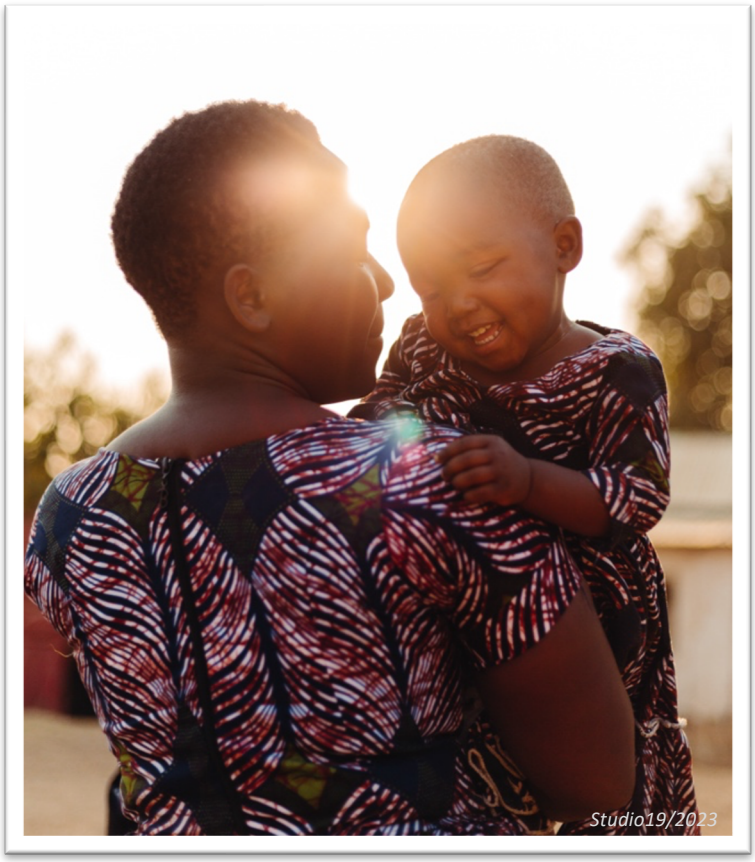
BASELINE REPORT
November 2024

STAWISHA MAISHA ("NOURISHING LIFE")

Impact Evaluation



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ABBREVIATIONS AND ACRONYMS

AFREA African Evaluation Association
ANC Antenatal Care
ANCOVA Analysis of Covariance
ATT Average Treatment on the Treated
BCC Behaviour Change Communication
CMC Community Management Committee
cRCT Cluster Randomized Controlled Trial
CAPI Computer Assisted Personal Interview
CITI Collaborative Institutional Training Initiative
COSTECH Commission for Science and Technology
CSAE Centre for the Study of African Economies
DHS Demographic and Health Survey
ECD Early Childhood Development
ERG Evaluation Reference Group
FGD Focus Group Discussion
GEROS Global Evaluation Reports Oversight System
GIS Geographical Information Systems
HLSC High-level Steering Committee
HR Human Resources
IDI In-Depth-Interviews
IPWRA Inverse Probability Weighted Regression Adjustment
IRF International Research Firm
ISNP Integrated Safety Net Programme
ITT Intent-to-Treat
ICC Intracluster correlation coefficients
LATE Local Average Treatment Effect
LLA Local Listing assistant
LRF Local Research Firm
MDE Minimum Detectable Effect
MICS Multiple Indicator Cluster Surveys
MIYCF Maternal, Infant and Young Child Feeding
MoHSW Ministry of Health and Social Welfare
MUAC Mid-Upper Arm Circumference
MUHAS Muhimbili University of Health and Allied Sciences
NIMR National Institute for Medical Research

NSPP National Social Protection Policy
PAA Project Area Authorities
PI Principal Investigator
PII Personally Identifiable Information
PMT Proxy-Means Test
PO-RALG President's Office Regional Administration and Local Government
PRESTO Policy Research Solutions LLC
PSSN II Productive Social Safety Net II
QA Quality Assurance
SBC Social and Behavior Change
TASAF Tanzania Social Action Fund
TFNC Tanzania Food and Nutrition Centre
ToC Theory of Change
UNICEF United Nations Children's Fund

TABLE OF CONTENTS

LIST OF FIGURES

TABLES

EXECUTIVE SUMMARY

Introduction

Stunting and malnutrition remain significant problems in Tanzania. Despite decreases nationally from 42 percent in 2010 to 34 percent in 2016, and further decreases in 2020, almost one in three (30 percent) children younger than 5 in Tanzania are stunted. Malnutrition in childhood has adverse consequences across the life course, including child mortality, disability, cognitive impairment, chronic disease, and reduced productivity in adulthood. Malnutrition perpetuates poor health and poverty throughout an individual's life and into the next generation.

The Tanzania Social Action Fund (TASAF) implements Tanzania's largest social safety net programme, the Productive Social Safety Net II (PSSN II), which aims to reduce poverty and enhance human capital development through cash transfers, public works programmes, and livelihood enhancement activities, and will implement a "cash plus" intervention to reduce child malnutrition among extremely poor households participating in the PSSN II programme. The intervention, Stawisha Maisha ("Nourishing Life"), comprises a weekly edutainment radio listening session over 12 months, provision of free solar-powered radios, and peer-led discussion groups. TASAF received technical assistance from UNICEF in the design of Stawisha Maisha.

The evaluation of Stawisha Maisha will provide the Government (including TASAF, the Prime Minister's Office, and other line ministries), UNICEF, and PSSN II participants with evidence to improve the intervention and refine communication strategies with TASAF participants. More specifically, the evaluation aims to (1) enhance understanding of integrating cash transfers and social behaviour change (SBC) to improve maternal and child nutrition, (2) provide insights for current and future programming, and (3) contribute to global debates on the effectiveness of "cash plus" interventions for reducing stunting and wasting among children ages 0 to 5.

Study design

Employing a cluster randomized controlled trial (cRCT) design, this evaluation integrates both quantitative and qualitative data to assess the impact of the Stawisha Maisha intervention. It is important to note that the impact evaluation will measure only the effects of Stawisha Maisha, not the combined impacts of PSSN II and Stawisha Maisha.

This report summarizes results from the baseline data implemented as part of the longitudinal, mixed-method impact evaluation of the Stawisha Maisha intervention. The baseline, commissioned by UNICEF and led by EDI Global, Policy Research Solutions (PRESTO), and Empathea, was implemented in three regions (Geita, Rukwa, and Ruvuma) across Tanzania. These regions were selected for the intervention and evaluation based on high stunting prevalence and burden and low rates of early antenatal care, exclusive breastfeeding, and

dietary diversity among young children. Baseline data were collected from 2,256 households (respondents were the primary caregiver of a child younger than 5 living in the household; 99.4 percent were female, 87.6 percent were the biological mother, and 11.1 percent were the grandmother) in July and August 2023, and randomization of 150 villages into treatment and study arms (75 villages in each) was conducted by TASAF in October 2023. Qualitative data were collected among mothers and primary caregivers (referred to collectively as "caregivers" in the report) in two of the study regions (Rukwa and Ruvuma). In addition, data were collected on village- and facility-level information in the 150 study villages and 87 health facilities. Study personnel adhered to ethical guidelines, and informed consent and assent was obtained from study respondents. The baseline report serves to describe the study sample and assess whether there is balance (that is, statistical equivalence) across outcomes of interest among the treatment and control arms of the study. If the randomization successfully achieved balance across study arms, then differences between treatment and control groups observed at the follow-up round of data collection (expected in 2025) can be attributed to intervention impacts.

Information collected from households covered multiple topics related to child malnutrition (stunting, wasting, and underweight) and pathways of impact (for example, food and water security; caregiver knowledge, attitudes, norms, self-confidence, and decision-making abilities; and feeding practices) and were based on the intervention 's theory of change. The study region of Geita is located in the Lake Zone of Northern Tanzania, Rukwa is in the southwest highlands, and Ruvuma is situated in the southern highlands (across the lake from Malawi and on the border with Mozambique).

Results

Overall, we find strong balance on key outcomes between the treatment and control groups, indicating successful randomization and contributing to good internal validity of the study. This indicates that the sampled households have similar characteristics at baseline between treatment and control groups, a critical factor in ensuring that any differences in outcomes measured at the endline can be attributed to the treatment, rather than to baseline disparities. Below, we highlight some key findings about the study sample.

Household characteristics and livelihoods

- The average household size was 6.6 members, with 1.6 children per household.
- Only 11 percent of households treated their water, and 32.5 percent had access to improved toilets.
- Agriculture plays a significant role in the livelihoods of the households in our study, with around 93 percent of households engaging in crop cultivation in the past 12 months.
- Approximately one in four households (23.5 percent) operated non-farm enterprises in the past year.
- Over half of households (54.2 percent) own livestock.

- In terms of participation in PSNN II livelihood activities and public works programs, 16.9 percent and 71 percent of households, respectively, have been involved in these programs in the past year.
- Nearly 61 percent of households experienced food insecurity, 17.7 percent experienced moderate food insecurity, and 42.6 percent experienced severe food insecurity. About one in four households (26.2 percent) experienced water insecurity.

Radio and communications

- Household ownership of mobile phones was widespread; approximately 85.3 percent of households in our sample possessed them, underlining the pivotal role of mobile phones in modern communication.
- Radios and radio cassette players were owned by only one in five households (19.8 percent), underscoring how the intervention's provision of free solar-powered radios to the discussion groups will be crucial in facilitating households' ability to take up the intervention.
- Only 21 percent of respondents reported listening to the radio on a weekly basis.
- Very few women reported that they accessed the radio on their mobile phones, as many either did not have widespread access to a phone or did not have it activated, if they did. Gender gaps in ownership and use of mobile phones have been highlighted in previous research in Tanzania.
- A large majority of respondents (80 percent) trust nutrition information from the radio, whether they currently own a radio or not; qualitative findings supported this as well.

Caregiver knowledge

- Only about one-quarter of caregivers correctly indicated that pregnant women should eat diverse types of food (23.7 percent) and an extra meal per day (26.6 percent).
- The rate of awareness about early initiation of breastfeeding was fairly high, with 82.2 percent of respondents stating that breastfeeding should begin within one hour of a child's birth.
- Only 21 percent of caregivers had full knowledge about exclusive breastfeeding—that is, they correctly defined both the phrase and the child age recommendation for it.
- Approximately 61 percent of respondents knew that breastfeeding should continue up to age 2 or beyond.
- In qualitative interviews, respondents reported that they did not know most of the maternal and child nutrition recommendations before they became parents, and that even while they were pregnant, they did not consume nutritious foods.
- In addition, though qualitative data indicated that caregivers understood that they should breastfeed exclusively until children were at least 6 months old, many reported the

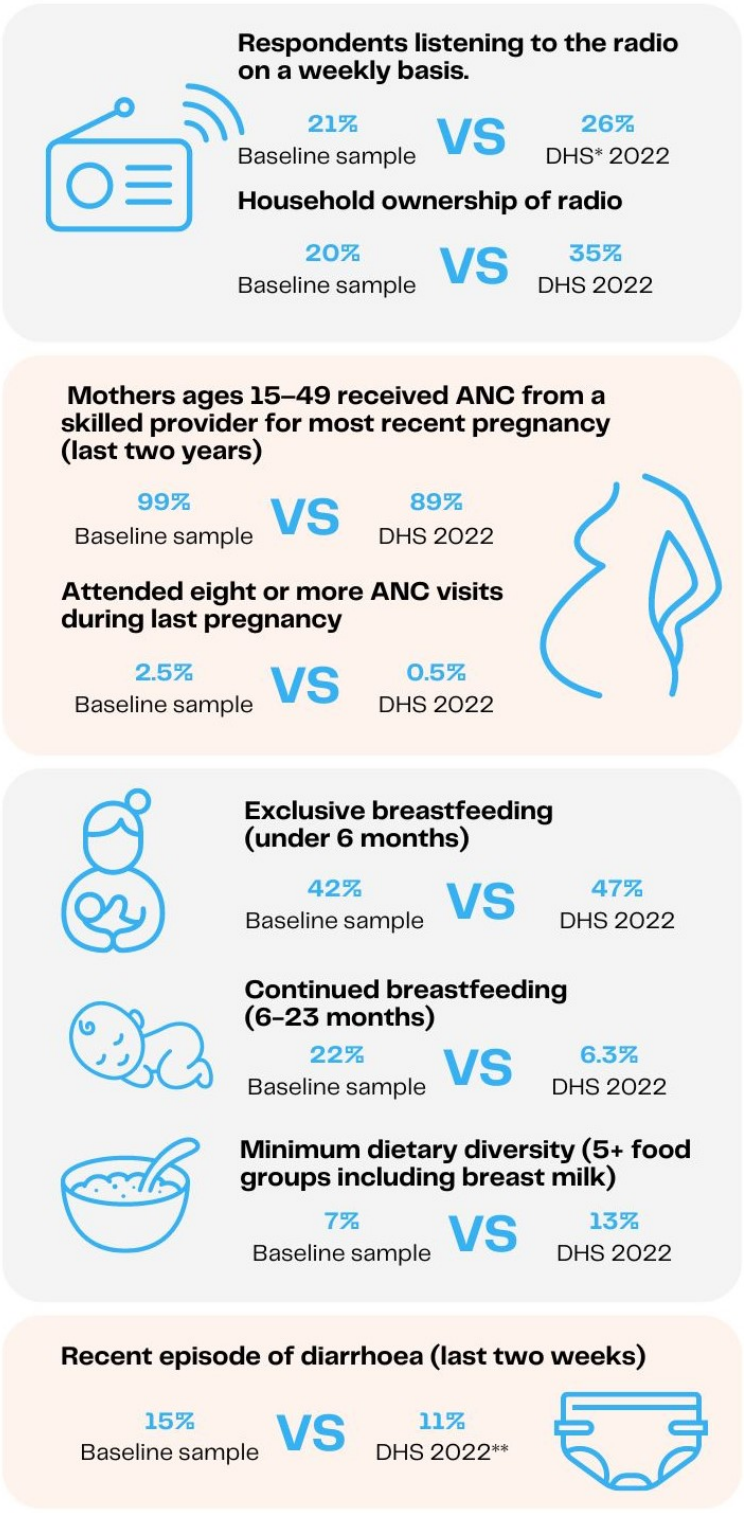
perception that mothers were sometimes unable to produce enough milk to do so (due to lack of good nutrition for the mother) and would supplement thin porridge in these cases.

- A majority of caregivers could identify foods rich in vitamin A (60.7 percent) and iron (54.1 percent).
- Close to 71 percent of caregivers knew that children with diarrhea should be given oral rehydration salts (ORS), but only 3.3 percent knew that they should be given more liquids than usual and the same or more food and breast milk than usual.
- To evaluate whether caregivers knew how to interpret their child's growth curve, we provided a sample card with a marked point and asked what this example says about the child. Only about half of caregivers (51.4 percent) correctly knew what the sample growth curve meant.
- Qualitative responses about child growth and development indicated that caregivers understood that children needed to go to the clinic regularly from one month through age 5, to ensure that they received required vaccinations and that they were healthy and growing properly.

Caregiver attitudes and norms

- Many caregivers (66 percent) reported being stressed about both feeding children more frequently and feeding children more diverse types of food. Qualitative findings echoed this stress and lack of confidence surrounding nutritious food, both in acquiring and preparing it. The caregivers understood the importance of proper nutrition for themselves and their children, but without the necessary resources to access adequate healthy foods or clean water, they were forced to feed their children less nutritious options.
- Less than half of caregivers (48.8 percent) were confident in preparing nutritious foods for their child, though respondents felt they had the appropriate knowledge but lacked the means to provide healthy foods for their families because they did not have the resources to do so. However, 90 percent felt they had the power to make their own decisions regarding their children's health and nutrition.

Figure ES.1. Benchmarking sample statistics against the Demographic and Health Survey (DHS) 2022 data



*DHS refers to means calculated among 3,170 rural households in the study regions (Geita, Rukwa, and Ruvuma) using data from the 2022 Demographic and Health Survey (DHS).
** Here, n = 814, as this question was asked of only a subset households.

Social capital, resiliency, and problem solving, and support for breastfeeding mothers

- On a scale of 1 to 4, the average self-efficacy score for problem solving was 2.9.
- About 70 percent of caregivers felt there is a group of peers with whom they have a sense of belonging and membership. Qualitative findings back this sense of support from the community among the women and their neighbors.
- After childbirth, neighbors appeared to be the most supportive, provided that the woman had relationships with them before she gave birth.

Sources of information about nutrition

- Nearly two-thirds (63.7 percent) of respondents heard or saw something about nutrition in the last 12 months from a community health worker, on the radio, on a flyer, or from another source.
- Slightly more than 80 percent of caregivers stated they would trust information about nutrition from a radio program.
- In qualitative interviews, caregivers indicated that they were aware of and listened to a nutrition programme broadcast on a local radio station whenever they were able to. They appeared to find the information on this programme both helpful and trustworthy.

Antenatal care and nutrition

- Nearly all children ages 0 to 36 months had a mother who sought antenatal care (ANC) from a skilled provider (such as a doctor, nurse, midwife, or auxiliary midwife) at some point during their pregnancy (Table 9.1.1). However, early ANC (first trimester) occurred in fewer than half of pregnancies (45.2 percent).
- As with nutrition information, the women placed great trust in the clinics and hospitals for information regarding antenatal care.
- Approximately one in four women (27.7 percent) followed the recommended practice of eating four or more food groups per day during pregnancy.
- About two-thirds of children benefited from mothers who took iron folic acid (IFA) supplements for 90 or more days while pregnant.
- As with their knowledge of nutrition, respondents were not always able to reconcile what they knew to be best for themselves and their children with the reality of their resources. Poverty and lack of money were the major barriers to accessing antenatal care.
- Women also reported they were required to be accompanied by their husbands or male partners or to have an exemption letter from the village executive in order to receive antenatal care. It was often difficult to convince their husbands or partners to go to the clinic with them because the men were afraid of the obligatory HIV test for couples.

Breastfeeding practices

- Fewer than half of children (42.2 percent) were, or are, exclusively breastfed.
- The rate of continued breastfeeding up to age 2 or beyond was fairly low—just over one-fifth (21.9 percent) of children ages 24 to 59 months were breastfed up to age 2 or beyond.
- Qualitative interviews indicated that although women understood the importance of a mother's nutritional intake while breastfeeding, there was often a lack of access to nutritious food, that limited their ability to eat a healthy diet.

Young child feeding practices

- Among children aged 6–23 months, 30.8 percent had a diet that met the minimum standards for meal frequency.
- Only 7.3 percent of children ages 6–23 months had a diet that met the minimum standards for dietary diversity (that is, they were fed at least five out of eight UNICEF- and WHO-specified food groups during the previous day).
- Only 15.3 percent of children ages 6–23 months had consumed iron-rich or iron-fortified foods in the previous day and night at the time of the survey.
- In qualitative interviews, respondents overwhelmingly cited a lack of money, access to nutritious food, and access to water as the primary challenges preventing them from giving their families nutritious meals.

Care during diarrhea

- Among children in the sample, 15.3 percent had had an episode of diarrhea in the previous two weeks. About 67 percent were given ORS, but only 6.8 percent were given the appropriate feeding and liquid standards.

Early childhood development

- In terms of early childhood development, about one in five children (21.1 percent) were developmentally on track (as defined by the Early Childhood Development indicator), per assessment through various questions covering health, learning, and psychosocial well-being subdomains.

Nutritional status

- Forty-four percent of children in the sample were stunted, and 15.7 percent were severely stunted. This rate is higher than the national stunting average (30 percent).
- The rate of wasting in our sample was 5.5 percent, and 1.7 percent were severely wasted. The wasting rate in our sample was also higher than the national wasting average (3.3 percent) and that of two study regions (2.8 percent in Ruvuma and 3.3 percent in Geita).

- Nineteen percent of children in the sample were underweight (compared to 12 percent nationally), and 4.4 percent were severely underweight.

Health facilities

- Nearly all (99 percent) of the 87 health facilities had electricity, and 69 percent had water available on site.
- Only one in 10 facilities had operating theatres, and only four facilities (4.6 percent) had the means to perform a caesarean section.
- All facilities performed child growth monitoring.
- Ninety-four percent of facilities performed deliveries.

Community characteristics

- Most (97.3 percent) communities reported recent immunization campaigns.
- Respondents overwhelmingly reported that women in their communities gave birth in health facilities (98.7 percent) rather than at home.
- Although a majority of respondents reported that the nearest facility accepted the improved Community Health Fund (iCHF) insurance, one-third (30 percent) reported that community members struggled with inability to pay for health services.

Conclusions

The baseline report describes the evaluation sample and assesses whether randomization of treatment (PSSN II plus Stawisha Maisha) and control (PSSN II only) groups was successful. Data summarized in this report demonstrate that PSSN II households had limited resources for accessing nutritious foods for their children. Nevertheless, many positive aspects were noted. Respondents had high levels of trust in information from health care workers and radio broadcasts. Generally, respondents felt they were knowledgeable about what they need to feed their children, despite often lacking resources to enact this knowledge. In addition, women felt a sense of support from the community among the women and their neighbors and said they help each other in times of need. In this baseline report, we have integrated quantitative and qualitative data analysis. Impacts will be estimated, and more in-depth analysis of the topics will be pursued after follow-up data are collected (expected in 2025). Thus, the evaluation team is pleased to conclude that the randomization was successful, with a balanced distribution between experimental groups. This lays the foundation for accurately estimating effects of the intervention in the forthcoming phases of the study.

1. BACKGROUND

Despite significant progress in human development and poverty reduction between 2012 and 2018 in Tanzania,[1] poverty reduction has slowed in recent years. Based on the international poverty rate of $2.15 (USD) per person per day, 44.9 percent of Tanzanians live in poverty, and though GDP rose in 2022, high commodity prices and international events have kept economic growth below its potential.[2] Rapid population growth and fallout from the COVID-19 pandemic have contributed to an increase in the number of Tanzanians falling below the national poverty level.[3]

Although stunting significantly decreased nationally from 42 percent in 2010 to 34 percent in 2016 and 30 percent in 2022,[4] Tanzania still suffers from high levels of child malnutrition, with roughly 3 million children younger than 5 experiencing stunting. Poverty, food insecurity, and lack of access to water and good hygiene practices all contribute to malnutrition, which can lead to child mortality, disability, cognitive impairment, chronic disease, and reduced productivity across the life course.[5] In this way, malnutrition perpetuates the persistence of poverty and poor health not only through an individual's lifespan but across generations.

This study evaluates a "cash plus" approach for nutrition—Stawisha Maisha, or "Nourishing Life"—which was implemented within the Tanzanian government's flagship anti-poverty social protection program, the Productive Social Safety Net (PSSN II), and uses a cluster randomized controlled trial (cRCT) approach to identify causal impacts of the initiative on child malnutrition and pathways of impact. The three regions of the study (Geita, Rukwa, and Ruvuma) were selected based on stakeholder priorities and vulnerability characteristics, including high rates of stunting and low rates of exclusive breastfeeding and antenatal care, particularly among the poorest 20 percent of the population.

Cash transfers and child nutrition

There is strong evidence that cash transfers can improve many mediators of nutrition, including economic security and livelihood activities, food security, and health care visits.[6-10] However, the evidence on cash transfers and child nutrition status is mixed. The most recent global meta-analysis (covering 129 articles total, including 54 from sub-Saharan Africa) indicates that cash transfers improve linear growth and reduce stunting, but effects are small.[11] However, cash transfers largely have no impact on weight-for-age and wasting. In terms of pathways of impact, the meta-analysis found that cash transfers improved dietary diversity, particularly regarding animal-sourced foods, and reduced the incidence of diarrhea.[11] A previous study reviewed 20 studies (including 12 in Africa) and found that only two in Africa reported positive impacts on child nutrition outcomes (one each in Malawi and South Africa).[12]

In light of this mixed evidence on cash transfers alone, a cash plus approach—whereby cash is combined with complementary programming (for example, behaviour change communication [BCC] or linkages to existing services[13])—is often advocated. The evidence on cash plus programmes, particularly in Africa, is still growing, and many initiatives have not been rigorously evaluated. A recent review and meta-analysis of this emerging body of work found that compared to cash transfers only, cash plus food transfers improved height-for-age, but cash plus BCC was not found to improve anthropometrics.[14] Nevertheless, only seven cash plus BCC studies were reviewed, and only three of these studies took place in Africa (one each in Niger, Kenya, and Ethiopia). Thus, more evidence on the topic is urgently needed to draw conclusions to inform future programming. The current report aims to build on that body of evidence by presenting the findings of the baseline evaluation of the Stawisha Maisha intervention.

Social protection in Tanzania

The government has developed and approved a comprehensive National Social Protection Policy (NSPP 2023), with an objective to ensure all persons live at socially acceptable standards and exploit their human capabilities to optimize social and economic development. Four thematic working groups will coordinate programming as follows: contributory programmes (productive inclusion and social insurance [mandatory and voluntary schemes]) and non-contributory programmes (social assistance and social welfare).

As part of the government of Tanzania's poverty reduction strategy, the Tanzania Social Action Fund (TASAF) was established in 2000 and is responsible for implementing the Productive Social Safety Net (PSSN). The PSSN is a large-scale social assistance programme that covers the mainland and Zanzibar.

The United Nations Children's Fund (UNICEF) has supported complementary programming within PSSN I and PSSN II to improve nutrition outcomes. These complementary components include linking beneficiaries to health and nutrition services and/or exempting pregnant women from public works requirements and providing unconditional cash transfers until their child's second birthday. UNICEF has also supported cash plus programming in PSSN I and PSSN II as follows: (1) Ujana Salama, which has additional cash plus components layered on top of the government cash transfer programme focusing on youth, including livelihood and life skills training, mentoring and a productive grant, and linkages to health services[15]; and (2) Stawisha Maisha, a cash plus intervention (2018–2019) where the additional plus component was aimed at enhancing nutrition outcomes among children ages 0 to 5.

A qualitative evaluation of the first Stawisha Maisha pilot found that the pilot was well received by participants and that activities were successfully integrated into the social protection workforce. Moreover, the intervention increased maternal, infant, and young child feeding (MIYCF) knowledge among participants.[16] However, some challenges were identified, including an overbroad targeting approach that included many households without young children, low frequency of sessions, limited quality control of facilitation, and use of materials not appropriate for a largely illiterate population. Thus, Stawisha Maisha has been further adapted to address these challenges and is now being implemented in three regions (Geita, Rukwa, Ruvuma) in Mainland Tanzania. The current report summarizes findings from the baseline data collection of an experimental impact evaluation of Stawisha Maisha.

2. INTERVENTION

TASAF and PSSN

The Tanzania Social Action Fund (TASAF) was established in 2000 as part of the government of Tanzania's social protection strategy and has since been expanded twice. Phase I (2000–2005) focused on improving social service delivery, capacity enhancement, and addressing income poverty for food-insecure households. Phase II (2005–2013) built on the Millennium Development Goals and addressed a shortage of social services, income poverty, and capacity enhancement. In the third phase, TASAF started implementing the PSSN, which is a large-scale social assistance programme. The objective of the PSSN II is to increase income and consumption and to strengthen the resilience of vulnerable populations, with an overall aim to reduce extreme poverty and break the intergenerational persistence of poverty. PSSN beneficiaries are identified through a three-stage targeting process, including geographical targeting, community-based targeting, and a proxy-means test.

The first phase of the PSSN (PSSN I) was implemented between 2013 and 2019. The PSSN is now in its second phase (PSSN II, 2020–2025), reaching over 5 million individuals in 1.3 million chronically poor households in 186 project authority areas (PAAs).[i] Regular bimonthly (every other month) cash transfers are provided manually at payment points[ii] to eligible beneficiaries, with monthly amounts varying depending on their eligibility for the following:

- *A basic (conditional) cash transfer:* This is for all recipient households, conditional on participation in savings groups for households with labour capacity, and unconditional for households without labour capacity ("direct support"). Once a household enrolls in public works, this cash transfer ceases. The fixed transfer per household is 12,000 TZS per month.
- *A vulnerable groups unconditional cash transfer:* This is for all recipient households with a child ages 0 to 18 years and any person with a disability. Additional fixed transfers of 5,000 TZS are available for each of the mentioned categories (maximum one per household).
- *A variable human capital transfer:* This is for all recipient households with children, subject to compliance with health or education co-responsibilities, which vary according to the child's age and education status. Additional variable transfers range from 2,000 TZS for lower primary to 8,000 TZS for upper secondary; the maximum is 55,000 TZS per month.

In addition, a *public works (PW) scheme* offers temporary employment to PSSN households with labour capacity to provide additional income during the lean season(s). Households with labor capacity are defined as those including at least one adult ages 18 to 65 who is able to

i PAAs are geographical classifications according to TASAF (corresponding to local government authorities in Mainland and Zanzibar district authorities). PAAs generally correspond to districts or town councils.
ii In some areas, cash transfers are made electronically through bank or mobile phone transfers.

work. Eligible households have an entitlement of 60 working days per year that can be spread over a period of six months, which implies working for 10 days each month. A household is entitled to PW implementation for three rounds before enrollment into Enhanced Livelihood Support (ELS). At the start of PSSN II, the daily transfer rate was set at 3,000 TZS, and the PW wages are paid bimonthly. Moreover, eligible households that have only one adult able to work who is pregnant or caring for an infant continue to receive PW wages, but they are granted a temporary waiver from the need to work and are linked with nutrition services such as those provided during clinic attendance.

The average value of bimonthly cash transfers to households varies slightly by payment cycle. In the September to October 2023 payment cycle, the average value transferred was 31,844 TZS (approximately $12.48 USD).

A livelihood enhancement support (productive inclusion) provides basic skills training in economic activities and enhanced livelihood. A capacity building component centers on households in 51 of the poorest PAAs who are invited to participate in savings groups and awareness-raising and skills training sessions. The basic livelihood support package aims at promoting self-employment (farm and non-farm income generation activities) and wage employment opportunities through (1) awareness-raising sessions that encourage households to invest their transfers productively and inform them about all available livelihood services in the locality, including vocational education, apprenticeships, agricultural extension, financial literacy, small business, and livestock services; (2) support for household participation in savings groups; and (3) linking households to available ward-level extension services by inviting extension staff to deliver training. This support is offered to all households with labor capacity in all PAAs during a two-year period. The ELS provides a more comprehensive set of livelihoods support activities to households. It focuses on households with labor capacity where the three-year PW cycle has been completed. The ELS consists of a sequenced set of activities, designed based on international experience with poverty graduation programming. Attention is given to ensure the support is appropriate to the needs of both women and men in households. It features saving promotion, entrepreneurship skill training, and productive grant provision.

The “plus” intervention

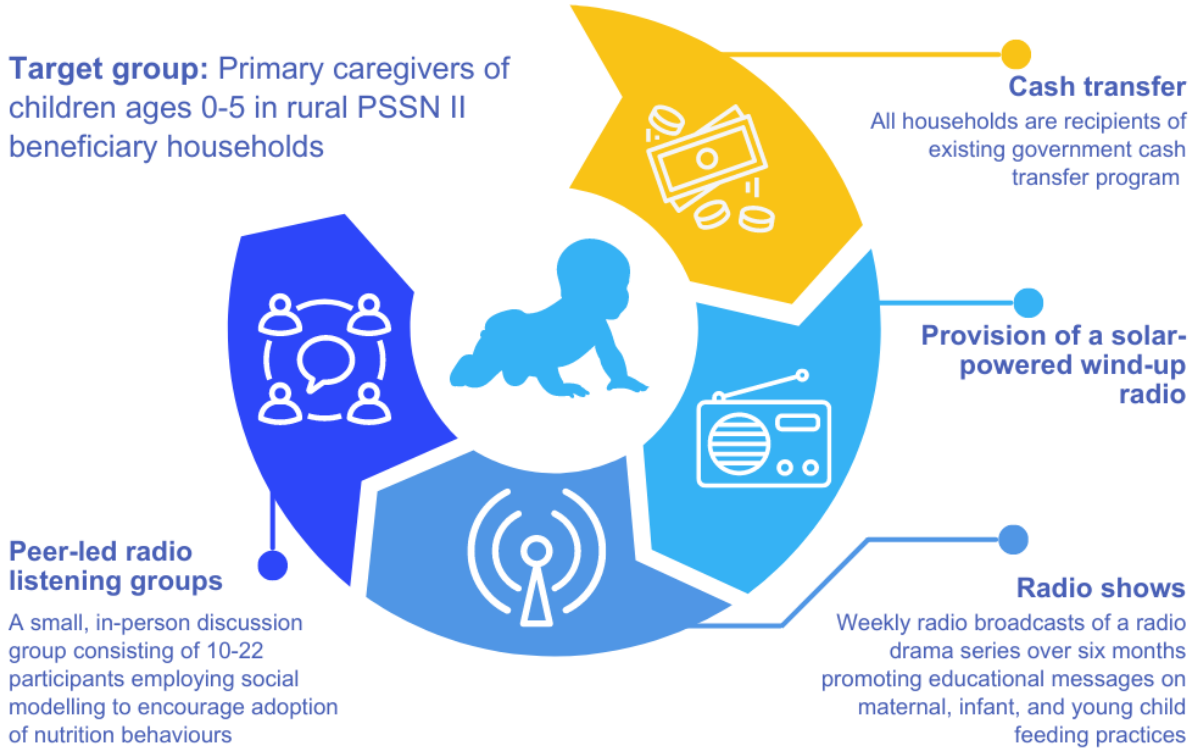
In this cash plus intervention, the “plus” being evaluated is Stawisha Maisha. The primary aim of Stawisha Maisha is to improve caregivers’ knowledge and practices regarding the nutrition of mothers, infants, and young children, with the long-term goal of reducing stunting and malnutrition. Pathways to reach the desired changes include operationalized knowledge, increased self-efficacy, peer support, and openness to learning and change; increased aspiration for self and child(ren); improved skills for planning and goal setting, problem solving, and increased resilience in the face of challenges and setbacks. The intervention was first piloted between 2018 and 2019 and has since been revised based on the findings from a previous evaluation. The Stawisha Maisha intervention focuses on mothers or primary

caregivers (referred to as “caregivers” in the report) from rural PSSN II participating households that include children younger than 5.

As shown in Figure 2.1, Stawisha Maisha comprises the following:

1. Listening to a weekly radio programme either via radio broadcast or downloaded on secure digital (SD) cards (Phase 1 is expected to last 6 months)
2. Provision of free solar-powered radios (one per discussion group)
3. Organization of peer-led discussion groups, which are expected to listen to the weekly radio broadcasts together and discuss; maximum group size is 22 members (thus, some villages will have multiple groups)

Figure 2.1. Features of the cash plus nutrition intervention



Stawisha Maisha intervention features

Target group: The target group includes mothers and primary caregivers from rural TASAF PSSN II cash transfer beneficiary households that include children younger than 5. More than one eligible individual from a PSSN II household can participate in Stawisha Maisha activities. Participation of more than one person per household will be promoted in small villages (that is, those with fewer than 22 eligible households per village). In larger villages, households will be encouraged to designate a group member and an alternate who can participate in activities when the designated group member is not available.

Objective: The objective is to reduce nutritional stunting through improved maternal, infant, and young child feeding (MIYCF) practices. Pathways to reach the desired change include knowledge, self-efficacy, peer support, and openness to learning and change; aspirations for self and children; skills for planning and goal setting, problem-solving, and resilience in the face of challenges and setbacks.

Intervention delivery: Delivery is facilitated through both a radio platform and a network of small in-person, peer-led radio listening groups (10–22 participants per group). Groups are provided with robust solar wind-up radios. A weekly broadcast radio programme uses entertaining content to engage participants, embedding a variety of methodological approaches designed to influence social norms and individual behaviour to promote adoption of nutrition behaviours that reduce and prevent stunting. Social modelling is the principal social behaviour change methodology employed.

Coverage: Stawisha Maisha will engage mothers and caregivers from rural PSSN II beneficiary households with children younger than 5 in 75 villages within three regions (Geita, Rukwa, and Ruvuma).

Stawisha Maisha is implemented through TASAF's field structure and existing human resources. The government develops content and materials, arranges radio broadcasts, supplies radio sets and group toolkits, provides training, and monitors implementation.

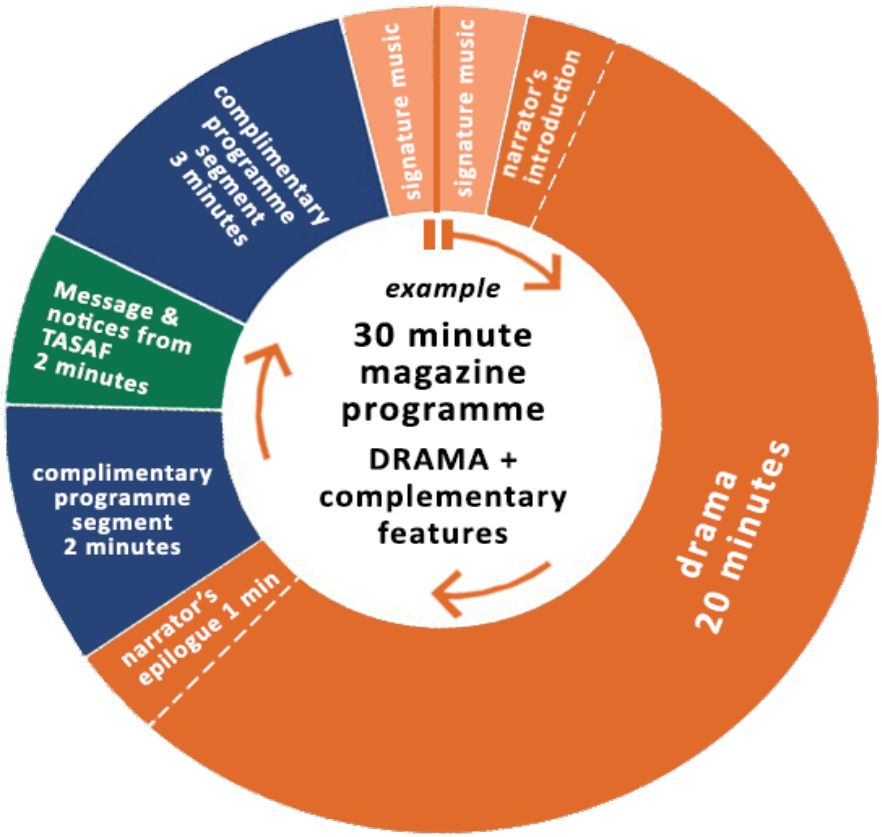
Intervention activities

Stawisha Maisha is delivered through a peer group structure, including peer leadership and self-governance; story-based learning content; life experience content; participatory methods; and use of visuals, games, and manipulatives. A weekly broadcast radio magazine programme will use entertaining content to engage participants, embedding a variety of methodological approaches designed to influence social norms and individual behaviour to promote adoption of nutrition behaviours that reduce and prevent stunting. Social modelling is the principal SBC methodology employed. To facilitate discussion following the radio broadcasts, tested and validated SBC materials will be provided to groups. Interactive radio techniques such as missed call polling, listener call-in and text-in, and interactive voice response (IVR) features will be introduced at no cost to participants, enabling two-way communication that enhances participant learning and engagement.

Stawisha Maisha sessions of approximately 45 minutes will consist of 30 of minutes radio listening plus 15 minutes of discussion. The basic meeting format is a weekly peer-facilitated radio listening group based on edutainment approaches, with additional participatory activities facilitated by peer leaders with pre-recorded audio support. The radio programme is built around story-based learning through a radio drama series featuring the character Bi Stawisha, first developed during the pilot, and offers plenty of scope for strategic integration of the project's key behavioural objectives. Bi Stawisha will experience enriched storylines and meaningful interactions with other characters that allow for authentic moments referencing maternal and child nutrition. Characters will model key behaviours and discuss challenges related to these behaviours in non-lecturing, naturally occurring exchanges. The format of the radio programme is provided in Figure 2.2.

Supporting materials in this first phase are limited to attendance registers, membership cards, and a couple of visual take-home materials. In the planned second phase (with a duration of six months), an additional activity using pre-recorded audio on SD cards along with a supporting activities and materials toolkit, which will be added to one session a month. The monthly meeting sequence will then consist of three radio plus (radio+) discussion sessions and one radio plus supplementary group activity.

Figure 2.2. Format of the radio programme



3. CONCEPTUAL FRAMEWORK

Behavioural objectives and pathways of change

Stawisha Maisha includes key behavioural objectives for nutrition:

- **Maternal health and nutrition:** Attend antenatal care (ANC) services early in pregnancy; eat and provide (the nutritional equivalent of) one extra, balanced meal each day during pregnancy; attend and access antenatal services, including nutritional counselling
- **Infant and young child feeding**: Exclusive breastfeeding for infants up to 6 months old, with no water supplementation; introduce nutritionally balanced solid foods at six months and continue breastfeeding up to age 2 or beyond; attend and access health services for children younger than 5, including growth monitoring, vitamin A supplementation, and nutrition counselling
- **Early stimulation and development:** Incorporate into daily routines actions and exercises that increase motor, cognitive, and social development of infants and young children (from birth to age 6)

Achievement of each key behavioural objective relies on certain preconditions being in place. A set of cross-cutting preconditions, mostly life skills or social-emotional competencies, that are important to achieving Stawisha Maisha's nutrition-specific aims were identified as follows:

- Increase sense of self-efficacy
- Increase peer support (giving and receiving)
- Increase openness to learning and change
- Develop new aspirations for self and child(ren)
- Improve planning and goal-setting skills
- Improve skills for analyzing and solving problems
- Increase resilience in the face of challenges and setbacks

Although Stawisha Maisha has a clear focus on nutrition, the design—and the Radio+ approach—may enable integrating additional behavioural objectives related to issues other than nutrition, based on PSSN II's other SBC priority issues. The theory of change for Stawisha Maisha (shown in Figure 3.1) builds on the grounds that to increase the adoption of high-impact MIYCF practices, the knowledge, motivations, and feelings of self-efficacy of caregivers need to be improved. The indicators that the intervention aims to change and that are measured in the impact evaluation are listed in Appendix 1. We hypothesize that Stawisha Maisha will improve child nutrition through the pathways outlined in Figure 3.1.

As indicated in Figure 3.1, we hypothesize that the Stawisha Maisha intervention, by providing free radios, discussion groups, and edutainment broadcast programming, will directly

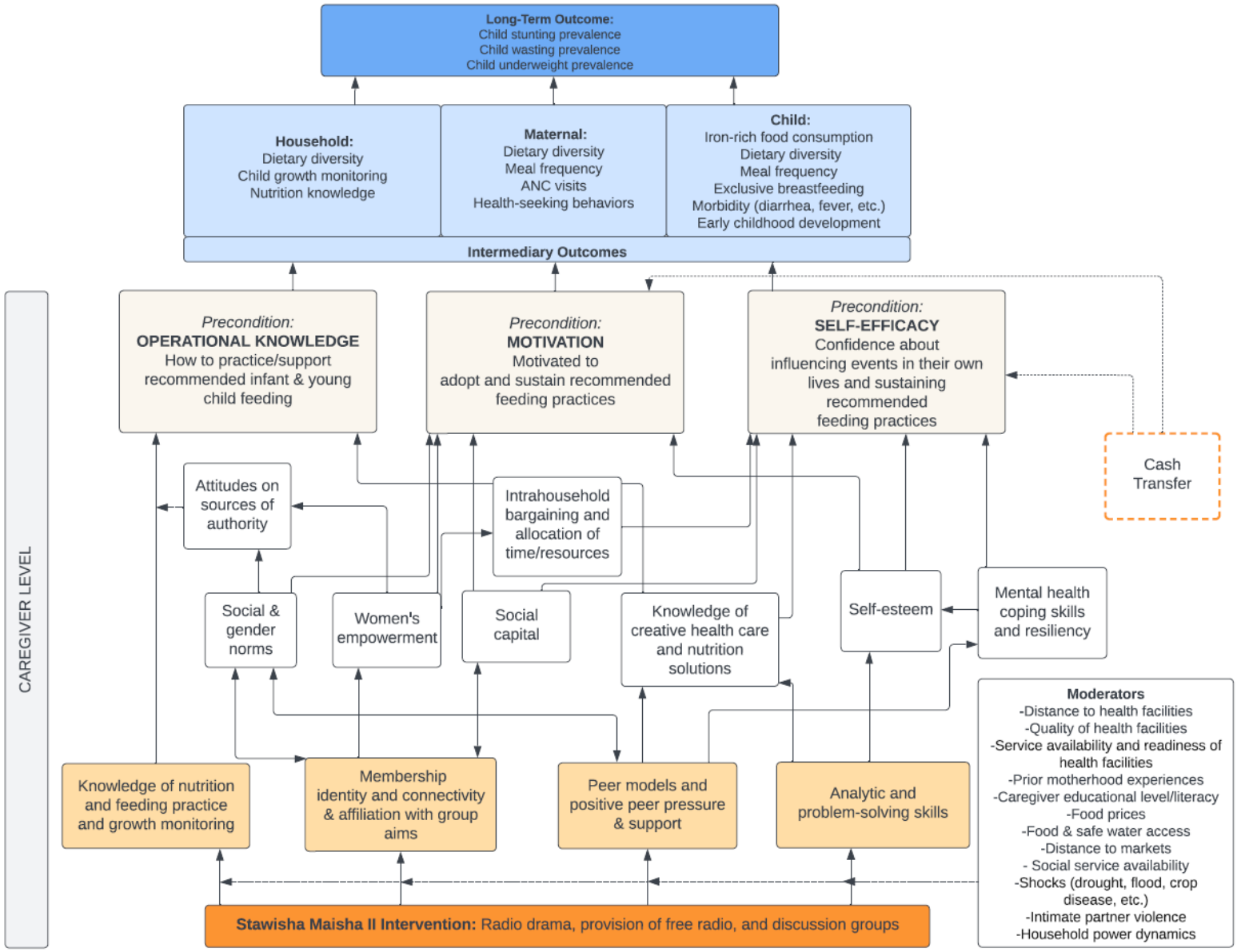
influence beneficiaries' (1) knowledge of maternal and child nutrition and feeding practices, and knowledge of child growth monitoring; (2) membership identity, group connectivity, and affiliation with the group's aims; (3) access to peer models and positive peer pressure and support; and (4) analytic and problem-solving skills. These areas subsequently lead to pathways of change via the following:

- Social and gender norms
- Women's empowerment
- Social capital
- Attitudes on sources of information
- Intra-household bargaining and allocation of time and resources
- Knowledge of creative health care and nutrition solutions
- Self-esteem
- Mental health coping skills and resiliency

Through the highlighted pathways, Stawisha Maisha aims to influence three preconditions: (1) operational knowledge (of nutritional practices), (2) motivation (to adopt and sustain these practices), and (3) self-efficacy (confidence in one's abilities). These preconditions then affect intermediary outcomes at the household level (for example, household knowledge about child growth monitoring), the maternal level (for example, antenatal care visits) and the child level (for example, dietary diversity). These intermediary outcomes are the driving forces for reducing the prevalence of long-term (12+ months) child stunting and wasting.

The theory of change maps out various possible pathways through which the Stawisha Maisha intervention can have a positive impact on maternal, infant, and young child feeding knowledge practices. Furthermore, the theory of change includes pathways that are related to each of the key research questions for impact (see Section 4). Research question 1.1 is presented in the theory of change as the long-term outcome of stunting prevalence. Research questions 1.2, 1.3, and 1.6 are all intermediary outcomes that stem from the intervention and are theorized to impact the long-term outcome of stunting prevalence. Research questions 1.4, 1.5, and 1.7 are related to preconditions and intermediary steps in the theory of change. Finally, research question 1.8 addresses the overall connections and pathways between intermediary steps, preconditions, and outcomes in the theory of change.

Figure 3.1. **Stawisha Maisha theory of change**



4. STUDY DESIGN AND SAMPLING

4.1. Evaluation stakeholders

The evaluation will provide the government of Tanzania (including TASAF, the prime minister's office, and other relevant ministries), UNICEF, and PSSN II participants with rigorous evidence on the ability of Stawisha Maisha to achieve its objectives. The evaluation stakeholders include TASAF, which implements the PSSN II and Stawisha Maisha programs; and UNICEF, which provides technical assistance around these social protection programs. Findings from the evaluation can be used to assist TASAF in further adapting Stawisha Maisha and/or other cash plus interventions in the future. Moreover, findings around the receipt of information via radio messaging can be used by TASAF to inform its modes of communication with TASAF participants.

4.2. Evaluation objectives

The purpose of the longitudinal mixed-methods impact evaluation of *Stawisha Maisha* is as follows:

1. Improve the learning about synergies between social protection and maternal and child nutrition—in particular, about integrating cash transfers and SBC to improve MIYCF practices and access to nutritious food. This will be accomplished through dissemination (nationally and internationally) of impact evaluation findings related to these outcomes.
2. Generate lessons learned to inform current and future programming. This will be accomplished through national dissemination of findings related to all outcomes.
3. Feed into the broader academic and policy debate at the global level about the effectiveness of cash plus interventions aimed at reducing stunting, underweight, and wasting among children ages 0 to 5. This will be accomplished through dissemination of impact evaluation findings related to stunting, underweight, and wasting.

The overarching objectives of the impact evaluation of Stawisha Maisha are as follows:

1. To understand whether an SBC component focused on primary caregivers of children ages 0 to 5 and layered on top of a cash transfer program can improve MIYCF practices and, in turn, reduce stunting in the long term (*impact*)

2. To understand whether radios and/or the use of the Radio+ approach were effective means of communication[iii] with PSSN II beneficiary households to improve nutrition knowledge and outcomes, and to further understand whether radio can be used for rollout of social and behavioural change on issues in addition to nutrition (*effectiveness*); this will be achieved through examining outcomes related to messaging and via key informant interviews with intervention implementers (TASAF staff) at follow-up rounds

Alignment with sustainable development goals (SDGs)

The intervention and evaluation objectives are related to the following SDGs and targets:

- SDG 2: Zero hunger
  - **Target 2.2:** End all forms of malnutrition—including achieving, by 2025, the internationally agreed targets on stunting and wasting in children younger than 5—and address the nutritional needs of adolescent girls, pregnant and lactating women, and older persons.
- SDG 5: Gender equality and women's empowerment
  - **Target 5.4:** Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.

In addition to relevance to the SDGs, this intervention and evaluation are aligned with the intent of the Convention on the Rights of the Child (CRC), specifically as it aims to support families and provide them with assistance to fully assume their roles within the community. In particular, Stawisha Maisha promotes full and harmonious development of children.

4.3. Research questions

Drawing on the theory of change, this evaluation was designed to answer the following research questions.

The key research questions for impact (what and how) are as follows:

1.1. How has Stawisha Maisha impacted stunting, wasting, and underweight at follow-up(s)?

1.2. How has Stawisha Maisha impacted MIYCF practices/diets at follow-up(s)?

1.3. How has Stawisha Maisha impacted early childhood development (ECD) outcomes at follow-up(s)?

1.4. How has Stawisha Maisha impacted the knowledge of programme beneficiaries on MIYCF at follow-up(s)?

iii Disseminating reminders and new programme information.

1.5. At follow-up(s), how has Stawisha Maisha impacted preconditions to achieving Stawisha Maisha's nutrition-specific aims (or intermediate outcomes)? Preconditions may include peer support, participants' sense of self-efficacy, aspirations for self and children, ability to plan and set goals, skills for analysing and solving problems, resilience, and openness to learning and change.

1.6. How has Stawisha Maisha impacted household food security at follow-up(s)?

1.7. How has Stawisha Maisha impacted women's empowerment at follow-up(s)?

1.8. What are the pathways through which Stawisha Maisha has an impact on individual and household level outcomes?

Key research questions for impact effectiveness are as follows:

2.1. What was the uptake and operational performance of the Stawisha Maisha cash plus intervention?

2.2. Is the radio an effective way to communicate with PSSN II beneficiaries? Has the radio been effective at delivering messages, notices, or reminders to programme beneficiaries?

2.3. Can the Radio+ approach be used to roll out social and behavioural change on issues in addition to, or other than, nutrition? Can the Radio+ approach be used to enhance community sessions?

4.4. Study design

This evaluation uses a cluster randomized controlled trial (cRCT) design to estimate causal impacts of the Stawisha Maisha intervention. It is important to note that the study will only estimate impacts of Stawisha Maisha (that is, the "plus" component) and not the combined PSSN II + Stawisha Maisha impacts. This is because both treatment and control groups receive the PSSN II, and the randomized component is Stawisha Maisha.

Eligibility criteria for the intervention and evaluation are as follows:

In the first stage of selection into the intervention, **villages** met the following eligibility criteria:

1. Must be located in a rural area
2. Must have at least nine PSSN II households with a child younger than 5

Second, at the **household level**, eligibility criteria were as follows:

1. Participates in the PSSN II program
2. Has a child younger than 5

Third, at the **individual level**, eligibility criteria were as follows:

1. Status as mothers or primary caregivers of children age 5 or younger (including expecting mothers)

4.5. Power calculations

To determine the required sample size, power calculations were conducted based on the following key indicators (selected by the research team with input from UNICEF and TASAF): stunting among children ages 0 to 5, dietary diversity among children ages 6–23 months, early antenatal care rates among women ages 15 to 49, and consumption of iron-rich foods among children ages 6–23 months. Prevalence of these indicators among the poorest 20 percent of the population in the three selected regions was calculated by the research team using data from 2015–2016 Demographic and Health Surveys (DHS).[iv] To detect impacts of 5 percentage point differences in the prevalence of these indicators between the study arms with 80 percent power, it was determined that 420 households per study arm would need to be sampled using a simple random sampling (SRS) design. However, since we are using a cluster sampling design (households are selected within villages), we calculated intracluster correlation coefficients (ICC) among the four above-referenced indicators (using data from households in the lowest wealth quintile in rural areas of the selected regions in the 2015–2016 DHS) to determine the design effect. We used an average ICC across the indicators of 0.12. Combined with an expected average of 15 households per cluster (village), we calculated a design effect of 2.68. As a result, it was determined that 75 villages with a minimum sample of 1,126 households per study arm would be needed to detect impacts of 5 percentage points. This resulted in a total sample size of 150 villages and a minimum requirement of 2,252 households.

4.6. Sample selection

Three regions were selected for the evaluation (Rukwa, Ruvuma, and Geita). Selection criteria included high stunting prevalence and burden (both regionally, as measured in the 2015–2016 and 2022 DHS, as well as calculated among the poorest wealth quantile from each region using data from the 2015–2016 and 2022 DHS[v]) and low rates of early antenatal care, exclusive breastfeeding, and dietary diversity among children ages 6–23 months. These criteria resulted in a priority list of seven regions: Arusha, Geita, Kagera, Kigoma, Mwanza, Rukwa, and Ruvuma. From this list, the final three regions were selected by UNICEF, TASAF, and the research team based on stunting burden and prevalence, as well as logistical concerns related to intervention implementation and data collection, and timing of recertification activities (ongoing in 2023) by TASAF to evaluate PSSN II households' continuing eligibility for the PSSN II program. This was intended to avoid sampling

iv Data from DHS 2022 were not yet publicly available in March 2023 when we conducted power calculations.
v We used 2015–2016 data for these calculations, as data from the 2022 DHS were not yet publicly available at the time our sampling strategy was designed.

households for the evaluation that would no longer be eligible to receive the PSSN II or Stawisha Maisha after recertification, which concluded in September 2023.

Once regions were selected, the research team randomly selected one main district and one back-up district per region to include in the evaluation, after excluding any districts that were either (1) very unique and would not be a good representation of the larger region or (2) already participating in an evaluation of the PSSN II program (which is separately being led by the World Bank and National Bureau of Statistics). Back-up districts were selected for sampling additional villages and households if the minimum number of clusters (villages) and households needed per region could not be obtained in the main district. Main districts were as follows: Nkasi in Rukwa, Namtumbo in Ruvuma, and Geita DC in Geita. Backup districts were as follows: Nyasa in Ruvuma and Nyanghw'wale in Geita. In Rukwa, the back-up district selected was Kalambo, but selection from this district was not needed.

Next, we proportionally selected clusters (villages) by region based on the general population of TASAF households, for a total of 150 selected villages. Final distribution was as follows: 54 villages in Geita, 40 villages in Rukwa, and 56 villages in Ruvuma. Villages were eligible for selection into the evaluation if they had at least nine PSSN II households eligible for Stawisha Maisha.

Within selected villages, we aimed to interview an average of 15 households per village. Before data collection, TASAF provided the names and contact information for households in the selected districts and villages, and the study team performed two rounds of verification phone calls. The first was to a local listing assistant who was often a village leader and was identified by the TASAF coordinator in each PAA. This call was to systematically check the entire administrative list of households for their cluster to verify the number and ages of any children younger than 5 in each household. Where the local listing assistant did not know the household, they made in-person visits to confirm the household's details. Second, we called five eligible households from each cluster to confirm the information shared by the local listing assistant. Among 3,155 verified households in the 150 selected villages, 2,250 households were randomly selected for inclusion in the study. The household selection was done in two stages. In the first stage, we selected all households within the 54 villages where there were there were 15 or fewer eligible households, for a total of 672 households (29.9 percent of the sample). Next, because these villages fell short of the average target cluster size, oversampling was required in larger villages. For equal oversampling in the remaining village clusters, where there were more than 15 eligible households, up to 18 households were randomly selected per village. This sampling achieved a total of 2,241 households. To reach the study target of 2,250, the final nine households were randomly selected from the larger villages that still had potential respondents remaining (that is, cluster size of >18 eligible households).

After baseline data were collected (July to August 2023), research team members from TASAF conducted the randomization into treatment and control arms in October 2023. We randomized half of the villages into the treatment arm and half into the control arm, resulting

in 75 total treatment villages and 75 total control villages. After a 12-month period, we intend to roll out Stawisha Maisha to the control group (delayed entry). The randomization was done in public events to maximize transparency and to mitigate any concerns from officials in villages selected for the control arm. One randomization event was held per region. Randomization events were held on the following dates: October 4 in Geita, October 9 in Rukwa, and October 13 in Ruvuma. At each event, officials from the districts (main and backup districts) and villages were invited to attend. Respondents included the district executive directors, ward executive officers, and TASAF officials. In each region, all study villages were included on individual pieces of paper, which were then rolled up and put in a bucket. The district chairperson selected villages one at a time, the district executive director read out the village names, and the TASAF research team member recorded the village name and study ID number. Once all the villages were selected and noted in order of selection, a coin was tossed. If the coin landed on heads, then the first half of selected villages was selected for treatment, whereas the remaining villages were allocated to the control arm. If the coin landed on tails, then the second half of selected villages was selected for treatment.

4.7. Survey instruments

Five types of questionnaires were implemented (see online supplementary materials for questionnaires), including the following:

1. Quantitative household surveys with caregivers (n = 2,256 including the anthropometric measurement of children younger than 5 (n = 3,605)
2. Quantitative health facility surveys (one primary health care facility or dispensary per community, where available; n = 87)
3. Quantitative community surveys (n = 150)
4. Qualitative in-depth interviews (IDIs) with caregivers (n = 17)
5. Qualitative focus group discussions (FGDs) with caregivers (n = 8)

Quantitative household questionnaires covered multiple topics and were based on the programme's theory of change. Through these questionnaires, we measured several proximate or pathway indicators (for example, MIYCF knowledge, self-efficacy, food security, and breastfeeding), given that distal outcomes such as stunting may take longer than the period of the evaluation to demonstrate changes. Health facility surveys were administered to staff at each primary health facility in the sample area to capture information on facility characteristics, equipment, services, drugs and medical supplies, and personnel. Community surveys were administered to a group of knowledgeable individuals (such as teachers and village leaders) in each community to assess topics such as access to basic services and health facilities; nutrition information and interventions; village practices and customs surrounding media and alcohol use; and community events, shocks, and conflicts. Survey modules were replicated from existing national survey instruments such as the Multiple

Indicator Cluster Surveys (MICS), the Demographic and Health Surveys (DHS)[vi], and the Service Availability and Readiness Surveys (SARA)[17] where feasible.

Semi-structured (qualitative) in-depth interviews and focus groups were conducted with a sample of caregivers to explore mechanisms and pathways for impacts on outcomes of interest. To avoid survey fatigue, caregivers for the qualitative interviews were selected among households not selected for the quantitative sample (but living in selected villages). The qualitative sample covered two out of the three study regions (Rukwa and Ruvuma) because qualitative data collection and analysis aim to explore themes in more depth (not breadth), and findings are not meant to be generalizable to larger populations. Moreover, evidence suggests that qualitative studies tend to reach saturation (the point at which additional knowledge gained is minimal) after approximately nine to 17 interviews.[18] The in-depth interviews followed a subset of topics from the quantitative questionnaire. They were designed to more deeply explore the mechanisms of intervention impacts, with a focus on nutrition, breastfeeding, and antenatal care knowledge and practices, as well as radio information access, household food security and decision making, and sense of community affiliation. Also, in-depth interviews allow for openness and confidentiality, unlike focus group discussions.

Focus group discussions were conducted with intended Stawisha Maisha recipients who were also caregivers, separately from the in-depth interviews (n = 48 respondents, across eight focus groups in eight different villages). The focus group discussion guides centered on the main research questions and loosely followed that of the IDI guide, including the same subset of topics from the quantitative questionnaire: nutrition (including breastfeeding, complementary feeding, diet diversity, and vitamin supplementation) and antenatal care knowledge and practices, as well as radio information access, household food security and decision making, and sense of community affiliation. In addition, the FGD guide was used to explore similarities and shared sentimentalities among group respondents around concepts that were difficult to capture in the in-depth interviews, including openness and barriers to change and group concerns about MIYCF practices. Four focus groups took place in Rukwa and four in Ruvuma.

4.8 Ethical guidelines and study registration

We adhered to Ethical Principles and Guidelines for the Protection of Human Subjects of Research as outlined in the Belmont Report. All study personnel, including principal investigators, co-investigators, data managers, research assistants, and data collection enumerators, received training in the ethical conduct of research from either the Collaborative Institutional Training Initiative (CITI) or FHI360 (https://www.fhi360.org/expertise/ethical-standards-and-training). All study members acted in accordance with recommendations and

vi The DHS Program website. Funded by USAID, http://www.dhsprogram.com. Accessed March 26, 2023.

guidance around adherence to ethical principles and procedures, principles of “do no harm,” and confidentiality with respect to data collection.

Ethics approval for the study was granted by the National Institute for Medical Research (NIMR/HQ/R.8a/Vol.IX/4367). This study is registered with the Pan African Clinical Trials Registry (PACTR Registration Number PACTR202307882241657). This study adhered to all principles and guidelines outlined by the UNICEF Ethical Research Involving Children (ERIC) program.

Interviewers were trained on ethical data collection and informed consent. Written informed consent was obtained from all study respondents ages 18 or older being interviewed. If a Stawisha Maisha eligible caregiver was a pregnant woman, mother, or caregiver younger than 18 and married, then she was understood to be acting as an emancipated minor (in an adult capacity), and we obtained informed consent from her. However, if a Stawisha Maisha eligible caregiver was a pregnant woman, mother, or caregiver younger than 18 and not married, then we obtained informed consent to interview her from the household head and informed assent from the individual female (see consent forms in online supplementary materials). This is relevant to the household surveys, where the main respondent may have been an unmarried female younger than 18 (if she was eligible for Stawisha Maisha and the only eligible female in the household). However, for community, health facility, in-depth qualitative interviews, and qualitative focus group discussions, all respondents were adults ages 18 years or older. Informed consent includes the ethical components regarding (1) objectives and content of the study, (2) privacy and data security, (3) voluntary participation, (4) the right to refuse or skip any questions without consequences, and (5) sources to follow up regarding complaints or further information on the study. Copies of consent forms were shared with respondents and were read aloud in Swahili to respondents, and consent was obtained orally and recorded via signature or thumbprint. The reason consent forms are read aloud is that some respondents may be unable or unwilling to read along, so this ensures that they understand the essence of the study and what they are agreeing to.

4.9. Data collection training and fieldwork

Quantitative and qualitative data collection trainings were held separately. Both trainings included information on the study topic, in-depth review of study tools and consent forms, and research ethics. The quantitative (including anthropometric) data collection training was held June 30 to July 8, 2023, in Bukoba. This included supervisor (n = 6), interviewer (n = 33), and anthropometric (n = 13) trainings and an outdoor field practice (July 8, 2023). The quantitative training was led by EDI Global, with support from PRESTO and TASAF study team members. Qualitative interviewer (n = 3) training was led by Empathea and was held in Dar es Salaam from July 10 to 14, 2023.

Data collection was carried out between July 11 and August 26, 2023, by EDI Global (quantitative fieldwork), with support from PRESTO personnel and Empathea (qualitative fieldwork). All data collection was carried out in Kiswahili. Before all interviews, informed

consent and assent (for children) was obtained from respondents. The respondents were informed that they could withdraw consent and cease participation at any time without any penalty. Respondents provided written consent or a thumbprint (in the case of individuals who could not write or sign their name). Quantitative data collection was carried out using computer-assisted personal interviewing (CAPI), and qualitative interviews and focus group discussions were audio-recorded and then manually transcribed and translated from Kiswahili to English. Anthropometric measurements of children younger than 60 months were taken using digital standing scales and portable measuring boards. We followed recommended methods to account for children's clothing weight in our analysis.19 If a child was clothed during their weight assessment, we subtracted 100 grams from weight measurements before calculation of anthropometric outcomes. Household questionnaires took approximately 68 minutes, on average, to complete in-depth interviews, and focus groups were conducted in person by research assistants, with a note taker present at each of the eight focus group discussions. In-depth interviews lasted approximately 60 minutes, and the focus group discussions were approximately 90 minutes long.

5. DATA ANALYSIS

5.1. Quantitative methods

Baseline analyses

This baseline report serves to (1) describe the sample used in this evaluation and (2) report baseline balance between treatment and control arms[vii] of the study to determine whether randomization was successful. To assess the latter, we have tested whether the randomization resulted in statistically equivalent treatment and control groups. We tested all primary outcome measures and control variables for statistical differences between the treatment and control groups using ordinary least squares (OLS) regression, controlling for stratification variables on the level at which randomization was implemented (region). Sampling weights were utilized and standard errors adjusted for clustering at the village level to account for the nested nature of our data, because the survey design clustered households within communities (that is, the unit of randomization). In the results section, we present pooled means (treatment and control groups together), treatment group means, control group means, and a *p*-value for each indicator's mean comparison test (as calculated by OLS regression). We define statistical significance as a *p*-value lower than 0.05 ($p < .0.05$). Differences that are not statistically significant indicate a successful randomization and baseline balance. This indicates good internal validity of the study (that is, successful randomization), which means that we can attribute observed differences at follow-up to impacts of the intervention. In contrast, statistically significant differences between study arms at baseline would indicate that the sample is not "balanced" on that outcome, and thus differences observed at follow-up waves on that same outcome may be attributable to the intervention or to systematic differences that already existed at baseline between the treatment and control groups.

Follow-up analyses

After follow-up data are collected (planned for 2025), we will analyse intervention impacts by comparing baseline data to follow-up data using analysis of covariance (ANCOVA) models. In ANCOVA models, intervention impacts are estimated as a function of the treatment indicator and a set of control variables, including the baseline value of the outcome of interest.

ANCOVA models will be specified as follows:

$$Y_{1ij} = \alpha_0 + \alpha_1 T_j + \alpha_2 Y_{0ij} + \alpha_3 X_{ij} + \varepsilon_{ij} \quad (1)$$

where Y_{1ij} is the follow-up value of the outcome of interest for the child (or caregiver) *i* living in community *j*. T_j is a dummy (binary) variable equal to one if the households resided in a

vii Treatment arms refer to which group of the study a village or individual is assigned to. In this study, there are two groups: treatment and control. The treatment arm gets the intervention, and the control arm does not.

community where Stawisha Maisha was being implemented (treatment group), and zero if the household resided in a community receiving only the PSSN II (control group). Y_{0ij} is a variable measuring the baseline value of the considered outcome, and X_{ij} is a vector of controls including sex, age at baseline, and region fixed effects. Finally, ε_{ij} is the error term. The estimated coefficient of interest is $\hat{\alpha}_1$, which measures the impact of Stawisha Maisha on the outcome of interest. In equation (1), the variable T_j is equal to one for all households living in a treatment village, even if that household's caregiver did not participate in the intervention. In this way, we will estimate intent-to-treat (ITT) impacts.

As a robustness check, we will also estimate average treatment on the treated (ATT) effects using self-reported information on attendance at the intervention activities. Although all PSSN II participating women living in a household with a child younger than 5 in treatment villages are eligible to participate in Stawisha Maisha, the decision to participate in intervention activities may be related to unobservable characteristics,[viii] which may also influence the outcomes of interest. A simple specification using participation instead of the village-level treatment indicator in equation (1) would provide biased impact estimates. Thus, we will assess ATT impacts using an instrumental variable approach, where the endogenous Stawisha Maisha participation variable will be instrumented with the exogenous village-level treatment indicator.

We will use the following two-stage least squares instrumental variable specification:

$$\text{First stage: } Attend\ Stawisha\ Maisha_{ij} = \beta_0 + \beta_1 T_j + \beta_3 X_{ij} + \varepsilon_{ij} \quad \text{(2a)}$$

$$\text{Second stage: } Y_{1ij} = \gamma_0 + \gamma_1 \widehat{Attend\ Stawisha\ Maisha_j} + \gamma_2 Y_{0ij} + \gamma_3 \gamma_{ij} + \varepsilon_{ij} \quad \text{(2b)}$$

where $Attend\ Stawisha\ Maisha_{ij}$ is a binary variable equal to one if the caregiver attended at least one Stawisha Maisha session, and zero otherwise. In the first stage, this is estimated as a function of whether the household lived in a Stawisha Maisha village ($T_j = 1$) and the vector of controls X_{ij}. The predicted value from the first stage ($Attend\ Stawisha\ Maisha_{ij}$) is then used in the second stage, in which the estimated coefficient γ_1 measures the impact of participating in Stawisha Maisha.

For anthropometric outcomes among children younger than 5, we will estimate programme impacts at endline in two ways: (1) longitudinal analysis of the panel sample of children measured at baseline and endline and (2) comparison analysis of the cross-sections of children younger than 5. In the first approach, approximately one-fifth of the children measured at baseline will age out of the eligible age range each year. Thus, the longitudinal analysis will be estimated among a subsample who were interviewed at both baseline and endline and remained younger than 5 at both rounds. In the second approach, use of ANCOVA is not possible because some children will be missing baseline measures (those

viii Unobservable characteristics refer to those which are not easily measured and may include internal motivation or other such characteristics.

who were born between rounds or who moved into study households between rounds). In the second approach using the pooled cross-sections, we will implement a difference-in-differences modelling approach.

5.2. Qualitative methods

Data analyses

An initial codebook was developed using a priori themes from the semi-structured interview and discussion guides. The codebook was tested for reliability by three research assistants through the blind test coding of one IDI and two FGDs each. After completion of the blind coding exercise, the research team discussed their findings and further refined the codebook using thematic content analysis[20] to reflect changes in the primary categories and themes, and to create the addition of sub-themes.

Once consensus was reached regarding preliminary categories and themes, transcribed and translated IDIs and FGDs were divided evenly among three research assistants and coded line by line. The categories were cross-analyzed to identify further themes and sub-themes, summarizing patterns, merging related codes into larger themes and categories, and collapsing or discarding irrelevant categories and themes. Tables were utilized to compare and ground themes across categories and to trace pathways between experiences described in the interviews.[21] Illustrative quotes were used to reflect and support key themes and sub-themes. A final codebook was established with six primary categories: (1) community composition; (2) feelings of affiliation to community; (3) household decision making and gender dynamics; (4) mother, infant, and young child feeding knowledge and practices; (5) future aspirations for children; and (6) openness to learning and change.

6. SAMPLE CHARACTERISTICS

Figure 6.1. Study regions

The regions comprised in our study sample are illustrated in Figure 6.1. The Geita region is located in the Lake Zone of Northern Tanzania; Rukwa and Ruvuma are both situated in the southern highlands on the border with Zambia. All three regions border one of the great lakes (Lakes Victoria, Tanganyika, and Malawi, respectively). According to DHS data, in all regions there is high stunting prevalence and burden and low rates of early antenatal care, exclusive breastfeeding, minimum meal frequency, and minimum dietary diversity among children ages 6–23 months.[22]

Results from the quantitative and qualitative analysis are summarized in Chapters 6 through 11. This section describes baseline characteristics for each surveyed household, including demographics of caregivers interviewed and household heads. Overall, there were no statistically significant differences between treatment and control groups. So, unless otherwise specified, the pooled mean is used when describing the sample.

6.1. Composition

Household composition is presented in Table 6.1.1. The average household size was 6.6 members with 1.6 children per household. The majority of all households interviewed at baseline (N = 2,256) had a female caregiver/survey respondent (99.4 percent). The majority of respondents were the biological mother of a child younger than 5 in the household (87.6 percent), some were the grandmother (11.1 percent), and a few were fathers, adoptive parents or stepparents, other relatives, or a non-relative. The average age of caregivers was 36.2 years old (the age range was 12 to 87). There were no statistically significant differences between the treatment and control groups for these sample characteristics.

In the qualitative sample, in-depth interview respondents were all women, nine of whom were from Ruvuma and eight from Rukwa. Respondents had a mean age of 36 (the youngest was 19, and the oldest was 70). Among in-depth interview respondents, the mean number of household members was six, the mean number of children per household was four, and the mean number of children younger than 5 per household was two. Three interview respondents were widowed, four were currently not married (they either had been separated or had never been married), and 10 were married. Eleven women had completed primary school, two had received some primary schooling, and four reported that they had received no formal education. None of the women interviewed had received formal education beyond primary school.

The mean age of focus group respondents was 37 (the youngest respondent was 18, and the oldest 78). As with the in-depth interview respondents, none of the women in the focus groups had received education beyond primary school: 25 women had completed primary school, eight reported they had some primary school education, and 15 had received no formal education.

Table 6.1.1. Sample characteristics

	Pooled mean	Treatment mean	Control mean	*p*-value
# Household members	6.634	6.595	6.674	0.657
# Children in household	1.578	1.568	1.588	0.722
Caregiver/respondent				
Age	36.199	36.221	36.175	0.837
Female	0.994	0.996	0.993	0.411
Male	0.006	0.004	0.007	0.411
Head of household				
Age	45.503	45.529	45.476	0.720
Female	0.365	0.365	0.366	0.944
Male	0.635	0.635	0.634	0.944
N	2,256	1,137	1,119	

Notes: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

6.2. Living conditions

To compare respondents to the general Tanzania population, and to understand how living conditions may influence the success of the Stawisha Maisha intervention, we asked questions related to housing conditions, water and hygiene, and sanitation.

Table 6.2.1 provides a comprehensive overview of baseline dwelling indicators, providing insights into the living conditions of the households in our baseline study. The households in our sample have an average of 2.9 rooms. Most households (more than 99 percent) had improved outer walls, whereas only 13.5 percent of households had improved flooring. Access to improved roofing materials is widespread at 63 percent.

However, piped water remains a rare commodity for most households, with just 1.3 percent having access, and 11 percent of households actively treat their water. Approximately 32.5 percent have improved toilet facilities, and the average number of households with which the households in our sample share a toilet facility is 0.5. Only 22 percent of households had soap in the dwelling.

In qualitative interviews and focus group discussions, some women reported being able to purchase water access from their neighbors. If they did not have the money to purchase water access, however, they would need to go some distance to obtain water. Respondents also pointed out that wild animals were a nuisance, and sometimes an outright threat, to their communities.

"… if an individual volunteer[s] to dig a well at their home … we as citizens contribute and draw water from it … if we don't have the money to contribute, then we have to go to a distant place for water." (Respondent 6, FGD 6, Songambele, Ruvuma)

In terms of cooking fuels, firewood is predominant in most households (91.8 percent), and torches are the most common lighting source (16.9 percent).

In summary, the baseline characteristics of living conditions in the sample show that there are no statistically significant differences between the treatment and control groups across all dwelling indicators.

Table 6.2.1. Baseline means of dwelling indicators by treatment status

	Pooled mean	Treatment mean	Control mean	*p*-value	DHS mean
Number of rooms	2.896	2.835	2.961	0.103	
Improved outer walls (mud, burnt bricks, concrete)	0.995	0.997	0.994	0.505	0.989
Improved floor (concrete/cement wood, tile)[∀]	0.135	0.155	0.115	0.244	0.369
Improved roof (metal sheets, tiles)[α]	0.631	0.654	0.607	0.221	0.833
Piped water (into dwelling, yard/plot/compound)[β]	0.013	0.012	0.014	0.798	0.026
HH actively treats water	0.110	0.105	0.116	0.510	
Improved toilet[θ] (ventilated improved pit latrine, pit latrine with slab, flush to pit (latrine), flush to piped sewer system, composting toilet)	0.325	0.312	0.338	0.658	0.585
Number of households sharing the toilet	0.497	0.490	0.504	0.760	
Household's main fuel for cooking: firewood	0.918	0.902	0.936	0.487	0.863
Dwelling main lighting source: torch	0.169	0.171	0.167	0.785	
Dwelling main lighting source: main electricity	0.062	0.069	0.054	0.559	
Dwelling main lighting source: Kerosene/paraffin lamp	0.051	0.067	0.035	0.193	
Soap in household for handwashing	0.213	0.223	0.202	0.499	
N	2,256	1,137	1,119		3,170

Notes: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. DHS means refer to means calculated among rural households in the study regions (Geita, Rukwa, and Ruvuma) using data from the 2022 DHS. Not all values of interest had an equivalent question in DHS (i.e., DHS asks the number of dwelling rooms for sleeping only).

[∀] In DHS, the flooring material categories are named wood planks, parquet or polished wood, ceramic tiles, and cement.

[α] Not all survey answer categories match those in DHS; here, we calculate for "metal" and "ceramic tile."

[β] The DHS figure does not include a piped into compound option—only piped into dwelling yard and plot.

[θ] For DHS, improved toilet includes ventilated improved pit latrine (VIP), pit latrine with slab, flush to pit (latrine), flush to piped sewer system, and composting toilet.

In summary, the treatment and control groups were balanced with respect to living conditions.

6.3. Livelihoods

Next, we delve into the livelihoods of households within our sample, beginning with an examination of baseline socioeconomic and livelihood indicators. We then explore the range of activities in which households engaged over the past year, connecting these activities to the data we collected about crops, livestock, and other relevant factors. Last, we investigate household asset ownership.

In Table 6.3.1, we present a detailed overview of baseline economic indicators. These indicators encompass essential aspects of household livelihoods, including home ownership, livestock ownership, crop cultivation in the last 12 months, participation in fish farming, operation of non-farm enterprises, the number of non-farm enterprises, involvement in TASAF livelihood activities, participation in TASAF public works programs, and food purchases made on credit over the past year.

The majority of households in our study (79.4 percent) own their dwelling. Approximately one in four households (23.5 percent) operated non-farm enterprises in the past year.

Agriculture plays a significant role in the livelihoods of the households in our study, with around 93 percent of them engaging in crop cultivation in the past 12 months. Regarding livestock ownership, most households in our sample (54.2 percent) own livestock. However, fish farming is less common (0.8 percent engage in this).

In qualitative interviews, respondents indicated that the main source of business or income in their villages involved farming enterprises. The majority of women did not own farms or land, but they cultivated crops for land that was either rented or owned by someone else in the family and took pride in the fact that they could sell and earn money from those crops. However, the price for many crops was reported to be very low, making it difficult for respondents to earn a living wage from what they sold. The crops varied marginally between villages but consisted primarily of maize, soy, sunflowers (for oil), sorghum, and tobacco (in Ruvuma).

> *“The difficulty is in the business … you cultivate, but you don’t succeed, the price is too low … that is, even if you farm, the price we have for sale is not the supposed price.” (Respondent 7, FGD 4, Mwinuko, Ruvuma)*

Some respondents reported animals eating their crops or causing major destruction to their farmland, which left them without both food and the potential for income.

> *“If you cultivate corn, you succeed, but this year we have hit the wall, there is nothing because of these elephants. If elephants [hadn’t] been here we would have reaped a lot.” (IDI 14, Likuyu, Ruvuma)*

Overall, poverty was cited as the primary challenge in the communities. Without income, it was nearly impossible to purchase essential farming equipment—such as plowing cows, fertilizer, or pesticides, which would have made it easier to farm or cultivate crops—leaving respondents with little recourse to lift themselves out of poverty. Because respondents were unable to save food or money at any point in time, they were left with low food stores during the rainy season. Almost one in 10 households (9.2 percent) resorted to buying food on credit in the last year. They could not rely on purchasing food in town, as that required money (to pay for the food) and transportation, which many respondents lacked. Furthermore, markets did not always stock the type of food respondents liked, so even if they could afford to purchase food and find transportation to a market (which many could not), preferred foods still might not be available.

> *"[Markets] don't have the capacity to stock everything. But if you have money, you can find someone … availability-wise, things like bananas and groundnuts, you need to plan a trip to find someone who has the specific type of bananas you need for the dish and mix it with meat. You can get meat if you board a van or motorcycle and travel to the next place, but here, it is not readily available." (Respondent 6, FGD 6, Songambele, Ruvuma)*

In terms of participation in TASAF livelihood activities and public works programs, 16.9 percent and 71 percent of households, respectively, have been involved in these programs in the past year.

Table 6.3.1. Socioeconomic and livelihood indicators, by treatment status

	N	Pooled mean	Treatment mean	Control mean	*p*-value
Own the dwelling	2,256	0.794	0.785	0.804	0.662
Own livestock	2,256	0.542	0.536	0.547	0.777
Grown crops in last 12 months	2,256	0.930	0.932	0.927	0.833
Engaged in fish farming in last 12 months	2,256	0.008	0.010	0.005	0.284
Operates a non-farm enterprise in last 12 months	2,256	0.235	0.233	0.237	0.722
Number of non-farm enterprises[∀]	483	1.087	1.081	1.092	0.743
Participated in TASAF livelihood activity in last 12 months	2,244	0.169	0.193	0.142	0.184
Participated in TASAF public works program in last 12 months	2,244	0.710	0.720	0.701	0.982
Bought food on credit in last 12 months	2,256	0.092	0.097	0.087	0.551

Notes: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. Observations where respondents refused to answer or didn't know the answer were dropped.

[∀]Conditional on a household reporting it operated any non-farm enterprises within the last 12 months, including operating a store, transport service, home brewing, or trade.

Table 6.3.2 displays the participation rates in various livelihood activities over the past 12 months. Households in the treatment group showed higher engagement in livelihood and entrepreneurial training than those in the control group, with participation rates of 46.9 percent and 25.6 percent, respectively (the difference is statistically significant). All other activities were balanced between treatment and control groups.

Table 6.3.2. Activities the household participated in over the last 12 months[∀]

	Pooled mean	Treatment mean	Control mean	*p*-value
Savings groups	0.014	0.018	0.009	0.205
Livelihood/entrepreneurial training	0.064	0.090	0.036	0.029*
Received a productive grant	0.137	0.150	0.123	0.441
Linkages to agricultural extension officer or other livelihood services	0.017	0.022	0.011	0.158
N	2,256	1,137	1,119	

Note: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village-level.

[∀] Conditional upon a household reporting that any member participated in livelihood enhancement activities under TASAF in the past 12 months.

Table 6.3.3 offers a comprehensive overview of the crops cultivated, consumed, and sold by sample households within the past 12 months, providing insights into their agricultural practices and dietary habits.

Maize emerged as the most widely cultivated crop, with 93.3 percent of households having participated in its cultivation. The second and third most commonly grown crops were beans and pulses (42.2 percent) and sweet potatoes (32.9 percent). When it comes to consumption, maize remains the dominant crop, with 88.8 percent of households having included it in their diets, reinforcing its central role as a staple food source. The second most consumed crop was beans or pulses, with 38.1 percent of households incorporating them into their meals, followed by sweet potato at 31.8 percent. Maize emerges as the top crop sold, with 19.8 percent of households having participated in its sale. These data underscore the significance of maize, beans or pulses, and sweet potato in both cultivation and consumption, while also emphasizing the potential income-generating opportunities presented by maize within our study population. The only significant disparity between treatment and control groups is the proportion of households selling the beans and pulses that they grew.

Table 6.3.3. Baseline means crops grown, eaten, and sold by households in the last 12 months[∀]

	Crops grown				Crops grown and eaten				Crops grown and sold			
	Pooled	Treated	Control	*p*-value	Pooled	Treated	Control	*p*-value	Pooled	Treated	Control	*p-value*
Bananas	0.133	0.130	0.136	0.979	0.119	0.120	0.117	0.717	0.020	0.024	0.015	0.119
Barley	0.001	0.000	0.001	0.313	0.001	0.000	0.001	0.313	0.000	0.000	0.000	-
Beans or pulses	0.422	0.449	0.393	0.212	0.381	0.399	0.362	0.390	0.083	0.112	0.053	0.005**
Cassava	0.315	0.282	0.350	0.244	0.270	0.246	0.295	0.395	0.043	0.036	0.051	0.407
Coffee	0.015	0.016	0.014	0.894	0.006	0.008	0.004	0.502	0.009	0.010	0.009	0.897
Cowpeas	0.068	0.073	0.064	0.510	0.061	0.062	0.059	0.658	0.006	0.005	0.008	0.586
Groundnut	0.217	0.241	0.192	0.122	0.202	0.226	0.177	0.118	0.040	0.047	0.031	0.189
Irish potato	0.036	0.047	0.025	0.275	0.033	0.043	0.023	0.268	0.005	0.006	0.004	0.670
Maize	0.933	0.938	0.926	0.463	0.888	0.884	0.891	0.891	0.198	0.209	0.187	0.459
Millet	0.048	0.050	0.046	0.720	0.043	0.045	0.041	0.725	0.007	0.008	0.006	0.623
Rice	0.237	0.220	0.255	0.511	0.223	0.206	0.241	0.509	0.069	0.066	0.073	0.822
Sorghum	0.002	0.002	0.003	0.623	0.002	0.002	0.002	0.823	0.000	0.000	0.001	0.306
Soybean	0.110	0.097	0.124	0.390	0.059	0.050	0.068	0.332	0.075	0.059	0.091	0.182
Sweet potato	0.329	0.329	0.330	0.721	0.318	0.314	0.321	0.864	0.047	0.041	0.053	0.378
N	2,091	1,049	1,042		2,091	1,049	1,042		2,091	1,049	1,042	

Note: * Significant at $p < .05$, ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

[∀] Five percent of households also reported growing other crops, though categories were not specified.

In summary, our data highlight the similarity between the treatment and control groups with respect to livelihood-related indicators, enhancing internal validity of the study.

6.4. Assets

Table 6.4.1 summarizes typical household items and assets owned by any member of the household and in good working condition, providing further information on the economic status of our sample households.

Ownership of mobile phones was widespread; approximately 85.3 percent of households in our sample possessed them, underlining the pivotal role of mobile phones in modern communication. Radios and radio cassette players in good working condition were only owned by one in five households (19.8 percent).

Livestock ownership also stands out; roughly 54.2 percent of households engaged in this economic activity, illustrating its centrality in households' livelihoods. In contrast, assets such as smartphones (owned by approximately 2 percent) and electric stoves (owned by about 0.4 percent) were less commonly found, reflecting disparities in access to more modern technology and household appliances.

In summary, we observe no statistically significant differences between the treatment and control groups, emphasizing the overall consistency in asset ownership patterns across the two groups.

Table 6.4.1. Mean ownership of assets, by treatment status

	Pooled mean	Treatment mean	Control mean	*p*-value	DHS mean[∀]
Radio/radio cassette player	0.198	0.196	0.200	0.847	0.349
Mobile phone (any kind)	0.853	0.855	0.850	0.936	0.503
Smartphone	0.020	0.022	0.017	0.612	0.170
Refrigerator/freezer	0.002	0.001	0.002	0.638	0.007
Iron (charcoal or electric)	0.013	0.011	0.015	0.521	
Table	0.263	0.273	0.253	0.409	
Television	0.021	0.021	0.021	0.917	0.139
Chair	0.534	0.556	0.510	0.226	
Sofa	0.028	0.032	0.024	0.399	
Bed	0.410	0.423	0.396	0.482	
Cupboard	0.016	0.014	0.018	0.490	
Watch	0.023	0.024	0.021	0.654	
Hoe	0.906	0.903	0.910	0.556	
Motorcycle	0.026	0.026	0.027	0.956	0.148
Bicycle	0.150	0.148	0.152	0.898	0.433
Books	0.044	0.054	0.034	0.203	
Livestock	0.542	0.536	0.547	0.777	
Charcoal stove	0.148	0.167	0.128	0.419	
Electric stove	0.004	0.005	0.002	0.503	
N	2,255	1,137	1,118		3,170

Notes: * Significant at p <.05; ** p <.01. p-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. DHS means refer to means calculated among rural households in the study regions (Geita, Rukwa, and Ruvuma) using data from the 2022 DHS.

[∀] Not all items were available in DHS data for comparative analysis.

6.5. Food and water insecurity

Table 6.5.1 illustrates households' experiences with food and water insecurity. Measures were drawn from the Household Food Insecurity Access Scale (HFIAS)[23] and the Household Water Insecurity Experiences (HWISE) Scale.[24] Nearly 61 percent of households experienced food insecurity; 17.7 percent experienced moderate food insecurity (defined as eating the same foods or undesirable foods sometimes or often, and/or reducing the size of meals or number of meals, rarely or sometimes[23]), and 42.6 percent experienced severe food insecurity (defined as cutting back on meal size or number of meals often, and/or running out of food, going to sleep hungry, or going a full day and night without food[23]). About one in four households (26.2 percent) experienced water insecurity. There were no statistically significant differences between the treatment and control groups in either food or water security indicators.

Qualitative findings suggest that when water or food was difficult to obtain for the household, it put strain on marital relationships. None of the women indicated that the strain was an unbearable amount, however, nor that it was detrimental to their relationships overall. They suggested that they were able to work through the conflict with their partners.

> *"… there is a conflict … in the middle, now, because you can't live happily together without food in the house." (IDI 11, Isale, Rukwa)*

Table 6.5.1. Food and water insecurity

	Pooled mean	Treatment mean	Control mean	*p*-value
Proportion of households experiencing any food insecurity	0.606	0.601	0.612	0.658
Mild food insecurity	0.004	0.007	0.001	0.228
Moderate food insecurity	0.177	0.177	0.176	0.955
Severe food insecurity	0.426	0.420	0.433	0.675
Proportion of households experiencing water insecurity	0.262	0.287	0.234	0.120
N	2,256	1,137	1,119	

Notes: * Significant at p <.05; ** p <.01. p-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

7. ACCESS TO MEDIA

An underlying assumption of the Stawisha Maisha intervention is that edutainment messages can be communicated and received via radios and, consequently, contribute to social behavioural changes. Moreover, TASAF is increasingly interested in understanding whether radio can be better utilized to communicate important messages to PSSN II participants. To better understand access to and use of media, particularly radios, we asked questions of individual respondents in the household questionnaire, as well as community leaders in the community questionnaires (see Chapter 11 for more information on communities).

7.1. Household-level access

As noted in Section 6.4, only one in five households (19.8 percent) own a radio or radio cassette player in working condition. This is an important statistic for the current intervention and evaluation, as it shows that a large majority of households do not own a radio. Thus, the intervention's provision of free solar-powered radios to the discussion groups will be crucial in facilitating households' ability to take up the intervention.

Approximately 21 percent of caregivers reported listening to the radio at least once per week or more (Table 7.1.1). Although a little more than half of respondents reported using a mobile phone (56 percent), only 22 percent of those with a mobile phone used it to listen to radio broadcasts. The treatment and control groups were similar in terms of radio use and had no statistically significant differences. Previous research from Tanzania underscores the gender gap in mobile phone ownership and usage in Tanzania, as well as considerable turnover of mobile phone ownership.[25] Even when a household owns a phone, women may not have equal access to its use, and this gender gap has important implications for phone-related intervention programming as well as for financial inclusion and the potential for women's control over e-payments of cash transfers.

When asked about whether respondents trust information from the radio, a little more than 80 percent of caregivers stated they would trust information about nutrition from a radio program, whether they currently owned a radio or not (Table 8.4.1). This suggests that although access to radios is a barrier, once households have a radio or can access one, they trust the information provided through this method of communication.

As highlighted in Section 8.4, qualitative findings support this trust in information from the radio. However, the majority of respondents in both focus groups and interviews reported that they did not own a radio; when they did, it often appeared to be broken or there was limited access to stations because the villages were so remote. Among focus group respondents, 12 of the women reported they did not own a radio, five women owned a radio (of those, two women indicated that their radios were currently broken), and none of the interview respondents reported listening to the radio on their mobile phones.

In the qualitative findings, respondents reported that when they were able to listen to the radio, it was primarily either music or the news, often citing night programmes from TBC Taifa, Radio Free Africa, or Seluz FM. Occasionally, respondents mentioned listening to

mother and child nutrition programmes as well. Qualitative findings also support the quantitative results in that respondents said they trusted information from the radio. However, access to radios was limited, and many respondents reported that they could not listen at all or listened to whatever their neighbors had playing on their radio.

> *"Sometimes … you can't follow because a radio is in other people's house." (IDI 15, Swaila, Rukwa)*

Very few women reported that they accessed the radio on their mobile phones, as many did not have a phone. Considering the rural population we interviewed, challenges with charging the phone due to lack of electricity may also contribute to low utilization of a phone to listen to the radio.

> *"I don't have a radio, can you get a radio with all this poverty?" (IDI 1, Swaila, Rukwa)*

These findings on lack of ownership of radios or ability to access radio broadcasts on their phones suggest that TASAF efforts to rely on radio as a major method of communication may exclude many households from receiving important messages, unless efforts are made to increase access.

Table 7.1.1. Radio use

	Pooled mean	Treatment mean	Control mean	*p*-value	DHS mean
Listens to radio at least once per week	0.211	0.207	0.215	0.772	.260[a]
Uses a mobile phone	0.558	0.550	0.566	0.651	-
N	2,256	1,137	1,119		925
Listens to radio broadcast on mobile phone at least once per week	0.229	0.254	0.203	0.192	-
N	1,297	632	665		

Notes: * Significant at p <.05; ** p <.01. p-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. DHS means refer to means calculated among rural households in the study regions (Geita, Rukwa, and Ruvuma) using data from the 2022 DHS.
[a] Calculated among women ages 15 to 49 years.

7.2. Community-level access

According to community leaders, radio and television were the most common media outlets in the majority of sample villages. Community leaders estimated that one in three community members regularly tuned in to a radio broadcast on their mobile devices, and almost half the community listened to physical radios. [ix]

Notably, there was little difference between the treatment and control groups, suggesting that listening patterns, without additional encouragement to listen to the Stawisha Maisha

[ix] These are estimates for the entire community, whereas the program targets those in the lowest socioeconomic decile, so this may not directly reflect the behaviour of sample respondents.

programming, are likely to be similar across all communities. Furthermore, two in three villages also reported the internet as a source of media for their community members.

Interestingly, lack of radio and internet signal were the most common barriers to media consumption, reported by around half of the study communities.

Table 7.2.1. Media consumption habits by community members

	Pooled mean	Treatment mean	Control mean	*p*-value
Sources				
Radio	0.987	1.000	0.973	0.155
Television	0.960	0.933	0.987	0.096
Newspaper	0.053	0.080	0.027	0.142
Internet	0.660	0.600	0.720	0.111
Proportion of community listening to radio broadcast on the radio each week	0.464	0.466	0.461	0.904
Proportion of community listening to radio broadcast on a mobile phone each week	0.338	0.32.3	0.352	0.452
Barriers				
Lack of internet	0.460	0.387	0.533	0.066
Lack of radio signal	0.513	0.493	0.533	0.614
Lack of electricity	0.407	0.373	0.440	0.409
Lack of power sources to charge devices	0.187	0.213	0.160	0.404
Language/literacy barriers	0.140	0.160	0.120	0.480
N	150	75	75	

Notes: * Significant at p <.05; ** p <.01. p-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the community level.

8. CAREGIVER KNOWLEDGE AND ATTITUDES

Improving child caregivers' nutrition-related knowledge and attitudes is an important first step in spurring behaviour change. Thus, knowledge and attitude are key pathways for improving long-term child nutrition outcomes in Stawisha Maisha. We examined baseline caregive

r nutrition knowledge, attitudes towards nutrition-related practices, normative beliefs about nutrition-related behaviours, and related facilitators of nutrition-related behaviour change.

8.1. Nutrition knowledge

Table 8.1.1 presents caregivers' knowledge about antenatal care and nutrition-related recommendations for pregnant women, infants, and young children. Indicators in this section were analyzed according to UNICEF and WHO infant and young child feeding (IYCF) best practices.[26]

Maternal nutrition knowledge

Maternal nutrition knowledge was assessed with a question asking how pregnant women should eat in comparison to non-pregnant women to provide good nutrition for their baby and help them grow. Only about one-quarter of caregivers correctly indicated that pregnant women should eat diverse types of food (23.7 percent) and an extra meal per day (26.6 percent) (Table 8.1.1). We also asked caregivers to name any supplements or tablets that are beneficial during pregnancy. Only slightly more than half (52.0 percent) identified folic acid supplements or a pill containing iron and folic acid as a beneficial supplement for pregnant women. Knowledge of maternal nutrition, as measured by quantitative data, was relatively low, indicating considerable potential for the intervention to improve this outcome.

Qualitative findings indicated that women knew it was important to eat a healthy diet while pregnant, and for them, antenatal care appeared to be synonymous with getting proper nutrition for the pregnant woman.

> *"[Antenatal care services are] to give her foods that support her body." (IDI 3, Likuyuseka, Ruvuma)*

Table 8.1.1. Maternal nutrition knowledge

	Pooled mean	Treatment mean	Control mean	*p*-value
Eat a diverse diet during pregnancy	0.237	0.215	0.260	0.204
Extra daily meal during pregnancy	0.266	0.282	0.249	0.232
Folic acid supplementation	0.520	0.501	0.539	0.425
N	2,256	1,137	1,119	

Notes: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. Means refer to the proportion of caregivers who answered correctly for each knowledge indicator.

Infant nutrition knowledge

The rate of awareness about early initiation of breastfeeding was fairly high, with 82.2 percent of respondents stating that breastfeeding should begin immediately or within one hour of a child's birth (Table 8.1.2). We assessed knowledge of exclusive breastfeeding by first asking caregivers if they knew what the phrase meant (a correct answer was defined as "no foods or liquids other than breast milk"). We then asked all caregivers how long a child should be exclusively breastfed (correct response was six months). Only 21 percent of caregivers had full knowledge of exclusive breastfeeding—that is, they correctly defined both the phrase and age recommendation. Approximately 61 percent of respondents knew that breastfeeding should continue up to age 2 or beyond. Accurate knowledge of recommended breastfeeding practices, as measured by quantitative data, was relatively low, indicating considerable potential for the intervention to improve this outcome.

Descriptions of maternal nutrition knowledge and exclusive breastfeeding knowledge in the qualitative interviews were similar to responses from the surveys. Respondents reported that they did not know about maternal and child nutrition before they became parents, and that even while they were pregnant, they did not consume nutritious foods.

> *"... before becoming a parent, I still didn't understand [nutrition] well." (Respondent 4, FGD 4, Mwinuko, Ruvuma)*

> *"When I was pregnant, I never had nutritious food, I have never eaten nutritious food." (IDI 1, Swaila, Rukwa)*

Qualitative findings indicated high knowledge of the recommended breastfeeding practices, including early initiation of breastfeeding (immediately after birth), exclusive breastfeeding, and continued breastfeeding up to age 2 or beyond, with the majority of respondents understanding that mothers should exclusively breastfeed their babies until they were least 6 months old. After that, it was considered acceptable to start feeding the child porridge, but that one could continue supplementing breastfeeding a child up to 24 months or beyond.

> *"Eeeh, when [the baby] gets to six months, I start giving him porridge." (Respondent 1, FGD 2, Lunyala, Rukwa)*

Furthermore, though qualitative data indicated that caregivers understood they should breastfeed exclusively until children were at least 6 months old, many reported that mothers were sometimes unable to produce enough milk to do so (due to lack of nutritious foods for the mother) and would start giving porridge in these cases.

> *"First the mother is [supposed] to eat enough food … nowadays the food is not … available, it is you and ugali … now that baby, first the milk doesn't come out. So, you find the baby gets sad … all the time he cries." (Respondent 4, FGD 5, Mgombasi, Ruvuma)*

Respondents perceived that a mother's lack of nutritious food can lead to reduced milk production, and this sometimes leads women to breastfeed less—a response that will reduce milk supply. Moreover, the pressure to start giving supplemental food to infants as

reported by caregivers in qualitative interviews could be coming from other adults, especially those who consider themselves more experienced with parenting. The idea that breast milk alone is not sufficient for babies is a common myth that sometimes leaves new mothers confused about whether to listen to recommendations from health care professionals about exclusive breastfeeding for six months or whether to listen to older women who may be insisting that the baby is not full with breast milk only.

Young child nutrition knowledge

Regarding knowledge about young child nutrition, we asked respondents to indicate which foods provide key nutrients for children—specifically, iron and vitamin A. Caregivers had a slightly higher rate of knowledge of vitamin A-containing foods (60.7 percent) than iron-rich foods (54.1 percent). Qualitative interviews showed that respondents understood nutritious food to be a combination of several types of food—such as corn, sorghum, groundnuts, beans, sardines, and rice—for both themselves and their children. Though higher than in some outcomes, knowledge of vitamin-rich foods, as measured by quantitative data, was relatively low, indicating considerable potential for the intervention to improve this outcome.

> *"For us, we do like eating ugali with just beans and … green vegetables." (IDI 15, Swaila, Rukwa)*

We also evaluated caregivers' knowledge about how to feed children during illness. Diarrhea episodes can have detrimental effects on child growth, so it is important for caregivers to know how to treat and feed children with this illness. Close to 71 percent of caregivers knew that children with diarrhea should be given oral rehydration salts (ORS), but only 3.3 percent knew that they should be given more liquids than usual and the same or more food and breast milk than usual.

Child growth monitoring knowledge

Monitoring a child's growth typically involves health visits where a health care provider marks the child's status on a standard growth curve card. To evaluate whether caregivers knew how to interpret their child's growth curve, we provided a sample card with a marked point and asked what this example says about the child. Only about half of caregivers (51.4 percent) correctly knew what the sample growth curve meant. This indicates considerable potential for the intervention to improve this outcome.

Qualitative responses about child growth and development indicated that caregivers understood that children needed to go to the clinic regularly from the time they were about 1 month old through age 5, to ensure that they were healthy and growing properly. They felt that good development meant the child should be behaving "normally" (as compared with other children or siblings) and equated increased weight with better growth for children.

> *"After that [the child] increases six kilograms, seven kilos, eight, nine, up to ten. I am there and I know my child is growing well." (Respondent 5, FGD 5, Mgombasi, Ruvuma)*

In addition, participants suggested that measuring their children's height against other children their age was a good indicator for understanding whether their child was stunted or healthy.

> *"You see that your child is not growing, you will find that they were born on the same date, but the other person's child grows well while yours is stunted, you start questioning why is my child stunted, he is not growing." (Respondent 3, FGD 2, Lunyala, Rukwa)*

In summary, there were no statistically significant differences in caregivers' knowledge of baseline nutrition between the treatment and control groups across all indicators.

Table 8.1.2. Infant and child nutrition knowledge

	Pooled mean	Treatment mean	Control mean	*p*-value
Immediate breastfeeding or within one hour of birth	0.821	0.842	0.799	0.168
Exclusive breastfeeding (correct age and definition)	0.213	0.237	0.187	0.163
Continued breastfeeding to 24 months	0.611	0.597	0.626	0.471
ORS treatment for child diarrhea	0.709	0.693	0.725	0.386
Increase fluid during episode of diarrhea in children	0.033	0.030	0.037	0.550
Correct interpretation of growth curve	0.514	0.502	0.528	0.384
Iron-rich foods	0.541	0.559	0.523	0.262
Vitamin A-rich foods	0.607	0.613	0.600	0.640
N	2,256	1,137	1,119	

Notes: * Significant at p <.05; ** p <.01. p-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. Means refer to proportion of caregivers who answered correctly for each knowledge indicator.

8.2. Attitudes and norms

In addition to improving understanding of nutrition guidelines and best practices, Stawisha Maisha aims to improve caregivers' positive attitudes, norms, self-confidence, and decision-making abilities as they each relate to maternal and child nutrition. Improving these facilitators of change is key to translating knowledge into behaviour.

Social norms can heavily influence nutrition-related behaviours. To assess caregivers' perceptions of norms, we developed questions based on the U.S. Agency for International Development's (USAID) "Focusing on Social Norms: A Practical Guide for Nutrition Programmers to Improve Women's and Children's Diets."[27] Given the importance of eating additional food during pregnancy to ensure a baby's healthy growth and development, we assessed caregivers' perceptions of norms about this recommended maternal nutrition practice. We created a positive norm indicator based on three questions assessing perceptions of descriptive norms (what caregivers believe other mothers do), injunctive norms (what others think is suitable), and injunctive norm sanctions (what negative consequences could occur if they ate more during pregnancy). Only 17.1 percent of women perceived positive social norms about eating extra food during pregnancy, and

only 31.6 percent have the perception that many mothers bring their child for health services that include growth monitoring (Table 8.2.1).

In alignment with the "Guidelines for Assessing Nutrition-Related Knowledge, Attitudes and Practices"[28] from the Food and Agriculture Organization (FAO) of the United Nations, we asked caregivers questions related to perceived benefits of nutrition practices. We also adapted items from the Montreal Children's Hospital Feeding Scale[29] to assess stress and worry around changing feeding practices. Nearly all caregivers stated it was "good" to feed children a diverse diet and to feed them several times a day. However, many caregivers reported being stressed (66 percent) about both feeding children more frequently and feeding children more diverse types of food. Less than half of caregivers (48.8 percent) were confident in preparing nutritious foods for their child, but more than 90 percent felt they had the power to make their own decisions regarding their child's health and nutrition. There were no statistically significant differences between treatment and control groups for any attitude or norm indicators.

Qualitative findings echo this stress and lack of confidence surrounding nutritious food, both in providing and preparing it. The caregivers understood the importance of proper nutrition for themselves and their children, but without the necessary resources to access adequate foods or clean water, they were forced to feed their children less nutritious options. The respondents felt they had the appropriate knowledge but lacked the means to provide healthy foods for their families because they did not have the resources to do so. Despite this perceived knowledge, quantitative findings demonstrated some lack of nutrition-related knowledge, including which foods are rich in iron and vitamin A, only 54 percent and 60.7 percent of the sample, was knowledgeable about each nutrient respectively.

> *"Self-confidence is there, nutrition itself is the same, when you get ugali you eat ugali, when you get bananas eat bananas, other days you don't have anything." (Respondent 1, FGD 4, Mwinuko, Ruvuma)*

In terms of decision-making power regarding children's health and nutrition, qualitative findings were mixed. Caregivers in interviews and focus groups did not appear to feel pressured to make decisions based on what the community wanted. Even when it came to their elders, the women would listen but act on their own knowledge or experience; they trusted their knowledge and made decisions for themselves and their families based on what they felt was right, not what they were expected to do.

> *"If I am not satisfied with the matter itself, I just refuse, I mean, I can probably answer them that it is okay, I can agree, but can't do what they say." (IDI 8, Mgombasi, Ruvuma)*

However, decision-making dynamics within households were more complicated. Although most women identified men as the primary decision makers in their households, there was some complexity surrounding decision-making dynamics. Men universally controlled the money for the household (being head of household) and thus ultimately controlled how to spend the money. However, women felt they knew the needs of the household and the children better (such as when food ran out in the household, or what kind of food children

need), so they informed their husbands of household needs. The man could then decide what to spend the money on based on the woman's advice.

> *"... I don't have the ability to find money … I'm here asking for money from my husband so I can buy vegetables." (Respondent 5, FGD 5, Mgombasi, Ruvuma)*

When their husbands were not responsible with money, or were dismissive when the women attempted to be involved in decision making (for example, schooling for the children or the children's health), the women felt as though they needed to step in and act as decision makers in the household. They did this because the children would suffer (they would go hungry or not attend school) if the women did not step up.

> *"He [my husband] takes the money and goes to do as he wants, or takes it to the pub to do whatever pleasure he wants—would you continue involving him [in your decisions]?" (Respondent 2, FGD 8, Mabatini, Rukwa)*

In households where both a husband and mother-in-law were present, they appeared to make decisions jointly. When a woman was head of household because her husband or the father of her children had left or passed away, she was usually solely responsible for all household decisions, including those surrounding childcare and food procurement.

> *"My husband … and my mother-in-law [make decisions] …" (IDI 6, Songambele, Ruvuma)*

Table 8.2.1. Nutrition attitudes and norms

	Pooled mean	Treatment mean	Control mean	*p*-value
Good to feed child several times a day	0.965	0.956	0.975	0.054
Good to feed child diverse diet	0.966	0.959	0.973	0.240
Stressed about feeding child more frequently	0.660	0.662	0.658	0.850
Stressed about feeding child more diverse foods	0.661	0.665	0.656	0.731
Confidence in preparing nutritious foods for child	0.488	0.492	0.483	0.863
Power to make own decisions about child health and nutrition	0.911	0.919	0.903	0.373
Positive social norms about eating extra during pregnancy	0.171	0.179	0.163	0.615
Positive social norms about bringing child for growth monitoring	0.316	0.333	0.298	0.378
N	2,256	1,137	1,119	

Notes: * Significant at p <.05; ** p <.01. p-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. Means refer to the proportion of caregivers who answered affirmatively for each attitude or norm.

8.3. Social capital, resiliency, and problem solving

Stawisha Maisha respondents live in rural households experiencing high levels of poverty. Given the setting of the intervention, it is important to understand caregivers' resiliency, or their ability to adapt to and overcome difficult life situations as well as their connection to

social networks, including peers and groups, and belief in their own ability to solve nutrition problems.

Table 8.3.1 reports social capital, resiliency, and problem-solving indicators. We assessed baseline resilience with the Connor-Davidson Resilience Scale-10.[30] This scale includes items such as, “I think of myself as a strong person when dealing with life’s challenges and difficulties” and asks respondents to rate the statements from ”Not true at all” to “True nearly all the time.” The mean caregiver resiliency rating was 3.2, where 1 is the lowest resiliency and 10 is the highest (Table 8.3.1).

Respondents were also asked three questions about their confidence in coming up with solutions to problems related to feeding children and their own nutrition during pregnancy. These three items were combined to create an indicator for self-efficacy in nutrition problem solving. The average self-efficacy in problem solving was a little more than 2.9, where 1 is the lowest and 4 is the highest self-efficacy. Finally, about 70 percent of caregivers felt there is a group of peers with whom they have a sense of belonging and membership. There were no statistically significant differences between the treatment and control groups for any of the indicators in this subsection.

Qualitative interviews and focus group discussions explored general community support and feelings of affiliation to community groups. There was a sense of support from the community among the women and their neighbors. Funerals, disasters, and life celebrations were all reasons for the community to come together and help one another. The women reported that even if they were unable to assist their neighbors financially, they would provide food, advice, or moral support instead. They also indicated that community members aided one another in farming or agricultural work to ensure the success of the crops for the entire village.

> *“There is support, when I am in hard condition, I don’t have flour, I borrow flour from my neighbor, and I cook for my children.” (Respondent 1, FGD 5, Mgombasi, Ruvuma)*

Formal community groups and organizations seemed to require dues, and many respondents indicated that they could not always afford to spend the money or did not have it to begin with. These groups primarily operate on what is socially known as “merry go round” policies, where members pay a small sum weekly and can then borrow against their savings. The women who did participate in and pay dues to an organization felt as though the group was misspending their money and that it was not worth the cost to be involved. Overall, a majority of the respondents appeared to have a negative perception about the groups, and the majority did not participate in them.

> *“There are groups, but they are often conflictual … I really tried my best last year and joined … but I saw that there is a certain necessity … that … those who have business, you are … needed to … contribute one thousand every month.” (IDI 4, Lunyala, Rukwa)*

However, the qualitative respondents’ reported negativity towards the groups may also be due to the lack of funds for the weekly contributions, which work best for those with more

secure income streams. This may be hard to achieve for those in PSSN II households, which are very low income.

Table 8.3.1. Social capital, resiliency, and problem solving

	Pooled mean	Treatment mean	Control mean	*p*-value
Proportion who feel a sense of belonging and membership with a group of peers	0.701	0.703	0.698	0.867
Self-efficacy in solving child and maternal nutrition problems (1-4)	2.974	2.964	2.984	0.666
Self-rated resiliency (1-10)	3.176	3.139	3.214	0.152
N	2,256	1,137	1,119	

Note: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

8.3.2. Support for breastfeeding mothers

Qualitative data also explored whether and how breastfeeding mothers received support. Most women indicated that they received postpartum and breastfeeding support for a few days to a week, at most, after they had given birth, if they received support at all.

> *"After giving birth you get helped for one week (seven days), thereafter, you should know where to look for food and the man doesn't know that he should look for vegetables for his partner to eat and recover her body, that thinking is not there … this is not a lie." (IDI 3, Likuyuseka, Ruvuma)*

Husbands provided some support in terms of taking over the woman's duty of getting water (which was often very far away) or chopping wood. Mothers-in-law, while seen as helpful in varying degrees, occasionally would help with cleaning or water provision in the days following a birth as well. Neighbors appeared to be the most supportive, provided that the woman had relationships with them before she gave birth. Once the mother and newborn arrived at home, neighbors supported the woman by cooking, watching her other children, helping her to shower, bathing the baby, or bringing water or food to her house.

> *"I want to cook, the child starts crying, the neighbor says, stay, I will cook for you …" (Respondent 2, FGD 1, Lyele, Rukwa)*

Regardless of whether they had support, there was a general expectation that women would resume working a short time after giving birth, with insufficient time for recovery. Respondents indicated that new mothers would take their babies with them while they went to work cultivating the farms just days after giving birth. If a woman did not work, she did not eat.

> *"Or you put her [the newborn] there, like under the tree, you pass by to watch her while working." (Respondent 3, FGD 5, Mgombasi, Ruvuma)*

In a few cases, women reported that no one helped them.

> *"When I give birth, everything [work] is on me." (Respondent 3, FGD 4, Mwinuko, Ruvuma)*

8.4. Sources of nutrition information

This subsection presents baseline findings for caregivers' current trust and recall of nutrition information from various sources. Stawisha Maisha involves radio and discussion group components, and it is important to understand where caregivers are learning about nutrition and which sources they trust. Table 8.4.1 displays nutrition information indicators. Nearly two-thirds (63.7 percent) of respondents had heard or seen something about nutrition in the last 12 months (for example, from a community health worker, on the radio, or on a flyer). Slightly more than 80 percent of caregivers stated they would trust information about nutrition from a radio program. There were no statistically significant differences between the treatment and control groups in terms of sources and trust in nutrition information. Given that a high percentage of respondents already received nutrition information from the radio, the potential for the intervention to improve this outcome is somewhat limited.

Qualitative findings support this trust in information from the radio. Caregivers indicated that they were aware of and listened to a nutrition programme broadcast on a local radio station whenever they were able to. They appeared to find the information on this programme both helpful and trustworthy.

> *"... they [the radio programme] usually talk about nutrition … you hear a bit and then you move on … I trust them." (Respondent 3, FGD 7, Isale, Rukwa)*

In addition, qualitative respondents nearly unanimously indicated that they received their nutrition information from the clinics or dispensaries near their villages, and that they trusted the clinic workers and the information received from them. The women felt as though they could see results in the health of their children from the nutritious foods recommended by the clinic workers, and it made them trust in the advice they received there.

> *"Let's give children one of the nutritious items, a well-balanced diet that includes peanuts … rice, banana, meat, and soy … we are advised at the health center." (Respondent 3, FGD 6, Songambele, Ruvuma)*

> *"Mm, truly for me, any advice, I take them from the health centers." (Respondent 2, FGD 8, Mabatini, Rukwa)*

There was general agreement that clinic staff members were well trained and that they could be trusted because of their education and their experience traveling to many places.

> *"The nurse has studied … many things … she has gone through all the places, she knows all those things, that's why we trust them." (Respondent 3, FGD 4, Mwinuko, Ruvuma)*

Table 8.4.1. Nutrition information

	Pooled mean	Treatment mean	Control mean	*p*-value
Heard about nutrition from any source in last 12 months	0.637	0.635	0.640	0.827
Trust in nutrition information on radio	0.805	0.816	0.794	0.347
N	2,256	1,137	1,119	

Note: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

8.5. Aspirations and openness to change

The majority of caregivers (90 percent) agreed or strongly agreed that they aspired for their child to have a better life than them (Table 8.5.1). A similar proportion (89 percent) agreed or strongly agreed that they were open to learning and change regarding maternal and child nutrition.

Qualitative data explored what caregivers felt they and their children would need to improve their lives. Nearly unanimously, the women stated that they wished for their children to have better education than they had received, for their children to be healthy, and to marry eventually. Some women wanted better lives for their children, especially their daughters, so that they did not grow up in relationships like the women had experienced.

> *"[I want my daughter to study] ... at university … so that she can also get a job, so that she won't be oppressed like how I am with her father." (Respondent 2, FGD 5, Mgombasi, Ruvuma)*

Skills and resources needed

Universally, lack of money and access to the means to make money was a significant barrier to nearly everything in the women's lives. It prevented them from being able to acquire farming equipment (such as plowing cows or fertilizer) in order to make more money and obtain economic security; it stymied their access to healthy or plentiful food; and it was a barrier to obtaining proper antenatal care. Lack of money drove most decisions related to food and health care.

> *"The problem is money … because if we had money, we could do all this [get access to food]." (Respondent 1, FGD 7, Isale, Rukwa)*

Caregivers indicated that they needed more support in general, in terms of provision of food, agricultural training, and money, so that both they and their children could survive.

> *"What we get, a child to eat, to not die for hunger … we need to be helped …" (Respondent 2, FGD 5, Mgombasi, Ruvuma)*

They also suggested that more training in agricultural skills would be necessary to become economically stable and better able to provide food for their families. They listed fertilizer, plowing cows, and other farming equipment as essential resources if they were to achieve

economic stability in the future. They indicated that shops and markets closer to their villages would allow them to both buy food and sell their crops with greater ease.

> *"I must be able to keep money little by little. I don't have a plowing cow, thus, when I want to do farming, I have to look for two people to help me …" (IDI 4, Lunyala, Rukwa)*

Table 8.5.1. Aspirations and openness to change

	Pooled mean	Treatment mean	Control mean	*p*-value
"I have aspirations for my child to have a better life than me."	0.902	0.895	0.909	0.510
"When it comes to maternal and child feeding practices, I am open to learning and change."	0.890	0.891	0.889	0.910
N	2,256	1,137	1,119	

Notes: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

9. CAREGIVER AND CHILD BEHAVIOURAL OUTCOMES

This section presents baseline results for child health, nutrition, developmental, and anthropometric outcomes. We include several key Stawisha Maisha indicators assessed at the child level: maternal nutrition during pregnancy and antenatal care (ANC), infant and young child feeding practices, care during diarrhea, early childhood development, and nutritional status. The indicators in this section are particularly important given Stawisha Maisha's focus on improving child nutrition and reducing long-term stunting prevalence.

9.1. Antenatal care and nutrition

Child health, nutrition, and development begin during pregnancy. Stawisha Maisha encourages women to take adequate steps in ensuring the health of both themselves and their fetus during this critical time period. We asked caregivers about their healthcare-seeking behaviours and nutrition during the pregnancy of each of their biological children ages 0 to 36 months living in their household. Baseline findings on caregiver antenatal care and nutrition are reported in Table 9.1.1.

Antenatal care

During their gestational period, nearly all children ages 0 to 36 months had a mother who sought ANC from a skilled provider (such as a doctor, nurse, or midwife) (Table 9.1.1). However, early ANC (first trimester) occurred in fewer than half of pregnancies (45.2 percent). About three in four children had a mother who received four or more ANC visits (the national recommendation before 2018) during their pregnancy, but only 2.5 percent had a mother who attended eight or more ANC visits (the national recommendation since 2018, in alignment with the 2016 WHO ANC Model[19]).

Qualitative findings suggest that the women were aware they needed to get regular check-ups and care from the clinic during their pregnancies. The majority of respondents believed that a pregnant woman should go to the clinic as soon as she is aware that she is pregnant—which could be as early as one month or as late as three—and that she should continue with regular checkups until she delivers the baby. Respondents knew that they needed to receive monthly antenatal care until their due date, and if the baby was late, they indicated that weekly appointments were required until the baby was born.

> *"Eeh, if you went in July, then August you have to go too, September you will go till the end. When the expected date of delivery has [passed] and you haven't delivered, you attend … week[ly] [until the baby is born]." (Respondent 2, FGD 5, Mgombasi, Ruvuma)*

Nevertheless, there also appeared to be some level of superstition that disclosing a pregnancy too early would curse the pregnancy, causing the women to become sick or miscarry the baby.

> *"They [community members] bewitch you [if you tell them you are pregnant] ... when you give birth, you are going to die right there." (Respondent 4, FGD 2, Lunyala, Rukwa)*

Evidence from qualitative studies across Africa suggests that these superstitions are commonly held beliefs[31,32] However, while those studies indicated that superstition is correlated with a delay in antenatal care, in our findings it did not appear to be a barrier to respondents receiving care or disclosing pregnancy to doctors and nurses at the clinics. It did appear to foster further mistrust around traditional healers and midwives, while serving to increase trust in the care the clinic provided.

> *"We're afraid to seek traditional remedies." (Respondent 3, FGD 7, Isale, Rukwa)*

In-depth interviews and focus groups also explored where caregivers received their antenatal information, and whether they trusted the source of that information. As with nutrition information, the women placed great trust in the clinics and hospitals for information regarding antenatal care. Again, respondents attributed this to the education and experience of the doctors and nurses, which was trusted more than the advice or wisdom of friends or elders.

> *"... we go to seek advice from nurses because nurses provide good advice. They are more educated than us … I can't ask someone who hasn't studied like me to guide me, they might say, 'Go to the grandmother, she's educated.' I have no idea where she got her education from." (Respondent 6, FGD 6, Songambele, Ruvuma)*

Traditional birth attendants were noted as a source of information and support during pregnancy, particularly for very remote villages that were far from hospitals or other health care. However, because the traditional birth attendants were not educated in the same way as the clinic staff, they were not well trusted. Furthermore, some of the babies they delivered reportedly did not survive the birthing process, especially if those births occurred far from a hospital.

> *"I don't believe [traditional birth attendants] because I can't know if they educate themselves well, so I hesitate to follow their advice …" (IDI 2, Kitanda, Ruvuma)*

Qualitative findings suggest that none of the caregivers, nor anyone they were aware of, had experienced a negative interaction with a clinic or hospital that would have caused them to stop trusting or attending the clinic for care. They knew that the clinics provided them better access to safe births, and they were grateful to be able to utilize them.

> *"Even I wanted to say that we have never heard, first of all it is a matter of thanking God and our government, they have brought us a doctor who is good, that is, as soon as you arrive, if you are sick, that is, he is very attentive, God bless him very much, and he takes good care of us, we give birth safely." (Respondent 4, FGD 3, Kitanda, Ruvuma)*

Maternal nutrition

Meal frequency and diversity of consumed food groups impact fetal health and development. Women are encouraged to eat at least one extra meal per day while pregnant, but only half of respondents stated they followed this guideline during the pregnancy of their children younger than 3 (Table 9.1.1). Moreover, only slightly more than

one in four (27.7 percent) stated that they ate four or more food groups per day during pregnancy. Finally, about two-thirds of children benefited from their mothers taking IFA supplements for 90 or more days while pregnant. The treatment and control groups were similar for all antenatal care and nutrition indicators and had no statistically significant differences.

It was common knowledge among women interviewed that pregnant women would receive micronutrient supplements (IFA) at the clinic during their antenatal appointments.

> *"This is a must if you go to the clinic, they will give you these nutritional pills meaning that there are some vitamins that they give us, different than giving other people." (Respondent 5, FGD 8, Mabatini, Rukwa)*

However, a few of the women experienced challenges with some of the nutritious food, especially early on in a pregnancy, when morning sickness made it difficult to eat or certain types of food elicited nausea.

> *"When the heart refuses [what] you eat, you vomit … you will consider … in making porridge, you will continue with the porridge and a food that … you will consider … eating." (Respondent 5, FGD 8, Mabatini, Rukwa)*

Challenges and barriers

As with their knowledge of nutrition, respondents were not always able to reconcile what they knew to be best for themselves and their children with the reality of their resources. The majority of qualitative respondents expressed the need to work, often engaging in activities that caused physical strain. Poverty and financial constraints emerged as primary obstacles to accessing antenatal care timely. Although women recognized the importance of receiving adequate antenatal care, they reported having to face expenses for delivery, including for a number of *khangas (fabrics)*, *vitenges*, and other birthing necessities. These services are supposed to be provided for free in public facilities in Tanzania, but expectant mothers are expected to provide some of their own necessities, including clothing items for after the delivery. This dilemma results in significant challenges for many low-income women during pregnancy.

> *"... our challenge is on how to get money and start going to the clinic." (Respondent 1, FGD 4, Mwinuko, Ruvuma)*

Women also reported that the clinics require husbands or male partners to accompany the women or have an exemption letter from the village executive in order to receive antenatal care. It is often difficult to convince their husbands to go to the clinic with them because the men are afraid of the compulsory HIV test. This makes it difficult for some of the women to access proper care during their pregnancies.

> *"If I do not go with my husband for [HIV] testing, there I am not treated. Now my husband is afraid because he says if I will be treated here, tested. I will be discovered with the virus [HIV] here." (Respondent 2, FGD 5, Mgombasi, Ruvuma)*

Given high rates of any receipt of ANC from a skilled provider, there is little room for the intervention to improve this outcome. However, there is more room for the intervention to

influence receiving ANC in the first trimester, attending eight or more ANC visits, and consumption of an extra meal or four or more food groups per day.

Table 9.1.1. Antenatal care and nutrition

	Pooled mean	Treatment mean	Control mean	*p*-value	DHS mean
ANC from skilled provider	0.986	0.981	0.991	0.336	0.889
N	2,073	1,006	1,067		457
ANC in first trimester	0.452	0.456	0.449	0.952	0.300
N	2,069	1,004	1,065		402
ANC 4 times or more	0.775	0.800	0.750	0.111	0.605
ANC 8 times or more	0.025	0.027	0.023	0.623	0.005
N	2,039	989	1,050		457
Consumed at least one extra meal per day	0.502	0.506	0.498	0.847	-
N	2,070	1,006	1,064		
Consumed 4+ food groups per day	0.277	0.295	0.258	0.199	-
N	2,070	1,004	1,066		
Took iron folic acid (IFA) tablets for 90+ days	0.661	0.670	0.652	0.801	0.763[a]
N	1,965	954	1,011		

Notes: * Significant at p <.05; ** p <.01. p-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. DHS means refer to means calculated among rural households in the study regions (Geita, Rukwa, and Ruvuma) using data from the 2022 DHS.

[a] The DHS item did not specify 90+ days.

9.2. Infant and young child feeding practices

This subsection reports baseline results for infant and young child feeding (IYCF) practices. Indicators in this subsection assess the proportion of children younger than 5 who are fed in alignment with WHO and UNICEF guidelines for breastfeeding, minimum dietary diversity (a proxy for adequate micronutrient density of foods), and minimum meal frequency.[26] Following these feeding recommendations is critical to promoting healthy growth and cognitive development in children. Baseline findings for IYCF indicators are presented in Table 9.2.1.

Breastfeeding practices

Breastfeeding indicators include exclusive breastfeeding for the first six months of life, continued breastfeeding up to age 2 or beyond, and complementary feeding of solid, semi-solid, or soft foods in addition to breast milk for children ages 6–23 months. Exclusive breastfeeding refers to a child receiving no additional water or food besides breast milk until they are 6 months old. Of the 3,343 children for whom feeding practices were assessed, 42.2 percent were, or are, exclusively breastfed (Table 9.2.1). For children currently younger than 6 months (n = 245, 7.3 percent), this meant they were still being exclusively breastfed, as reported by the primary-caregiver respondent. For children currently ages 6 months and older, this meant the caregiver respondent indicated the child

stopped being exclusively breastfed at age 6 months or after. Next, we report on two breastfeeding indicators for a subsample of children currently ages 24 to 59 months (n = 2,393). The rate of continued breastfeeding until at least 23 months was fairly low—just over one-fifth (21.9 percent) of children ages 24 to 59 months were breastfed until 23 months or later. Even fewer (17.6 percent) children began receiving complementary feeding of solid, semi-solid, or soft foods no later than 8 months in addition to being breastfed until at least 23 months.

Qualitative findings highlighted some of the challenges caregivers faced in trying to adequately breastfeed their children. Caregivers understood the importance of breastfeeding (this information came from both clinics and the other women in their lives) and believed that it made their babies healthier.

> *"His mother's milk is enough for him because his mother eats various things … without breastfeeding, children become weak …" (Respondent 4, FGD 3, Kitanda, Ruvuma)*

They also understood that a mother's nutritional intake was critical while breastfeeding in order to produce enough milk, but there was often a lack of access to food that limited their ability to feed themselves and thus continue adequately breastfeeding their baby. Lack of access to food stemmed from a variety of factors, with respondents citing poverty, markets not being well stocked, and distance from their homes to markets.

> *"If I have more vitamins, that's what the baby gets when I breastfeed him, he gets from my milk." (Respondent 5, FGD 4, Mwinuko, Ruvuma)*

> *"I myself I'm breastfeeding but I don't get good food … milk does not come out." (IDI 5, Lyele, Rukwa)*

The primary difficulty surrounding breastfeeding is that a woman might not be able to provide enough milk for her baby, leaving the baby hungry. There was an understanding that the mother would give the child supplemental food before the age of 6 months. The supplements varied, but they ranged from porridge to water to cow's milk. Some women indicated that they received support from the clinics in the form of bottles and formula, but this was not a common occurrence.

> *"… you just prepare light porridge … so the baby can drink and at least sleep." (Respondent 5, FGD 5, Mgombasi, Ruvuma)*

There was also concern that if a mother's health was "not safe" (implying that the mother was HIV positive or suffered from frequent and/or persistent fevers), she would not be able to breastfeed because she would pass the illness on to the baby.

> *"Because there are many diseases … that's why the advice [is not to breastfeed] if your health is not safe … if … your health is safe you can breastfeed for a year and a half or two." (Respondent 2, FGD 8, Mabatini, Rukwa)*

Complementary and young child feeding practices

Stawisha Maisha caregivers were asked to indicate the foods their children had eaten in the previous day and night. Children ages 6–23 months require different minimum meal frequencies based on their breastfeeding status. Breastfed children meet the minimum

meal frequency guidelines if they receive solid, semi-solid, or soft foods at least twice a day at age 6–8 months and at least three times a day for those ages 9–23 months. Non-breastfed children ages 6–23 months meet minimum meal frequency standards if they receive solid, semi-solid, or soft foods at least four times a day. In the sample, among children ages 6–23 months (n = 683), 30.8 percent met the minimum meal frequency (Table 9.2.1). The rate of meeting dietary diversity standards was far lower; only 7.3 percent of children ages 6–23 months were fed at least five out of eight UNICEF- and WHO-specified food groups during the previous day. The eight food groups include breast milk; grains, roots, and tubers; legumes and nuts; dairy products (milk yogurt, cheese); flesh foods (meat, fish, poultry, and organ meat); eggs; vitamin A-rich fruits and vegetables; and other fruits and vegetables. Furthermore, only 15.3 percent of children ages 6–23 months consumed iron-rich or iron-fortified foods in the previous day and night at the time of the survey. Given that fewer than half of caregivers reported exclusive breastfeeding until the age of 6 months and continued breastfeeding beyond this age, there is considerable room for the intervention to improve this outcome.

Qualitative data indicate that the most commonly consumed foods in respondents' households were ugali, rice, potatoes, maize, porridge, soya, and leafy vegetables. The composition of porridge varied and appeared to be a combination of any number of things, depending on who was eating it and what foods were available in the moment (for example, maize, sorghum, groundnuts, sardines). When peanuts (or other groundnuts) and sardines were available, they were usually combined to make a porridge for younger children. Many respondents felt that children younger than 5, or those who were still breastfeeding, should receive a different diet than those older than 5, who appeared to be grouped with adults in terms of nutrition needs. Once a child turned five, there was less attention paid to what they were eating.

> *"In our house, we don't care too much [who eats what kind of food], maybe when the child is small, he is sucking [breastfeeding] a little bit, [he'll] eat differently, but when he stops breastfeeding, we just eat together." (Respondent 1, FGD 4, Mwinuko, Ruvuma)*

The only statistically significant difference between the treatment and control group for infant and young child feeding indicators is exclusive breastfeeding among children ages 0 to 5 months; however, this is a small sample size, and the overall exclusive breastfeeding prevalence for children ages 0 to 59 months is balanced.

Challenges and barriers

Qualitative interviews explored nutritional challenges and access to food. Overwhelmingly, respondents cited a lack of money, food, and access to water as the primary challenges preventing them from giving their families nutritious meals. They understood these barriers to be extremely detrimental to their well-being and that of their children, tantamount to sickness or even death.

> *"There are many problems [when we do not have food or water] ... children become sick, sometimes they are so tired that they don't have the strength to live." (IDI 1, Swaila, Rukwa)*

Interview and focus group respondents understood the importance of proper nutrition for themselves and their children, but without the necessary resources to access food or clean water, they were forced to feed their children less nutritious options.

> *"[the clinic worker] will only direct you to go take this and this, that's it … he doesn't give you money or help you with anything … you really have to fight yourself." (IDI 2, Kitanda, Ruvuma)*

When households experience a food shortage and there is no money or means to purchase food, qualitative interviews suggest that the mother is always the last to eat, behind the children and the father. It was unclear whether this decision was made by the mother or father, or if it was just tacitly expected of the mother to sacrifice.

> *"I am the one who sacrifices [so the children can eat when there is no food]." (IDI 4, Lunyala, Rukwa)*

Table 9.2.1. Infant and young child feeding practices

	Pooled mean	Treatment mean	Control mean	*p*-value	DHS mean
Children 0–59 months (N)	3,343	1,658	1,685		
Exclusive breastfeeding until 6 months	0.422	0.424	0.420	0.920	
Among children ages 0–5 months	0.668	0.588	0.754	0.027*	0.474 [a]
n	245	125	120		517
Among children ages 6–12 months	0.372	0.415	0.335	0.216	
n	294	130	164		
Among children ages 12–23 months	0.607	0.624	0.588	0.589	
n	389	197	192		
Among children ages 24–59 months	0.371	0.372	0.370	0.988	
n	2,415	1,206	1,209		
Children ages 6–23 months (n)	683	327	356		253
Minimum meal frequency	0.308	0.328	0.288	0.343	0.176
Minimum diet diversity (5+ food groups, including breast milk)	0.073	0.079	0.066	0.657	0.125
Consumption of iron-rich or iron-fortified foods	0.153	0.175	0.131	0.284	0.226
Children ages 24–59 months (n)	2,393	1,197	1,196		157
Continued breastfeeding 6–23 months	0.219	0.209	0.230	0.368	0.063
Breastfeeding and complementary feeding 6–23 months	0.176	0.172	0.180	0.698	-

Notes: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. DHS means refer to means calculated among rural households in the study regions (Geita, Rukwa, and Ruvuma) using data from the 2022 DHS. There

are fewer observations for the sample in this subsection due to missing data from an incorrect skip pattern issue during data collection.

[a] DHS exclusive breastfeeding is assessed only among children younger than 6 months

9.3. Care during diarrhea

Diarrhea illness in children should be adequately managed to avoid potential long-term impacts to child growth. Stawisha Maisha aims to educate mothers on how to best care for children when they have diarrhea, including giving oral rehydration salts (ORS), feeding the same or more food than usual, and providing more liquids than usual.

Table 9.3.1 presents overall diarrhea prevalence in the two weeks preceding the survey, as well as two Stawisha Maisha indicators: ORS treatment and appropriate diarrhea feeding and liquid quantities. Of all 3,605 children in the sample, 15.3 percent had had an episode of diarrhea in the previous two weeks. Of those children, about 67 percent were given ORS, but only 6.8 percent were given the appropriate feeding and liquid standards. The low rate of appropriate diarrhea feeding practices is largely driven by the small portion of children, 9.8 percent, who are given more liquids than usual as recommended. There were no statistically significant differences between treatment and control group for any diarrhea indicators.

Table 9.3.1. Care during diarrhea

	Pooled mean	Treatment mean	Control mean	*p*-value	DHS mean
Child had diarrhea in last two weeks	0.153	0.163	0.142	0.366	0.057
N	3,605	1,783	1,822		814
Given ORS (among those with diarrhea)	0.669	0.645	0.697	0.342	0.480
N	492	266	226		44
Given more liquids than usual (among those with diarrhea)	0.098	0.098	0.099	0.966	0.250
N	492	265	227		44
Given more or the same food as usual[a] (among those with diarrhea who eat solid foods)	0.680	0.702	0.656	0.446	0.567
N	467	251	216		44
Given both more liquids and the more or same food (among those with diarrhea)	0.068	0.080	0.052	0.488	0.133
N	491	264	227		44

Notes: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. DHS means refer to means calculated among rural households in the study regions (Geita, Rukwa, and Ruvuma) using data from the 2022 DHS.

[a] Fewer observations are due to excluding children who had not yet been given solid foods.

9.4. Early childhood development

We administered the Early Childhood Development Index 2030 (ECDI2030) module[33] to capture the achievement of key child developmental milestones. ECDI2030 was created and validated for children ages 24–59 months and thus was only assessed for the subgroup of children in that age range. The module consists of 20 questions across three subdomains: health, learning, and psychosocial well-being. Children are considered to be developmentally on track if they achieved the minimum number of milestones for their age group. For example, children ages 24–29 months are expected to achieve at least seven milestones, whereas children ages 36–41 months are expected to achieve 11 milestones. ECDI2030 is reported as a single indicator: the percentage of children ages 24–59 months who are developmentally on track. About one in five children (21.1 percent) were developmentally on track at the time of the baseline survey (Table 9.4.1). There were no statistically significant differences for early childhood development between the treatment and control group.

Table 9.4.1. Early childhood development (children ages 24–59 months)

	Pooled mean	Treatment mean	Control mean	*p*-value	DHS mean
Developmentally on track	0.211	0.208	0.214	0.637	0.240
N	2,578	1,289	1,289		504

Notes: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. DHS means refer to means calculated among rural households in the study regions (Geita, Rukwa, and Ruvuma) using data from the 2022 DHS.

9.5. Nutritional status

Key objectives of Stawisha Maisha are to reduce stunting, wasting, and underweight prevalence among children in Tanzania. We collected height and weight measurements for all children younger than 5 living in the surveyed households and calculated the levels of stunting, wasting, and underweight using the 2006 WHO child growth standards as the reference population.[34] Stunting is calculated with height-for-age. Children with a height-for-age z-score[x] below minus two standard deviations (−2 SD) from the median of the reference population[34] are classified as stunted. Children below minus three standard deviations (−3 SD) are considered severely stunted. Wasting is calculated with weight-for-age. Children with a weight-for-age[xi] z-score below minus two standard deviations (−2 SD) from the median of the reference population are considered wasted. Children with a weight-for-height z-score below minus three standard deviations (−3 SD) from the median of the reference population are considered severely wasted. Underweight is assessed with weight-for-age. Children with a weight-for-age z-score below minus two standard deviations (−2 SD) from the median of the reference population are classified as

[x] Z-scores are calculated against the 2006 WHO child growth standards as follows: $z = (x-\mu)/\sigma$, where x is the individual's height (weight), μ is the mean height (weight) in the reference group, and σ is the standard deviation of heights (weights) in the reference group.

[xi] In accordance with recommended practices, we subtracted 100 grams from the weight measurements of children who were clothed (95.2%) or children for whom clothing status was not obtained (2.6%) before calculating of anthropometric outcomes.

underweight. Children below minus three standard deviations (−3 SD) are considered severely underweight.

Baseline child nutritional status is presented in Table 9.5.1. Among the sample of measured children younger than 5, 44.1 percent were stunted and 15.7 percent were severely stunted. This rate is higher than the national stunting average (30 percent) and higher than the stunting average in two of the three study regions covered (36 percent in Ruvuma and 39 percent in Geita).[4] The rate of wasting in our child sample was 5.5 percent, and 1.7 percent were severely wasted. The wasting rate in our sample was also higher than the national wasting average (3.3 percent) and that of two study regions (2.8 percent in Ruvuma and 3.3 percent in Geita). The rate of underweight children in our sample was 19.0 percent, and 4.4 percent were severely underweight. The underweight rate in our sample was higher than the national underweight average (12.1 percent) and that of two study regions (12.2 percent in Ruvuma and 10.3 percent in Geita). There were no statistically significant differences between the treatment and control groups across all child nutritional status indicators. The higher rates of stunting, underweight, and wasting found in our sample as compared to national averages were not surprising, as the study regions were selected in part due to high rates of stunting.

Table 9.5.1. Child nutritional status

	Pooled mean	Treatment mean	Control mean	*p*-value	DHS mean
Height-for-age z-score (HAZ)	-1.744	-1.765	-1.723	0.631	-1.858
Proportion stunted (HAZ < -2 SD)	0.441	0.450	0.431	0.483	0.485
Proportion severely stunted (HAZ < -3 SD)	0.157	0.151	0.164	0.290	0.144
N	3,481	1,719	1,762		402
Weight-for-height z-score (WHZ)	-0.054	-0.061	-0.048	0.898	0.105
Proportion wasted (WHZ < -2 SD)	0.055	0.057	0.052	0.741	0.041
Proportion severely wasted (WHZ < -3 SD)	0.017	0.017	0.016	0.967	0.021
N	3,476	1,721	1,755		404
Weight-for-age z-score (WAZ)	-1.041	-1.051	-1.031	0.849	-1.009
Proportion underweight (WAZ < -2 SD)	0.190	0.191	0.189	0.919	0.137
Proportion severely underweight (WAZ < -3 SD)	0.044	0.042	0.046	0.602	0.030
N	3,492	1,726	1,766		403

Notes: * Significant at p <.05; ** p <.01. p-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level. DHS means refer to means calculated among rural households in the study regions (Geita, Rukwa, and Ruvuma) using data from the 2022 DHS. Missing observations are due to inability to collect height or weight for some children during fieldwork or a calculated z-score outside a biologically plausible range.

10. HEALTH FACILITY CHARACTERISTICS

In Chapters 10 and 11, we provide contextual information on health facilities and community characteristics. The intervention is not expected to change these characteristics. However, we report them to provide context for the intervention and to potentially examine how these characteristics influence intervention impacts. For example, the intervention might have larger effects in communities with access to better health services or in communities with more equitable gender attitudes. There are many additional characteristics that may moderate intervention impacts, and these are outlined in the conceptual framework (Figure 4).

We surveyed primary health care facilities and dispensaries (n = 87)[xii] in villages where Stawisha Maisha respondents resided to understand the services available to women and children. Facilities were identified in consultation with village leaders and cross-checked against the Ministry of Health's administrative list from 2020. At each health facility, we administered the World Health Organization (WHO) Service availability and readiness assessment (SARA).[35]

In total, the field teams interviewed 87 facilities spread across 150 rural villages. When multiple facilities were present within a village, field teams purposively selected health centers over other smaller facilities such as dispensaries, and where there were only dispensaries, one facility was randomly selected.[xiii]

10.1. Facility characteristics

The majority of health facilities surveyed were village dispensaries (85.1 percent). This was expected, as the Ministry of Health's administrative list from 2020 indicated the presence of only 27 public health centers across the entire three sample regions, with fewer expected within the sample wards and villages. Notably, 63 villages, representing 42 percent of the total, had neither a dispensary nor a health center. Table 10.1.1 shows the distribution of health facilities.

[xii] Not all villages had a health facility.

[xiii] We lack precise data on the total number of health facilities in our study area. However, we can assume that 63 clusters do not have a health facility within their boundaries. This assumption is based on the fact that the health facility survey was not carried out only when there were no health facilities listed on the Ministry of Health roster for that area. Furthermore, village leaders confirmed to field supervisors there were no health facilities in their respective villages, although this confirmation was not explicitly stated in the questionnaire. Nonetheless, it is noteworthy that out of the 150 communities surveyed, 67 reported insufficient access to health care (too far/too few) as one of the largest health issues, aligning with our assumption about the distribution of health facilities.

Table 10.1.1. Health facility type, by treatment status

	Pooled frequency	Treatment frequency	Control frequency
Dispensary	74	36	38
%		0.487	0.514
Health center	13	8	5
%		0.615	0.385
N	87	44	43
%		0.545	0.494

Baseline means for broad characteristics around the operations and amenities of the health facilities are shown in Table 10.1.2. Each facility provided information about the number of communities it served, with 16 health facilities serving more than one community. Approximately 71.3 percent of facilities provided housing accommodation for staff. The average age of the facilities was 26.9 years. Although almost all facilities had access to electricity (98.9 percent) and a refrigerator for storing vaccines and medication (96.6 percent), only about half had a functioning computer (49.4 percent) or their own vehicle for emergencies (12.7 percent). On average, health facilities were open 5.5 days a week, with two facilities operating for only four days (fewest number of days open in the sample).

Table 10.1.2. Health facility basic characteristics

	Pooled mean	Treatment mean	Control mean	*p*-value
Estimated catchment population	10,827.556	8,717.675	12,885.976	0.092
Provides housing to staff	0.713	0.651	0.773	0.189
Number of days a week for outpatient care	5.609	5.581	5.636	0.849
Age of health facility building	26.875	28.732	24.923	0.350
Has electricity	0.989	1.000	0.977	0.309
Has functioning refrigerator (to store biomedical samples, vaccinations, medications)	0.966	0.953	0.977	0.544
Has access to vehicle	0.885	0.837	0.932	0.144
Has functional computer	0.494	0.488	0.500	0.785
Has land line telephone that is available outside of hours	0.034	0.047	0.023	0.555
Has private cellular phone supported by the facility	0.862	0.907	0.818	0.242
Has water available from source on-site	0.692	0.647	0.742	0.343
Has functional flush toilet	0.713	0.744	0.682	0.516
N	87	43	44	

Note: *Significant at p <.05; ** p <.01. p-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region.

Table 10.1.3 reveals that, on average, only one in 10 facilities had operating theatres, and only four facilities (4.6 percent) had the means to perform a caesarean section. However, three-quarters of facilities had a laboratory where they could perform tests.

Table 10.1.3. Surgical and testing services, by treatment group

	Pooled mean	Treatment mean	Control mean	*p*-value
Has an operating theatre	0.103	0.047	0.159	0.085
Performs C-section	0.046	0.023	0.068	0.333
Has laboratory	0.759	0.767	0.750	0.822
N	87	43	44	

Note: *Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region.

10.2. Availability of services

The provision of services offered by facilities is summarised in Table 10.2.1. All clinics provided antenatal care and child growth monitoring. Many pregnancy-related services such as providing supplements, hypertension monitoring, and intermittent preventative treatment of malaria were widely available. In 86.2 percent of facilities, there was around-the-clock presence of a health care provider. There were no significant differences in the provision of any health services between facilities in the treatment and control villages.

Table 10.2.1 Availability of services

	Pooled mean	Treatment mean	Control mean	*p*-value
Health care provider always present (24 hours)	0.862	0.860	0.864	0.990
Facility has guidelines for infection prevention	0.989	1.000	0.977	0.314
Provides ANC	1.000	1.000	1.000	
Pregnancy hypertension monitoring	0.989	1.000	0.977	0.309
IPTp malaria treatment	1.000	1.000	1.000	
Iron supplement	0.977	0.977	0.977	0.940
Folic acid supplement	1.000	1.000	1.000	
Deliveries	0.943	0.953	0.932	0.648
Provides preventative/curative care for children younger than 5	0.977	0.977	0.977	0.954
Diagnoses child malnutrition	0.918	0.952	0.884	0.263
Child growth monitoring	1.000	1.000	1.000	
N	85	42	43	

Note: *Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region.

11. COMMUNITY CHARACTERISTICS

Community-level characteristics, such as access to services and social norms, are likely to impact the health of people living in that village. To gain insights into these dynamics, we surveyed 549 community leaders across 150 villages located in three regions and five districts. The community questionnaires asked local experts about access to services, nutritional knowledge, attitudes, and practices. Understanding these characteristics is crucial to understanding the context and moderating impacts on effects of the Stawisha Maisha intervention.

11.1. Access to basic services

Table 11.1.1 provides information on communities' access to basic services. Two in five of the sample communities had dirt tracks as their main access road surface; however, the communities reported they were accessible by vehicle for an average of 11.5 months per year. Table 11.1.1 shows that although 78 percent of communities had access to grid electricity, less than one-third of households had adopted this means of power. There were no statistically significant differences between treatment and control groups in these population and access to services indicators.

According to qualitative respondents, infrastructure issues made it difficult to access basic amenities. Electricity was unavailable or inconsistent, water sources were often two hours' walk away or more (one way) from the villages, and markets to purchase food or sell crops were not always accessible. Even if water or markets were relatively close, respondents frequently lacked funds for transportation, and roads were in bad condition.

> *"… improper street roads cause travelling difficulties during rain[y] reasons. So, now, the vehicles cannot cross [the flooded road] … so the crops end up the other side, while you are here. Therefore, the cars cannot go [across the flooded road] to pick up the crops, and you have to carry them from there to this side. So, if there are many crops, it becomes challenging to transport them …" (Respondent 7, FGD 6, Songambele, Ruvuma)*

Table 11.1.1. Baseline means of community services, by treatment status

	Pooled mean	Treatment mean	Control mean	*p*-value
Roads				
Road type: bitumen	0.207	0.213	0.200	0.837
Road type: gravel	0.380	0.413	0.347	0.397
Road type: dirt track	0.413	0.373	0.453	0.323
Distance to nearest bitumen road (km)	29.548	26.386	32.710	0.180
Vehicles pass main road year round	0.753	0.707	0.800	0.186
Number of months road was passable by minivan (in last 12 months)	11.575	11.811	11.367	0.090
Power				
Electricity via public grid	0.780	0.760	0.800	0.557
Estimated proportion of households connected to public grid	29.718	26.684	32.600	0.137
Piped water in community	0.433	0.453	0.413	0.618
N	150	75	75	

Notes: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region.

11.2. Access to nutrition and health services

Table 11.2.1 offers additional insights into community health care and related issues. Most communities (97.3 percent) reported recent immunization campaigns. Respondents reported that women in their communities overwhelmingly gave birth in health facilities (98.7 percent) rather than at home. The table also highlights various challenges related to health care, including issues such as perceived insufficient access to health facilities (44.7 percent), insufficient health care resources (62 percent), insufficient health care personnel (50.7 percent), and inadequate health care facilities (8.7 percent). Although a majority of respondents reported that the nearest facility accepted the improved Community Health Fund (iCHF) insurance, one-third reported that community members struggle with inability to pay for health services (30 percent). When they were asked about why community members might not enroll in iCHF, the most common reasons were lack of funds to pay the premium (60.7 percent) and lack of awareness of the benefits of having health insurance (67.3 percent). In summary, this table underscores the similarity in health care practices and challenges between the treatment and control groups (no statistically significant differences were observed) and sheds light on the shared health care landscape in the studied communities.

Table 11.2.1. Baseline means for access to health services

	Pooled mean	Treatment mean	Control mean	*p*-value
Recent immunisation campaign (last 6 months)	0.973	0.973	0.973	1.000
Social assistance program in last 12 months	0.380	0.427	0.333	0.226
Most women give birth: at home	0.013	0.013	0.013	1.000
Most women give birth: in health facility	0.987	0.987	0.987	1.000
Issues reported with available health care				
Insufficient access to health facilities (too far/too few)	0.447	0.467	0.427	0.622
Insufficient resources (supplies/medication)	0.620	0.587	0.653	0.401
Insufficient personnel	0.507	0.467	0.547	0.323
Inadequate facilities (e.g., no oral rehydration, lack of running water/electricity)	0.087	0.120	0.053	0.145
Inability to pay for health services	0.300	0.293	0.307	0.856
Payment for health services				
Nearest facility accepts ICHF	0.940	0.920	0.960	0.302
Perceived barriers to enrolling in ICHF				
No money to pay premium	0.607	0.653	0.560	0.235
Distance to register is too far	0.087	0.120	0.053	0.135
No money for transport to travel for registration	0.027	0.027	0.027	1.000
Unaware of eligibility for ICHF	0.373	0.333	0.413	0.310
Unaware of benefits of health insurance	0.673	0.680	0.667	0.862
Don't believe it's worth the cost	0.187	0.227	0.147	0.198
N	150	75	75	

Note: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region.

Table 11.2.2 provides a comprehensive overview of baseline means for access to nutrition services. Notably, the data reveals that there was a statistically significant difference in the perception of facing challenges in adequately nourishing children, with the treatment group having experienced fewer difficulties (84 percent vs. 95 percent). However, when it comes to discussions with friends and family about nutrition, and the sources of information about child nutrition, there were no significant differences between the groups.

Specifically, 91.3 percent of respondents said that community members sourced information about child nutrition from health facilities. In terms of barriers to child nutrition, the most common responses were lack of knowledge of what to feed children (68.7 percent) and lack of adequate foods for good nutrition (42.7 percent). In addition, 15 percent of community leaders perceived that lack of time to provide nutritious foods was a barrier to good nutrition in their communities. There were no statistically significant

differences between treatment and control groups with respect to barriers to good nutrition.

Table 11.2.2. Baseline means for access to nutrition services

	Pooled mean	Treatment mean	Control mean	*p*-value
There are months when harder to adequately nourish the child	0.893	0.840	0.947	0.034*
Ever talks about nutrition with friends and family	0.947	0.960	0.933	0.452
Source of information on child nutrition				
Health facilities	0.913	0.907	0.920	0.772
Friends/families/neighbours	0.193	0.240	0.147	0.145
Village leaders	0.513	0.480	0.547	0.416
NGOs	0.053	0.067	0.040	0.462
Faith	0.000	0.000	0.000	
Radio	0.113	0.093	0.133	0.439
Newspapers/magazines	0.020	0.027	0.013	0.561
Internet	0.000	0.000	0.000	
Television leaders/religious institutions	0.067	0.053	0.080	0.511
Barriers				
Lack of knowledge about what to feed children	0.687	0.667	0.707	0.596
Lack of adequate amount of food	0.400	0.440	0.360	0.316
Lack of adequate types of food for good nutrition	0.427	0.360	0.493	0.096
Lack of time to devote to preparing nutritious food	0.153	0.133	0.173	0.497
Pressure from family (e.g., mothers-in-law) to follow certain feeding practices	0.013	0.013	0.013	1.000
N	150	75	75	

Notes: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region.

11.3. TASAF participation

Each community had a TASAF Community Management Committee (CMC), which oversees and administers TASAF activities within the area. In our sample, villages had an average of 13.5 CMC members, 45 percent of whom were female (Table 11.3.1).

In terms of NGO engagement, the most commonly mentioned NGO was Plan International, which is active in one in five of the sample communities regarding the most common services relating to water, sanitation, and hygiene, as well as youth services. We saw an overall balance between the treatment and control groups in terms of the organizations present and services implemented in these communities.

Table 11.3.1. Baseline means for provision of government and NGO services

	Pooled mean	Treatment mean	Control mean	*p*-value
Number of TASAF Community Management Committees (CMCs)	13.520	13.587	13.453	0.654
Number of female CMCs	6.080	6.080	6.080	1.000
Distance to TASAF collection point (km)	0.280	0.040	0.520	0.303
Organisations active				
Save the Children International (SCI)	0.027	0.040	0.013	0.293
Catholic Relief Services (CRS)	0.007	0.013	0.000	0.315
Centre for Counselling, Nutrition and Health care (COUNSENUTH)	0.007	0.000	0.013	0.314
Jhpiego	0.007	0.000	0.013	0.313
Plan International	0.220	0.267	0.173	0.097
Services provided				
Provision of information relating to nutrition, water, or sanitation	0.168	0.213	0.122	0.109
Cash grants to households	0.134	0.133	0.135	0.995
In-kind transfers to households	0.114	0.093	0.135	0.407
Medical care	0.054	0.027	0.081	0.138
Youth-specific interventions	0.154	0.173	0.135	0.517
Other	0.128	0.173	0.081	0.089
N	149	75	74	

Note: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region.

11.4. Social and cultural aspects of community life

One of the key components of Stawisha Maisha involves empowering women to make decisions about nutrition within the household. Table 11.4.1 captures some broad community-level indicators on the role of women and social norms (of which gender norms are a subset). On average, men tended to marry slightly older—at 20.6 years, on average, compared to women at 18.3 years old. Women were able to inherit their husband's property in 88.7 percent of communities. Generally, the pattern of inheritance was consistent across the different types of a husband's property (house, land, or livestock). There were no statistically significant differences between the treatment and control communities for marriage age or inheritance practices. We also asked individuals questions about gender equitable attitudes in the household questionnaires (see Appendix 2 for more information). Gender norms dictate the social understanding of cultural roles, behaviours, activities, and attributes expected of people based on their sex or gender,[36] which can influence the ways in which men and women interact with one another—including how women are empowered (or not) to make decisions for their families. Gender attitudes are an individual person's opinion about a norm, and they can be either aligned with or in opposition to the accepted norm.[37] Understanding attitudes toward gender norms is important for understanding how men and women are valued within a community, and what types of social sanctioning could occur if an individual steps out of the prescribed community gender norms. Thus, interventions that seek to empower women must first

also understand attitudes toward gender norms in the communities in which they are implemented, particularly if those norms indicate a bias against women.

Although regular alcohol consumption was rare among youth younger than 18, community leaders in more than half of the communities perceived that more than half of the men and one in five women consumed alcohol at least once per week.

Table 11.4.1. Community social norms

	Pooled mean	Treatment mean	Control mean	*p*-value
Gender Practices				
Typical marriage age for women (years)	18.333	18.507	18.160	0.179
Typical marriage age for men (years)	20.553	20.600	20.507	0.826
Wife inherits husband's property	0.887	0.867	0.907	0.435
Inherit: house	0.873	0.840	0.907	0.215
Inherit: land	0.887	0.867	0.907	0.435
Inherit: livestock	0.880	0.853	0.907	0.312
Inherit: other	0.053	0.040	0.067	0.460
Alcohol consumption norms in the community				
Men drinking on a regular basis: 50% or more	0.587	0.573	0.600	0.721
Women drinking on a regular basis: 50% or more	0.213	0.200	0.227	0.672
Under 18 youth drinking on a regular basis: 50% or more	0.033	0.027	0.040	0.652
N	150	75	75	

Note: * Significant at $p < .05$; ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region.

12. CONCLUSION

This report documents the design of the impact evaluation of the Stawisha Maisha ("Nourishing Life") intervention being integrated within PSSN II and implemented by TASAF within the government of the Republic of Tanzania's PSSN II programme, with technical assistance from UNICEF. The intervention aims to increase knowledge and motivation for improved maternal, infant, and young child feeding; increase self-confidence and self-efficacy; and strengthen family goals and aspirations for child development. The impact evaluation examines intervention impacts on these outcomes and pathways of change. Key innovations of this intervention include delivery through a national social protection programme, targeting some of the most vulnerable households, and use of edutainment to promote children's nutrition through behaviour change at scale (via radio or audio material). This evaluation will further contribute to understanding of how "plus" components within national cash transfer programmes can promote children's nutrition in Tanzania and regionally in Africa. Strengths of the evaluation design include high internal validity[xiv] through a cluster RCT design, mixed methods (quantitative and qualitative), and multiple levels of data collected from individuals, health facilities, and communities.

The baseline report describes the evaluation sample and assesses whether randomization of treatment (PSSN II plus Stawisha Maisha) and control (PSSN II only) groups was successful. We show that implementation of randomization was highly successful, with baseline equivalence confirmed over almost all indicators assessed. This contributes to the good internal validity of the study, and suggests that differences between treatment and control groups that we may observe at follow-up rounds of data collection can be attributed to intervention impacts. Moreover, in this report, we have provided contextual information on health facilities and community characteristics, which may moderate intervention impacts.

Data summarized in this report demonstrate that PSSN II households lack resources for many of their basic needs, including nutritious foods for their children. Of relevance to the Stawisha Maisha intervention and future TASAF messaging, 80 percent of PSSN II households surveyed did not own a radio or a functioning cell phone that can receive radio broadcasts. Thus, despite receiving assistance from PSSN II, which has been previously demonstrated to have strong, positive impacts on households' economic security and well-being,[38] households often still struggle to meet their basic needs and face challenges with respect to their livelihood options and their ability to improve their lives.

Children in our study sample were stunted at a much higher rate (44.1 percent) compared to children nationally (30 percent). This statistic indicates the heightened vulnerability among the study sample, but it also indicates that the programme is well targeted to households in need of additional nutrition interventions. Indeed, 15.7 percent of the children in the sample were severely stunted. Relatedly, households in this sample experienced high rates of food insecurity. Over 40 percent of households were severely

[xiv] Other factors that will confirm the internal validity of the study include adherence to randomization procedures and high follow-up and retention rates.

food insecure. In the results section, we highlighted indicators that suggested room for improvement by the intervention, including early antenatal care visits, adequate number of antenatal care visits, exclusive breastfeeding rates, knowledge regarding the need for pregnant women to eat an extra meal per day, and knowledge of child growth monitoring, among others. However, given preexisting food insecurity in these households, some indicators—such as exclusive breastfeeding and pregnant women eating an extra meal per day—may be challenging for the intervention to tackle, as it is a knowledge-based intervention and does not provide additional economic strengthening (beyond what households are already receiving from PSSN II), which might further improve food security.

Several positive aspects were noted in our findings. Respondents had high levels of trust in information from health care workers and radio broadcasts. Generally, respondents felt they were knowledgeable about what they need to feed their children, despite often lacking resources to enact this knowledge. In addition, women felt a sense of support from the community among the women and their neighbors and said they help each other in times of need.

This evaluation has a rigorous study design. However, there are some potential threats to the evaluation, which the team is monitoring closely and taking steps to minimize. First, the intervention implementation was originally planned to roll out in September 2023, immediately after the baseline data collection. However, there have been delays in rollout, and the first radio broadcasts are now expected to start in June 2024. This means that 10 months will have passed between the baseline implementation and the start of the intervention. These delays could potentially threaten the validity of the evaluation if control and treatment villages experience different trends or activities (for example, different rates of drought or flooding, or differential implementation of other interventions by non-governmental organisations). However, the strong baseline balance between treatment and control groups and the fact that villages were randomized within districts (which are limited geographic areas) indicate that the experience of differential trends and activities is unlikely between treatment arms.

Second, because of these delays, the research team will now have to wait almost two years after baseline instead of the originally planned one year to follow up with households. This delay in timing of follow-up increases the risk of attrition. The research team has extensive experience in following households longitudinally and minimizing attrition rates. Detailed contact information of study participants and people who can get in touch with them were collected at baseline, and the team will implement careful tracking activities at follow-up to minimize attrition. Using our tried-and-tested approaches, our tracking strategy for the endline will consist of three steps: (1) a pre-field phone survey to check respondent availability and make appointments, when possible; (2) in-field tracking using information collected at baseline and working with community leaders when required; and (3) extra sweeping days for additional surveys at the end of the data collection phase.

Finally, our plan is to analyze anthropometric outcomes for children younger than 5 at endline in two ways: (1) longitudinal analysis of the panel sample of children measured at baseline and endline and (2) comparison analysis of the cross-sections of children

younger than 5. The second approach is not affected by delays, but the delays mean that the first approach is feasible with a much smaller sample than was possible were the endline to occur after only one year. This is because more children will age out of the under 5 window in two years, as compared to one year. Thus, our longitudinal sample of children younger than 5 is reduced, which, in turn, reduces our power to detect changes attributable to the intervention.

In this baseline report, we have integrated quantitative and qualitative data analysis. We will estimate impacts and pursue more in-depth analysis of the topics after follow-up data are collected (expected in 2025). Over a range of key household and community indicators, we found that the control and treatment groups were largely similar. Thus, the evaluation team is pleased to conclude the randomization was successful, with a balanced distribution between experimental groups. This lays the foundation for accurately estimating effects of the intervention in the forthcoming phases of the study.

Based on our findings, we provide the following programmatic and research recommendations for the intervention and evaluation moving forward.

Programmatic recommendations

1. Efforts should be made to start intervention rollout as soon as possible, as further delays may further threaten the validity of the evaluation.
2. Due to low rates of radio ownership and low rates of listening to radio on mobile phones, future TASAF programming involving radio messaging should consider provision of radios to communities.
3. The next iteration of edutainment programming should consider addressing gender norms in feeding practices (for example, the idea that boys expend more energy and need supplemental feeding before the age of 6 months, or practices that disadvantage adolescent girls from equitable shares of food).

Research recommendations

1. Given delays between baseline data collection and intervention implementation, it will be important at the follow-up data collection round(s) to assess any other nutrition-related programming and interventions implemented in study areas, and whether coverage of treatment and control villages was different.
2. Maximum efforts should be made to follow up with households and study participants to minimize attrition.
3. Follow-up rounds of data collection should consider including (1) key informant interviews with TASAF personnel in districts, (2) qualitative interviews or focus groups with spouses of caregivers, and (3) key informant interviews with clinic staff to verify the information from the women.
4. Future qualitative interviews should explore the relationship between gender norms and feeding practices (including breastfeeding), given higher rates of stunting among boys found in this sample—a finding that is consistent with existing evidence from the region.

5. Future qualitative interviews should explore requirements for pregnant women at the clinic, including updates from the government regarding husband/partner accompaniment.
6. Follow-up rounds of data collection should include detailed modules on intervention take-up, including timing of listening sessions, issues with radios, and related information.

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APPENDIX 1. EVALUATION INDICATORS

Stawisha Maisha evaluation indicators				
OECD DAC criteria	**Research question**	**Indicator**	**Source**	**SDG**
Programme participation, exposure, and attitude indicators				
Effectiveness	2.1	Percentage of caregivers who can recall specific character names	Household surveys, qualitative focus groups, interviews	N/A
Effectiveness	2.1	Percentage of caregivers who can recall character sayings	Household surveys, qualitative focus groups, interviews	N/A
Effectiveness	2.1	Percentage of caregivers who can recall specific plot line	Household surveys, qualitative focus groups, interviews	N/A
Effectiveness	2.1	Percentage of caregivers who can sing Stawisha Maisha song	Household surveys	N/A
Effectiveness	2.1	Percentage of caregivers with positive attitudes towards Stawisha Maisha programme content	Qualitative focus groups, interviews	N/A
Effectiveness	2.1	Percentage of caregivers with positive opinions of Stawisha Maisha characters	Qualitative focus groups, interviews	N/A
Effectiveness	2.2, 2.3	Percentage of caregivers with positive attitudes about radio broadcast quality/channel ease of access	Household surveys, qualitative focus groups, interviews	N/A
Nutrition knowledge, attitude, and efficacy indicators				
Impact	1.4	Percentage of caregivers with knowledge of maternal dietary diversity	Household surveys, qualitative focus groups, interviews	2
Impact	1.4	Percentage of caregivers with knowledge of maternal extra meal a day	Qualitative interviews	2
Impact	1.5	Normative expectations of maternal nutrition	Qualitative focus groups, interviews	2
Impact	1.4	Percentage of caregivers with knowledge of early initiation of breastfeeding within 1 hour of birth	Household surveys	2
Impact	1.4	Percentage of caregivers with knowledge of exclusive breastfeeding to 6 months	Household surveys, qualitative focus groups, interviews	2
Impact	1.4	Percentage of caregivers with knowledge of continued breastfeeding at age 6–23 months	Household surveys, qualitative focus groups, interviews	2

Stawisha Maisha evaluation indicators				
OECD DAC criteria	Research question	Indicator	Source	SDG
Impact	1.4	Percentage of caregivers reporting that it is "good" to feed child age 6+ months several times each day	Surveys, focus groups, interviews	2
Impact	1.4	Percentage of caregivers reporting that it is "good" to feed child age 6+ months different types of food each day	Household surveys, qualitative focus groups, interviews	2
Impact	1.4	Percentage of caregivers reporting they are stressed/worried about feeding child more frequently	Household surveys, qualitative focus groups, interviews	2
Impact	1.4	Percentage of caregivers reporting they are stressed/worried about feeding child different types of food	Household surveys, qualitative focus groups, interviews	2
Impact	1.4	Percentage of caregivers reporting they feel confident in preparing nutritious foods for their child	Household surveys, qualitative focus groups, interviews	2
Impact	1.4	Percentage of caregivers who feel they can make their own personal decision on child health/feeding	Household surveys, qualitative focus groups, interviews	2
Impact	1.4	Percentage of caregivers with knowledge of ORS treatment during diarrhea	Household surveys	2
Impact	1.4	Percentage of caregivers with knowledge of continued or increased breastfeeding, meal frequency, and increased fluid/water during diarrhea	Household surveys	2
Impact	1.4	Percentage of caregivers with knowledge of which foods provide certain nutrients (iron, Vitamin A)	Household surveys	2
Impact	1.5	Percentage of caregivers with ability to interpret growth monitoring card	Household surveys	2
Impact	1.5	Percentage of caregivers who believe many moms bring their children to health services that include growth monitoring and nutrition counseling	Household surveys	2

Stawisha Maisha evaluation indicators				
OECD DAC criteria	**Research question**	**Indicator**	**Source**	**SDG**
Impact	1.4	Percentage of caregivers identifying sources of nutrition information for infant and young child feeding and maternal nutrition/breastfeeding and complementary feeding and maternal nutrition	Household surveys	2
Impact	1.5	Percentage of caregivers reporting at least a moderate amount of trust in nutrition information from radio programs	Qualitative focus groups, interviews	2
Impact	1.5	Average caregiver self-efficacy rating for problem-solving child nutrition and maternal health/nutrition problems	Household surveys, qualitative focus groups, interviews	5
Impact	1.5	Average caregiver resiliency rating	Household surveys, qualitative focus groups, interviews	5
Impact	1.5, 1.7	Percentage of caregivers reporting social connectedness, feelings of affiliation/sense of belonging	Household surveys, qualitative focus groups, interviews	5
Behaviour and Anthropometric Indicators				
Impact	1.2	Percentage of children who were exclusively breastfed until age 6 months	Household surveys	2
Impact	1.2	Percentage of children who continued breastfeeding at age 6–23 months	Household surveys	2
Impact	1.2	Percentage of children who received complementary feeding + breastfeeding at age 6–23 months	Household surveys	2
Impact	1.2, 1.6	Percentage of children with minimum meal frequency for children ages 6–23 months	Household surveys	2
Impact	1.2, 1.6	Percentage of children with minimum dietary diversity for children ages 6–23 months	Household surveys	2
Impact	1.2	Percentage of children who consume iron-rich or iron-fortified foods for children ages 6–23 months	Household surveys	2

Stawisha Maisha evaluation indicators				
OECD DAC criteria	**Research question**	**Indicator**	**Source**	**SDG**
Impact	1.2, 1.6	Percentage of pregnant women who consume at least four food groups per day	Household surveys	2
Impact	1.2, 1.6	Percentage of pregnant women who consume at least one extra meal a day	Household surveys	2
Impact	1.5	Percentage of pregnant women who consumed iron folic acid (IFA) tablets for 90+ days during most recent pregnancy	Household surveys	2
Impact	1.5	Percentage of pregnant women who sought ANC visit first trimester	Household surveys	2, 5, 3
Impact	1.5	Percentage of pregnant women who sought 4+ ANC visits	Household surveys	2, 5, 3
Impact	1.1	Percentage of children who are stunted	Household surveys/anthropometric measurement	2
Impact	1.1	Percentage of children who are wasted	Household surveys/anthropometric measurement	2
Impact	1.2	Percentage of children with diarrhea who report ORS use	Household surveys	2
Impact	1.2	Percentage of children with diarrhea who report appropriate diarrhea feeding	Household surveys	2
Impact	1.3	Average value on early childhood development scale	Household surveys	2

APPENDIX 2. GENDER EQUITABLE ATTITUDES

The Gender Equitable Men (GEM) Scale was used to measure individual attitudes toward gender norms among individuals in participating villages.[39] Rooted in social constructivist theory, the scale assumes that norms are taught in childhood and reinforced and internalized throughout adolescence and adulthood through peer groups and institutions (such as schools). It acknowledges the root of gender as based in power relations between men and women and the interaction between them. The 24-item scale addresses four domains within the construct of gender norms: intimate partnerships, reproductive health and disease prevention, domestic and daily life, and violence.[39] It consists of two subscales, which measure support for both equitable and inequitable norms that can reliably be used together or individually. Response options were 1 = agree, 2 = somewhat agree, 3 = disagree. Higher scores indicate more gender equitable attitudes.

Table A.2.1. Gender Equitable Men (GEM) module

	Pooled mean	Treatment mean	Control mean	*p*-value
Total GEM score (24–72)	46.181	47.488	44.802	0.005**
N	2,256	1,137	1,119	

Note: * Significant at $p < .05$, ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

APPENDIX 3. HEALTH FACILITY CHARACTERISTICS

Respondent characteristics

As shown in Table A.2.1, respondents for these interviews were staff from the facility, the majority of whom were health care practitioners such as nurses (42.2 percent) or doctors (22.6 percent). Respondents had an average of 5.25 years' work experience at that facility, and 51.0 percent of respondents were male.

Table A.3.1. Role and gender of facility questionnaire respondents

Respondent characteristic	Pooled frequency	%
Doctor	23	22.55
Nurse	43	42.16
Medical assistant	14	13.73
Midwife	2	1.96
Facility in charge	17	16.67
Deputy in charge	3	2.94
Male	50	49.0
Female	52	51.0
Total	102	100.00

Note: Multiple respondents were interviewed within 15 facilities.

As shown in table A.3.2, malaria rapid diagnostic tests and HIV testing are consistently available (100 percent), and testing for pregnancy and sexually transmitted diseases are also widely available (98.5 percent). The availability of anemia and Papanicolaou (Pap) testing, however, is more mixed.

Table A.3.2. Tests carried out at the facility by treatment group

	Pooled mean	Treatment mean	Control mean	*p*-value
Anemia	0.621	0.576	0.667	0.4542
Malaria (RDT)	1.000	1.000	1.000	-
Malarie (MPS)	0.242	0.212	0.273	0.573
HIV	1.000	1.000	1.000	-
Haemoglobin	0.682	0.606	0.758	0.192
Pap smear (HPV)	0.212	0.121	0.303	0.073
Pregnancy test	0.985	1.000	0.970	0.321
Other STI	0.985	1.000	0.970	0.321
N	66	33	33	

Note: * Significant at $p < .05$, ** $p < .01$. *p*-values refer to t-tests with a null hypothesis of balance between treatment statuses.

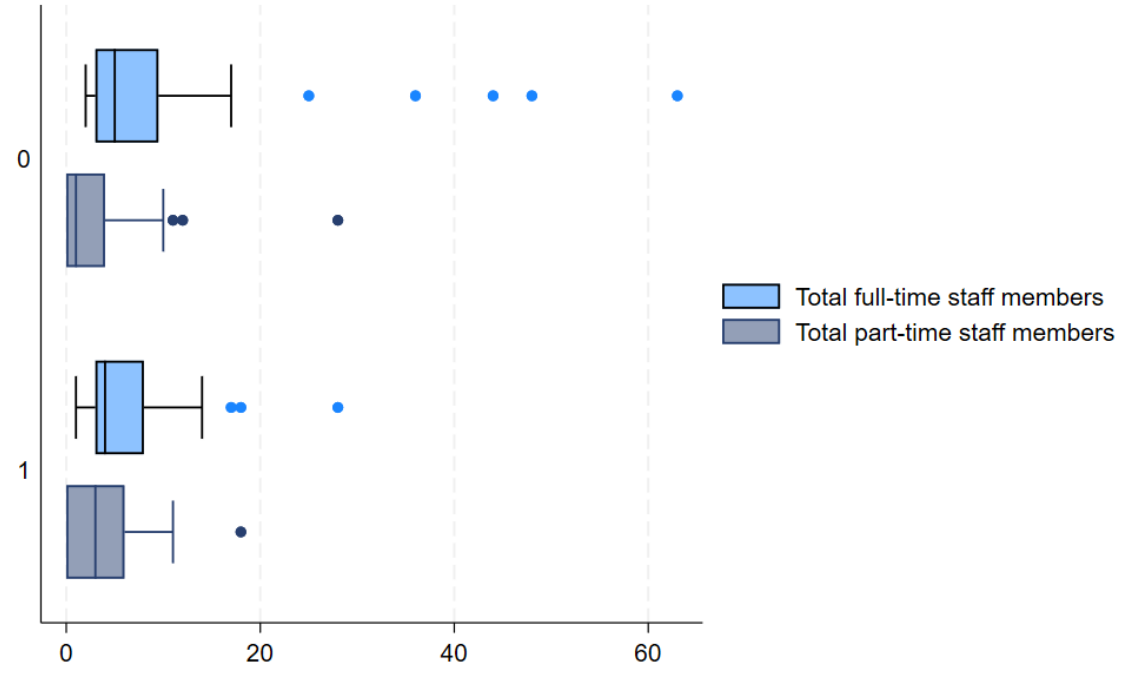
Personnel and training

Table A.3.3 presents data on the average and total number of personnel engaged by health facilities on a full-time or part-time basis. Control facilities have a significantly higher count of full-time staff compared to the treatment facilities. Figure A.3.3 shows the imbalance in the distribution of total staff members across the treatment statuses, with some outlier large facilities belonging to the control groups.

Table A.3.3. Total staffing levels across facilities, by treatment status and staff category

	Total full-time staff			Total part-time staff		
Row labels	Pooled	Control	Treatment	Pooled	Control	Treatment
Community health workers	216	104	112	179	73	106
Generalist (non-specialist) medical doctors	56	40	16	23	19	4
Laboratory technicians (medical and pathology)	49	36	13	7	6	1
Midwifery professionals	120	91	29	26	18	8
Non-physician clinicians/paramedical professionals	50	27	23	6	4	2
Nursing professionals	166	99	67	43	22	21
Pharmacists	14	12	2	11	2	9
Specialist medical doctors	57	48	9	10	5	5
N	728	457	271	305	149	156

Figure A.3.1. Distribution of total staff numbers within a facility, by contract type and treatment status



Community health workers, nursing professionals, and midwives constitute the largest staff groups across both treatment statuses. Pharmacists and lab technicians were less common, with a statistically significant difference in numbers of full-time staff in these positions between treatment and control facilities.

Table A.3.4. Staffing category, by treatment status and contract type

	Full-time				Part-time			
	Pooled mean	Treatment mean	Control mean	*p*-value	Pooled mean	Treatment mean	Control mean	*p*-value
Community health workers	2.483	2.605	2.364	0.743	2.057	2.465	1.659	0.259
Generalist (non-specialist) medical doctors	0.644	0.372	0.909	0.065	0.264	0.093	0.432	0.345
Laboratory technicians (medical and pathology)	0.563	0.302	0.818	0.045*	0.08	0.023	0.136	0.145
Midwifery professionals	1.379	0.674	2.068	0.075	0.299	0.186	0.409	0.182
Non-physician clinicians/paramedical professionals	0.575	0.535	0.614	0.662	0.069	0.047	0.091	0.513
Nursing professionals	1.908	1.558	2.25	0.263	0.494	0.488	0.5	0.841
Pharmacists	0.161	0.047	0.273	0.006**	0.126	0.209	0.045	0.386
Specialist medical doctors	0.655	0.209	1.091	0.094	0.115	0.116	0.114	0.948
N	87	43	44		87	43	44	

Note: * Significant at $p < .05$, ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region.

In terms of training, as seen in Table A.3.5, just over half of facilities have received ANC training within the past two years, with 40.2 percent receiving training on intermittent preventive treatment in pregnancy (IPTp). However, there is a significant difference between control and treatment villages, with control facilities more likely to report that a health care provider had recent specialised training within the last two years. This indicates an imbalance in the recent efforts to build staff capacity in health facilities in the treatment villages. Less frequently reported across both treatment groups was training on integrated management of childhood illnesses (28.2 percent) and growth monitoring (29.4 percent), despite these services being delivered in nearly all health facilities. Also, just under one-third of facilities have already participated in training provided by UNICEF or an NGO; 27.6 percent of facilities had health care providers who participated in specialized training on improving maternal, infant and young child feeding practices.

Table A.3.5. Participation in training, by treatment group

	Pooled mean	Treatment mean	Control mean	*p*-value
Any ANC provider received ANC training in last two years	0.540	0.442	0.636	0.043*
Any ANC provider received IPTp training in last two years	0.402	0.233	0.568	0.001**
Training in the integrated management of childhood illnesses (IMCI) in the last two years	0.282	0.286	0.279	0.976
Any provider(s) have received training in growth monitoring for children in the last two years	0.294	0.333	0.256	0.450
Any provider(s) participated in training provided by NGO/UNICEF	0.310	0.326	0.295	0.820
Health workers trained by NGO/UNICEF on improving maternal, infant and young child feeding practices	0.276	0.302	0.250	0.612
N	87	43	44	

Note: * Significant at $p < .05$, ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

Regarding the stock of medications and vaccinations available at the clinic, 88.5 percent of clinics carry anteretroviral medication for adults, and antibiotics such as penicillin (94.3 percent) and amoxicillin tablets (94.3 percent) are almost universally carried and in stock. Although paracetamol is common, only 18.4 percent of clinics carry aspirin, and only 14.9 percent had any in stock at the time of the survey. The clinics carried many modern medical contraceptives, including condoms (97.7 percent), the contractive pill (90.8 percent), a contraceptive implant (95.4 percent), and injectable contraceptives (87.4 percent). These were largely stocked wherever a facility usually carried this method, except for slightly lower in-stock availability of injectables (78.2 percent).

APPENDIX 4. COMMUNITY CHARACTERISTICS

Community respondent characteristics

An average of 2.4 individuals responded on behalf of each village cluster. Respondents had lived in the community for an average of 18.7 years, though this varied from 0 to 69 years. The majority of respondents were village administrators, including village committee members (30.4 percent), village chairmen (24.2 percent), and village executive officers (21.3 percent).

Table A.4.1. **Role of respondents**

	N	%
Village committee member	167	30.42%
Village chairman	133	24.23%
Village executive officer	117	21.31%
Social worker	65	11.84%
Other	37	6.74%
Farmer	20	3.64%
Volunteer	5	0.91%
Politician	4	0.73%
Health facility in charge/worker	3	0.55%
Teacher	2	0.36%
Total	553	100.73%

Note: Multiple respondents per community, and in four cases, one respondent had multiple roles.

Community population

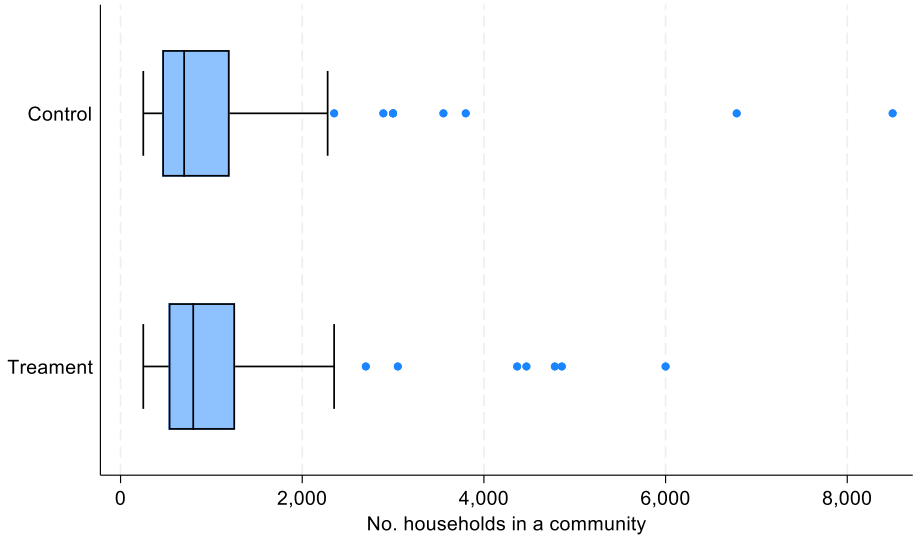
To give a sense of the overall size of sample villages, Table A.4.2. shows the average estimated number of households and overall population living in each community. On average, there are 1,145 households per community. However, the size of communities exhibits some variation, with a few significantly larger outlier communities, as illustrated in Figure A.4.1. In this context, the median estimates are lower for both the treatment communities, at 800 households and 4,216 residents, and the control communities, at 700 households and 4,814 residents.

Table A.4.2. **Population characteristics**

	Pooled mean	Treatment mean	Control mean	*p*-value
Population of community	6,341.040	6,199.867	6,482.213	0.777
No. of households in a community	1,145.120	1,153.813	1,136.427	0.930
N	150	75	75	

Notes: * Significant at $p < .05$, ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region.

Figure A.4.1. Spread of estimated number of households in sample villages, by treatment status



APPENDIX 5. KEY INDICATORS STRATIFIED BY CAREGIVER DISABILITY STATUS AND CHILD SEX

We report key indicators disaggregated by caregiver disability status and child sex for descriptive purposes. To assess caregiver disability, we administered the Washington Group on Disability Statistics Short Set on Functioning (WG-SS) and created a binary disability indicator using the Washington Group's guidelines.[40] Overall, fewer than one in five caregivers (18.8 percent) had a disability.

Table A.5.1. Caregiver nutrition knowledge and beliefs among caregivers with disability

	Pooled mean	Treatment mean	Control mean	*p*-value
Knowledge of extra daily meal during pregnancy	0.256	0.273	0.240	0.482
Knowledge of exclusive breastfeeding (correct age and definition)	0.165	0.199	0.132	0.108
Belief that it's good to feed child several times a day	0.975	0.974	0.976	0.898
Knowledge of ORS treatment for child diarrhea	0.678	0.632	0.722	0.133
Feel a sense of belonging and membership with a group of peers	0.692	0.676	0.708	0.558
Self-efficacy in solving child and maternal nutrition problems (1-4)	2.938	2.946	2.930	0.758
N	423	205	218	

Note: * Significant at $p < .05$, ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

Table A.5.2. Caregiver nutrition knowledge and beliefs among caregivers without disability

	Pooled mean	Treatment mean	Control mean	*p*-value
Knowledge of extra daily meal during pregnancy	0.269	0.285	0.251	0.299
Knowledge of exclusive breastfeeding (correct age and definition)	0.224	0.245	0.201	0.289
Belief that it's good to feed child several times a day	0.963	0.952	0.974	0.027*
Knowledge of ORS treatment for child diarrhea	0.716	0.707	0.726	0.604
Feel a sense of belonging and membership with a group of peers	0.703	0.710	0.695	0.670
Self-efficacy in solving child and maternal nutrition problems (1-4)	2.983	2.968	2.998	0.558
N	1,833	932	901	

Note: * Significant at $p < .05$, ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

Table A.5.3. Child feeding practices and outcomes among children who have a caregiver with a disability

	Pooled mean	Treatment mean	Control mean	*p*-value
Mother took iron folic acid (IFA) tablets for 90+ days during pregnancy	0.701	0.699	0.702	0.895
Children ages 0–36 months	273	124	149	
Minimum meal frequency	0.267	0.225	0.312	0.445
Minimum diet diversity (5+ food groups, including breast milk)	0.064	0.124	0.000	0.006**
Consumption of iron-rich or iron-fortified foods	0.127	0.137	0.116	0.716
Children ages 6–23 months	103	51	52	
Exclusively breastfed until age 6 months	0.346	0.339	0.353	0.917
Children ages 0–59 months	592	294	298	
Child is developmentally on track	0.233	0.251	0.216	0.488
Children ages 0–59 months	468	228	240	
Child is stunted	0.423	0.442	0.405	0.517
Children ages 0–59 months	605	294	311	
Child is wasted	0.066	0.074	0.058	0.551
Children ages 0–59 months	606	295	311	

Notes: * Significant at $p < .05$, ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

Table A.5.4. Child feeding practices and outcomes among children who have a caregiver without a disability

	Pooled mean	Treatment mean	Control mean	*p*-value
Mother took iron folic acid (IFA) tablets for 90+ days during pregnancy	0.655	0.665	0.644	0.755
Children ages 0–36 months	1,690	830	860	
Minimum meal frequency	0.316	0.348	0.284	0.184
Minimum diet diversity (5+ food groups, including breast milk)	0.074	0.071	0.078	0.720
Consumption of iron-rich or iron-fortified foods	0.158	0.182	0.134	0.307
Children ages 6–23 months	580	276	304	
Exclusively breastfed until age 6 months	0.438	0.442	0.435	0.842
Children ages 0–59 months	2,751	1,364	1,387	
Child is developmentally on track	0.206	0.198	0.213	0.387
Children ages 0–59 months	2,110	1,061	1,049	
Child is stunted	0.444	0.451	0.437	0.674
Children ages 0–59 months	2,876	1,425	1,451	
Child is wasted	0.052	0.053	0.051	0.893
Children ages 0–59 months	2,870	1,426	1,444	

Note: * Significant at $p < .05$, ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

Table A.5.5. Child feeding practices and outcomes among female children

	Pooled mean	Treatment mean	Control mean	*p*-value
Mother took iron folic acid (IFA) tablets for 90+ days during pregnancy	0.669	0.690	0.646	0.470
Children ages 0–36 months	964	488	476	
Minimum meal frequency	0.286	0.265	0.308	0.513
Minimum diet diversity (5+ food groups, including breast milk)	0.068	0.077	0.059	0.613
Consumption of iron-rich or iron-fortified foods	0.170	0.188	0.151	0.620
Children ages 6–23 months	322	158	164	
Exclusively breastfed until age 6 months	0.428	0.439	0.415	0.504
Children ages 0–59 months,	1,625	820	805	
Child is developmentally on track	0.212	0.207	0.218	0.601
Children ages 0–59 months,	1,251	629	622	
Child is stunted	0.402	0.423	0.379	0.233
Children ages 0–59 months	1,688	844	844	
Child is wasted	0.046	0.043	0.050	0.514
Children ages 0–59 months	1,690	848	842	

Notes: * Significant at $p < .05$.** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.

Table A.5.6. Child feeding practices and outcomes among male children

	Pooled mean	Treatment mean	Control mean	*p*-value
Mother took iron folic acid (IFA) tablets for 90+ days during pregnancy	0.653	0.648	0.657	0.743
Children ages 0–36 months	1,001	466	535	
Minimum meal frequency	0.330	0.391	0.271	0.030*
Minimum diet diversity (5+ food groups, including breast milk)	0.077	0.082	0.072	0.852
Consumption of iron-rich or iron-fortified foods	0.138	0.163	0.115	0.223
Children ages 6–23 months	361	169	192	
Exclusively breastfed until age 6 months	0.416	0.408	0.424	0.576
Children ages 0–59 months	1,718	838	880	
Child is developmentally on track	0.209	0.208	0.210	0.888
Children ages 0–59 months	1,327	660	667	
Child is stunted	0.478	0.476	0.479	0.809
Children ages 0–59 months	1,793	875	918	
Child is wasted	0.063	0.071	0.054	0.238
Children ages 0–59 months	1,786	873	913	

Note: * Significant at $p < .05$. ** $p < .01$. *p*-values refer to linear probability model (LPM) or ordinary least squares (OLS) regressions controlling for treatment status and region, with standard errors adjusted for clustering at the village level.