

BARRIER ANALYSIS ON THE ADOPTION OF IMPROVED COMPLEMENTARY FEEDING PRACTICES FOR CHILDREN 6–23 MONTHS



IN THE KARAMOJA SUB-REGION
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Cover Page Photo Credit: Household caregivers of children under 2 (CU2) years participate in a cooking demonstration by a Lead Mother during which she demonstrated a complementary feeding lesson on how to prepare nutritious complementary foods for their children. (CRS, Abim district, Karamoja sub-region, 2019).

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List of Acronyms and Abbreviations

ANC	Antenatal Care
BA	Barrier Analysis
BHA	Bureau of Humanitarian Affairs
CKD	Caritas Kotido Diocese
CMD	Caritas Moroto Diocese
CRS	Catholic Relief Services
CU5	Children under 5 years of age
DBC	Designing for Behavior Change
DDS	Dietary Diversity Score
DFSA	Development Food Security Activities
DNFPs	District Nutritional Focal Persons
EBF	Exclusive Breastfeeding
FAO	Food and Agriculture Organization
FFP	Food for Peace
FGDs	Focus Group Discussions
FSNA	Food Security Nutrition Assessment
GAM	Global Acute Malnutrition
HFA	Height for Age
HHCGs	Household Care Givers
ICF	ICF International, Inc
IEC	Information Education and Communication
IYCF	Infant and Young Child Feeding
KIIs	Key Informant Interviews
MAD	Minimum Adequate Diet
MCA	Male Change Agents
MCG	Mother Care Group
MDD	Minimum Dietary Diversity
MIYCAN	Maternal, Infant, Young Child, and Adolescent Nutrition
MMF	Minimum Meal Frequency
ODK	Open Data Kit
PLWs	Pregnant and Lactating Women
PNC	Post-Natal Care
RAs	Research Assistants
SBCC	Social and Behavior Change Communication
SNV	SNV Netherlands Development Organisation
UBOS	Uganda Bureau Of Statistics
USAID	United States Agency for International Development
VSLA	Village Savings and Loan Association
VHT	Village Health Team
WASH	Water, Sanitation, and Hygiene
WFA	Weight for Age
WFH	Weight for Height
WHO	World Health Organization
WRA	Women of Reproductive Age

Operational Definitions

Keyword	Definitions
Doer	Defines people who say they practice the desired behavior. For this barrier analysis study, the desired behavior includes timely initiation of complementary feeding, minimum meal frequency, minimum dietary diversity, and minimum acceptable diet.
Non-Doer	Defines people who say they do not practice the desired behavior. For this barrier analysis study, this reflects persons who did not: initiate complementary feeding at 6 months or meet the criteria for minimum meal frequency, dietary diversity, and/or acceptable diet.
Dietary Diversity	Dietary diversity is a qualitative measure of food consumption that reflects household access to a variety of foods and is also a proxy for nutrient adequacy of the diet of individuals. Food and Agriculture Organization (FAO, 2011).
Minimum Dietary Diversity	Minimum dietary diversity is a proxy indicator for micronutrient adequacy of foods consumed. The indicator is used to assess the proportion of children 6–23 months of age who have consumed at least five out of eight pre-defined food groups the day before data collection. Uganda Bureau of Statistics (UBOS) and ICF International, Inc (ICF), 2018.
Minimum Meal Frequency	A proxy indicator for a child's energy requirements. It assesses the number of times children receive foods other than breastmilk. The minimum number of meals is specific to the age and breastfeeding status of the child. For breastfed infants aged 6–8 months, the minimum is to receive solid, semisolid, or soft foods at least twice a day, and for breastfed children aged 9–23 months, at least three times a day. Non-breastfed children aged 6–23 months need to receive solid, semisolid, or soft foods at least four times a day (UBOS and ICF, 2018).
Minimum Acceptable Diet	A minimum acceptable diet is a composite indicator of minimum dietary diversity and minimum meal frequency; it is the proportion of children 6–24 months of age who receive a minimum diversified diet and minimum meal frequency (apart from breastmilk).
Complementary Feeding	The transition from exclusive breastfeeding to family foods is referred to as complementary feeding. This happens after the first 6 months of the child's life, as breastmilk alone is no longer sufficient to meet the nutritional needs of the infant; hence, complementary foods should be added to the child's diet.
Health Belief Model (HBM)	The Health Belief Model is a theoretical model for guiding health promotion and disease prevention programs. It is used to examine and forecast how people's health behaviors change over time. It is one of the most used models for evaluating health-related behaviors. Therefore, the HBM is a good fit for addressing problem behaviors that cause health risks since it focuses on health motivation (Glanz, 2005).

Executive Summary

Background:

Catholic Relief Services (CRS) leads a consortium of six¹ partners in implementing a six-year, United States Agency for International Development (USAID)/ Bureau of Humanitarian Affairs (BHA)-funded program named Nuyok. Nuyok, derived from a Karamojong word meaning “it is ours,” aims to build resilience to shocks, enhance livelihoods, and improve food and nutrition security for vulnerable rural families in four districts of Karamoja—Abim, Nakapiripirit, Nabilatuk, and Napak. A barrier analysis (BA) was conducted in four Nuyok districts of the Karamoja sub-region to examine the determinants of four key Infant and Young Child Feeding (IYCF) practices. The assessed IYCF practices included: i) initiation of complementary feeding, ii) Minimum Dietary Diversity (MDD) during complementary feeding, iii) Minimum Meal Frequency (MMF), and iv) Minimum Acceptable Diet (MAD) among mothers and caregivers of children 6–23 months. The BA study aimed to identify barriers, enablers, and motivators to the adoption of improved IYCF practices in the four districts of Abim, Napak, Nakapiripirit, and Nabilatuk.

A cross-sectional design was used to conduct this study. A Barrier Analysis Assessment Tool was used to identify the factors that hinder mothers of children 6–23 months from adopting a preferred/promoted behavior. It was also used to identify the facilitators or motivators that encourage mothers to adopt the behavior. There were 532 Mother Care Group (MCG) members (267 doers and 265 non-doers) who participated in the BA study. Data was entered into the Barrier Analysis Tabulation Excel Sheet by B.L. Kittle (2013) for quantitative analysis to establish which determinants were significantly different ($p < 0.05$) between doers and non-doers.

The key findings are that doers experience minimal difficulty in initiating their children on complementary foods at 6 months. Further, they are likely to initiate complementary feeding at 6 months if the child’s development milestones are on track. The child development milestones are categorized into physical growth, cognitive development, language development, and sensory and motor development, which should show improvement in absence of disease and malnutrition. On the other hand, non-doers did not initiate complementary feeding at 6 months due to poor milk production. Overall, most doers (78%) and non-doers (57%) reported positive consequences of timely initiation of complementary feeding that include improved child growth and development and prevention of diseases.

Respondents highlighted factors that influence MDD including maternal employment, spousal support, food availability, other family member support, and having savings. However, only

¹ Some partners have stopped implementing Nuyok activities as the program began the exit and sustainability phase. To date, only Caritas Moroto Diocese and Caritas Kotido Diocese continue to implement Nuyok activities.

responses on family support and savings were statistically significant ($p < 0.005$). In terms of factors that made it difficult for caregivers to feed their children on five of the eight foods daily, respondents (non-doer) cited factors such as disease (19%), lack of spousal support (8%), lack of income (82%), food scarcity (32%), and insecurity (6%). Results were only significant for responses on lack of income or unemployment among non-doers whose results showed that they mostly failed to meet MDD due to lack of income.

Further, 62% of non-doer respondents noted that lack of money and lack of food in the household (17%) were some of the factors that hinder them from meeting their children's MMF requirements. However, these responses were not significant. Concerning maternal urgency on ensuring that children had at least three or more meals made of foods from five or more food groups a day, even though not statistically significant, 41% of the doers did not find any difficulty at all. The BA findings show that access to services and commodities required for improved IYCF practices is a key driver for the doers to practice appropriate IYCF practices. It is hoped that these results will allow programs to be better tailored to address barriers to adoption of improved IYCF practices (e.g., through increased focus on the need for increased access through agriculture, road construction, and diversified livelihoods). To address the significant determinants of each behavior, this report suggests Bridges to Activities and its recommended activities based on the responses given by respondents.

1.0 Introduction

CRS carries out the commitment of the Bishops of the United States to assist the poor and vulnerable overseas. CRS has worked in Uganda since 1965, initially providing emergency assistance to Sudanese refugees living in Northern Uganda. Over the years, CRS has expanded its programming to also address development needs in Western, Central, and Eastern Uganda. CRS projects in Uganda currently involve agriculture, health, microfinance, peace building, and youth.

CRS leads a consortium of six partners in implementing a six-year, USAID/BHA-funded program that builds resilience to shocks, enhances livelihoods, and improves food and nutrition security for vulnerable rural families in the Karamoja sub-region of North-Eastern Uganda. The program, called Nuyok, covers Abim, Nakapiripirit, Nabilatuk, and Napak districts. Nuyok seeks to strengthen governance and gender equity, community capacity to manage shocks and stresses, traditional and diversified livelihood opportunities, and nutrition and health (including improved water, sanitation, and hygiene [WASH] of pregnant and lactating women [PLW], adolescent girls, and children under 5 years of age [CU5]).

1.1 Background

The CRS-supported Nuyok program (which means “it is ours” in the local language), covers Abim, Nakapiripirit, Nabilatuk, and Napak districts, which is home to 406,880 people living in an estimated 58,126 households. As of the end of the reporting period, Nuyok has reached 272,901 direct participants (161,012 female; 111,889 male); of these, 117,347 (69,235 female; 48,112 male) are youth between 15–29 years of age.

1.2 Study Context

Malnutrition is still a public health concern in the Karamoja sub-region with at least 25.3% CU5 stunted, 16.6% underweight, and 9.6% wasted (Karamoja Food Security Nutrition Assessment [FSNA] Report, 2020). Results from the 2018 Baseline Study Report on Food for Peace (FFP) Development Food Security Activities (DFSA) in Uganda also showed similar findings on child nutrition status with 27.8% of CU5 being underweight, 35.7% being stunted, and 11.5% being wasted within the CRS Nuyok implementation areas of Abim, Napak, Nakapiripirit, and Nabilatuk districts. These malnutrition rates in children were attributed to insufficient and inadequate intake of quality complementary foods in the first two years of life (USAID, 2019). The same evaluation by FFP also found that children in CRS DFSA areas had low dietary diversity where less than one in every 10 children between 6–23 months (7%) received an MAD. Qualitative results from the FFP evaluation further found inadequate knowledge among community members (as well as among mothers and caregivers) on the relevance of diversifying children's diets as one of the contributory factors to the low dietary diversity in CRS DFSA areas.

To overcome these nutrition-specific challenges, Nuyok initiated the use of the MCG approach to reinforce nutritional behavioral change at the household level. This peer-to-peer method for behavior change utilizes Lead Mothers, village health teams (VHT), and Male Change Agents (MCA) to reach out to household caregivers. Lead Mothers, VHTs, and MCAs conduct home visits to deliver key behavioral change messages and practical sessions such as cooking demonstrations, food preservation and processing demonstrations, and kitchen gardening assistance.

Findings from the 2020 FSNA report showed the overall prevalence of Global Acute Malnutrition (GAM) in the Karamoja sub-region was at 9.6%, which is “poor/medium” and therefore, not of public health concern according to the benchmark of the World Health Organization (WHO) (UBOS, 2020).

However, and despite Nuyok's efforts to improve IYCF practices, malnutrition in CRS implementation areas and the Karamoja sub-region has remained a significant challenge to maternal and child health. It is based on that problem that Nuyok recognized the urgent need for a barrier analysis to create a more in-depth understanding of the drivers of the persistently high malnutrition rates among CU5. The barrier analysis study, therefore, sought to identify constraints, enablers, and motivators to the adoption of adequate IYCF practices among primary caregivers in Nuyok operational districts.

1.3 Study Purpose and Objectives

The purpose of this barrier analysis is to identify barriers, enablers, and motivators to the adoption of improved IYCF practices in the Abim, Napak, Nakapiripirit, and Nabilatuk districts of Karamoja, Uganda. For this purpose, five key objectives were defined, each with associated research questions.

1.3.1 Barrier Analysis Study Objectives:

1. Identify barriers, enablers, and motivators to the adoption of improved IYCF practices in the sampled population.
2. Suggest appropriate and specific measures and/or recommendations/activities that would improve the quality and sustainability of IYCF-focused nutrition interventions and behavior change.

1.3.2 Barrier Analysis Associated Research Questions

1. What are the barriers, enablers, and motivators to the adoption of improved complementary feeding practices in Karamoja?
 - a) Which factors are acting as barriers to the initiation of complementary feeding, MDD, MMF, and MAD in Karamoja?

- b) Which factors are acting as motivators and enablers to the initiation of complementary feeding, MDD, MMF, and MAD in Karamoja?
- c) What specific measures can be taken by Nuyok during the remaining life of the project to minimize the constraints and optimize the enablers of these practices?

2.0 Methodology

The analysis employed both qualitative and quantitative approaches to establish the barriers, enablers, and motivators to adoption of IYCF. The analysis further explored the communication approaches that drive social and behavior change toward improving complementary feeding practices in Nuyok intervention areas.

2.1 Study Design

A cross-sectional and descriptive survey design informed the BA study. The study employed the Health Belief Model and the Theory of Reasoned Action. The Health Belief Model asserts that "people will engage in health behaviors if they value the outcome linked with the behavior and perceive that the behavior is likely to provide that outcome." The Theory of Planned Behavior, which is built on the previously known Theory of Reasoned Action, argues that a behavior can be influenced by two variables: attitudes and subjective norms. Therefore, the Health Belief Model and the Theory of Reasoned Action were used for the BA study because they are the two most effective theories used in informing BA methods (Glanz, 2005). Further, A BA assessment tool was used to identify the factors that hinder mothers of children 6–23 months from adopting the key behaviors of adequate IYCF and to identify the facilitators or motivators to adopting the project's desired behaviors.

2.2. Sampling Methods

Mothers of children aged 6–23 months who are members of MCGs were purposively sampled based on the four IYCF practices of interest (timely initiation of complementary feeding, MDD, MMF, and MAD) to this study. Mothers identified from the MCGs were then further screened to identify as doers or non-doers with each sampled mother representing a household. Data was collected at the household level.

2.3 Sample Size

The BA was conducted among a sample of 532 members of the MCGs (267 doers and 265 non-doers). Although the projected sample size was 480, a non-response rate of 10% was incorporated into the final sample size to cater for respondent withdrawal or refusal to participate in the study.

Table 1: Number of BA Study Participants per District

Behavior	Classification	Abim	Nabilatuk	Nakapiripirit	Napak	Total
Timely initiation of complementary feeding	Doer	18	16	17	19	70
	Non-doer	15	15	15	16	61
Minimum Dietary Diversity	Doer	18	15	15	16	64
	Non-doer	18	16	20	18	72
Minimum Meal Frequency	Doer	20	15	20	18	73
	Non-doer	16	15	20	15	66
Minimum Adequate Diet	Doer	15	15	16	15	61
	Non-doer	16	15	19	15	65
Total		136	122	142	132	532

Members of MCGs were then asked questions concerning the IYCF practices according to their classification. Mothers or caregivers who should be practicing the behaviors in question were interviewed to identify which of the 12 determinants of behavior change hindered non-doers from adopting the desired IYCF behavior, as well as which determinants facilitated the adoption of behaviors among doers.

2.4 Data Collection Techniques

2.4.1 Identification of Key Behaviors for the BA Study

Before the data collection process, four key behaviors were identified for assessment. These behaviors were selected based on program data and learning where CRS reported that although the behaviors had been promoted in the past, their indicators had not shown significant improvement. Mothers of children 6–23 months (members of MCGs) were mobilized a day prior to data collection. Enumerators visited households on the day of data collection and asked screening questions to identify doers and non-doers. The behaviors are further described below.

Behavior 1: Timely initiation of complementary feeding: Mothers of children 6–23 months initiate complementary feeding at 6 months of age by feeding their children other foods in addition to breastmilk each day

The behavior was identified because 6 months of age is the age at which children should begin to be fed solid or semi-solid food in addition to breastmilk. At 6 months of age breastmilk alone ceases to supply adequate nutrients to meet the needs of the growing baby. To assess this behavior, mothers and/or caretakers of children aged 6–23 months were interviewed.

Behavior 2: Minimum Dietary Diversity (MDD): Mothers of children 6–23 months feed their children meals from at least five of the recommended eight food groups (including breastmilk) each day

MDD is considered a proxy for the adequate micronutrient density of foods. MDD requires feeding a child food from at least five food groups, including breastmilk. According to the WHO (2018), the cut-off of five food groups is associated with better quality diets for both breastfed and non-breastfed children.

Consumption of food from at least five groups means that a child has a high likelihood of consuming at least one animal source of food and at least one fruit or vegetable in addition to a staple food (grains, roots, or tubers). The five groups should come from a list of eight food groups, including breastmilk, starchy staples, legumes and nuts, dairy products (milk, yogurt, and cheese), flesh foods (meat, fish, poultry, and liver/organ meat), eggs, vitamin A-rich fruits and vegetables, and other fruits and vegetables.

Behavior 3: Minimum Meal Frequency (MMF): Mothers of breastfed children feed them at least two cooked meals at 6–8 months of age, three cooked meals at 9–23 months of age, and at least four meals for non-breastfed children aged 6–23 months

MMF is a proxy for a child's energy requirements. For infants and young children, the indicator is based on how much energy the child needs and, if the child is breastfed, the amount of energy needs that are not met by breastmilk. Breastfed children are considered to be fed with a MMF if they receive solid, semi-solid, or soft foods at least twice a day (for infants aged 6–8 months) or at least three times a day (for children aged 9–23 months). Non-breastfed children aged 6–23 months are considered to be fed with a MMF if they receive solid, semi-solid, or soft foods at least four times a day.

Behavior 4: Minimum Acceptable Diet (MAD): Mothers of breastfed children feed them at least two cooked meals at 6–8 months of age, three cooked meals at 9–23 months of age, and at least four meals for non-breastfed children ages 6–23 months. In addition, these children are fed food from at least five of the recommended eight food groups, including breastmilk.

According to the WHO, infants and young children should be fed an MAD to ensure appropriate growth and development. However, without adequate dietary diversity and meal frequency, infants and young children are vulnerable to undernutrition, especially stunting and micronutrient deficiencies, and to increased morbidity and mortality. The WHO recommendation for MAD is a combination of MDD and MMF and is different for breastfed and non-breastfed children.

2.4.2 Barrier Analysis Questionnaire Development

During the inception phase of the BA study, four barrier analysis questionnaires were developed in English following the standard BA questionnaire design guidelines by Kittle (2013). The survey questionnaires were designed to identify differences between doers and non-doers on a set of key IYCF behaviors among mothers and caregivers of children 6–23 months. The designed questionnaires were tested in English during the training and pretested in local languages (i.e., Nga'karimojong and Lep`thur) before the data collection process. Based on the pre-test results, questionnaires for the different behaviors were modified and approved for data collection. The BA tools were installed on tablets using the Open Data Kit (ODK) for use during training pre-test and data collection phases.

2.5 Data Management and Analysis

2.5.1 Quantitative Data Management and Analysis

Upon completing the data collection phase, data were coded and tabulated in Excel datasheets. Data were then entered into the BA Tabulation Excel Sheet² designed by Kittle (2013) for quantitative analysis to establish which determinants were significantly different ($p < 0.05$) between doers and non-doers. These significant determinants were analyzed to develop bridges to activities and recommendations.

2.5.2 Qualitative Data Management and Analysis

Qualitative data from the completed questionnaires and key informant interviews were also recorded and transcribed to better understand the context of barriers and facilitators.

2.6 Limitations of the Study

1. Fieldwork was planned for four days; however, the work lasted six days, with data collection for each behavior conducted in the mornings and coding of the responses for at least one behavior taking place in the evenings. Having collected data during the rainy season (August), the study teams encountered challenges in finding the required number of mothers to be interviewed for each behavior per day as mothers were reportedly attending to their fields. Therefore, interviews for at least two of the four behaviors were conducted concurrently each day depending on the availability of the target study group. This was a major challenge as it interfered with the recruitment of study respondents and planned daily data coding. Consequently, data coding was done at the end of the data collection process.
2. A few of the data collectors lacked previous BA interviewing experience. This was addressed through a rigorous three-day training which included role-playing to reinforce

² www.caregroupinfo.org/docs/BA_Tab_Table_Latest.xlsx

interviewing techniques and deepen the understanding of the fundamentals of BA techniques and the context of the BA. Further, a pre-test of the survey tool was undertaken with the enumerators under the watch of team leaders and investigators to tease out any potential misunderstanding of the study questions and biases. Issues arising from the pre-test were addressed through role-playing on the fourth day of training.

2.7 Ethical Considerations

During data collection, verbal consent was received from all respondents after reviewing an Informed Consent Form (ICF). The respondents were assured of confidentiality and anonymity.

3.0 Findings

This section details the findings of the study. Results are presented as per the objectives.

3.1 Identification of Doers and Non-Doers for Timely Initiation of Complementary Feeding, MDD, MMF, and MAD Indicators

Five hundred thirty-two women of reproductive age (267 doers and 265 non-doers) were assessed for timely initiation of complementary feeding, MDD, MMF, and MAD (see Table 1 above).

Although data were collected per district, it is presented at the program level. A minimum of 15 respondents per district per behavior were selected for data collection, contributing to the aggregated 60 participants per behavior. According to the BA methodology, 45 is presumed to be the minimum number for analysis per category per behavior to provide significant results (Kittle, 2013). Responses from doers and non-doers were analyzed for significance based on either a 15% difference among responses or a statistical significance of $p < 0.05$ as calculated through the BA Tabulation Excel Sheet. The determinants found to be significant for each of the behaviors following data analysis (http://www.caregroupinfo.org/docs/BA_Tab_Table_Latest.xlsx.) are discussed in the relevant sections.

3.2 Identification of Barriers, Enablers, and Motivators to the Adoption of Improved IYCF Practices in the Nuyok Project Sites

This section details the barriers, enablers, and motivators to adoption of improved IYCF practices. Each behavior of interest is described based on the 12 determinants; however, results are presented for only the determinants which were found significant at $p < 0.05$. Sections 3.2.1 through 3.2.4 discuss the barriers while Section 3.2.5 discusses enablers and motivators.

3.2.1 Behavior One: Timely Initiation of Complementary Feeding

Responses to questions related to four determinants were found to be significant to this behavior and are shown in Annex 2.

3.2.1.1 Perceived Self-Efficacy

This determinant refers to an individual's belief that he/she can exhibit a particular behavior given his/ her current knowledge and skills. Respondents were asked what makes it (or what *would* make it) easier or more difficult for them to initiate complementary feeding at 6 months. Findings indicate that doers experience little or no difficulty at all in starting their children on complementary foods at 6 months and are likely to do so if the child's development milestones are on track. On the other hand, non-doers find it difficult to initiate complementary feeding at 6 months due to low milk production, poor health, limited food availability, and limited finances in the household. Qualitative findings revealed other factors including poverty, food scarcity, and

alcoholism, among others. Alcoholism stood out as a major challenge in comparison to the others with respondents noting that many mothers in the communities are often drunk and not in the right state of mind and are therefore unable to breastfeed their children. Consequently, the children are started on other foods before 6 months of age.

3.2.1.2 Perceived Positive or Negative Consequences

Respondents were further asked about their perception of the good or bad things that would result from timely initiation of complementary feeding. Results are shown below in Figure 1.

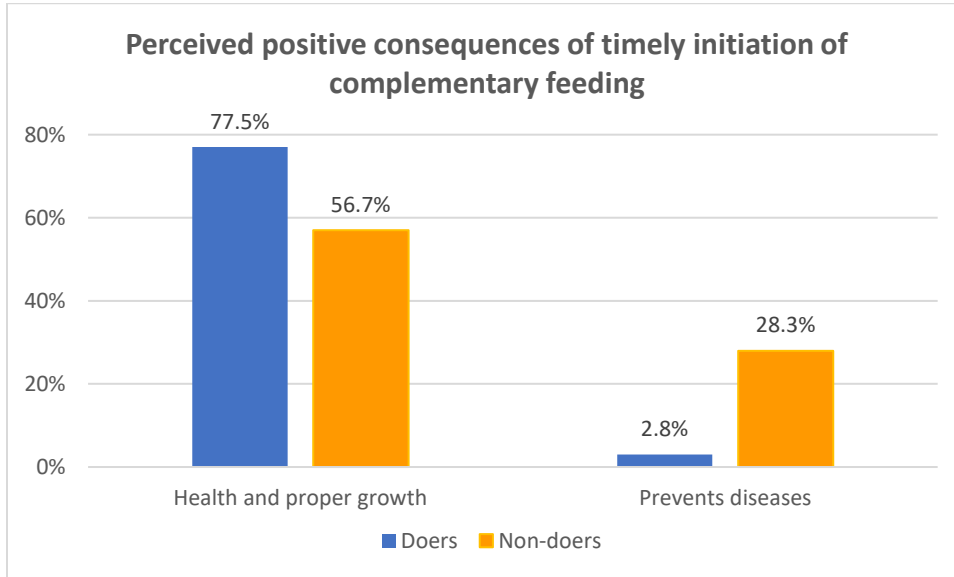


Figure 1: Perceived positive consequences of timely initiation of complementary feeding

Overall, both doers (78%) and non-doers (57%) noted that positive consequences of feeding children other foods in addition to breastfeeding included improved child growth and development. Both doers (3%) and non-doers (28%) also acknowledged that the prevention of diseases in children 6–23 months was another positive consequence of timely complementary feeding. These responses were statistically significant for both doers and non-doers.

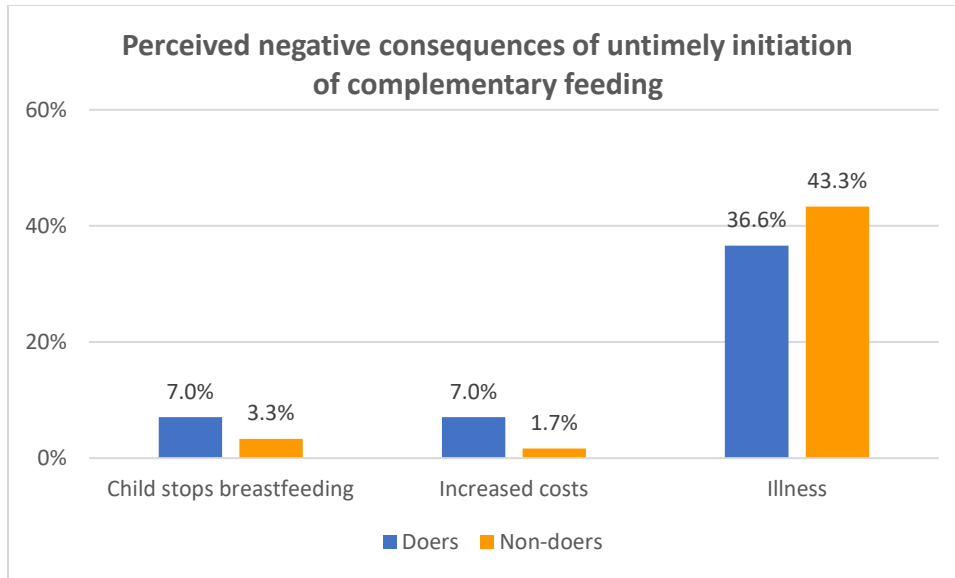


Figure 2: Perceived negative consequences of untimely initiation of complementary feeding

In addition, mothers were also aware that the negative consequences of non-timely initiation included children being prone to illnesses and the cessation of breastfeeding. The responses on negative consequences for untimely initiation of complementary feeding were not statistically significant. These results indicate that mothers, in general, are aware of the positive and negative consequences of timely/untimely initiation of complementary feeding but may lack the initiative to undertake the behavior. Therefore, there is a need to strengthen messaging on the negative consequences of suboptimal practices in the short, medium, and long term.

3.2.1.3 Perceived Susceptibility/Risk

This determinant refers to a person's perception of how vulnerable or at risk he/she feels to a certain problem. Respondents were asked how likely it is that their baby will become malnourished in the next months if complementary feeding was not initiated on time. Results are shown in Figure 3.

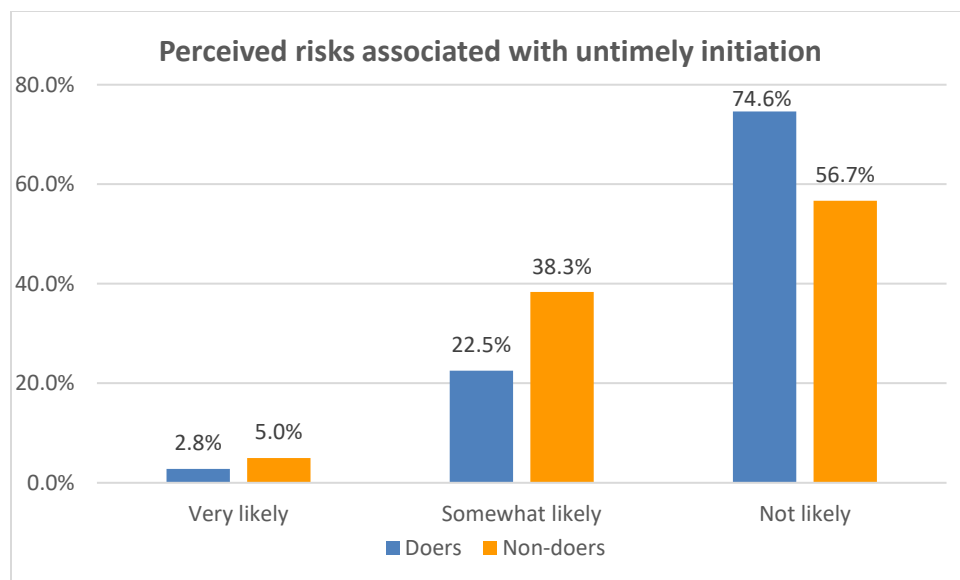


Figure 3: Perceived risks associated with untimely initiation

Overall, doers were 2.1 times more likely to state that it is “*not likely at all*” that their baby will become malnourished in the coming months ($p=0.038$) if they did not initiate complementary feeding at 6 months, while non-doers were 2 times more likely to state that their children were “*somewhat likely*” to suffer malnutrition in the next months. The qualitative findings align with this finding where respondents noted that mothers in the community are aware of the positive and negative consequences of initiating or not initiating complementary feeding on time. However, the environment that allows them to practice adequate IYCF practices may not be sufficient. Key hindering factors included poverty, food insecurity, and maternal workload. Although there have been project efforts to address these challenges through agriculture and livelihood interventions, factors such as harsh weather during dry spells in the region downplay these efforts.

3.2.1.4 Perceived Cultural Norms

Respondents were asked if there were any cultural rules or taboos against feeding their children any other foods in addition to continued breastfeeding after 6 months. Results are shown below in Figure 4.

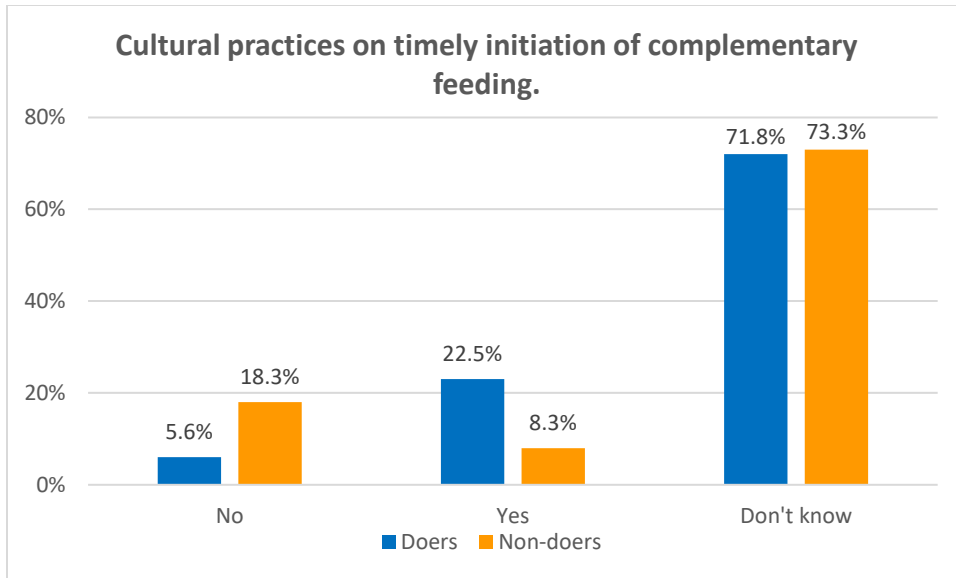


Figure 4: Cultural practices on timely initiation of complementary feeding

Results showed that equal proportions of mothers interviewed (72% doers and 73% non-doers) were not aware of any cultural practices against timely initiation of complementary feeding. However, non-doers were 3.4 times more likely to respond “No,” while doers were 2.7 times more likely to respond, “Yes” concerning the presence of cultural rules and taboos against timely initiation of complementary feeding. The qualitative findings revealed that cultural norms were not likely to hinder timely initiation of complementary feeding, especially before 6 months of age.

3.2.2 Behavior Two: Minimum Dietary Diversity

For this behavior, mothers of children 6–23 months should feed their children meals from at least five of the recommended eight food groups, including breastmilk, each day. This behavior is indicative of the meal variety of children 6–23 months. Responses to questions related to five determinants were found to be significant, as shown in Annex 3.

3.2.2.1 Perceived Self-Efficacy

Respondents were asked what makes it easy or difficult to feed their children (6–23 months) foods from at least five of the recommended eight food groups, including breastmilk, each day. Factors highlighted included: maternal employment, spousal support, food availability, family support, and having savings. However, only responses on family support and savings were statistically significant ($p < 0.005$).

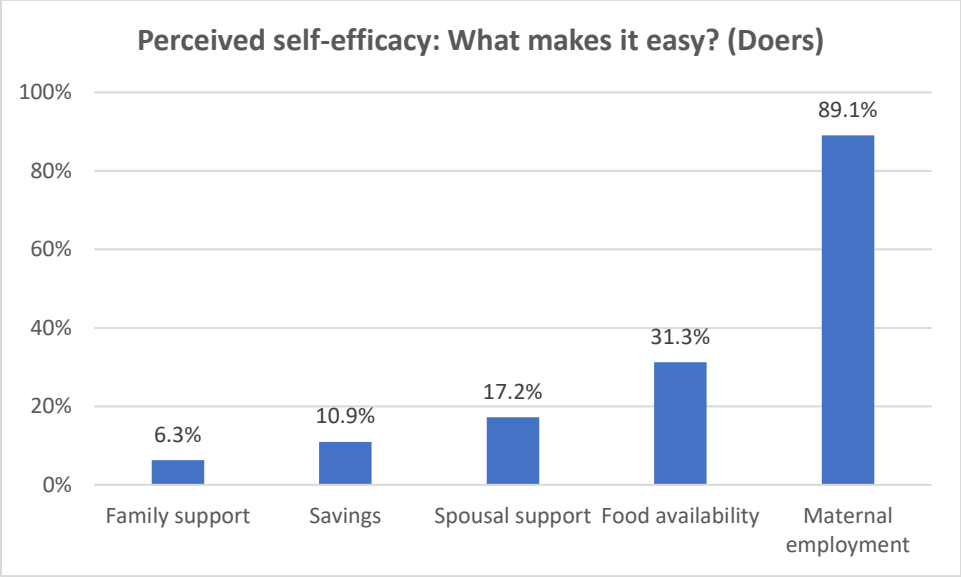


Figure 5a: Perceived self-efficacy: What makes it easy? (doers)

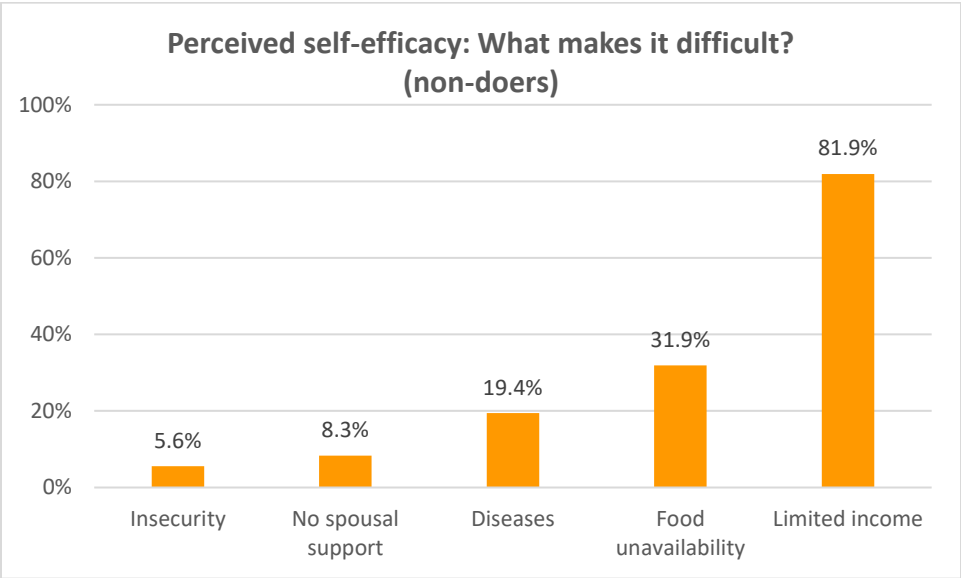


Figure 6b: Perceived self-efficacy: What makes it difficult? (non-doers)

Although factors such as lack of spousal support, lack of income or employment, high food prices, food scarcity, insecurity, and low child appetite were mentioned as barriers, results were only significant for responses on lack of income or unemployment among non-doers who were twice as likely to give this response ($p=0.037$). This result conforms to findings from the qualitative study and the prevailing security situation in Karamoja at the time of data collection. Qualitative interview findings revealed that it was hard to provide diverse diets to children owing

to the security situation resulting from rampant cattle raids. Respondents noted that mothers were afraid of continuing with routine agriculture/garden activities as they feared for their lives. Further, maternal employment was cited as a motivator for MDD, whilst limited income was a barrier. This confirms that although knowledge of IYCF is high for both doers and non-doers, access plays a big role in implementing the practices.

3.2.2.2 Perceived Negative Consequences

Respondents were asked about what are (or what *would be*) the advantages/disadvantages of feeding their child on food from five of the eight food groups. Results are shown in Figure 6.

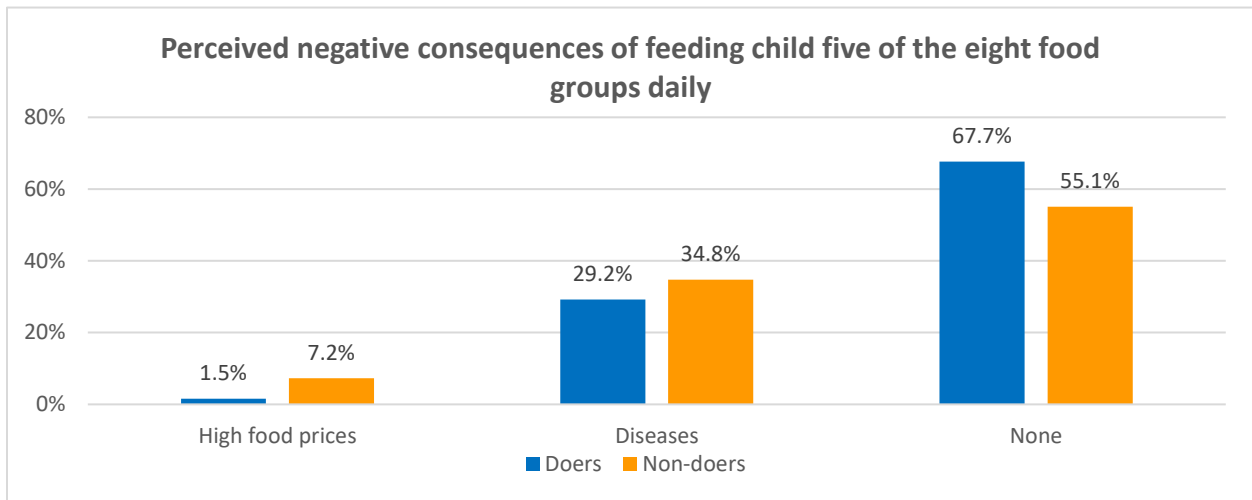


Figure 7: Perceived negative consequences of feeding child five of the eight food groups daily

Overall, most of the doers and non-doers alike perceived no negative consequences of feeding their children from five or more of the eight food groups daily. However, the doers were 1.8 times more likely to perceive no negative consequences of this practice ($p=0.042$). Some of the negative consequences cited included a baby refusing to breastfeed, increased disease incidences, and increased spending on high-cost foods to feed the child. However, these were not statistically significant. Nonetheless, these results confirm the common thinking, "High nutrient foods are expensive," which plays well into the poverty rhetoric. The qualitative findings also alluded to the fact that the poor IYCF indicators in the implementation area were due to rampant poverty in the region.

3.2.2.3 Perceived Social Norms

Respondents were asked about who might approve or disapprove of them feeding their child foods from five of the eight food groups. The responses were mixed with doers being 2.5 times more likely to respond that they had the approval of their spouses ($p=0.006$) and neighbors

($p=0.026$) while the non-doers were 8.1 times more likely to report that the no one ($p=0.014$) approved of them feeding their children on at least five of the eight food groups. Although both groups noted that health workers approved of them feeding their children five of the eight food groups, this result was not significant.

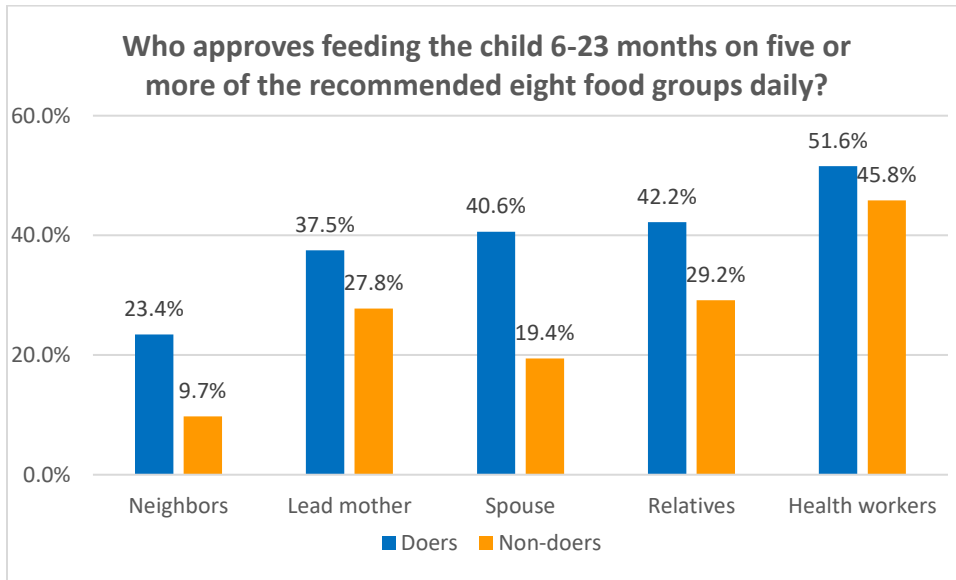


Figure 8: Who approves feeding the child 6–23 months on five or more of the recommended eight food groups daily?

This result indicates the importance of targeting messages for specific audiences such as spouses in the promotion of key IYCF behaviors.

3.2.2.4 Perceived Severity

Respondents were asked how serious it would be if their child became malnourished if they were not fed from five of the eight food groups each day. Results are shown in Figure 8.

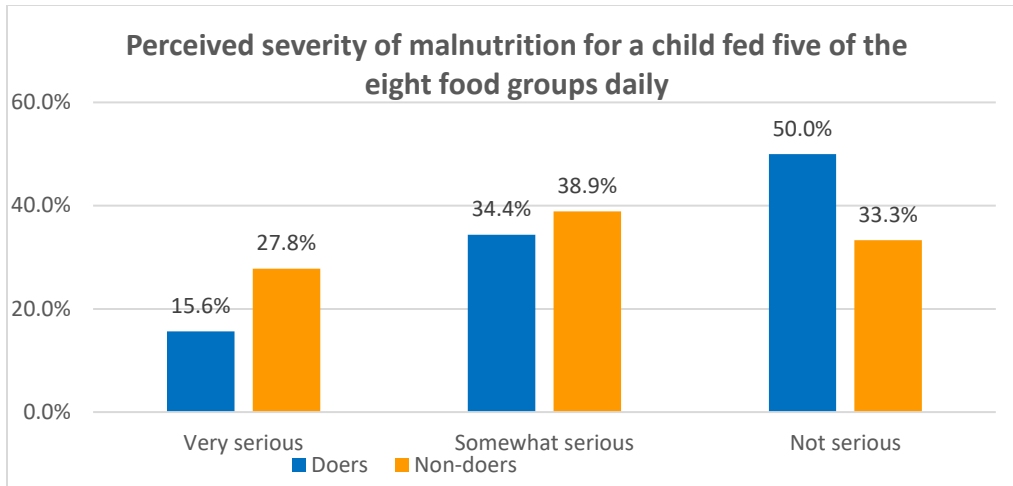


Figure 9: Perceived severity of malnutrition for a child fed five of the eight food groups daily

Overall, 50% of the doers did not perceive any serious consequences from malnutrition if the child was fed daily on five or more of the eight foods. Non-doers were 1.9 times ($p=0.0036$) more likely to perceive no serious consequences from malnutrition if their children did not eat foods from five or more of the eight food groups. This result may be indicative of a lack of knowledge regarding the importance of dietary diversity or a situation beyond their comprehension. Hence, the need to further sensitize or provide information to mothers on the food groups and their importance to child health.

3.2.2.5 Perceived Cultural Norms

Respondents were asked if there were any cultural norms or taboos against feeding their children food from at least five of the eight food groups. Results are shown in Figure 9.

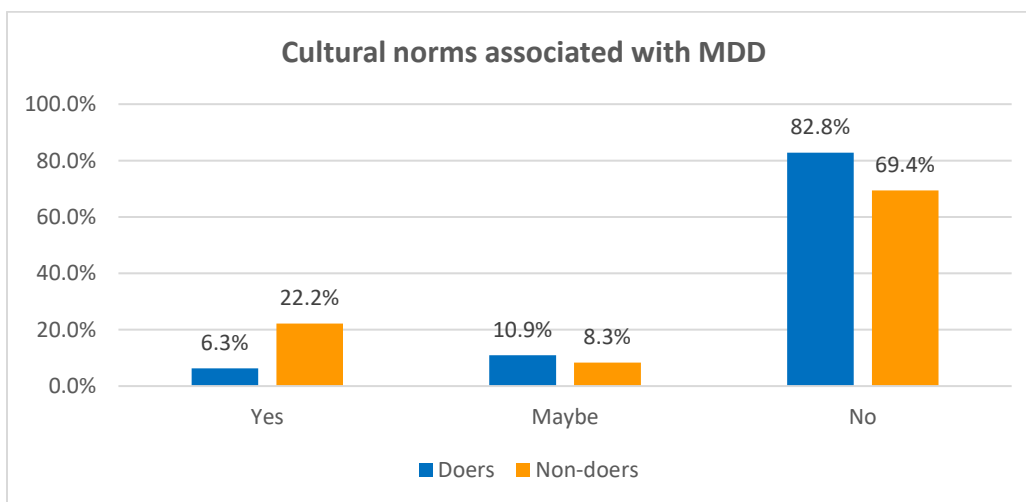


Figure 10: Cultural norms associated with MDD

Overall, respondents reported that there are no cultural rules or taboos against feeding children from at least five of the eight food groups (69% non-doers and 83% doers). However, non-doers are 3.9 times more likely to respond affirmatively regarding the existence of cultural rules and taboos ($p=0.007$) when compared to doers. This result indicates that cultural norms and taboos may exist, and indeed the qualitative interviews confirmed that in the Karimojong culture, cultural taboos and norms exist that could hinder the attainment of MDD among children. For instance, children are not allowed to eat liver, and men are expected to receive superior meals over other household members. Further, culturally, women are trained to serve men first and to serve them larger portions when animal source foods are prepared as a symbol of respect and affection. In a family setting, this means that women prioritize feeding nutritious meals to their husbands over their infants and children. This has a direct negative effect on child and maternal dietary diversity.

3.2.3 Behavior 3: Minimum Meal Frequency for Children

For this behavior, mothers of breastfed children feed their infants aged 6–8 months at least two cooked meals daily or, for children aged 9–23 months, three cooked meals. For non-breastfed infants and children, mothers should provide at least four meals daily. Responses to questions related to four determinants were found to be significant (perceived self-efficacy, perceived positive consequences, perceived risk, and perceived severity) and are shown in Annex 4.

3.2.3.1 Perceived Self-Efficacy

Non-doers were asked what makes it difficult to feed their children at least three cooked meals each day. Most non-doers reported a lack of money (62%) and a lack of food (17%) in the household among the factors that hindered them from giving their children at least three meals a day. However, these responses were not significant.

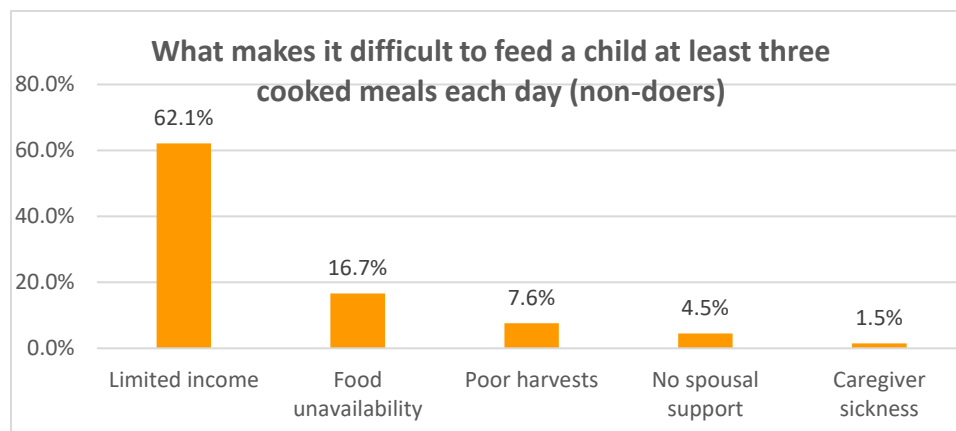


Figure 11: What makes it difficult to feed a child at least three cooked meals each day (non-doers)

The qualitative study found that the challenge in implementing IYCF practices was not a lack of knowledge but rather a lack of clear understanding and translation of the knowledge into action. Respondents of the qualitative study noted that mothers in the region had indeed benefited from vast training on improved IYCF practices; however, other confounding factors like poor WASH practices, low male involvement, and cultural norms were critical in undermining optimal IYCF practices at the household level.

3.2.3.2 Perceived Positive Consequences

Respondents were asked to highlight the advantages of feeding their child at least three cooked meals a day. Responses were variable and confirmed respondents' knowledge of the correlation of the number of daily meals to the health and wellbeing of their children. Qualitative respondents argued that the mothers in the community possess sufficient knowledge on infant feeding while noting that the practice was poor owing to the high rates of poverty, food insecurity, and long prevailing droughts. This finding further revealed, as with other determinants, that translating knowledge into practice remains a challenge among mothers. Therefore, there is a need for continuous messaging on the potential benefits of providing children with at least three cooked meals a day.

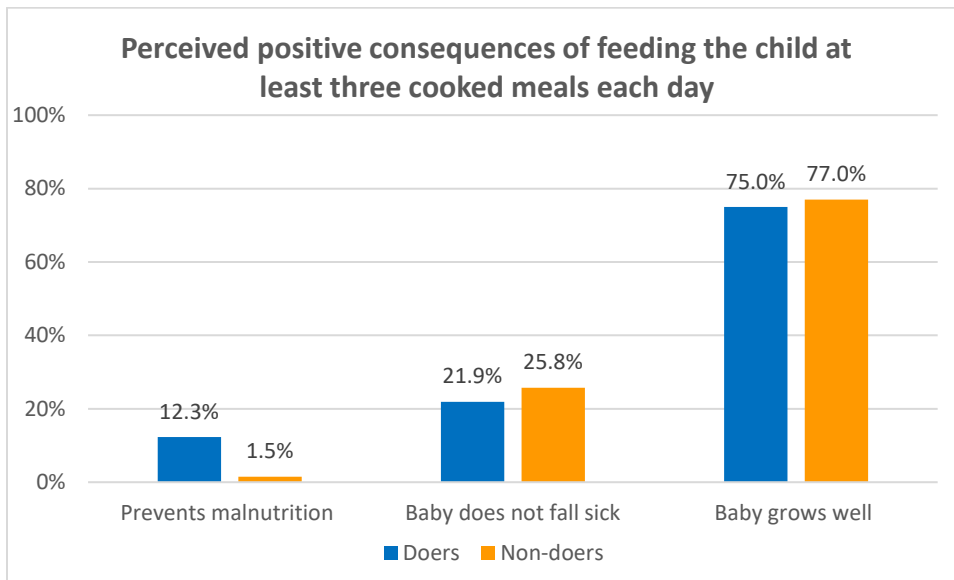


Figure 12: Perceived positive consequences of feeding the child on at least three cooked meals each day

3.2.3.3 Perceived Risk

Respondents were asked how likely it was for their children to become malnourished in the next months if they did not feed them three cooked meals a day. Doers were 2.2 times more likely to respond that it was unlikely ($p=0.08$). On the other hand, non-doers were 3.8 times more likely to respond that it was very likely ($p=0.025$). This result shows that the studied population is aware of the dangers of not meeting the three-meal-a-day requirement as shown for perceived positive consequences.

3.2.3.4 Perceived Severity

Respondents were asked about how serious it would be if their children became malnourished. Non-doers were 2.6 times more likely to respond, “*Very serious*” ($P=0.029$), while doers were 8.8 times more likely to respond, “*Somewhat serious*.”

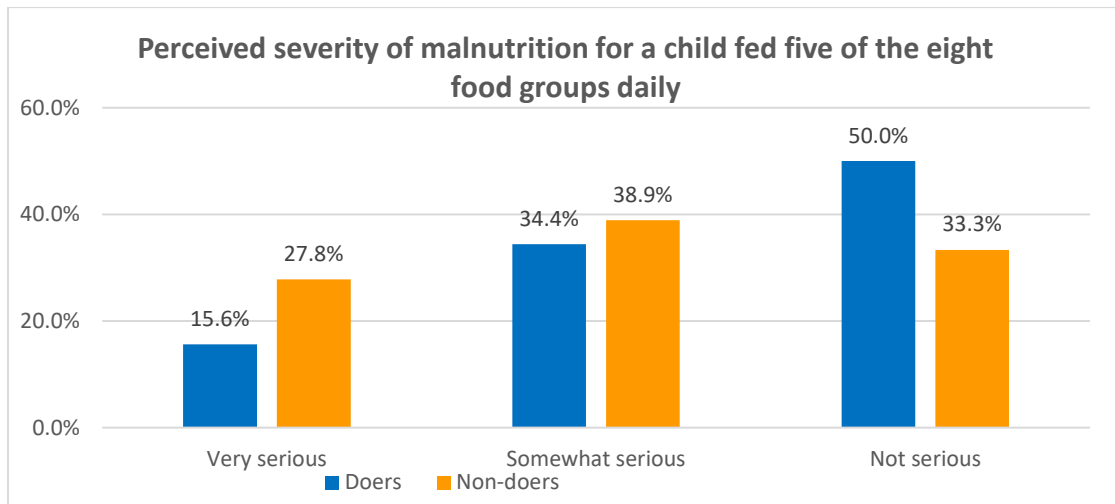


Figure 132: Perceived severity of malnutrition

This result also confirms that mothers and caregivers (non-doers and doers alike) are aware of the severity of feeding children inadequately. However, as with other determinants, mothers, especially among the non-doers, are unable to act on their knowledge because of conditions like poverty, food insecurity, and their maternal workload.

3.2.4 Behavior Four: Minimum Acceptable Diet

For this behavior, mothers of children aged 6–23 months must meet the criteria for MDD and MMF for an individual child every day. Responses to questions related to three determinants

were found to be significant (perceived social norms, perceived cues to action, and perceived risks), as shown in Annex 5.

3.2.4.1 Perceived Social Norms

Respondents were asked about which people approved or disapproved of them feeding their children at least three or more meals made of foods from five or more food groups a day. Results are shown in Figure 13.

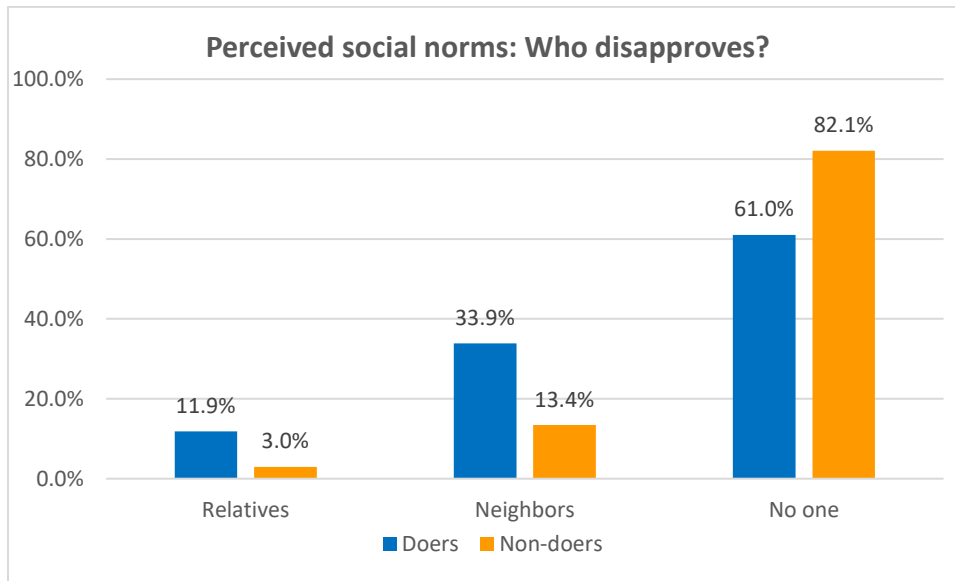


Figure 143: Perceived social norms: Who disapproves?

Most respondents reported that no one disapproved of them feeding children at least three or more meals a day made of foods from the five food groups (82% non-doers and 61% doers). The study did, however, show that some family members (in-laws), friends, and neighbors disapproved of the practice. The qualitative study found that there was complacency at the community level in sustaining good practices as community members were mocked by others saying, “Will you not die?” (“*Ngitwana monoa?*”) if you practice what the health workers teach? Such slogans or sayings may discourage beneficiaries from complying as they seek approval from peers, hence explaining the low adaptation rates for IYCF practices in general.

3.2.4.2 Perceived Self-Efficacy: What makes it difficult?

Respondents were asked what made it difficult for them to feed their children daily on at least three or more meals made of foods from five or more food groups. A majority noted that a lack of money to purchase foods and related high food prices made it difficult for them to meet the MAD criteria. This response was the only significant one for responses related to self-efficacy.

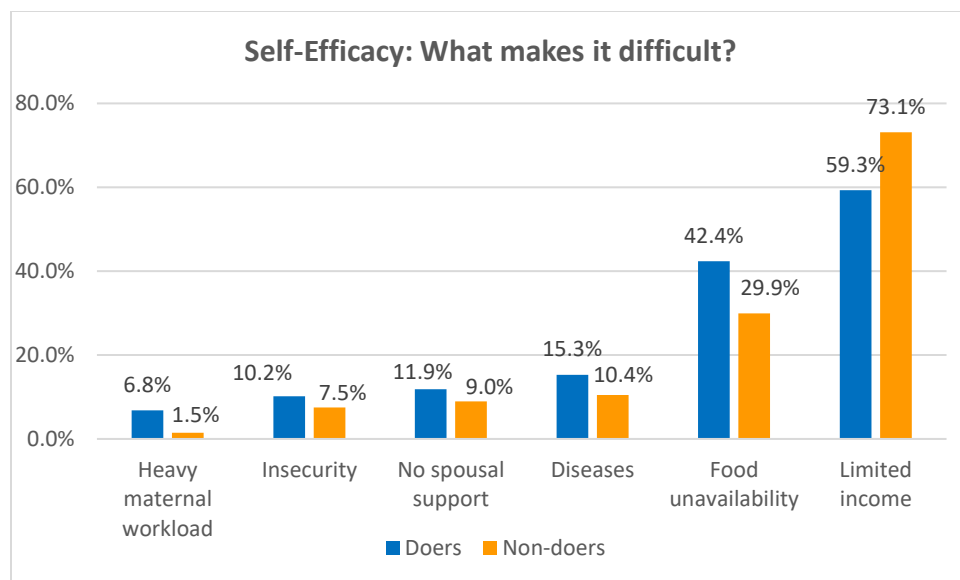


Figure 15: Self-Efficacy: What makes it difficult?

Other related responses that were not significant but may be important for informing programming included the absence of family or spousal support, maternal workload, insecurity, lack of food, and disease. This result further draws attention to other determinants explored for this BA study, especially MDD and MMF. MAD is a composite indicator. That is, any factors that undermine the achievement of MDD and/or MMF in turn affect MAD. Therefore, it is important to emphasize to community facilitators and MCG leaders the importance of achieving MDD and MMF through dietary diversity and ensuring that children have at least three diverse meals a day. Qualitative interviews revealed that community dwellers perceived nutrient-rich foods as expensive and could only be obtained through purchases.

3.2.4.3 Perceived Risk

Respondents were asked if they thought that their children would become malnourished in the next months if they did not feed them at least three or more meals a day made of foods from five or more food groups. Results are shown in Figure 16.

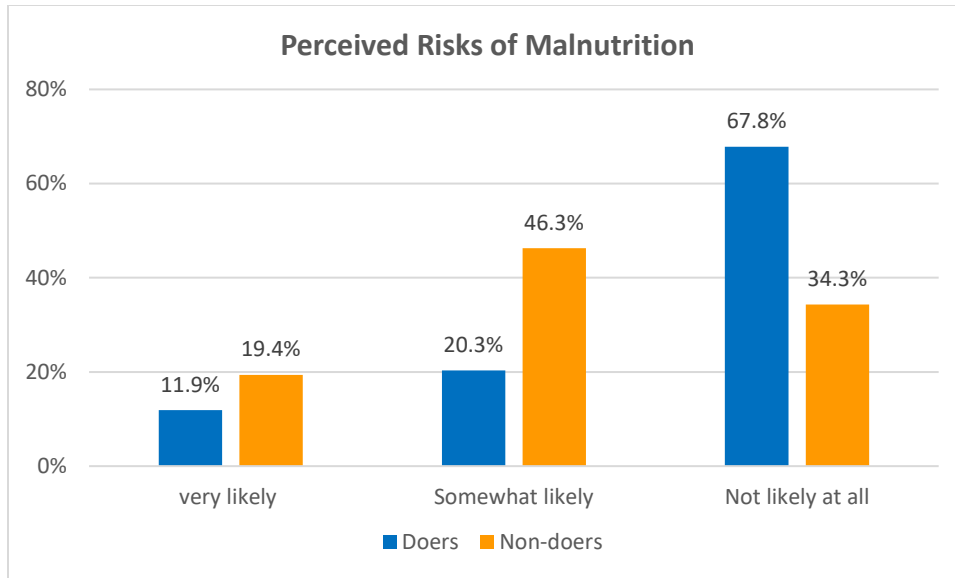


Figure 16: Perceived Risks of Malnutrition

The results show that both doers and non-doers alike are largely aware of the risks associated with failure to achieve MAD. Almost 46% of the non-doers were 3.3 times more likely to respond, “*Somewhat likely*” ($p=0.001$). On the other hand, although not significant, 20% of the non-doers responded “*Very likely*,” implying that some of the mothers are uncertain of the risks associated with not providing their children diverse meals throughout the day. Further, 68% of the doers were 3.1 times more likely to respond, “*Not likely at all*,” further underscoring their understanding of the benefits of their current practices to the health of their children. These findings confirm that most of the population is aware of the causes of malnutrition. However, of great concern are the 34% of non-doers who perceived no risk of malnutrition if MAD is not met. Although this is not a significant result, this group is still important for targeting with information on the risks of inadequate dietary intake and malnutrition among children.

3.2.4.4 Influencing Groups per Behavior

Identification of influencing groups is important for targeting communication messages for behavior change as they are considered motivators or deterrents for specific behaviors. These were identified by asking mothers the questions: “Who approves of you doing the behavior?” and “Who disapproves of you doing the behavior?” Only two of the four behaviors studied for this BA study revealed at least one influencing group. The influencing groups or motivators among MDD doers included their spouses and neighbors (friends and peers), whereas the non-doers for the same behavior revealed that they had no motivators for their practices.

Table 2: Influencing Group per Behavior

Behavior	Influencing Group
Timely initiation of complementary feeding	Everyone approves (motivator)
Minimum Dietary Diversity	Spouses, neighbors, friends (motivators)
Minimum Meal Frequency	Family and Nuyok staff approve (motivator) Jealous neighbors and co-wives (barrier)
Minimum Acceptable Diet	Spouse, Lead Mother, Health workers (motivators) Neighbors, family, and relatives (barrier)

Although respondents also identified groups that disapprove of a particular behavior, only responses for the MAD were statistically significant for this behavior. Respondents noted that their neighbors and some family members, especially in-laws, disapproved of their practices. This result shows mixed perceptions and beliefs across communities. This result seems to confirm what is already known, in-laws as custodians of culture are more likely to protect customs and beliefs. Therefore, the project needs to strengthen the implementation of interpersonal communication using informative and educative approaches to change perceptions among close family members, especially in-laws, to improve the adoption of key IYCF behaviors. How to engage these influencing groups in the promotion of the behaviors is addressed in the recommendations and the Designing for Behavior Change (DBC) framework (Annex 7-10).

4.0 Conclusions

This study has explored several barriers and enablers related to complementary feeding practices among children aged 6–23 months in Abim, Nabilatuk, Nakapiripirit, and Napak districts. These practices are strongly associated with gender norms at the family level. Practicing proper complementary feeding becomes a burden for a mother who also performs productive and reproductive roles in a home. The Nuyok team should continue promoting gender mainstreaming efforts to ensure other family members support household care givers (HHCG) in household chores to achieve optimal childcare time. Continued support of the MCG approach through the Maternal, Infant, Young Child, and Adolescent Nutrition (MIYCAN) rollout with clear linkages to all bridges to activities proposed in this study must be implemented according to local context.

5.0 Recommendations:

The follow-on BA study should aim at exploring the communication approaches that drive social and behavior change toward improving complementary feeding practices in study intervention areas in the Karamoja region.

The program should continue to promote increased access to nutrient dense foods for vulnerable populations through diversified livelihoods and public works where community access roads are opened to increase access to markets.

Nuyok should continue male inclusion in IYCF through MCAs as the approach has proven key to breaking social cultural norms and impacting dietary diversity and childcare practices for optimum IYCF adoption.

This report suggests “A Bridge to Actions” approach and its recommended activities to address the key factors of each behavior. “A Bridge to Actions” approach is based on respondents' reactions, which are more detailed descriptions of a modification that should be made to resolve the issue identified by the BA research. The proposed activities and bridges to activities will be presented at a dissemination meeting and then circulated to all stakeholders for comments, which will be incorporated into the recommendations below. Although these suggestions are aimed at mothers and caregivers of children aged 6–23 months, the activities will likely help all mothers in the program areas. Determinant-specific recommendations are given in Annex 6.

6.0 References

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7.0 Annexes

Annex 1: Detailed Methodology

Annex 1.0 Data Collection Procedure

Annex 1.1 Recruitment of Data Collectors and Training

Eight enumerators and four team leaders were invited to attend the BA training at the CRS–Moroto offices before the data collection process. A three-day training and one-day pre-test based on the methods described by Kittle (2013) were conducted on the fundamentals of collecting BA data, with a special focus on the structure of questionnaires, the DBC Framework (including bridges to activities), and developing appropriate interviewing skills. The training did not explore the process of framing BA questions as these had been clearly defined by the client and agreed upon by both parties. All trained enumerators were native speakers of Nga’karimojong and or Leb’thur languages.

During the training, enumerators used role-play to familiarize themselves with the tool. Questions were reviewed and translated into local languages for clarity and consistency. Identified errors were corrected before and after the survey pre-test. Data collectors were divided into four teams with each constituting two enumerators and one team leader. During data collection, data collectors approached MCG leaders to lead their group members as potential study participants for the BA interview. MCG members then introduced the study and offered informed consent. Those who met the criteria and consented to be part of the study were then screened to determine “Doer” or “Non-Doer” status before proceeding with the interview. Appropriate questions were then asked based on the screening results.

Annex 1.2 Data Collection

All household interviews were conducted in Nga’karimojong in Nabilatuk, Nakapiripirit, and Napak districts, and in Leb’thur in Abim district. Data for a single behavior was collected for each day across the four districts for six consecutive days. Although four days had been planned for data collection, an extra two days were used to fill the numbers where the targets per behavior were not met. BA data were collected on tablets using ODK. For each day of data collection, team leaders posted the day’s data for their teams after fieldwork to enable daily review and tally of doers and non-doers to ensure that the target numbers were met. This also served to check for inconsistencies and errors during data collection.

Qualitative data were collected in English and transcribed in English. Data were organized in an Excel sheet and analyzed for emerging themes based on the objectives of the BA. Results were

then triangulated and synthesized to document the key barriers, facilitators, and motivators for adequate IYCF practices among mothers of children 6–23 months in Karamoja.

Annex 2: Determinants for Timely initiation of Complementary Feeding

	Key findings	Quote(s)
	Perceived Self –Efficacy: What makes it easy?	
Doer	<p>2.6 times more likely to say that “if the child shows interest in food” it makes it easier for them to initiate complementary feeding at 6 months (p=0.045).</p> <p>10.8 times more likely to initiate complementary feeding at 6 months if they have knowledge on IYCF (particularly on complementary feeding) (p=0.023).</p> <p>18.5 times more likely to experience no difficulty in initiating complementary feeding at 6 months (p=0.000).</p>	<p><i>“The baby at 6 months develops appetite and shows interest in eating....”</i></p> <p><i>“... knowledge on growing a variety of foods around the homestead or doing casual labor would make it easier.”</i></p> <p><i>“...sometimes I go for casual labor in Koblin so I can earn some money or food to feed my child and the entire household. I cultivate so sometimes I have food in the granary.”</i></p> <p><i>“...not difficult at all because I am always at home. Most times the child is satisfied so breastfeeds less.”</i></p>
Non-doer	<p>11.1 times more likely to initiate complementary feeding at 6 months if they did not have enough breastmilk (p=0.004).</p> <p>3 times less likely to initiate complementary feeding at 6 months if the child experienced ill health or poor health outcomes (p=0.011).</p> <p>3 times less likely to initiate complementary feeding at 6 months if they have financial challenges.</p> <p>3 times easier to initiate complementary feeding at 6 months if they had challenges with food availability (p=0.017).</p>	<p><i>“I started at 4 months because breastmilk was less and the only option was to make sure food is available for my son Godwill, so I would make sure I buy food in the house.”</i></p> <p><i>“...my baby was underweight/thin so I thought introducing her to food would make her add weight.”</i></p> <p><i>“If my baby had been born at full term, I would have started him at 6 months.”</i></p> <p><i>“When there is no money, it makes it hard to buy food.”</i></p> <p><i>“I began mine at 3 months. If I had money and food, I would purchase it for my son Godfrey.”</i></p>
	Perceived Positive or Negative Consequences	
Non-doer	<p>2.9 times more likely to respond that timely initiation of complementary feeding is important for healthy growth and child development (p=0.02).</p> <p>10.7 times more likely to respond that timely initiation of complementary feeding prevents diseases (P=0.00).</p>	<p><i>“Good health, faster growth, good brain development.”</i></p> <p><i>“...does not fall sick easily, the child is playful, does not require eating a lot of food, sleeps peacefully.”</i></p> <p><i>“...protect the child from diseases, grows fast.”</i></p>

Perceived Cultural Norms		
Doer	2.7 times more likely to respond “Yes” when asked about the presence of cultural rules and taboos against timely initiation of complementary feeding (p=0.023).	“Children are not allowed to eat liver.” “Children should be breastfed after the naming rituals are done. Mother has to wait as the child is fed on fluids to breastfeed.”
Non-Doer	3.4 times more likely to say No” (p=0.022) to the presence of any cultural rules and taboos against timely initiation of complementary feeding.	“... I am not aware of such rules for children, perhaps for older women. Women are not allowed to eat chicken in some communities.”

Annex 3: Determinants for MDD

	Key Findings	Quote
Perceived Self-Efficacy (What makes it easy? /What makes it difficult?)		
Doer	10.8 times more likely to feed their children on five of the eight foods each day (p=0.047) if they had support from other family members.	“My husband and the grandmother help to provide food for the children.” “My husband supports me with money so I can afford to buy the food.” “Having a supportive husband makes it easy for me to feed my child.”
	11.1 times more likely to feed their children on five of the eight foods if they had savings (p=0.004).	“The money we credit from saving groups help buy food in the house.” “I sometimes get a loan from the group to buy silverfish, which I sell or cook sometimes.”
Non-doer	2 times more difficult to feed their children from at least five of the eight different foods if they lack income or were unemployed.	“Most times there is no income for feeding the child.” “Sometimes I do not have enough money to help or support me to buy the different foods needed to feed my baby.”
Perceived Negative Consequences		
Doer	1.8 times more likely to perceive negative consequences for feeding their children on five of the eight foods daily.	“The child becomes sickly and unhappy....”
Perceived Social Norm		
Doer	2.5 times more likely to get approval from their spouses (p=0.006). 2.5 times more likely to get approval from their neighbors (p=0.026).	“The baby's father approves of me feeding the child on many foods.”
Non-doer	8.1 times more likely to have approval from no one.	“No one approves of me feeding the child on many foods because I am the sole provider for my child.”
Perceived Severity		

Non-doer	1.9 times more likely to perceive no serious consequences of malnutrition if their child did not eat from five or more of the eight food groups than doers (p=0.036).	<i>“The child cannot become ill from not eating a particular food. Some children do not eat particular foods like milk. Do they also fall sick?”</i>
Perceived Cultural Norms		
Non-doer	3.9 times more likely to respond that there were cultural rules and taboos that affected feeding children on five or more of the eight food groups than doers (p=0.007).	<i>“In our culture, children are not supposed to eat liver.”</i>

Annex 4: Determinants for MMF

	Key finding	Quote
Perceived Positive Consequences		
Doer	2.4 times more likely to respond, “Child grows well” (p=0.020).	<i>“Helps to grow well, food helps to fight other diseases, food help to grow healthy.”</i> <i>“It adds energy to the baby so that she grows very fast, the baby will not disturb as you are doing work, and the baby will not become sickly all the time.”</i>
Non-Doer	2.7 times more likely to respond that the baby does not fall sick (p=0.003). 2.3 times more likely to respond, “Good health” (p=0.008).	<i>“The child is healthy, not malnourished, less sickly.”</i> <i>“Good health, baby plays well when is satisfied, strong bone development.”</i>
Perceived Risk		
Doer	2.2 times more likely to respond, “Unlikely to become malnourished” (p=0.08).	<i>“Child does not fall sick if they eat well.”</i>
Non-doer	3.8 times more likely to respond, “Very likely to become malnourished” (p=0.025).	<i>“Yes, the child will become sick, but I have no food sometimes to feed my child.”</i>
Perceived Severity		
Non doer	2.6 times more likely to respond, “Very serious” for their children suffering serious consequences if they did not meet their daily three meal or more requirement.	<i>“The child will become sick. It was easy to provide three meals when I was working on people’s farms. No, it is hard.”</i>

Annex 5: Determinants of MAD

	<i>Key Finding</i>	<i>Quote</i>
	Perceived Social Norms	
Doer	2.5 times more likely to get disapproval from their friends and neighbors (p=0.006).	<i>“Some jealous friends and neighbors would disapprove of me feeding my child well.”</i>
Non- doer	2.6 times more likely to have disapproval from no one (p=0.007).	<i>“No one can disapprove because the child needs to eat food for many reasons in their bodies like bodybuilding and growth so there is no one at least who can refuse her child to feed such that the child can grow.”</i>
	Perceived Self-Efficacy: What makes it difficult?	
Non-doer	2.3 times more likely to respond, “Lack of money/ high food prices” (p=0.015).	<i>“No money to buy food. I used to work and buy food, but now there is no work.”</i>
	Perceived Risk	
Doer	3.5 times more likely to respond, “Not likely” for their children to become malnourished in the next months (p=0.000).	<i>“It is not likely that my child will become malnourished in the next months because I feed her well.”</i>
Non-doer	3 times more likely to respond, “Somewhat likely” (p=0.002).	<i>“My child may become malnourished because times are difficult. I don’t have enough food and money to feed him well.”</i>

Annex 6: Recommendations Based on the BA Findings

Determinants	Significant Response	Recommendations
Initiation of Complementary Feeding		
Self-Efficacy: What makes it easier?	(Doer) Child showing interest in food	In the complementary feeding materials, show a picture of a plate that is well laid out to increase the child’s interest in food.
	(Doer) Knowledge/information on complementary feeding	Community messaging should emphasize the importance of timely initiation of complementary feeding. Cite the growth milestones necessary for a child to start eating solid foods.
	(Doer) Availability of breastmilk	In community dialogues at health facilities, messages should continue to emphasize that all mothers produce enough milk to practice exclusive breastfeeding (EBF) for their baby for six months; thereafter, complementary feeding becomes necessary to satisfy the nutritional needs of the growing child. Explain that breastmilk alone at 6 months and beyond is not enough for the baby. Encourage mothers to continue breastfeeding at 6–23 months and beyond.
What makes it difficult?	(Non-doer) Poor child health leads to loss of appetite	As part of complementary feeding training, emphasize the relationship between good health and feeding in children.
	(Non-doer) Lack of food at the household	As part of the complementary feeding module/lesson, be prepared to address the amount of food that is needed by the child. Emphasis should be placed on several small meals per day for a baby. Through community dialogues and dramas, address the importance of feeding children a diverse diet.

	(Non-doer) Lack of income	The project should think of promoting nutrition-sensitive enterprises like chicken and small livestock rearing and permaculture (vegetable gardens) to contribute to improved incomes, especially for women. Encourage mothers to participate.
	(Doer) No difficulty at all	Work with peers to help mothers and caretakers improve their perceptions of consuming diverse diets and sourcing nutrient-rich foods from their communities.
Perceived Positive Consequences	(Doer) Health growth	Design posters and radio spot messages comparing children reaching their growth milestones because of timely complementary feeding and continued breastfeeding. In community dialogues and MCGs, emphasize the benefits of timely complementary feeding in child health, growth, and development.
	(Doer) Resistance to diseases	
Perceived Risk	(Non-doer) Somewhat likely	Re-echo the advantages of timely complementary feeding and the disadvantages of untimely complementary feeding in child health and nutrition. Emphasize the benefits of using the right complementary feeds in brain development and school achievement later in life.
	(Doer) Not likely at all	
Perceived Cultural Norms	(Doer) Yes	Work with cultural leaders, elders, and religious leaders to amplify positive cultural norms and to shoot down negative cultural norms of children eating certain foods (e.g., liver).
	(Non-Doer) No	
Minimum Dietary Diversity		
Self-efficacy: What makes it easier?	(Doer) Family support	In the MDD module/lesson, show a picture/include in the story that husbands, mothers-in-law, and other family members are in favor of dietary diversity for babies.
	(Doer) Savings	Strengthen Village Savings and Loan Associations (VSLA) within the program and train on group dynamics for sustainability.
Self-Efficacy: What makes it difficult?	(Doer) Lack of income, money, or employment	In Information Education and Communication (IEC) materials, focus on the size of the meals for each age range, emphasizing that babies do not need to eat a lot—they need to eat frequently. At the community level, encourage households to grow fruits and vegetables.
Perceived Negative Consequences	(Doer) High food prices	Develop IEC materials that identify locally-available foods that are inexpensive and re-emphasize the fact that children need small frequent meals.
Perceived Social Norms: Who Approves?	Spouse	Develop IEC materials and dramas that involve family members and the community encouraging mothers to feed a variety of foods to the baby.
	(Doer) Neighbors (Peers)	
	(Non-doer) No one	Emphasize the importance of MCGs and group activities as avenues for social capital. Design messages where a mother narrates having received help from her peers when she shares concerns on the nutrition and growth of her child with family, peers, and health workers.
Perceived Severity	(Doer) Not serious at all	Through community dialogues, emphasize the severity of malnutrition on the health of the child, maternal time, and household income resulting from non-diverse diets.

Perceived Cultural Norms	(Non-doer) Yes	Refer to initiation of complementary feeding above on section on perceived cultural norms.
Minimum Adequate Diet		
Social norms: Who disapproves?	(Doer) Friends	Encourage and strengthen community participation and peer learning through demonstrations and MCG participation. Use home visits or the model household approach as a point of reference for peer learning and participation.
	(Non-doer) No one	
Cues to action (How difficult is it to remember?)	(Non-doer) Very difficult	Design a pictorial (mnemonic) showing the different foods from the food groups that contribute to MAD. Could use the five-finger approach as presented by SNV Netherlands Development Organisation (SNV) and Farm Africa in communicating the importance of different foods in diets. Color code food groups in each food group, emphasizing to the mother that the more colors on the plate, the more likely their child's meals are to be nutritionally adequate. Design messages encouraging mothers to feed their children at least three meals in a day, explaining the rationale.
Perceived Risk	(Non- Doer) Somewhat likely	Refer to sections above for actions.
	(Doer) Not likely at all	
Minimum Meal Frequency		
Perceived Risk	(Doer) Not likely at all	Community dialogues, radio shows, and spot messages communicate the dangers on long-term health and growth of feeding a child on a single meal a day. Design interventions in nutrition-sensitive agriculture to encourage mothers to cultivate high-nutrient foods using climate-smart approaches like permaculture to ensure production and supply of high nutrient-dense foods for most of the year.
	(Non- Doer) Very likely	
Perceived Severity	(non-doer) Very serious	Refer to dietary diversity.

Annex 7: Designing for Behavior Change Framework: Initiation of Complementary Feeding

Behavior	Priority Group/ Influencing Group	Determinants	Bridge Activities	Activities
Complementary Feeding	Demographics: Mothers of children 6–23 months of age; low literacy rates; live in rural	Self – Efficacy/ Skills	Motivate and build the capacity of health care providers to promote timely initiation of complementary feeding during antenatal care	MCGs – monthly meetings covering: Initiation of complementary feeding; all the bridges included in the lessons.

<p>Karamoja; speak Nga'karimojong and/or Leb'thur; low socioeconomic status</p> <p><u>Daily Activities:</u> -Some mothers are smallholder farmers/ market or alcohol vendors -Fending for the family, caring for children and other family members, household chores, fetching water, and collecting firewood</p> <p><u>Barriers to the Behavior</u> -Feeling that breastmilk alone does not satisfy children - Feeling that children should eat the same meals as adults as there is no food in the household -Feeling that workload is debilitating -Belief that feeding a child at 6 months will make them greedy -Alcohol consumption</p> <p><u>What Mothers Know, Feel, and Do</u> - Some mothers feed their child on only one meal a day - Some mothers start complementary feeding before 6</p>		(ANC) and post-natal care (PNC).	<p>Home visits by Lead Mothers to mothers of children 6–23 should include family members such as spouses and should focus on each of the Bridges to Activities.</p> <p>Home visits by VHTs to mothers of children 6–23 months should include family members such as spouses and should focus on each of the Bridges to Activities.</p>
		Promote the notion that all mothers produce enough milk to breastfeed children up to 6 months.	
		Structure social and behavior change communication (SBCC) messaging, such as community screenplays, that reinforce the fact that breastfeeding children exclusively up to 6 months is convenient and easy.	
		Reinforce the perception that infants' stomachs cannot digest food before 6 months of age.	
	Negative Consequences/ Disadvantages	Compose messages that communicate that sick infants should be fed and rehydrated frequently to prevent malnutrition.	
	Social Norms	Compose peer-peer communication messaging that show that spouses and other family members approve the initiation of complementary feeding at 6 months.	
Action Efficacy	Leverage community structures such as extension workers to promote messaging regarding how initiating complementary feeding at 6 months and continued breastfeeding up to 23 months and		

	<p>months because they cannot produce enough milk. Hence, most mothers give their babies water, soup, and porridge as early as three months</p> <p>-Some say everyone approves of complementary feeding</p> <p>Influencing Group: Spouse</p>		<p>beyond is the best way to prevent malnutrition.</p>	
		Susceptibility	<p>Structure SBCC messaging, such as community screenplays, that show how mothers who initiate complementary feeding at 6 months have healthy and well-nourished children.</p>	
Outcome Indicators		Process indicators		
<p>Outcome Indicator: Percent of mothers of children 6–23 months who report timely initiation of complementary feeding at 6 months and continued breastfeeding to 23 months and beyond.</p>		<p>Process Indicators:</p> <ul style="list-style-type: none"> - MCG teaching aids that address the Bridges to Activities. - Number of home visits by Lead Mothers and VHTs to talk about complementary feeding. - Number of mothers attending food demonstration sessions. -Number of fathers or males attending food demonstration sessions. 		

Annex 8: Designing for Behavior Change Framework: Minimum Dietary Diversity

Behavior	Priority Group/ Influencing Group	Determinants	Bridge Activities	Activities	
<p>Minimum Dietary Diversity: Mothers of children aged 6–23 months feed them meals including foods from at least five of the eight food groups each day</p>	<p>Demographics: Mothers of children 6–23 months of age; low literacy rates; live in rural Karamoja, Speak Nga Karimojong and/or Leb’thur; low socioeconomic status</p> <p>Daily Activities:</p> <ul style="list-style-type: none"> - Some mothers are smallholder farmers/ market or alcohol vendors - Fending for the family, caring for children and other family members, household chores, fetching water, and collecting firewood <p>Barriers to the Behavior</p> <ul style="list-style-type: none"> - Limited access to foods - Lack of knowledge on the eight food groups. - Lack of money to buy food - Limited time to cook - Beliefs among the community members that children should not be given liver - Beliefs among the community members - Alcoholism among mothers - Children feed on alcohol residues - Mothers believe that nutrient-dense foods are costly <p>What mothers know, Feel, and Do Knowledge</p> <ul style="list-style-type: none"> - The baby should be given three cooked meals everyday - Giving the baby three cooked meals per day helps the baby to grow well, socialize and be healthy. - Mothers and caregivers know that malnutrition is a very serious problem - They know the advantages of giving the baby a balanced diet <p>Feel</p>	<p>Self – Efficacy/ Skills</p>	<p>Motivate and build the capacity of health care providers to promote the consumption of foods from five of the eight food groups daily among children 6–23 months.</p>	<p>MCGs—monthly meetings covering sessions on infant feeding, lessons on dietary diversity – all bridges should be included in the lessons.</p> <p>MCG activities to demonstrate how to cook baby meals— focus on sourcing ingredients that are easily and cheaply available locally.</p> <p>Home visits by Lead Mothers to mothers of children 6–23 months to include family members and spouses focusing on each of the Bridges to Activities.</p> <p>Home visits by VHTs to mothers of children 6–23 months to include family members and spouses focusing on each of the Bridges to Activities.</p>	
			<p>Peer-to-peer engagements should emphasize the fact that preparing foods from five of the eight food groups is not time-consuming.</p>		
			<p>Peer-to-peer engagements should reinforce the fact that foods from the eight food groups can be sourced within their community.</p>		
			<p>Beneficiary training should emphasize the detrimental effects of alcohol on maternal and child nutrition.</p>		
			<p>Social Norms</p>		<p>SBC communication approaches such as screenplays and DJ mentions should demystify cultural norms such as children not being fed on liver.</p>
			<p>Negative Consequences</p>		<p>Beneficiary training should emphasize the fact that low appetite children should be encouraged to explore tastes and textures gradually.</p>
			<p>Emphasize the fact that mothers can</p>		

<p>- Preparing a variety of food consumes time and is costly</p> <p>Practice</p> <ul style="list-style-type: none"> - Some mothers may intentionally starve children to keep them on the supplementary feeding program -Children are given very light gruels - Children often have one warm meal per day, feeding on leftovers throughout the rest of the day - Children are left in the care of children - Children are not given other foods like fruits and vegetables <p>Influencing Group: Spouse, Neighbors (peers)</p>		<p>source nutrient-dense foods from their community at no cost.</p>	
		<p>SBCC approaches should reinforce that the practice of giving a child at least three cooked meals a day made from five of the eight food groups is essential for their growth and development.</p>	
	Perceived Severity	<p>Motivate and build the capacity of health care providers and Lead Mothers. During home visits and training sessions, encourage them to promote and reinforce the fact that not feeding a child from five of the eight food groups daily leads to malnutrition.</p>	
	Culture	<p>Demystify food taboos related to children and women.</p>	
Outcome Indicators		Process indicators	
<p>Outcome indicator: Percent of mothers of children 6–23 months who fed their children from at least five of the eight food groups in the last 24 hours before the survey.</p>		<p>Process Indicators:</p> <ul style="list-style-type: none"> - MCG sessions/lessons that address the Bridges to Activities. - Number of women with CU5 who attend the sessions on dietary diversity. - Number of women who commit to feeding their children aged 9–23 months food from at least five of the eight food groups. - Number of home visits by Lead Mothers to targeted households to talk about dietary diversity. 	

Annex 9: Designing for Behavior Change Framework: Minimum Meal Frequency

Behavior	Priority Group/ Influencing Group	Determinants	Bridge Activities	Activities
Mothers of children aged 6–23 months feed them at least three cooked meals each day that contains a staple food	<p>Demographics: Mothers of children aged 6–23 months, low literacy rates, live in rural Karamoja, Speak Nga Karimojong and/or Leb’thur; low socioeconomic status</p> <p>Daily Activities:</p> <ul style="list-style-type: none"> - Some mothers are smallholder farmers/ market or alcohol vendors - Feeding for the family, caring for children and other family members, household chores, fetching water, and collecting firewood <p>Barriers</p> <ul style="list-style-type: none"> - Limited access to food, fuel, water - Limited time for extra cooking - Perception that three meals is too much food - Being away from home during the day - Disapproval by other family members <p>What Mothers Know, Feel, and Do</p> <p>Feeling</p> <ul style="list-style-type: none"> - That feeding children on more than one meal a day makes them greedy - They feel the child will give up on breastfeeding - They can feel that the cost of purchasing food is high - They can feel that its time consuming - They feel the child may become overweight - They feel that if they feed the baby three times a day the child will get used to it, which is not sustainable 	Risk	<p>Training sessions should emphasize the importance of three meals a day for the child and should communicate that this will improve the children’s health and prevent them from becoming malnourished.</p> <p>Training sessions should also emphasize that the three meals given to the child should contain foods from at least five of the eight groups.</p>	<p>MCGs—Monthly meetings covering sessions on infant feeding and meal frequency—all the bridges included in the lessons. MCG activity to demonstrate which foods make up the eight food groups. Emphasizing the color codes and mnemonics adopted for the project- focus, sourcing ingredients that are easily and cheaply available locally. Home visits by Lead Mothers to mothers of children 6–23 months to include family members and spouses and should focus on each of the Bridges to Activities.</p> <p>Home visits by VHTs to mothers of children 6–23 months to include family members and spouses and should focus on each of the Bridges to Activities and discussing meal frequency.</p>
		Severity	Reduce the perception that three meals a day is too much to feed a child, as failure to meet this minimum meal requirement may result in the child becoming malnourished.	

	<p>- Some of the mothers prepare food in the evening for two meals, making it available through the day</p> <p>Influencing Group: Lead Mothers, neighbors, and spouses</p>			
Outcome Indicators		Process indicators		
<p>Outcome indicator: Percent of mothers of babies ages 6–23 months who fed their children three cooked meals containing a staple food in the last 24 hours before the survey.</p>		<ul style="list-style-type: none"> - MCG sessions/lessons that address the Bridges to Activities. - Number of women who attend the sessions on meal frequency. - Number women who commit to feeding their children aged 6–23 months at least three cooked meals each day. - Number of home visits by Lead Mothers to targeted households to talk about meal frequency. 		

Annex 10: Designing for Behavior Change Framework: Minimum Acceptable Diet

Behavior	Priority Group/ Influencing Group	Determinants	Bridge Activities	Activities
Minimum Acceptable Diet	<p><u>Demographics:</u> Mothers of children 6–23 months of age, low literacy rates, live in rural Karamoja, speak Nga Karimojong and/or Leb’thur, low socioeconomic status</p> <p><u>Daily Activities:</u></p> <ul style="list-style-type: none"> - Some mothers are smallholder farmers/ market or alcohol vendors - Fending for the family, caring for children and other family members, doing household chores, fetching water, and collecting firewood <p><u>Barriers</u></p> <ul style="list-style-type: none"> - Limited access to food, fuel, water - Limited time for extra cooking - Perception that three meals a day equals a lot more food - Being away from home during the day - Disapproval by other family members <p><u>What Mothers Know, Feel, and Do</u></p> <p><u>Feeling</u></p> <ul style="list-style-type: none"> - That feeding children on more than one meal a day consisting of foods from at least five of the eight food groups makes them greedy - They can feel that food costs are high 	<p>Social Norms</p>	<p>Invite spouses and other influential family members such as mothers-in-law to training sessions and allow them to talk about how they approve of feeding children three meals made from at least five of the eight food groups.</p>	<p>Use activities for MMF and MDD to reinforce the concept of MAD.</p>
		<p>Cues to Action</p>	<p>Motivate and build the capacity of Lead Mothers and health workers to communicate to beneficiaries the importance of meeting the MAD requirement as the best way to prevent Malnutrition.</p>	
		<p>Risk</p>	<p>MAD trainings should emphasize the fact that failure to meet the MAD requirement may lead to malnutrition in children. This can also be communicated through other SBCC strategies such as screenplays and DJ mentions.</p>	

	<ul style="list-style-type: none"> - They can feel that it is time consuming - They feel it is not sustainable as food is often not available - They feel alcohol residues are enough to nourish the child for as long as their stomachs are full <p>Influencing Group: Lead Mothers, neighbors, and spouses</p>			
Outcome Indicators		Process indicators		
<p>Outcome indicator: Percent of mothers of babies aged 6–23 months who fed their children three cooked meals containing a staple food in the last 24 hours before the survey.</p>		<ul style="list-style-type: none"> - Number of MCG sessions/lessons that address the Bridges to Activities. - Number of women who attend the sessions on meal frequency. - Number women who commit to feeding their children aged 6–23 months at least three cooked meals each day. - Number of home visits by Lead Mothers to targeted households to talk about meal frequency. 		