Use Processed Biomas/Woodchips	0.00	0.00	0.00	0.06	1,203
	(0.03)	(0.04)	(0.00)	[0.06]	
Cook in the house	0.09	0.10	0.08	0.09	1,204
	(0.28)	(0.30)	(0.27)	[0.07]	
Cook in separate building	0.71	0.72	0.71	0.04	1,204
	(0.45)	(0.45)	(0.46)	[0.06]	
Cook outdoors	0.20	0.18	0.22	-0.10	1,204
	(0.40)	(0.38)	(0.41)	[0.07]	
Kitchen in separate room	0.76	0.76	0.75	0.02	1,204
	(0.43)	(0.43)	(0.43)	[0.06]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table D-5.3-6. Household Lighting Devices

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Electricity	0.06	0.03	0.10	-0.30***	1,205
	(0.24)	(0.16)	(0.30)	[0.09]	
Solar lantern	0.53	0.54	0.52	0.04	1,205
	(0.50)	(0.50)	(0.50)	[0.06]	
Rechargeable flashlight, torch or lantern	0.12	0.12	0.13	-0.01	1,205
	(0.33)	(0.33)	(0.33)	[0.07]	
Battery powered flashlight, torch or lantern	0.21	0.23	0.19	0.10	1,205

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
	(0.41)	(0.42)	(0.39)	[0.07]	
Kerosene or paraffin lamp	0.03	0.03	0.04	-0.05	1,205
	(0.18)	(0.17)	(0.19)	[0.07]	
Charcoal	0.00	0.00	0.00	0.06	1,205
	(0.03)	(0.04)	(0.00)	[0.06]	
Wood	0.01	0.01	0.00	0.08	1,205
	(0.08)	(0.10)	(0.06)	[0.06]	
Straw/shrubs/grass	0.01	0.01	0.01	-0.02	1,205
	(0.10)	(0.10)	(0.11)	[0.06]	
Candle	0.01	0.01	0.01	0.05	1,205
	(0.10)	(0.11)	(0.08)	[0.05]	
No lighting in the household	0.01	0.01	0.00	0.12*	1,205
	(0.10)	(0.12)	(0.06)	[0.07]	
Others	0.06	0.06	0.06	0.01	1,205
	(0.24)	(0.24)	(0.24)	[0.06]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table D-5.3-7. Dwelling and Land Tenure Characteristics by Treatment

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
No. of rooms used for sleeping	2.42	2.40	2.43	-0.02	1,205
	(1.11)	(1.10)	(1.13)	[0.08]	
Owns the structure	0.88	0.89	0.88	0.02	1,205
	(0.32)	(0.32)	(0.33)	[0.08]	
Pays rent/lease	0.09	0.08	0.10	-0.08	1,205
	(0.28)	(0.27)	(0.30)	[0.08]	
No rent with consent of structure owner	0.02	0.02	0.02	0.03	1,205
	(0.15)	(0.16)	(0.14)	[0.07]	
No rent, squatting on structure	0.01	0.01	0.00	0.12**	1,205
	(0.08)	(0.11)	(0.04)	[0.06]	
Owns the land where structure is located	0.86	0.87	0.85	0.05	1,205
	(0.34)	(0.34)	(0.35)	[0.07]	
Pays rent/lease on land	0.09	0.08	0.10	-0.08	1,205
	(0.29)	(0.27)	(0.30)	[0.08]	
No rent with consent of owner	0.03	0.03	0.03	0.05	1,205

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
	(0.17)	(0.18)	(0.16)	[0.06]	
No rent, squatting on the land	0.02	0.01	0.02	-0.03	1,205
	(0.13)	(0.12)	(0.13)	[0.08]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-5.3-8. Main Material Household Floor

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Natural floor	0.73	0.77	0.69	0.19**	1,205
	(0.44)	(0.42)	(0.46)	[0.09]	
Finished Floor	0.27	0.23	0.31	-0.20**	1,205
	(0.44)	(0.42)	(0.46)	[0.09]	
Earth/sand	0.51	0.54	0.49	0.09	1,205
	(0.50)	(0.50)	(0.50)	[0.09]	
Dung	0.21	0.23	0.19	0.10	1,205
	(0.41)	(0.42)	(0.40)	[0.09]	
Vinyl or asphalt strips	0.00	0.00	0.00	0.06	1,205
	(0.03)	(0.04)	(0.00)	[0.06]	
Ceramic tiles	0.01	0.00	0.01	-0.04	1,205
	(0.08)	(0.07)	(0.09)	[0.06]	
Cement	0.26	0.22	0.30	-0.20**	1,205
	(0.44)	(0.41)	(0.46)	[0.09]	
Carpet	0.00	0.00	0.00	-0.00	1,205
	(0.06)	(0.06)	(0.06)	[0.06]	
Other	0.00	0.00	0.00	0.08	1,205
	(0.04)	(0.06)	(0.00)	[0.06]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-5.3-9. Main Material Household Roof

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Natural roofing	0.41	0.45	0.37	0.18***	1,205
	(0.49)	(0.50)	(0.48)	[0.07]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Finished roofing	0.59	0.55	0.63	-0.18***	1,205
	(0.49)	(0.50)	(0.48)	[0.07]	
Thatch/grass/makuti roofing	0.41	0.45	0.37	0.18***	1,205
	(0.49)	(0.50)	(0.48)	[0.07]	
Iron sheets/metal roofing	0.58	0.55	0.61	-0.14**	1,205
	(0.49)	(0.50)	(0.49)	[0.07]	
Cement roofing	0.00	0.00	0.00	-0.03	1,205
	(0.05)	(0.04)	(0.06)	[0.06]	
Asbestos sheet	0.01	0.00	0.02	-0.18*	1,205
	(0.09)	(0.00)	(0.13)	[0.10]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-5.3-10. Main Material Household Wall

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Natural wall	0.36	0.40	0.32	0.17**	1,205
	(0.48)	(0.49)	(0.47)	[0.08]	
Rudimentary wall	0.15	0.15	0.14	0.03	1,205
	(0.35)	(0.36)	(0.35)	[0.08]	
Finished wall	0.45	0.41	0.49	-0.17*	1,205
	(0.50)	(0.49)	(0.50)	[0.09]	
Dirt	0.36	0.40	0.32	0.17**	1,205
	(0.48)	(0.49)	(0.47)	[0.08]	
Bamboo with mud	0.12	0.12	0.11	0.02	1,205
	(0.32)	(0.33)	(0.32)	[0.08]	
Stone with mud	0.00	0.00	0.01	-0.09	1,205
	(0.07)	(0.04)	(0.09)	[0.06]	
Uncovered adobe	0.02	0.02	0.02	0.05	1,205
	(0.15)	(0.16)	(0.13)	[0.06]	
Plywood	0.00	0.00	0.00	0.06	1,205
	(0.03)	(0.04)	(0.00)	[0.06]	
Iron sheets	0.00	0.00	0.00	0.06	1,205
	(0.03)	(0.04)	(0.00)	[0.06]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Cement	0.14	0.12	0.15	-0.07	1,205
	(0.34)	(0.33)	(0.36)	[0.08]	
Stone with lime/cement	0.01	0.00	0.02	-0.18**	1,205
	(0.09)	(0.00)	(0.13)	[0.08]	
Bricks	0.19	0.17	0.21	-0.10	1,205
	(0.40)	(0.38)	(0.41)	[0.08]	
Cement blocks	0.00	0.01	0.00	0.12*	1,205
	(0.06)	(0.08)	(0.00)	[0.07]	
Covered adobe	0.11	0.10	0.11	-0.01	1,205
	(0.31)	(0.31)	(0.31)	[0.07]	
Wood planks/shingles	0.00	0.00	0.00	-0.08	1,205
	(0.04)	(0.00)	(0.06)	[0.08]	
Other wall	0.05	0.04	0.05	-0.04	1,205
	(0.21)	(0.20)	(0.22)	[0.06]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-5.4-1. Household Asset Ownership

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Agricultural land (pieces/plots)	0.89	0.92	0.87	0.16**	1,205
	(0.31)	(0.28)	(0.34)	[0.07]	
Large livestock (oxen, cattle)	0.17	0.18	0.16	0.06	1,205
	(0.38)	(0.39)	(0.37)	[0.07]	
Small livestock (goats, pigs, sheep)	0.55	0.57	0.52	0.10	1,205
	(0.50)	(0.50)	(0.50)	[0.06]	
Chickens, Ducks, Turkeys, Pigeons	0.68	0.72	0.63	0.19**	1,205
	(0.47)	(0.45)	(0.48)	[0.08]	
Fish pond or fishing equipment	0.02	0.03	0.00	0.22***	1,205
	(0.13)	(0.17)	(0.06)	[0.07]	
Farm equipment (nonmechanized: hand tools, animal-drawn plough)	0.51	0.49	0.54	-0.10	1,205
	(0.50)	(0.50)	(0.50)	[0.08]	
Farm equipment (mechanized: tractor-plough, power tiller, treadle pump)	0.01	0.01	0.01	0.07	1,205
	(0.10)	(0.11)	(0.08)	[0.06]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Nonfarm business equipment	0.28	0.25	0.31	-0.15**	1,205
	(0.45)	(0.43)	(0.46)	[0.07]	
House or other structures	0.50	0.50	0.50	0.01	1,205
	(0.50)	(0.50)	(0.50)	[0.08]	
Large consumer durables (refrigerator, TV, sofa)	0.14	0.13	0.15	-0.08	1,205
	(0.35)	(0.33)	(0.36)	[0.08]	
Small consumer durables (radio, cookware)	0.47	0.47	0.47	0.00	1,205
	(0.50)	(0.50)	(0.50)	[0.06]	
Cell phone	0.88	0.85	0.90	-0.16**	1,205
	(0.33)	(0.36)	(0.30)	[0.07]	
Other land not used for agricultural purposes	0.11	0.12	0.10	0.07	1,205
	(0.31)	(0.32)	(0.30)	[0.07]	
Means of transportation (bicycle, motorcycle, car)	0.31	0.30	0.33	-0.06	1,205
	(0.46)	(0.46)	(0.47)	[0.07]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-6.1-1. Agricultural Production

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
HH produced at least 1 crop	0.95	0.96	0.94	0.09	1,205
	(0.23)	(0.21)	(0.25)	[0.06]	
Number of crops produced	2.87	2.94	2.80	0.10	1,139
	(1.49)	(1.51)	(1.47)	[0.08]	
Maize	0.75	0.80	0.71	0.21**	1,139
	(0.43)	(0.40)	(0.46)	[0.10]	
Sorghum	0.30	0.32	0.27	0.12	1,139
	(0.46)	(0.47)	(0.45)	[0.08]	
Millet	0.15	0.19	0.12	0.18**	1,139
	(0.36)	(0.39)	(0.33)	[0.08]	
Regular beans	0.33	0.35	0.31	0.08	1,139
	(0.47)	(0.48)	(0.46)	[0.07]	
Iron rich beans	0.27	0.24	0.29	-0.12*	1,139

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
	(0.44)	(0.43)	(0.46)	[0.07]	
Cowpeas	0.04	0.01	0.08	-0.30***	1,139
	(0.21)	(0.12)	(0.27)	[0.09]	
Rice	0.03	0.03	0.03	0.01	1,139
	(0.17)	(0.17)	(0.16)	[0.08]	
Green grams	0.01	0.02	0.01	0.06	1,139
	(0.12)	(0.13)	(0.10)	[0.06]	
Pigeon peas	0.01	0.02	0.01	0.15**	1,139
	(0.12)	(0.15)	(0.07)	[0.06]	
Irish potatoes	0.12	0.13	0.10	0.07	1,139
	(0.32)	(0.33)	(0.31)	[0.08]	
Tomatoes	0.03	0.03	0.02	0.02	1,139
	(0.16)	(0.16)	(0.16)	[0.06]	
Cabbages	0.03	0.02	0.04	-0.10	1,139
	(0.16)	(0.14)	(0.19)	[0.07]	
Dark green leafy vegetables	0.14	0.12	0.15	-0.07	1,139
	(0.34)	(0.33)	(0.36)	[0.09]	
OFSP	0.10	0.11	0.09	0.06	1,139
	(0.30)	(0.31)	(0.29)	[0.07]	
Orange maize	0.00	0.00	0.01	-0.06	1,139
	(0.06)	(0.04)	(0.07)	[0.06]	
Cassava	0.25	0.21	0.29	-0.19**	1,139
	(0.43)	(0.41)	(0.45)	[0.08]	
Groundnuts	0.17	0.16	0.18	-0.07	1,139
	(0.38)	(0.36)	(0.39)	[0.08]	
Other	0.28	0.32	0.25	0.16**	1,139
	(0.45)	(0.47)	(0.43)	[0.07]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-6.2-1. Household Food Insecurity Assessment

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
HFIAS Score	9.05	9.62	8.48	0.19**	1,205
	(5.96)	(6.06)	(5.81)	[0.07]	
Worried not enough food	0.69	0.71	0.66	0.10	1,205
	(0.46)	(0.46)	(0.47)	[0.06]	
Not able to eat preferred foods	0.80	0.83	0.77	0.13*	1,205
	(0.40)	(0.38)	(0.42)	[0.07]	
Eat limited variety of foods	0.74	0.74	0.73	0.03	1,205
	(0.44)	(0.44)	(0.44)	[0.06]	
Eat food they did not want	0.77	0.79	0.76	0.06	1,205
	(0.42)	(0.41)	(0.43)	[0.06]	
Eat smaller meals than needed	0.56	0.58	0.54	0.09	1,205
	(0.50)	(0.49)	(0.50)	[0.06]	
Eat fewer meals	0.54	0.57	0.50	0.15**	1,205
	(0.50)	(0.49)	(0.50)	[0.06]	
No food to eat of any kind	0.41	0.43	0.38	0.10	1,205
	(0.49)	(0.50)	(0.49)	[0.07]	
Went to sleep hungry	0.24	0.25	0.24	0.04	1,205
	(0.43)	(0.44)	(0.42)	[0.06]	
Whole day and night without eating	0.14	0.16	0.13	0.07	1,205
	(0.35)	(0.36)	(0.34)	[0.06]	
Food access anxiety and uncertainty	0.69	0.71	0.66	0.10	1,205
	(0.46)	(0.46)	(0.47)	[0.06]	
Insufficient food quality	0.84	0.86	0.83	0.06	1,205
	(0.36)	(0.35)	(0.37)	[0.07]	
Insufficient food intake	0.68	0.71	0.66	0.10	1,205
	(0.46)	(0.46)	(0.47)	[0.07]	
Food secure	0.14	0.13	0.15	-0.05	1,205
	(0.34)	(0.34)	(0.35)	[0.07]	
Mildly food insecure	0.06	0.05	0.07	-0.10*	1,205
	(0.23)	(0.21)	(0.25)	[0.06]	
Moderately food insecure	0.31	0.31	0.32	-0.02	1,205
	(0.46)	(0.46)	(0.47)	[0.06]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Severely food insecure	0.49	0.51	0.47	0.10	1,205
	(0.50)	(0.50)	(0.50)	[0.07]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-6.3-1. Shocks Experienced by Household in Last 12 Months

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
HH Affected by at least 1 shock	0.88	0.92	0.84	0.24***	1,205
	(0.32)	(0.27)	(0.36)	[0.07]	
Number of shocks faced	2.20	2.25	2.14	0.06	1,061
	(1.96)	(2.14)	(1.75)	[0.09]	
Drought	0.36	0.32	0.39	-0.14**	1,061
	(0.48)	(0.47)	(0.49)	[0.07]	
Irregular rains	0.40	0.38	0.43	-0.09	1,061
	(0.49)	(0.49)	(0.49)	[0.07]	
Floods	0.09	0.13	0.04	0.30***	1,061
	(0.28)	(0.34)	(0.19)	[0.08]	
Landslides	0.00	0.00	0.00	-0.09	1,061
	(0.04)	(0.00)	(0.06)	[0.06]	
Erosions	0.05	0.07	0.03	0.18**	1,061
	(0.23)	(0.26)	(0.18)	[0.08]	
Crop pests or disease	0.26	0.28	0.25	0.06	1,061
	(0.44)	(0.45)	(0.43)	[0.09]	
Livestock pests or disease	0.09	0.10	0.08	0.08	1,061
	(0.29)	(0.31)	(0.27)	[0.08]	
High cost of agricultural inputs	0.10	0.12	0.08	0.11	1,061
	(0.30)	(0.32)	(0.28)	[0.08]	
Low prices for agricultural output	0.12	0.12	0.12	0.01	1,061
	(0.33)	(0.33)	(0.33)	[0.08]	
Earnings reduction of those employed	0.02	0.01	0.02	-0.06	1,061
	(0.14)	(0.12)	(0.15)	[0.07]	
Accidental illness - income earner	0.16	0.16	0.16	-0.01	1,061
	(0.36)	(0.36)	(0.37)	[0.08]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Accidental illness - HH member	0.19	0.19	0.20	-0.01	1,061
	(0.40)	(0.39)	(0.40)	[0.09]	
Death - income earner	0.02	0.02	0.01	0.02	1,061
	(0.12)	(0.13)	(0.12)	[0.06]	
Death - HH member	0.03	0.03	0.04	-0.07	1,061
	(0.18)	(0.17)	(0.20)	[0.07]	
Theft non-agricultural assets	0.02	0.02	0.02	0.03	1,061
	(0.13)	(0.14)	(0.12)	[0.06]	
Theft agricultural assets	0.09	0.09	0.09	-0.03	1,061
	(0.29)	(0.28)	(0.29)	[0.08]	
Conflict/violence	0.03	0.03	0.02	0.10*	1,061
	(0.16)	(0.18)	(0.13)	[0.06]	
Fire	0.01	0.01	0.00	0.10*	1,061
	(0.09)	(0.11)	(0.06)	[0.06]	
Other	0.15	0.17	0.14	0.09	1,061
	(0.36)	(0.37)	(0.35)	[0.07]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-6.3-2. Shock Coping Mechanisms

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
None	0.72	0.75	0.68	0.12	1,061
	(0.45)	(0.44)	(0.47)	[0.08]	
Support from relatives/fiends	0.27	0.22	0.32	-0.22***	1,061
	(0.44)	(0.41)	(0.47)	[0.08]	
Support from local government	0.11	0.12	0.10	0.07	1,061
	(0.31)	(0.32)	(0.30)	[0.09]	
Changed diet	0.08	0.07	0.09	-0.09	1,061
	(0.27)	(0.25)	(0.29)	[0.07]	
Changed crop choices	0.25	0.25	0.25	-0.00	1,061
	(0.43)	(0.43)	(0.43)	[0.08]	
Took non-farm work	0.07	0.06	0.08	-0.09	1,061
	(0.25)	(0.23)	(0.27)	[0.08]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Took farm work	0.06	0.06	0.05	0.07	1,061
	(0.23)	(0.24)	(0.21)	[0.07]	
Migration of HH members	0.01	0.02	0.00	0.12	1,061
	(0.10)	(0.13)	(0.06)	[0.08]	
Relied on savings	0.32	0.31	0.34	-0.05	1,061
	(0.47)	(0.46)	(0.47)	[0.07]	
Obtained credit	0.31	0.28	0.33	-0.09	1,061
	(0.46)	(0.45)	(0.47)	[0.07]	
Sold durable household assets	0.06	0.08	0.05	0.13*	1,061
	(0.24)	(0.26)	(0.21)	[0.07]	
Sold land/building	0.01	0.01	0.01	0.05	1,061
	(0.10)	(0.11)	(0.09)	[0.06]	
Rented out land/building	0.01	0.02	0.00	0.13*	1,061
	(0.11)	(0.13)	(0.06)	[0.08]	
Sold animal stock	0.01	0.01	0.01	-0.03	1,061
	(0.10)	(0.09)	(0.11)	[0.06]	
Sent children to live elsewhere	0.02	0.02	0.01	0.09	1,061
	(0.12)	(0.14)	(0.10)	[0.05]	
Reduced health/education expenses	0.01	0.02	0.01	0.10	1,061
	(0.11)	(0.13)	(0.08)	[0.07]	
Other	0.12	0.11	0.13	-0.07	1,061
	(0.32)	(0.31)	(0.33)	[0.07]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-6.4-1. Access to Social Programmes

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
HH has access to agricultural, health, or income programmes	0.25	0.24	0.26	-0.04	1,205
	(0.43)	(0.43)	(0.44)	[0.07]	
Cash	0.26	0.22	0.31	-0.19	341
	(0.44)	(0.42)	(0.46)	[0.14]	
Food assistance	0.14	0.13	0.15	-0.13	341
	(0.35)	(0.33)	(0.36)	[0.14]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Public works	0.07	0.10	0.04	0.25*	341
	(0.25)	(0.30)	(0.19)	[0.13]	
Farmer support programmes	0.17	0.22	0.12	0.23*	341
	(0.38)	(0.41)	(0.33)	[0.12]	
Other income generation programme	0.13	0.12	0.14	-0.05	341
	(0.34)	(0.32)	(0.35)	[0.14]	
Health programme	0.39	0.38	0.39	0.04	341
	(0.49)	(0.49)	(0.49)	[0.12]	
WASH programmes	0.22	0.21	0.23	-0.04	341
	(0.41)	(0.41)	(0.42)	[0.13]	
Social Welfare / psychosocial support	0.03	0.03	0.02	0.11	341
	(0.16)	(0.18)	(0.13)	[0.12]	
Education	0.08	0.11	0.04	0.29**	341
	(0.27)	(0.31)	(0.20)	[0.14]	
Youth services	0.01	0.01	0.01	-0.09	341
	(0.09)	(0.08)	(0.11)	[0.10]	
Other	0.03	0.02	0.04	-0.11	341
	(0.16)	(0.13)	(0.19)	[0.11]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-6.4-2. Nutrition Services in Community

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Availability of nutrition information/advice in community	0.20	0.25	0.15	0.26***	1,205
	(0.40)	(0.43)	(0.35)	[0.07]	
Household has received information/advice on nutrition (last 12 M)	0.13	0.18	0.09	0.24***	1,205
	(0.34)	(0.38)	(0.29)	[0.07]	
Availability of nutrition services in community	0.09	0.09	0.10	-0.03	1,205
	(0.29)	(0.29)	(0.30)	[0.07]	
Household has received nutrition services (last 12 M)	0.06	0.07	0.06	0.05	1,205
	(0.24)	(0.25)	(0.23)	[0.08]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p < 0.1; ** p < 0.05; *** p < 0.01.

Table D-7.1-1a. Knowledge of Nutritious Diets: What are some food groups that should be included as part of your daily diet?

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Food to include in daily diet: Vegetables	0.87	0.87	0.87	-0.00	1,205
	(0.34)	(0.34)	(0.34)	[0.07]	
Food to include in daily diet: Fruits	0.61	0.62	0.60	0.03	1,205
	(0.49)	(0.49)	(0.49)	[0.07]	
Food to include in daily diet: Legumes such as lentils and beans	0.63	0.61	0.64	-0.06	1,205
	(0.48)	(0.49)	(0.48)	[0.07]	
Food to include in daily diet: Nuts and seeds	0.27	0.27	0.27	-0.00	1,205
	(0.45)	(0.45)	(0.45)	[0.07]	
Food to include in daily diet: Whole grains	0.36	0.38	0.34	0.08	1,205
	(0.48)	(0.49)	(0.47)	[0.06]	
Food to include in daily diet: Other, specify	0.11	0.11	0.10	0.03	1,205
	(0.31)	(0.31)	(0.30)	[0.06]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.1-1b. Knowledge of Nutritious Diets: Why is it important to consume fruits and vegetables?

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Importance of consuming fruit and vegetables: Source of vitamins	0.71	0.73	0.70	0.07	1,205
	(0.45)	(0.44)	(0.46)	[0.06]	
Importance of consuming fruit and vegetables: Source of minerals	0.39	0.36	0.41	-0.11	1,205
	(0.49)	(0.48)	(0.49)	[0.08]	
Importance of consuming fruit and vegetables: Source of fiber	0.17	0.15	0.19	-0.12*	1,205
	(0.37)	(0.35)	(0.39)	[0.07]	
Importance of consuming fruit and vegetables: Protect against diseases	0.68	0.69	0.67	0.04	1,205
	(0.47)	(0.46)	(0.47)	[0.07]	
	0.31	0.29	0.33	-0.09	1,205

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Importance of consuming fruit and vegetables: Improve digestion	(0.46)	(0.45)	(0.47)	[0.07]	
Importance of consuming fruit and vegetables: Other, specify	0.11	0.12	0.11	0.01	1,205
	(0.32)	(0.32)	(0.31)	[0.06]	
Importance of consuming fruit and vegetables: Does not know	0.02	0.02	0.01	0.04	1,205
	(0.12)	(0.13)	(0.11)	[0.05]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.1-2. Normative Maternal Feeding Practices: How should a pregnant or breastfeeding woman eat in comparison with a woman who is not pregnant or breastfeeding?

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Pregnant/breastfeeding women should: Eat more at each meal (eat more food daily)	0.52	0.54	0.49	0.10	1,205
	(0.50)	(0.50)	(0.50)	[0.07]	
Pregnant/breastfeeding women should: Eat more frequently (eat more times daily)	0.67	0.67	0.66	0.03	1,205
	(0.47)	(0.47)	(0.47)	[0.07]	
Pregnant/breastfeeding women should: Eat more protein-rich foods	0.76	0.74	0.78	-0.09	1,205
	(0.43)	(0.44)	(0.42)	[0.08]	
Pregnant/breastfeeding women should: Eat more iron-rich foods	0.67	0.64	0.71	-0.16**	1,205
	(0.47)	(0.48)	(0.45)	[0.07]	
Pregnant/breastfeeding women should: Use iodized salt when preparing meals	0.34	0.33	0.35	-0.04	1,205
	(0.47)	(0.47)	(0.48)	[0.07]	
Pregnant/breastfeeding women should: Other, specify	0.12	0.11	0.12	-0.03	1,205
	(0.32)	(0.31)	(0.32)	[0.06]	
Pregnant/breastfeeding women should: Don't know	0.00	0.00	0.00	0.03	1,205
	(0.05)	(0.06)	(0.04)	[0.06]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.1-3. Perceived Benefits of Target Foods

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Perceives benefit in consuming high iron beans	0.83	0.81	0.85	-0.10	1,205
	(0.37)	(0.39)	(0.36)	[0.07]	
Cited at least one benefit of high iron beans, excludes other	0.81	0.79	0.84	-0.11	1,198
	(0.39)	(0.41)	(0.37)	[0.07]	
Perceives benefit in consuming green leafy vegetables	0.96	0.95	0.97	-0.11*	1,205
	(0.20)	(0.22)	(0.17)	[0.07]	
Cited at least one benefit of green leafy vegetables, excludes other	0.94	0.93	0.95	-0.07	1,202
	(0.23)	(0.25)	(0.22)	[0.06]	
Perceives benefit in consuming vitamin A-rich orange vegetables	0.66	0.69	0.63	0.13*	1,205
	(0.47)	(0.46)	(0.48)	[0.08]	
Cited at least one benefit of vitamin A-rich orange vegetables	0.64	0.67	0.60	0.16**	1,203
	(0.48)	(0.47)	(0.49)	[0.08]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.1-4. Cited Benefits of Target Foods

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Benefits high-iron beans consumption: Help in making hemoglobin	0.39	0.41	0.38	0.05	1,003
	(0.49)	(0.49)	(0.49)	[0.07]	
Benefits high-iron beans consumption: Help having oxygen in the blood	0.14	0.12	0.17	-0.14*	1,003
	(0.35)	(0.32)	(0.38)	[0.07]	
Benefits high-iron beans consumption: Help prevent anemia	0.19	0.18	0.20	-0.05	1,003
	(0.39)	(0.38)	(0.40)	[0.07]	
Benefits high-iron beans consumption: Help the brain function well	0.08	0.07	0.09	-0.04	1,003
	(0.27)	(0.26)	(0.28)	[0.06]	
Benefits high-iron beans consumption: Help muscles function well	0.36	0.37	0.34	0.09	1,003
	(0.48)	(0.48)	(0.47)	[0.07]	
Benefits high-iron beans consumption: Help support a strong immune system	0.61	0.63	0.59	0.08	1,003
	(0.49)	(0.48)	(0.49)	[0.07]	
Benefits high-iron beans consumption: Help replace iron lost during menstruation	0.08	0.07	0.09	-0.03	1,003
	(0.27)	(0.26)	(0.28)	[0.07]	
	0.19	0.18	0.20	-0.06	1,003

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Benefits high-iron beans consumption: Help men build muscle mass	(0.39)	(0.38)	(0.40)	[0.08]	
Benefits high-iron beans consumption: Other, specify	0.15	0.16	0.15	0.01	1,003
	(0.36)	(0.36)	(0.36)	[0.07]	
Benefits green leafy vegetable consumption: Help maintain good digestive health	0.28	0.27	0.28	-0.03	1,156
	(0.45)	(0.44)	(0.45)	[0.08]	
Benefits green leafy vegetable consumption: Help maintain healthy vision and skin	0.44	0.46	0.42	0.08	1,156
	(0.50)	(0.50)	(0.49)	[0.07]	
Benefits green leafy vegetable consumption: Aid in producing hemoglobin	0.38	0.41	0.36	0.08	1,156
	(0.49)	(0.49)	(0.48)	[0.06]	
Benefits green leafy vegetable consumption: Support a strong immune system	0.66	0.69	0.63	0.11	1,156
	(0.47)	(0.46)	(0.48)	[0.07]	
Benefits green leafy vegetable consumption: Can assist in fetal development during pregnancy	0.09	0.08	0.10	-0.07	1,156
	(0.28)	(0.27)	(0.30)	[0.07]	
Benefits green leafy vegetable consumption: Can contribute to heart health	0.12	0.12	0.12	0.00	1,156
	(0.33)	(0.33)	(0.33)	[0.07]	
Benefits green leafy vegetable consumption: Contain important nutrients	0.41	0.41	0.42	-0.01	1,156
	(0.49)	(0.49)	(0.49)	[0.08]	
Benefits green leafy vegetable consumption: Other, specify	0.10	0.10	0.10	-0.02	1,156
	(0.30)	(0.30)	(0.30)	[0.07]	
Benefits vitamin A-rich orange vegetable consumption: Prevents disease	0.48	0.46	0.50	-0.07	793
	(0.50)	(0.50)	(0.50)	[0.08]	
Benefits vitamin A-rich orange vegetable consumption: Protects the eyes	0.54	0.55	0.54	0.02	793
	(0.50)	(0.50)	(0.50)	[0.08]	
Benefits vitamin A-rich orange vegetable consumption: Prevents visual impairments	0.26	0.26	0.25	0.03	793
	(0.44)	(0.44)	(0.43)	[0.08]	
Benefits vitamin A-rich orange vegetable consumption: Promotes child growth and development	0.31	0.34	0.27	0.17**	793
	(0.46)	(0.47)	(0.44)	[0.06]	
Benefits vitamin A-rich orange vegetable consumption: Reduces the risk of child illness	0.20	0.19	0.20	-0.02	793
	(0.40)	(0.40)	(0.40)	[0.09]	
Benefits vitamin A-rich orange vegetable consumption: Combats infections	0.26	0.27	0.25	0.03	793
	(0.44)	(0.44)	(0.43)	[0.09]	
Benefits vitamin A-rich orange vegetable consumption: Promotes healthy bones	0.29	0.30	0.29	0.02	793
	(0.46)	(0.46)	(0.45)	[0.07]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Benefits vitamin A-rich orange vegetable consumption: Promotes healthy reproductive system	0.10	0.10	0.11	-0.05	793
	(0.30)	(0.30)	(0.32)	[0.09]	
Benefits vitamin A-rich orange vegetable consumption: Promotes normal growth during pregnancy	0.06	0.04	0.09	-0.17**	793
	(0.25)	(0.20)	(0.28)	[0.08]	
Benefits vitamin A-rich orange vegetable consumption: Other, specify	0.09	0.06	0.12	-0.20***	793
	(0.28)	(0.24)	(0.32)	[0.07]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.1-5. Food and Beverages to Avoid or Include with Target Foods to Enhance Iron Uptake

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Should avoid with high-iron beans: No response/Do not know	0.75	0.77	0.72	0.13*	1,205
	(0.43)	(0.42)	(0.45)	[0.06]	
Should avoid with high-iron beans: Tea	0.07	0.06	0.08	-0.05	1,205
	(0.26)	(0.25)	(0.27)	[0.06]	
Should avoid with high-iron beans: Coffee	0.05	0.05	0.05	-0.02	1,205
	(0.22)	(0.21)	(0.22)	[0.06]	
Should avoid with high-iron beans: Dairy	0.06	0.05	0.07	-0.08	1,205
	(0.23)	(0.21)	(0.25)	[0.06]	
Should avoid with high-iron beans: Green leafy vegetables	0.04	0.03	0.05	-0.12*	1,205
	(0.19)	(0.16)	(0.22)	[0.07]	
Should avoid with high-iron beans: Beans	0.02	0.03	0.02	0.08	1,205
	(0.15)	(0.17)	(0.13)	[0.05]	
Should avoid with high-iron beans: Lentils	0.01	0.01	0.01	0.01	1,205
	(0.11)	(0.11)	(0.11)	[0.05]	
Should avoid with high-iron beans: Other food	0.11	0.10	0.12	-0.08	1,205
	(0.31)	(0.30)	(0.32)	[0.06]	
Should include with high-iron beans to enhance iron uptake: No response/Do not know	0.63	0.65	0.61	0.08	1,205
	(0.48)	(0.48)	(0.49)	[0.07]	
Should include with high-iron beans to enhance iron uptake: Tomatoes	0.20	0.19	0.21	-0.07	1,205
	(0.40)	(0.39)	(0.41)	[0.06]	
	0.05	0.04	0.05	-0.02	1,205

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Should include with high-iron beans to enhance iron uptake: Bell peppers	(0.21)	(0.20)	(0.21)	[0.06]	
Should include with high-iron beans to enhance iron uptake: Citrus	0.03	0.02	0.04	-0.13**	1,205
	(0.17)	(0.13)	(0.20)	[0.06]	
Should include with high-iron beans to enhance iron uptake: Strawberries	0.02	0.02	0.02	0.01	1,205
	(0.14)	(0.14)	(0.13)	[0.07]	
Should include with high-iron beans to enhance iron uptake: Irish potatoes	0.07	0.07	0.07	-0.02	1,205
	(0.25)	(0.25)	(0.26)	[0.06]	
Should include with high-iron beans to enhance iron uptake: Other food	0.25	0.24	0.26	-0.05	1,205
	(0.43)	(0.43)	(0.44)	[0.08]	
Should include with green leafy vegetables to enhance iron uptake: No response/do not know	0.16	0.17	0.16	0.03	1,205
	(0.37)	(0.37)	(0.36)	[0.06]	
Should include with green leafy vegetables to enhance iron uptake: Tomatoes	0.54	0.56	0.52	0.08	1,205
	(0.50)	(0.50)	(0.50)	[0.07]	
Should include with green leafy vegetables to enhance iron uptake: Bell peppers	0.10	0.07	0.13	-0.18**	1,205
	(0.30)	(0.26)	(0.34)	[0.08]	
Should include with green leafy vegetables to enhance iron uptake: Citrus	0.07	0.06	0.08	-0.08	1,205
	(0.26)	(0.24)	(0.28)	[0.06]	
Should include with green leafy vegetables to enhance iron uptake: Strawberries	0.06	0.05	0.07	-0.09	1,205
	(0.23)	(0.21)	(0.25)	[0.07]	
Should include with green leafy vegetables to enhance iron uptake: Irish potatoes	0.16	0.17	0.14	0.09	1,205
	(0.36)	(0.38)	(0.35)	[0.07]	
Should include with green leafy vegetables to enhance iron uptake: Other food	0.44	0.45	0.43	0.03	1,205
	(0.50)	(0.50)	(0.50)	[0.07]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.1-6. Perceived Benefits of Vitamin A for Child Health

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Benefit of Vitamin A for mothers and children: Improved vision	0.80	0.81	0.79	0.04	793
	(0.40)	(0.39)	(0.41)	[0.09]	
Benefit of Vitamin A for mothers and children: Stronger bones	0.64	0.67	0.62	0.08	793
	(0.48)	(0.47)	(0.49)	[0.08]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Benefit of Vitamin A for mothers and children: Better digestion	0.37	0.34	0.40	-0.13	793
	(0.48)	(0.47)	(0.49)	[0.09]	
Benefit of Vitamin A for mothers and children: Increased muscle mass	0.32	0.35	0.28	0.17**	793
	(0.47)	(0.48)	(0.45)	[0.09]	
How vitamin A contributes to child health: Helps in the formation of healthy teeth	0.25	0.24	0.26	-0.04	1,205
	(0.43)	(0.43)	(0.44)	[0.07]	
How vitamin A contributes to child health: Boosts the immune system	0.81	0.82	0.80	0.05	1,205
	(0.39)	(0.38)	(0.40)	[0.06]	
How vitamin A contributes to child health: Regulates blood pressure	0.18	0.16	0.20	-0.10	1,205
	(0.39)	(0.37)	(0.40)	[0.07]	
How vitamin A contributes to child health: Promotes hair growth	0.17	0.17	0.16	0.03	1,205
	(0.37)	(0.38)	(0.37)	[0.07]	
How vitamin A contributes to child health: Other	0.09	0.09	0.10	-0.04	1,205
	(0.29)	(0.28)	(0.30)	[0.07]	
How vitamin A contributes to child health: Refused	0.00	0.01	0.00	0.09*	1,205
	(0.07)	(0.09)	(0.04)	[0.05]	
How vitamin A contributes to child health: Don't know	0.09	0.08	0.09	-0.01	1,205
	(0.28)	(0.28)	(0.28)	[0.07]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.2-1. MDD-W Food Group Consumption in the Previous Day, by Treatment Status

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
DQQ Indicator 1.1: Dietary diversity score (dds) (0-10)	4.69	4.77	4.61	0.08	1,205
	(1.96)	(1.94)	(1.97)	[0.07]	
DQQ Indicator 1.2: Minimum Dietary Diversity for WRA (MDD-W) (DDS >= 5)	0.50	0.52	0.48	0.07	1,205
	(0.50)	(0.50)	(0.50)	[0.06]	
MDD-W Food group 1: Grains, white roots and tubers, and plantains	0.98	0.99	0.97	0.11*	1,205
	(0.14)	(0.11)	(0.16)	[0.06]	
MDD-W Food group 2: Pulses (beans, peas and lentils)	0.63	0.64	0.62	0.03	1,205
	(0.48)	(0.48)	(0.48)	[0.06]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
MDD-W Food group 3: Nuts and seeds	0.31	0.33	0.30	0.05	1,205
	(0.46)	(0.47)	(0.46)	[0.06]	
MDD-W Food group 4: Dairy	0.25	0.27	0.23	0.09	1,205
	(0.43)	(0.44)	(0.42)	[0.08]	
MDD-W Food group 5: Meat, poultry, and fish	0.31	0.31	0.32	-0.02	1,205
	(0.46)	(0.46)	(0.47)	[0.07]	
MDD-W Food group 6: Eggs	0.09	0.09	0.08	0.02	1,205
	(0.28)	(0.29)	(0.28)	[0.07]	
MDD-W Food group 7: Dark green leafy vegetables	0.65	0.68	0.63	0.11	1,205
	(0.48)	(0.47)	(0.48)	[0.07]	
MDD-W Food group 8: Other vitamin A-rich fruits and vegetables	0.50	0.49	0.50	-0.01	1,205
	(0.50)	(0.50)	(0.50)	[0.06]	
MDD-W Food group 9: Other vegetables	0.63	0.64	0.61	0.06	1,205
	(0.48)	(0.48)	(0.49)	[0.09]	
MDD-W Food group 10: Other fruits	0.34	0.34	0.34	0.00	1,205
	(0.47)	(0.47)	(0.47)	[0.06]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.2-3. Post-Natal Breastfeeding Practices for Reference Children, by Treatment Status

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Ever breastfed (EvBF)	0.92	0.91	0.94	-0.13	236
	(0.27)	(0.29)	(0.23)	[0.15]	
Early initiation of breastfeeding (EIBF)	0.82	0.80	0.83	-0.08	218
	(0.39)	(0.40)	(0.38)	[0.15]	
Exclusively breastfed for the first two days after birth (EBF2D)	0.85	0.87	0.82	0.08	217
	(0.36)	(0.34)	(0.39)	[0.13]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.2-4. Children 6–23 Months Old MDD Food Group Consumption in the Previous Day, by Treatment Status

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Minimum dietary diversity 6-23 months old	0.38	0.40	0.36	0.22*	236
	(0.49)	(0.49)	(0.48)	[0.12]	
MDD food group 1: Breast milk	0.85	0.84	0.86	-0.09	218
	(0.36)	(0.37)	(0.35)	[0.14]	
MDD food group 2: Grains, roots, tubers and plantains	0.88	0.86	0.90	0.01	236
	(0.33)	(0.35)	(0.31)	[0.12]	
MDD food group 3: Pulses (beans, peas, lentils), nuts and seeds	0.63	0.64	0.62	0.12	236
	(0.48)	(0.48)	(0.49)	[0.13]	
MDD food group 4: Dairy products (milk, infant formula, yogurt, cheese)	0.39	0.37	0.42	0.02	236
	(0.49)	(0.49)	(0.50)	[0.12]	
MDD food group 5: Flesh foods (meat, fish, poultry, organ meats)	0.20	0.22	0.17	0.15	235
	(0.40)	(0.42)	(0.38)	[0.14]	
MDD food group 6: Eggs	0.10	0.11	0.09	0.09	235
	(0.30)	(0.31)	(0.29)	[0.15]	
MDD food group 7: Vitamin-A rich fruits and vegetables	0.69	0.74	0.61	0.28*	235
	(0.47)	(0.44)	(0.49)	[0.14]	
MDD food group 8: Other fruits and vegetables	0.46	0.44	0.47	0.06	235
	(0.50)	(0.50)	(0.50)	[0.14]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.3-1. Target Crop Consumption in the Last 7 Days, by Treatment Status

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
In last 7 days, respondent consumed iron-rich beans	0.68	0.66	0.70	-0.08	1,205
	(0.47)	(0.47)	(0.46)	[0.07]	
In last 7 days, respondent consumed dark green leafy vegetables	0.90	0.91	0.89	0.09	1,205
	(0.30)	(0.28)	(0.32)	[0.08]	
	0.13	0.13	0.13	0.00	1,205

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
In last 7 days, respondent consumed orange-fleshed sweet potato	(0.33)	(0.34)	(0.33)	[0.07]	
In last 7 days, respondent consumed orange maize	0.02	0.02	0.02	0.04	1,205
	(0.14)	(0.15)	(0.13)	[0.06]	
In last 7 days, reference child consumed iron-rich beans	0.68	0.67	0.68	0.08	236
	(0.47)	(0.47)	(0.47)	[0.14]	
In last 7 days, reference child consumed dark green leafy vegetables	0.82	0.82	0.82	0.09	236
	(0.38)	(0.38)	(0.38)	[0.14]	
In last 7 days, reference child consumed orange-fleshed sweet potato	0.09	0.14	0.04	0.34**	236
	(0.29)	(0.35)	(0.19)	[0.15]	
In last 7 days, reference child consumed orange maize	0.01	0.00	0.02	-0.18	236
	(0.09)	(0.00)	(0.14)	[0.12]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.3-2. Target Crop Consumption in the Last Seven Days: Average Days Consumed, by Treatment Status

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Target crop: In last 7 days, # days respondent consumed: Dark green leafy vegetables	3.89	3.92	3.85	0.04	1,083
	(1.91)	(1.91)	(1.90)	[0.08]	
Target crop: In last 7 days, # days respondent consumed: OFSP	2.50	2.83	2.17	0.44**	155
	(1.44)	(1.56)	(1.23)	[0.17]	
Target crop: In last 7 days, # days respondent consumed: Orange maize	2.61	2.54	2.70	-0.57	23
	(1.95)	(1.85)	(2.16)	[0.57]	
Target crop: In last 7 days, # days respondent consumed: Iron-rich beans	3.53	3.58	3.49	0.01	817
	(2.06)	(2.13)	(1.99)	[0.07]	
Target crop: In last 7 days, # days reference child consumed: Dark green leafy vegetables	3.59	3.55	3.65	-0.01	194
	(1.68)	(1.72)	(1.63)	[0.16]	
Target crop: In last 7 days, # days reference child consumed: OFSP	2.55	2.56	2.50	0.06	22
	(1.22)	(1.15)	(1.73)	[0.84]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Target crop: In last 7 days, # days reference child consumed: Iron-rich beans	3.06	3.11	3.00	0.16	160
	(1.85)	(2.07)	(1.55)	[0.13]	

Note. Standardized mean difference (SMD) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SMD presented in square brackets. Observations are clustered at the women's group level. * p<0.1; ** p<0.05; *** p<0.01

Table D-7.4-1. Women's Asset Ownership (Sole or Joint)

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Agricultural Land	0.74	0.77	0.70	0.16**	1,205
	(0.44)	(0.42)	(0.46)	[0.07]	
Large Livestock	0.14	0.15	0.14	0.04	1,205
	(0.35)	(0.36)	(0.34)	[0.07]	
Small Livestock	0.50	0.54	0.47	0.12*	1,205
	(0.50)	(0.50)	(0.50)	[0.07]	
Poultry	0.65	0.70	0.60	0.22***	1,205
	(0.48)	(0.46)	(0.49)	[0.08]	
Fishing Equipment	0.01	0.02	0.00	0.15**	1,205
	(0.11)	(0.14)	(0.06)	[0.07]	
Non-Mechanized Farm Equipment	0.48	0.46	0.50	-0.08	1,205
	(0.50)	(0.50)	(0.50)	[0.08]	
Mechanized Farm Equipment	0.01	0.01	0.01	0.07	1,205
	(0.10)	(0.11)	(0.08)	[0.06]	
Non-Farm Business Equipment	0.24	0.22	0.26	-0.11	1,205
	(0.43)	(0.41)	(0.44)	[0.07]	
House	0.43	0.44	0.43	0.02	1,205
	(0.50)	(0.50)	(0.50)	[0.09]	
Large Consumer Durables	0.13	0.12	0.14	-0.07	1,205
	(0.33)	(0.32)	(0.35)	[0.07]	
Small Consumer Durables	0.42	0.42	0.43	-0.03	1,205
	(0.49)	(0.49)	(0.50)	[0.06]	
Cellphone	0.78	0.77	0.79	-0.04	1,205
	(0.42)	(0.42)	(0.41)	[0.07]	
Non-Agricultural Land	0.09	0.10	0.09	0.04	1,205
	(0.29)	(0.30)	(0.28)	[0.07]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Means of Transportation	0.21	0.21	0.21	-0.00	1,205
	(0.41)	(0.41)	(0.41)	[0.06]	
Categories of Assets Owned by Women	4.84	4.92	4.77	0.07	1,205
	(2.26)	(2.26)	(2.26)	[0.07]	

Note. Standardized mean difference (SM Diff) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SM Diff presented in square brackets. Observations are clustered at the women's group level. * $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table D-7.4-2. Women's Participation and Decision-Making in Productive Activities

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Woman Participates in Food Crop Farming	0.97	0.98	0.97	0.03	1,205
	(0.16)	(0.16)	(0.17)	[0.07]	
Input into Decisions around Food Crop Farming	0.96	0.97	0.95	0.13**	1,172
	(0.20)	(0.16)	(0.22)	[0.05]	
Can Make Personal Decisions Around Food Crop Farming	0.76	0.76	0.75	0.02	1,172
	(0.43)	(0.43)	(0.43)	[0.06]	
Input into Income from Food Crop Farming	0.95	0.95	0.94	0.06	1,172
	(0.23)	(0.21)	(0.24)	[0.06]	
Woman Participates in Cash Crop Farming	0.45	0.50	0.40	0.18***	1,205
	(0.50)	(0.50)	(0.49)	[0.07]	
Input into Decisions around Cash Crop Farming	0.96	0.96	0.95	0.05	542
	(0.21)	(0.20)	(0.22)	[0.08]	
Can Make Personal Decisions Around Cash Crop Farming	0.75	0.75	0.75	-0.01	542
	(0.43)	(0.44)	(0.43)	[0.08]	
Input into Income from Cash Crop Farming	0.95	0.96	0.95	0.05	542
	(0.21)	(0.20)	(0.23)	[0.08]	
Woman Participates in Livestock Raising	0.54	0.54	0.54	0.01	1,205
	(0.50)	(0.50)	(0.50)	[0.07]	
Input into Decisions around Livestock Raising	0.91	0.92	0.90	0.06	650
	(0.28)	(0.27)	(0.30)	[0.08]	
Can Make Personal Decisions Around Livestock Raising	0.68	0.69	0.68	0.04	650
	(0.47)	(0.47)	(0.47)	[0.08]	

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Input into Income from Livestock Raising	0.92	0.92	0.91	0.04	650
	(0.27)	(0.27)	(0.28)	[0.08]	
Woman Participates in Non-farm Economic Activities	0.41	0.39	0.44	-0.10	1,205
	(0.49)	(0.49)	(0.50)	[0.09]	
Input into Decisions around Non-farm Economic Activities	0.98	0.98	0.98	0.02	499
	(0.15)	(0.14)	(0.15)	[0.08]	
Can Make Personal Decisions Around Non-farm Economic Activities	0.83	0.86	0.80	0.14	499
	(0.38)	(0.35)	(0.40)	[0.10]	
Input into Income from Non-farm Economic Activities	0.98	0.99	0.97	0.18	499
	(0.14)	(0.09)	(0.17)	[0.11]	
Woman Participates in Wage Employment	0.21	0.19	0.24	-0.10	1,205
	(0.41)	(0.40)	(0.42)	[0.07]	
Input into Decisions around Wage Employment	0.96	0.97	0.94	0.16	259
	(0.20)	(0.16)	(0.23)	[0.15]	
Can Make Personal Decisions Around Wage Employment	0.81	0.82	0.80	0.04	259
	(0.39)	(0.39)	(0.40)	[0.12]	
Input into Income from Wage Employment	0.94	0.97	0.92	0.15	259
	(0.23)	(0.18)	(0.27)	[0.13]	

Note. Standardized mean difference (SM Diff) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SM Diff presented in square brackets. Observations are clustered at the women's group level. * $p<0.1$; ** $p<0.05$; *** $p<0.01$

Table D-7.4-3. A-WEAI Adequacy Indicators

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
Adequate Input into Productive Decisions	0.96	0.97	0.95	0.07	1,202
	(0.20)	(0.18)	(0.21)	[0.06]	
Adequate Ownership of Assets	0.97	0.98	0.97	0.05	1,205
	(0.16)	(0.15)	(0.17)	[0.06]	
Adequate Access to and Decisions on Credit	0.83	0.84	0.83	0.03	1,205
	(0.37)	(0.37)	(0.38)	[0.08]	
Adequate Control Over Use of Income	0.97	0.98	0.97	0.01	1,205

	Mean (SD)			SM Diff	N
	All	Treat	Comp.		
	(0.16)	(0.16)	(0.16)	[0.06]	

Note. Standardized mean difference (SM Diff) estimated using linear regressions. Standard deviations for means are in parentheses; standard errors of SM Diff presented in square brackets. Observations are clustered at the women's group level. * $p<0.1$; ** $p<0.05$; *** $p<0.01$

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