REPORT ON BARRIER ANALYSIS OF EXCLUSIVE BREASTFEEDING AND COMPLEMENTARY FEEDING FOR CHILDREN FOR 6-23 MONTHS

USAID FROM THE AMERICAN PEOPLE

CARITAS BANGLADESH

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

CRS CATHOLIC RELIEF SERVICES

HELEN KELLER INTL

Sustainable Agriculture and Production Linked to Improved Nutrition Status, Resilience, and Gender Equity (SAPLING)

Report on Barrier Analysis of Exclusive Breastfeeding and Complementary Feeding for Children 6-23 Months

Helen Keller International

Cooperative Agreement No. AID-FFP-A-15-00010

Submitted to

United States Agency for International Development
Bureau of Democracy, Conflict and Humanitarian Assistance
Office of Food for Peace

Chief of Party Contact Information:
Treena Bishop
Chief of Party, SAPLING
Helen Keller International
House 10E, Road 82
Gulshan 2, Dhaka 1212
Tel: (088) 017-7109-1688; (088) 02-882-3055
E-mail: tbishop@hki.org

Country Office Contact Information:
Aminuzzaman Talukder
Country Director, Bangladesh
Helen Keller International
House10E, Road 82
Gulshan 2, Dhaka 1212
Tel: +880-174-660-9064; +880-2-882-3055
E-mail: ztalukder@hki.org

Disclaimer: This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of the Cooperative Agreement AID-FFP-A-15-00010 (SAPLING) managed by Helen Keller International (HKI). The contents are the responsibility of HKI and do not necessarily reflect the view of USAID or the United States Government.

Acknowledgements
We would like to thank all of the participants in the target area who volunteered their time to participate in this study. We would also like to thank the data collection teams and their supervisors, whose hard work made this study possible. Special thanks to the USAID-funded Technical and Operational Performance Support (TOPS) activity for providing the training opportunity to learn about the Designing for Behavior Change (DBC) framework and Barrier Analysis (BA). We give special gratitude to Bonnie Kittle, Aminuzzaman Talukder, and Treena Bishop, without whom this research would not have been possible.

Contributors

Md. Abul Kalam
Program & Research Analyst- Qualitative
Research, Learning, and Evaluation Unit
Helen Keller International/Bangladesh

Ommey Nahida
Program & Research Analyst- Qualitative
Research, Learning, and Evaluation Unit
Helen Keller International/Bangladesh

Rozena Begum
Director- Monitoring & Evaluation
SAPLING
Helen Keller International/Bangladesh

Meredith Jackson-deGraffenried
Senior Technical Specialist
Asia Pacific Regional Office
Helen Keller International

Jillian L. Waid
Director
Research, Learning, and Evaluation Unit
Helen Keller International/Bangladesh

Table of Contents

INTRODUCTION 7

STUDY OBJECTIVES 8

METHODOLOGY 9

- Sampling Strategy 9
- Study Approach 10
- Behavior Statement and Behavior Explanation 11
- Barrier Analysis Questionnaire Development 12
- Ethical Consideration 12
- Data Collection Team 12
- Training 12
- Pre-test 13
- Data Collection 13
- Data Analysis 13

RESULTS 14

- Significant Findings: Mothers of Children 0-6 Months Feed Them Only Breastmilk 14
  - Perceived Self-Efficacy 14
  - Perceived Positive and Negative Consequences 15
  - Perceived Social Norms 16
  - Access 16
  - Cues for Action 16
  - Perceived Susceptibility of Risk and Perceived Severity 16
  - Perceived Divine Will 17
- Significant Findings: Mothers of Children 8-24 Months Feed Them Animal-Source Foods Each Day During Meals 17
  - Positive and Negative Consequences 18
  - Perceived Self-Efficacy 18
  - Access 19
  - Perceived Social Norms 19
  - Cues for Action 19
  - Susceptibility of Risk and Perceived Severity 19
  - Action Efficacy 19

DISCUSSION 20

- Mothers of Children 0-6 Months Feed Them Only Breastmilk 20

Bridges to Activities 21
Key Activities 21
Mothers of Children 8-24 Months Feed Them Animal-Source Foods Each Day During Meals 22
Bridges to Activities 22
Key Activities 23
Annex A: Significant Determinants/Responses to Exclusive Breastfeeding 24
Annex B: Significant Determinants/Responses for Feeding ASF 25
Annex C: Barrier Analysis Questionnaire for EBF and Feeding ASF 26

List of Tables

Table 1: Breakdown of Doer and Non-doer Sample Size by Behavior……..9
Table 2: Five Decisions of the DBC Framework……..10
Table 3: Barriers and Enablers of Exclusive Breastfeeding……..14
Table 4: Barriers and Enablers of Complementary Feeding of ASF……18

Acronyms

ASF	Animal-Source Foods
BA	Barrier Analysis
CF	Complementary Feeding
CHSW	Community Health Service Worker
CHT	Chittagong Hill Tracts
DBC	Designing for Behavior Change
DFSA	Development Food Security Activity
EBF	Exclusive Breastfeeding
EHA	Essential Hygiene Actions
ENA	Essential Nutrition Actions
HH	Household
HKI	Helen Keller International
IEHFP	Integrated Enhanced Homestead Food Production
IGA	Income Generating Activity
IRB	Institutional Review Board
IYCF	Infant and Young Child Feeding
MCHN	Maternal and Child Health and Nutrition
NGO	Non-Governmental Organization
TOPS	Technical and Operational Performance Support
WHO	World Health Organization
USAID	United States Agency for International Development
SAPLING	Sustainable Agriculture and Production Linked to Improved Nutrition Status, Resilience and Gender Equity

INTRODUCTION

On September 30, 2015, Helen Keller International (HKI) was awarded a five-year cooperative agreement by the United States Agency for International Development (USAID) to lead the Sustainable Agriculture and Production Linked to Improved Nutrition Status, Resilience and Gender Equity (SAPLING) program, a Development Food Security Activity (DFSA). The overall goal of SAPLING is to improve gender equitable food security, nutrition and resilience of vulnerable people in the Chittagong Hill Tracts (CHT) in Bangladesh. SAPLING is being implemented in the sub-districts of Bandarban Sadar, Ruma, Lama, Thanchi and Rowangchari in Bandarban District of the CHT. The estimated total population of 298,868 is comprised of 12 ethnic groups, including Bengali. Each group has its own language, cultural traditions and deep-rooted allies and contenders. SAPLING works with approximately 47,000 households (HH).

SAPLING takes an integrated community development and HH approach with interventions designed to increase food availability, utilization and access to nutritious foods and income, enhance maternal and child health and nutrition (MCHN), and improve resilience among families who are under constant threat of natural and human-induced shocks and disasters by increasing individual and institutional adaptive, absorptive and transformative resilience capacities. One of the main foci of this program is to enhance the nutritional status of children under five years of age. Under the supervision of MCHN specialists, the SAPLING Community Health Service Workers (CHSW) promote optimal maternal and child health behaviors among program participants following the Essential Nutrition Actions and Essential Hygiene Actions framework (ENA-EHA).[1] [2]

According to the Bangladesh National Strategy for Infant and Young Child Feeding (IYCF), and in accordance with World Health Organization (WHO) guidance, infants should be exclusively breastfed for the first six months (180 days) of life to achieve optimal growth, development and health.[3] During this time, no other liquids or solids are given (not even water) with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines.[4] Optimal complementary feeding (CF) begins from six months up to 24 months of age. Proper CF refers to the amount, frequency and variety of complementary foods, including animal-source foods (ASF), fruits and vegetables, legumes, and oils and fats. To ensure and meet nutritional needs, complementary foods should be timely, adequate, safe and responsively fed.[5]

The SAPLING baseline study found that 27.6% of all children under five years of age were underweight and the prevalence of wasting and stunting rates were 10.4 and 31.5 percent, respectively. The rate of exclusive breastfeeding (EBF) at baseline was 43.7[6] percent, which is

[1] World Health Organization. 2013. "Essential Nutrition Actions: Improving Maternal, Newborn, Infant and Young Child Health and Nutrition." http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/.
[2] https://coregroup.org/wp-content/uploads/media-backup/documents/Resources/Tools/ENA_EHA/Understanding_ENA_EHA_Framework.pdf
[3] National Strategy for Infant and Young Child Feeding in Bangladesh, 2007:19-20
[4] Exclusive breastfeeding for Optimal Growth, Development and Health of Infants (World Health Organization), retrieved February 2017 from e-Library of Evidence for Nutrition Actions (eLENA)
[5] National Strategy for Infant and Young Child Feeding in Bangladesh, 2007: 21-22
[6] Final Report: Baseline Study of Food for Peace Development Food Assistance Projects in Bangladesh, 2017

lower than the national rate of 55.3 percent.[7] Little information exists on the practices of EBF and CF among the multiple ethnic communities of Bandarban District. The practice of providing water to children under six months of age is higher in the SAPLING project area than other DFSA areas, increasing the likelihood that infants will wean earlier or reduce breastmilk consumption, while also increasing the risk of diarrhea and, subsequently, malnutrition through environmental enteric disorder.[8] Although the rate of EBF is nearly half of the population, this may be overreported.

Both the qualitative data from the baseline and SAPLING's formative qualitative research study show that caregivers are aware of the importance of EBF. Despite low rates of EBF, respondents to the baseline survey were aware of the importance of EBF for the first six months of life and even say they have heard this from other non-governmental organizations (NGO) and health service providers, but also believe the introduction of rice in the diet, beginning as early as one month, is good for the baby. There is also an understanding that honey, water and other liquids are not recommended to give to children during that time, although these are commonly practiced. The baseline also found that only 34.1 percent of children aged six to 23 months have a minimum acceptable diet, with inadequate consumption of ASF. Children's Minimum Acceptable Diet is higher in HHs above the poverty line and HHs where the head of the HH has a primary education or higher.[9] Additionally, 53.8 percent of children in Bandarban start complementary food from four to five months of age.[10] There are diverging views regarding feeding young children protein-rich foods such as fish or other meat[11]. SAPLING formative research study participants described how most babies are fed rice (in various forms) by the fourth month of age and some believe children under 12 months of age should not be fed vegetables and ASF. Overall, children are not consuming ASF in adequate proportions.

In this context, HKI, with support from partner organizations, conducted a barrier analysis (BA) to explore the multi-dimensional factors and determinants of EBF and CF, paying specific attention to ASF for CF. The BA was conducted using the Designing for Behavior Change (DBC) Framework.[12] This study contributes to understanding the motivators and barriers for encouraging and preventing proper EBF and CF practices among the SAPLING target population. Information obtained through the BA was used to inform social and behavior change communications for child health and nutrition.

STUDY OBJECTIVES

The overall objective of this BA was to explore the potential barriers and key motivators to the adoption of evidence-based, appropriate behaviors related to EBF and CF. The specific objectives are:

- **For Exclusive Breast Feeding**

[7] Bangladesh Demographic Health Survey, 2014.
[8] Final Report: Baseline Study of Food for Peace Development Food Assistance Projects in Bangladesh, 2017
[9] ibid
[10] ibid
[11] ibid
[12] Food Security and Nutrition Network Social and Behavioral Change Task Force. 2013. Designing for Behavior Change for Agriculture, Natural Resource Management, Health and Nutrition. Washington, D.C.: Technical and Operational Performance Support (TOPS) Program.

- Explore the existing situation of EBF practices.
- Explore the potential influencing persons of the communities regarding EBF.
- Design evidence-based behavior change activities to promote EBF for the SAPLING project.

➢ **For Complementary Feeding**

- Explore the existing situation of CF practices, in particular, animal-source food.
- Explore the starting time of giving animal source food, amount and frequencies.
- Identify and understand the potential influencing persons of the community regarding CF.

METHODOLOGY

The DBC BA is a rapid assessment tool using doer/non-doer methodology to identify factors preventing a target group from adopting a preferred behavior, as well as identifying the influencing groups or motivators to adopt a behavior. Data collection was done through individual interviews combining both closed-ended and open-ended questions. Interviews were conducted with mothers of children less than two years of age to better understand the existing practices and potential and existing barriers and support. To allow for comparison of differences in practices, the data collection team identified participants first through a screening questionnaire to identify whether they are doers or non-doers. For example, participants who practice child feeding according to the national IYCF standards (e.g., exclusively breastfeed child until six months of age) were considered as "doers" and participants who do not practice or follow those standards (e.g., breastfeed child, but give other foods within six months) were considered as "non-doers".

Sampling Strategy

A purposive sampling strategy was used for data collection in this study. In line with the DBC methodology and recommended sampling size, and considering that this study is analyzing two specific behaviors (EBF and CF), 90 individuals, including 45 doers and 45 non-doers, were interviewed for each behavior, for a total of 180 interviews (see Table 1 below). The DBC methodology recommends 45 doers and non-doers to achieve statistical significance.[13] This sample size was calculated using a sample size calculator for case-control type studies with a p-value of 0.05, a relative risk of 3.0, an alpha error of 5 percent, and a power of 80 percent.[14]

Table 1. Breakdown of Doer and Non-doer Sample Size by Behavior

Behavior	Sample Size		
	Doers	Non-doers	Total
Exclusive Breastfeeding	45	45	90
Complementary Feeding	45	45	90

13 Ibid.
14 Ibid.

For each behavior, a total 18 individual interviews were conducted in each of the five SAPLING upazilas. Within each upazila, a list of paras (villages) with a minimum population of 60 HHs was constructed from the SAPLING HH census data. The proposed strategy was to select up to three paras in each upazila from the list for inclusion in the BA by using a simple random sampling method and add additional paras if more participants were needed. The list of eligible participants within each para was chosen purposively using existing SAPLING HH census and monitoring data to identify HHs with children ages 5-24 months. If there were more than 90 eligible HHs across the three paras, participants were randomly selected from the list. In all five upazilas, more than three paras had to be selected. In total, 10 paras from Bandarban Sadar, 14 from Lama, eight from Rowangchari, 10 from Ruma, and five from Thanchi were selected to get enough doers and non-doers for EBF and CF.

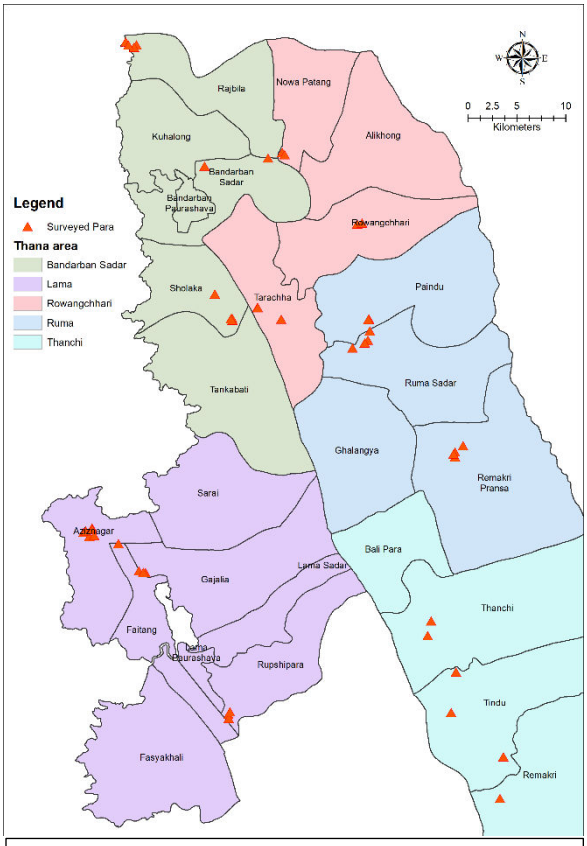

Image: Map of data collection areas

Study Approach

The DBC framework guided the design of the BA and development of evidence-based behavior change activities. The DBC framework is a comprehensive tool which helps to achieve better and sustainable behavior change results by guiding program designers through five key DBC decisions (described in Table 2): 1) Behavior, 2) Priority Group or Influencing Group, 3) Determinants, 4) Bridges to Activities and 5) Activities.[15] A BA is one type of research conducted to identify Determinants and Influencing Groups and inform Bridges to Activities and Activities.[16]

Table 2. Five Decisions of the DBC Framework.

Component	Description[17]
Behavior	A Behavior is a physical action that is specific, measurable and takes place at a specific time and place and with duration and frequency. A measurable and observable Behavior Statement is developed that mentions who needs to do the behavior with specifics, such as quantity, frequency, duration. *Example:* Mothers of children ages 0-6 months feed them only breastmilk.
Priority Group and Influencing Groups	The Priority Group is the group of people being encouraged to adopt the behavior. The Influencing Group(s) is the group the Priority Group

[15] Food Security and Nutrition Network Social and Behavioral Change Task Force. 2013. Designing for Behavior Change for Agriculture, Natural Resource Management, Health and Nutrition. Washington, D.C.: Technical and Operational Performance Support (TOPS) Program
[16] ibid
[17] ibid

	identifies as having the most influence or control over whether the Priority Group practices or does not practice the Behavior.
Determinants	Determinants are categories of elements (e.g., a person's feelings, beliefs, barriers, enablers) within a person's environment (i.e., sociocultural, political, economic context) that can support or prevent him or her to engaged in a Behavior.
Bridges to Activities	Bridges to Activities are specific descriptions of actions needed to address the issues revealed in the research, usually intended to change perceptions of the Priority Group. *Example:* Increase the perception that ASFs are good for children's physical and cognitive development.
Activities	Activities are tasks that program implementers plan, organize, and/or conduct, usually with the Priority Group or Influencing Groups, to address Bridges to Activities. *Example:* Provide lactation management training to midwives.

In the DBC approach, a BA can be used to uncover the different factors that are preventing a target group from adopting the appropriate behavior and identify those factors which motivate and facilitate adoption of the behavior. A BA can include open-ended (qualitative) and closed-ended (quantitative) questions to study determinants and data are first coded qualitatively and then quantified. The DBC Framework has a pre-determined list of 12 evidence-based determinants for health and nutrition behaviors. The four most common and powerful influences of behavior change in health and nutrition are: perceived self-efficacy/skill, perceived social norms, perceived positive consequences, and perceived negative consequences. In addition to those four, other important determinants are: access, perceived susceptibility, perceived severity, perceived action efficacy, perceived divine will, cues for action/reminders, policy, and culture. Responses from the data collected via interviews are coded according to these determinants.

Behavior Statement and Behavior Explanation

Mothers of children ages 0-6 months feed only breastmilk.

This behavior was selected because SAPLING uses the WHO-endorsed ENA framework[18] [19] to promote EBF from birth to six months of age, which is also in accordance with the Bangladesh National Strategy for IYCF.[20] Mothers of children aged five to 10 months were interviewed for this behavior because they should have current or recent experience with practicing or not practicing EBF.

Mothers of children ages 8– 24 (full) months feed their children animal source food every day.

This behavior was also selected because of the ENA practices promoted by SAPLING. According to the ENA framework and the Bangladesh National Strategy for IYCF, optimal CF begins at six months through 23 months of age. Appropriate CF refers to the accurate amount,

[18] World Health Organization. 2013. Essential nutrition actions: improving maternal, newborn, infant and young child health and nutrition. http://www.who.int/nutrition/publications/infantfeeding/essential_nutrition_actions/en/.
[19] CORE Group. 2015. Understanding the Essential Nutrition Actions and Essential Hygiene Actions Framework. https://coregroup.org/wp-content/uploads/media-backup/documents/Resources/Tools/ENA_EHA/Understanding_ENA_EHA_Framework.pdf.
[20] National Strategy for Infant and Young Child Feeding in Bangladesh. 2007. Institute of Public Health and Nutrition, Ministry of Health and Family Welfare, Government of the People's Republic of Bangladesh.

frequency and variety of complementary foods, including animal foods, fruits and vegetables, legumes, and oils/fats. To ensure and meet nutritional needs, complementary foods should be timely, adequate, safe and responsively fed. Mothers of children aged eight to 24 months were included in the study of this behavior. The decision to include mothers of children 8-24 months and not 6-24 months was made because mothers will have had at least two months of experience practicing CF (if following guidance to start CF at six months) from which to draw on for responses, whereas mothers of children six months of age would just be introducing foods other than breastmilk to the children's diet.

Barrier Analysis Questionnaire Development

The questionnaire for the BA contained two sections (see Annex C). Section A is a set of behavior screening questions to determine if the eligible participants are doers or non-doers, based on their practices with regards to EBF and CF behaviors. Section B contains the research questions designed to provide information on the pre-selected determinants being studied. Questions were developed by the study team in English following principles of BA norms and the DBC determinants. The questionnaire was reviewed by the study team members and a BA expert and then translated into Bangla and then back-translated into English to ensure accuracy.

In the SAPLING target area, there are 12 different ethnic groups that speak 12 different languages. Most of the languages do not have written alphabets; for those languages that do have written alphabets, most of the participants were non-literate. Therefore, the questionnaire was translated verbally on voice recorders into the four most common languages, identified through the HH Census. These are Bangla, Tripura, Marma and Mro. One version of the voice-translated copy of the questionnaire was given to the data collectors in each language. The data collectors were instructed to keep the voice recorder with them and use it, if needed.

Ethical Consideration

The study protocol was approved by the Center for Institutional Review Board (IRB) Intelligence. Data collectors were informed of the study objectives prior to taking part in the interviews. A written script was read to each participant before starting the interview. Written consent was recorded for each participant which ensured their willingness to participate in the study.

Data Collection Team

The SAPLING CHSWs were recruited to collect the data and a MCHN specialist was assigned to each team as a supervisor. Three CHSWs and one MCHN Specialist were employed in each upazila, with a total of 15 CHSWs and five MCHN specialists from all five upazilas. The CHSWs were recruited from the paras where they work to collect data from those same paras. This strategy was both cost-effective and helped to overcome the language challenges as these CSHWs are usually from the ethnic group living in the para. In addition, the study leads visited the data collection areas during the data collection process to spot-check for quality control and provide feedback.

Training

All data collectors and supervisors received a four-day training, with a one-day field test, on BA implementation methods, conducted by the study leads. The training covered all topics related to

DBC and BA, including the basics of the DBC approach, introduction to BA, selecting participants, informed consent, identifying doers and non-doers, how to ask questions, probing, mock interviewing, interpretation of each question and coding technique.

Pre-test

The questionnaire was pre-tested in different paras of Bandarban Sadar Upazila to ensure the appropriateness of the questions, suitability of the language and to provide data collectors with practical field experience of data collection. Following the pre-test, the study leads and data collectors met to discuss and better understand the questions.

Data Collection

Data collection took place December 8-9, 2017 using paper questionnaires. The supervisors kept a record of daily data collection status which was shared with the study team leads each evening.

Data Analysis

After completing the data collection, the team of data collectors, supervisors and study team leads returned to the training venue to analyze the data. The data analysis was done in the following three steps:

1) **Coding:** By design, data were automatically deductively coded according to each determinant because the questions were formulated to gather information under the pre-selected Determinants. Responses to open-ended questions under each determinant were then inductively coded into themes, or categories, based on what the participants said in their responses. Responses to closed-ended (yes/no) questions were automatically coded yes or no.
2) **Tabulation:** Once the coding was completed, the team tabulated the results (number and percentage of doers and non-doers) to each question by recording the category frequencies in a pre-formulated BA Tabulation Sheet (in MS Excel) that uses Estimated Relative Risk, taking into account prevalence of the behavior in the population to formulate statements of association (e.g., "doers are 2.3 times more likely to give this response than non-doers"). The sheet also keeps results and prevalence separate for doers and non-doers for a comparative analysis. The tabulation sheet is pre-formulated to determine statistical significance between doers and non-doer responses. If there is a gap of more than 15 percentage points between non-doers and doers who gave the same response and it is statistically significant at $p<0.05$, then it is considered a significant finding. Occasionally, there may also be an important finding that approaches statistical significant that can also be considered.
3) **Qualitative comparative analysis:** This step involves interpreting the results: for example, looking at the gaps between doers and non-doers, examining whether barriers mentioned by doers may not have kept them from doing the behavior, looking at enablers that were mentioned by non-doers more than doers, and deciding if determinants that did not have a 15-point difference between doers and non-doers might be worth further analysis.

The final steps after calculating and interpreting the results are identifying the bridges to activities and then designing activities to overcome the barriers. The study leads and SAPLING

technical leads developed descriptions of actions (bridges to activities) to address barriers and enablers and support adoption of the behaviors. A workshop was held with the SAPLING technical teams to finalize the bridges to activities and detail activities linked with the bridges to activities.

RESULTS

Significant Findings: Mothers of Children 0-6 Months Feed Them Only Breastmilk

The BA on EBF revealed that eight determinants had responses with significant differences between doers and non-doers, representing potential barriers and enablers. The determinants with significant response differences were self-efficacy, perceived positive consequences, perceived negative consequences, perceived social norms, perceived access, cues for action, perceived action efficacy, and divine will. The findings for each determinant are detailed below.

Table 3: Summary of Barriers and Enablers of Exclusive Breastfeeding

Barriers	Enablers
Self-Efficacy: Lack of family help	*Self-Efficacy:* Family support
Self-Efficacy: Heavy workload	*Self-Efficacy:* Lighter workload
Self-Efficacy: Perception of insufficient supply of breastmilk	*Self-Efficacy:* Perception of a sufficient supply of breastmilk
Negative Consequences: Perception that EBF can cause children to become sick if the mother is hot or tired from working	*Positive Consequences:* Perception that EBF helps child physical, emotional, and cognitive development and health
Social Norms: Mother-in-law, husband and other family members disapprove of EBF	*Social Norms:* Mother-in-law and other family members approve of EBF
Cues to Action: Remembering to practice EBF	*Social Norms:* Doctors approve of EBF
Perceived Divine Will: Perception that children's health is governed by divine will	*Susceptibility of Risk and Perceived Severity:* Perception that children will not get sick or malnourished in the coming year and that, if they do, it will not be serious.
	Perceived Divine Will: Perception that children's health is not governed by divine will

Perceived Self-Efficacy: How easy or difficult it is to exclusively breastfeed for six months.
Perceived self-efficacy is defined as an individual's belief that s/he can perform a specific behavior by her/his own skills, knowledge and abilities.[21] The participants were asked three self-efficacy questions: 1) if they can practice EBF (closed-ended); 2) what makes it easier (doers) or what would make it easier (non-doers) to practice EBF (open-ended); and 3) what makes it difficult (doers) or what would make it difficult (non-doers) to practice EBF for the first six months of the child's life (open-ended).

[21] Food Security and Nutrition Network Social and Behavioral Change Task Force. 2013. Designing for Behavior Change for Agriculture, Natural Resource Management, Health and Nutrition. Washington, D.C.: Technical and Operational Performance Support (TOPS) Program.

All (100%) of doers said they are able to feed only breastmilk to their children ages 0-6 months of age based on their own knowledge, skills and abilities, while 33% of non-doers said they could not perform this behavior and 42% said they could. Although all doers said they are able to breastfeed, approximately half (51%) said it is not difficult at all to do this (they were 10.1 times more likely than non-doers to give this response; diff. 47%, p=0.000). This means half of doers have some difficulty, but they continue to practice EBF.

Doers were five times more likely than non-doers to say that sufficient breastmilk made EBF easier (diff. 24%, p=0.000), although a few (five) non-doers said insufficient supply would make it difficult, indicating the perception that mothers either have sufficient or insufficient milk production may be a hidden barrier that needs further exploration. Non-doers were also six times more likely to say it would be difficult to practice EBF when mothers are sick (diff. -22%, p=0.002). This response may need further exploration and could be related to perceptions of mother's poor health due to nutrition status, which may be perceived to affect the ability to produce milk.

Doers were 5.3 times more likely to say a lighter workload made it easier (diff. 38%, p=0.000) while non-doers were 2.9 times more likely to say a heavier workload would made it difficult (diff. -29%, p=0.006), but both doers and non-doers responded that family support makes it or would make it easy to perform the behavior. These responses highlight family support and lighter workloads as enabling EBF, while not having family support may be a barrier because it may also mean a heavier workload.

Perceived Positive and Negative Consequences: Advantages and Disadvantages of Exclusive Breastfeeding

Participants were asked what are (doers) or would be (non-doers) the advantages and disadvantages of feeding babies only breastmilk for the first six months of life. Just over half of doers (58%) and non-doers (61%) said EBF supports child health, as well as child development (53% of doers and 42% of non-doers), but doers provided additional responses that were significant, demonstrating their knowledge and experience and emphasizing potential enablers for the behavior. Specifically, doers were 3.5 times more likely to say children have fewer illnesses when practicing EBF (diff. 31%, p=0.002) and, although not a significant difference, doers also noted increased savings due to fewer expenditures for formula food and medical costs. The other advantage with statistical significance noted by doers was increased weight gain for children (2.8 times more likely to say this; diff. 27%, p=0.008).

Half (51%) of doers and one-third (33%) of non-doers do not perceive disadvantages to EBF. For the other half of doers, the disadvantages are that mothers can suffer from weakness, frequent hunger, weight loss, breast soreness, and less sleep at night when they practice EBF. Additionally, 33% of doers and 44% of non-doers said that children may have stomachaches, vomiting, cough, diarrhea and fever if the mother feeds them breastmilk after coming back from bathing, work or outside.

Perceived Social Norms: Who approves and disapproves of EBF

Perceived social norms refers to the perception that people may have an important role in influencing an individual to do the behavior.[22] This determinant has two parts: who approves or would approve and who disapproves or would disapprove of doing this behavior. Both closed-ended and open-ended questions were asked of each participant to collect this data. All (100%) doers and 53% of non-doers reported that most people approve of EBF (p=0.000[23]). Findings from the open-ended questions show that doers were 2.5 times more likely to say mothers-in-law (diff. 24%, p=0.017) and 4.2 times more likely to say other family members (including sisters-in-law, brothers-in-law, and siblings) approve of EBF (22%, p=0.006). Non-doers were 9.4 times more likely to say mothers-in-law and husbands would not approve of EBF (-29%, p=0.000) and 3.3 times more likely to say other family members would not approve (-31%, p=0.003). Thus, these family members are influencers and can be enablers or barriers to EBF. Additionally, NGO workers (doers 2.6 times more likely to say; diff. 22%, p=0.022) and professional doctors (doers six times more likely to say; diff. 38%, p=0.000) are influential groups who doers said approve of EBF, which may indicate doers may have more contact with doctors and NGO workers than non-doers. Mothers of participants and local elites are also influential groups, but the results for these groups were statistically insignificant and the number of responses was small.

Access: How easy or difficult it is to get support needed to practice EBF

This determinant refers to an individual's difficulties or ability to perform the behavior. The participants were asked a closed-ended question to collect this data. Non-doers were 20.9 times more likely to say that it would be very difficult to get the support they need to practice EBF (diff. -33%, p=0.000; 84% of non-doers said it was either very difficult or somewhat difficult), whereas doers were 24 times more likely to say it is not difficult at all (diff. 73%, p=0.000).

Cues for Action: How difficult it is to remember to feed the baby breastmilk only

Cues for action refers to the presence of reminders that help a person to perform the behavior. Participants were asked a closed- ended question to collect this data.[24] Non-doers were 12.6 times more likely to say it was somewhat or very difficult to remember to practice EBF (diff. -56%, p=0.000), while Doers were 18.9 times more likely to say it is not difficult at all to remember (diff. 62%, p=0.000).

Perceived Susceptibility of Risk and Perceived Severity: Likelihood the child will become malnourished or have diarrhea

The BA question on perceived susceptibility of risk measures an individual's perception of how vulnerable they feel to a given problem.[25] For EBF, participants were asked two different closed-ended questions to explore their perception of the risk of the child becoming malnourished and the child having diarrhea.

---

[22] Food Security and Nutrition Network Social and Behavioral Change Task Force. 2013. Designing for Behavior Change for Agriculture, Natural Resource Management, Health and Nutrition. Washington, D.C.: Technical and Operational Performance Support (TOPS) Program.

[23] The BA tabulation sheet does not calculate difference in percentage points if none or all of doers or non-doers respond.

[24] Food Security and Nutrition Network Social and Behavioral Change Task Force. 2013. Designing for Behavior Change for Agriculture, Natural Resource Management, Health and Nutrition. Washington, D.C.: Technical and Operational Performance Support (TOPS) Program.

[25] Ibid.

More than half of doers felt confident that their children would not suffer from malnutrition (64%) and diarrhea (53%) while approximately the same number of non-doers felt their children were somewhat likely to suffer from malnutrition (60%) or diarrhea (64%). Non-doers were 5.8 times more likely to say it was somewhat or very likely their child would become malnourished (diff. -42%, p=0.000) and eight times more likely to say it was somewhat or very likely their child would develop diarrhea in the coming year (-49%, p=0.000). In contrast, doers were more likely to say their children would not become malnourished or have diarrhea (19.7 times more likely, diff. 62%, p=0.000 and 11.1 times more likely, diff. 49%, p=0.000, respectively). Approximately 40% of non-doers said they are not sure about the risk of getting malnutrition and diarrhea (3.6 times more likely to respond, "I don't know"; diff. -24%, p=0.007).

Although doers exhibit more confidence in their children's health, approximately one-third say it is somewhat likely or they do not know if their children will become malnourished and half say it is somewhat likely or they do not know if their children will develop diarrhea. If children do become malnourished or develop diarrhea, doers tend to believe it will not be serious. Non-doers were 2.5 times more likely to say the occurrence of malnourishment would be very serious (diff. -18%, p=0.042) and doers were 5.9 times more likely to say it would not be serious (diff. 27%, p=0.001). Non-doers were 2.1 times more likely to say the diarrhea would be somewhat or very serious (diff. -20%, p=0.043) and doers were 5.9 times more likely to say it would not be serious (diff. 27%, p=0.001). Despite this tendency, roughly half of the doers also believe the occurrence would be somewhat or very serious. Thus, although doers tend to exhibit more confidence in their children's health, a substantial proportion may not believe they have the ability to influence their children's health outcomes.

Perceived Divine Will: If malnutrition and diarrhea are caused by divine will

A question was asked about an individual's belief that it is God's will if a child becomes malnourished or gets diarrhea. In this study, participants were asked two different closed-ended question to explore their beliefs on malnourishment and diarrhea. Non-doers were 5.6 times more likely than doers to say they believe God causes malnutrition (diff. -24%, p=0.003) and doers were 9.6 times more likely than non-doers to say they do not believe God causes malnutrition (diff. 38%, p=0.000). The belief that God causes diarrhea is not as strong and both doers (84%) and non-doers (67%) tended to say that they do not believe God causes diarrhea, although the difference approaches significance and doers were 2.5 times more likely to say this.

Significant Findings: Mothers of Children 8-24 Months Feed Them Animal-Source Foods Each Day During Meals

Doers and non-doers were asked the same questions for each determinant, but, for some questions, doers were asked "what does" and non-doers were asked "what would". Among the women interviewed, nine determinants emerged as statistically significant between doers and non-doers for feeding ASF to children 8-24 months of age: perceived positive consequences, perceived negative consequences, perceived self-efficacy, access, perceived social norms, cues for action, susceptibility of risk, perceived severity and action efficacy.

Table 4: Barriers and Enablers of Complementary Feeding of ASF

Barriers	Enablers
Self-Efficacy: Not having money to purchase ASF	*Self-Efficacy:* Rearing livestock at home
Access: Not having a market or other vendor nearby	*Self-Efficacy:* ASF available in the market
Cues to Action: Remembering to include ASF in the meal	*Self-Efficacy:* Children like eating ASF
Negative Consequences and Action Efficacy: Perception that feeding ASF can cause children to become sick or malnourished.	*Positive Consequences:* Perception that ASF helps child physical and emotional development
Self-Efficacy: For women who do feed their child ASF, the child does not want to eat ASF when sick.	*Family Support:* Wider family network (beyond immediate family members) supports feeding ASF
	Perceived Risk: Perception that children will not get sick or malnourished in the coming year and that, if they do, it will not be serious.

Positive and Negative Consequences: Advantages and disadvantages of feeding ASF each day

Doers were more likely to say children benefit from ASF, noting both physical and cognitive advantages. Despite the finding that non-doers are less likely to be aware of advantages, at least half of them demonstrated knowledge of the benefits of feeding ASF daily, but they are not practicing this behavior. Specifically, doers were 7.9 times more likely to say children develop well, speaking and walking early (diff. 27%, p=0.000) and were 12.3 times more likely to say children are happier and do not cry as often when they eat ASF daily (diff. 20%, p=0.001). Furthermore, doers were 3.6 times more likely to say there were no disadvantages to feeding ASF to children (diff. 29%, p=0.003) with 82% of doers and 53% of non-doers giving this response. Despite initially saying there were no disadvantages, 38% of doers and 44% of non-doers also believe that EBF could cause illness or other negative physical impacts, including diarrhea, fever, vomiting, coughing, allergies or obesity.

Perceived Self-Efficacy: Easy or difficult to feed ASF each day

Self-efficacy in CF included questions on what makes it easier (doer) or would make it easier (non-doer) and what makes it difficult (doer) or would make it difficult (non-doer) to feed babies ASF each day. Responses to these self-efficacy questions revealed access and availability and family assistance to be barriers and enablers to having the ability to feed ASF to children. Specifically, doers were 2.6 times more likely to say rearing livestock at home makes feeding ASF easy because it provides eggs, meat and milk (diff. 24%, p=0.014) and 11.7 times more likely to say it is easy because ASF is available in the market (diff. 16%, p=0.006). Additionally, the support of HH members is tied to the self-efficacy questions. Doers were 21.3 times more likely to say feeding ASF is made easy because family members purchase or collect these foods to feed to the children (diff. 56%, p=0.000). A third potential enabler uncovered, though not statistically significant, is doers said it is easy because the children like eating ASF. For women who are practicing this behavior, feeding ASF does become difficult when children are sick

(doers 3.9 times more likely to say this; diff. 33%, p=0.001). Non-doers, however, voiced a significant challenge: they were 21.9 times more likely to say that feeding ASF is difficult without money to purchase the ASF (diff. -51%, p=0.000).

Access: How easy it is to get ASF to feed to children daily

Non-doers were 13.5 times more likely to say it is difficult to obtain the ASF to feed their children (62% of non-doers said this; diff. -53%, p=0.000), whereas doers were 7.4 times more likely to say it is not difficult (53% of doers said this; diff. 44%, p=0.000). The responses to the perceived self-efficacy questions provide more insight into these difficulties. Non-doers said it would make it easier to feed ASF if they reared livestock at home and if they had a market or vendor near their home. Likewise, doers said these two things made it easier for them to feed ASF to their children.

Perceived Social Norms: Who approves or disapproves of feeding ASF daily

There were no significant differences in responses, but, overall, both doers and non-doers said no one disapproves of feeding ASF daily to children. Non-doers were 4.1 times more likely to mention their father-in-law as someone who would approve of the behavior (diff. -18%, p=0.019). Doers were 12.6 times more likely to say they have approval from intermediate family members (i.e., extended family network) to practice this behavior (no difference tabulated because all doers said this, p=0.002).

Cues for Action: How difficult it is to remember to feed ASF daily

Non-doers are 3.8 times more likely to say it would be very or somewhat difficult to remember the behavior (diff. -36%, p=0.000), whereas doers are 3.8 times more likely to say it is not difficult to remember (diff. 36%, p=0.000).

Susceptibility of Risk and Perceived Severity: Likelihood that children will become sick or malnourished in the coming year and extent of severity

Non-doers were 2.5 times more likely to believe their children will be malnourished in the coming year (very likely or somewhat likely; 47% of non-doers believed this; diff. -22%, p=0.023). Doers were 4.1 times more likely to say it is not likely at all their children will be malnourished in the coming year (diff. 33%, p=0.001). Furthermore, non-doers were 2.1 times more likely to believe the occurrence of being sick or malnourished in the coming year will be very or somewhat serious (diff. -24%, p=0.007), whereas doers were 5.1 times more likely to say the occurrence would not be serious at all (diff. 22%, p=0.004).

Action Efficacy: Likelihood that feeding ASF daily to children will cause them to become sick or malnourished

Doers were 8.7 times more likely to say feeding ASF daily would not cause children to be sick or malnourished in the coming year (diff. 53%, p=0.000). In contrast, non-doers were 5.1 times more likely to say it was somewhat or very likely that feeding ASF would cause children to become sick or malnourished (diff. -40%, p=0.000).

DISCUSSION

Mothers of Children 0-6 Months Feed Them Only Breastmilk

Non-doers are less likely than doers to perceive benefits from EBF, less likely to say they would have family approval if they practiced EBF, more likely to say a heavy workload would make EBF difficult, more likely to think their children will become malnourished or have diarrhea in the coming year, and more likely to think children's health is a result of divine will. Family support and approval, light workloads, perception that it is possible to influence children's health, and perception of benefits from EBF enable mothers to practice EBF until their children are six months of age. The reverse of these enablers become barriers for mothers who do not practice EBF.

Mothers-in-law and other family members emerged as important influencers in adoption of EBF. While these family members can influence EBF by approval or disapproval of the behavior, they can also play a critical role in helping to reduce the workload of the mother to allow more time for EBF and also via the knowledge they pass on to the young mothers. Given the findings in the formative research study that elders, including mothers-in-law, are sources of information on feeding practices, it is likely that family members of non-doers share their lack of awareness of the benefits of breastfeeding and the belief that being overheated can cause the breastmilk to be bad. SAPLING should target these family members with messages and materials and also include them as facilitators for the behavior.

Some participants believe that the mother's elevated body temperature from work or exposure to heat causes the breastmilk to be bad for the baby, making it sick. Although not statistically significant, these perceptions and experiences are important to consider when designing messaging. This belief also emerged from the formative research study results and has been found in other parts of Bangladesh and may be related to the humoral theory of disease etiology. The formative research study results found that participants ascribe hot and cold properties to foods and bodily states and this can explain physical reactions in the form of illness. Reverse messaging could say that it is okay to feed the baby after being hot or after working hard. Additionally, although not significant, doers noted cost savings from EBF via the reduction in healthcare-related expenditures for children. Financial gains emerged as a meaningful benefit and potential motivator for adoption of improved practices in the SAPLING qualitative research study. Therefore, cost savings via reduced healthcare expenses and loss of work days could be a benefit to promote through SBCC messaging to increase the practice of EBF and CF.

The research found that doers were more likely to list doctors and NGO workers as groups that approve EBF. This could be a result of more access to health services or more wealth to pay for services, but could also denote geographic access to health services and NGO workers. Therefore, creating access and linkages between mothers and health service providers and NGO programs may influence EBF behavior, especially in more remote areas.

The belief that their children will become sick or malnourished and the unknown response among the non-doers both demonstrate a perception that they are not able to control their children's health. The findings that non-doers have significantly lower self-efficacy (as

demonstrated by less belief in their own abilities to breastfeed and produce enough milk) and an external locus of control vs. internal locus of control (they are more likely to see a risk for their kids getting severely malnourished and have diarrhea and more likely to see these as divine will, or out of their control) indicate it is possible that non-doers are less likely to adopt new practices (i.e., engage in future-oriented behavior) unless they are empowered to believe they can make a change within the context of poverty.

Bridges to Activities

To support adoption of EBF by mothers of children 0-6 months, SAPLING will implement key activities to address the barriers, work with influencers, and strengthen the enablers of the behavior. The bridges to activities listed below are the link between the determinant and the key activity and describe the planned change in behavior.

- Increase perception that all mothers can provide enough breastmilk for their babies, even if they do not think they are well-nourished.
- Increase perception that mothers can breastfeed babies even when they are hot and have been working.
- Increase perception that EBF babies are healthier and are not likely to become malnourished or develop diarrhea.
- Create linkages between health service providers and mothers and build capacity for lactation management.
- Increase ability to practice EBF.
- Educate and recruit mothers-in-law as promoters of EBF.
- Empower HHs to engage in future-oriented behavior.

Key Activities

The key activities were developed in a workshop based on the findings and the bridges to activities that were identified from the analysis (see Annex A). SAPLING is providing training to pregnant and lactating women and women from all poor and extreme poor HHs on Integrated Enhanced Homestead Food Production (IEHFP) and pregnant and lactating women are also members of MCHN groups. In both IEHFP and MCHN groups, participants learn about ENA, including the benefits of EBF, as well as techniques for troubleshooting common problems with breastfeeding, such as expressing milk to feed while the mother is away, proper position and attachment, and what to do for sore nipples and blocked milk ducts. In separate senior women and men's groups, mothers-in-law and husbands learn about EBF and messages are reinforced on providing support to the mother so she can have time to breastfeed. Also in the IEHFP groups, other members of families participate in gender transformative sessions during which they become more aware of the benefits of supporting each other in daily tasks and engaging in better intra-HH communications.

During the MCHN groups, mothers are introduced to health care providers and are made aware of the services provided, often with the CHSW helping mothers reach clinics and talk to providers. Additionally, SAPLING provides lactation management training to health service providers. Senior women are being recruited through the senior women's groups to be promoters of optimal nutrition, which includes EBF, with the goal of transforming their influence into a

supportive role for EBF and other nutrition behaviors. A wider communication strategy could include activities to support the adoption of EBF, such as billboards, community theater, and videos. HH empowerment sessions will be designed to help HHs set goals and monitor those goals, thereby engaging in future-oriented behavior via planning.

Mothers of Children 8-24 Months Feed Them Animal-Source Foods Each Day During Meals

Having access to ASF via a nearby market, shop, or neighbors who sell ASF, rearing ASF at home, and having the support of the husband and other family members who purchase it, encouraging and reminding them, and helping set aside food for the children are all enablers to engaging in consumption of ASF. In contrast, these same factors are barriers for the non-doers because they do not have these things, but say they would help. Additionally, not having available money to spend on ASF is a barrier that prevents access to ASF. This is could be a key finding as it is possible doers have more access to income: they are more likely to raise their own livestock, have access to the market and make purchases at the market, indicating they have money for these practices. The IEHFP promoted by SAPLING should increase the practice of feeding ASF to children 8-24 months, as should the sales of surplus produce from HHs practicing IEHFP in the village.

Although both doers and non-doers said no one disapproves of feeding ASF daily to children eight-24 months, the formative research study findings show that elders may advise against feeding ASF to children, which may be due to beliefs about negative consequences. When asked directly whether feeding ASF can cause the child to become sick or malnourished (action efficacy), non-doers were significantly more likely to say yes than doers or also say they did not know. Non-doers may perceive advantages, but they are still not practicing the behavior. Although most doers and non-doers perceive advantages to feeding ASF (fewer illnesses, better immunity and better nutrition), approximately one-third of doers and non-doers believe if a child becomes sick, it is divine will and out of their hands and non-doers are more likely to believe their child will become sick in the coming year.

As with EBF, the finding that doers have more access to ASF (possibly more access to income) and are less likely to predict their children will be sick or malnourished in the coming year may indicate that non-doers are less likely to adopt new practices (i.e., engage in future-oriented behavior) unless they are empowered to believe they can make a change within the context of poverty.

Key messages should also focus on increasing perceptions among families, including senior women and men, that ASF improves children's physical and cognitive development, provides children with essential nutrition, and helps build immunity to disease, resulting in fewer illnesses and expenses and costs related to children's illness.

Bridges to Activities

To support adoption of feeding ASF by mothers of children 8-24 months, SAPLING will implement key activities to address the barriers, work with influencers, and strengthen the

enablers of the behavior. The bridges to activities listed below are the link between the determinant and the key activity and describe the planned change in behavior.

- Increase access to ASF.
- Increase perception of physical and cognitive benefits of ASF among mothers and fathers.
- Increase perception of physical and cognitive benefits of ASF among extended family members.
- Increase ability to remember to feed ASF daily.
- Empower HHs to engage in future-oriented behavior.

Key Activities

The key activities were developed in a workshop based on the findings and the bridges to activities that were identified from the analysis (see Annex B). SAPLING is providing training to pregnant and lactating women and women from all poor and extreme poor HHs on IEHFP, which includes poultry rearing. This activity will provide access to eggs and meat at the HH level, while also increasing access to income through sale of surplus yield. Additionally, poultry rearing is an Income Generating Activity (IGA) supported by SAPLING that will also provide access to eggs and meat in the local markets and, for those who are engaging in this IGA, it will provide access to income. HH production of vegetables and fruits and other IGAs will also provide access to income. SAPLING is also forming Savings and Internal Lending Communities (SILC) groups to help HHs have access to income and working with local governments to link social safety net providers with eligible participants.

During the MCHN and IEHFP meetings, the participants learn about ENA, including the importance and benefits of ASF. Separate sessions for senior women and men are designed to increase knowledge and awareness of child nutrition and also include messages on ASF. A wider communication strategy includes activities to support the adoption of these promoted practices, including billboards, community theater, and videos. Cooking demonstrations are held with participants to show them recipes to improve dietary diversity for children, including ASF in the diet. The HH empowerment sessions to help HHs set goals and monitor those goals, will also support adoption of feeding ASF to children daily.

Annex A: Significant Determinants/Responses to Exclusive Breastfeeding

Significant Determinants/Responses	# Doers	# Non-doers	% Doers	% Non-doers	Percentage Pt. Diff.	Estim. Relative Risk	P-value
Self-Efficacy : Can you feed breastmilk only?							
Yes	44	19	98%	42%	56%	48.09	*0.000*
Maybe	1	8	2%	18%	-16%	0.12	*0.015*
Self - Efficacy : What makes it easy/would make it easy for you to give only breast milk to your baby for the first 6 months?							
Sufficient supply of breastmilk	30	11	67%	24%	42%	4.98	*0.000*
Lighter workload of mother	38	21	84%	47%	38%	5.33	*0.000*
Self - Efficacy: What makes it difficult/would make it difficult for you to give only breast milk to your baby for the first 6 months?							
Not difficult at all	23	2	51%	4%	47%	10.43	*0.000*
Heavy workload of mother	16	29	36%	64%	-29%	0.34	*0.006*
If mother is sick	1	11	2%	24%	-22%	0.08	*0.002*
Positive Consequences: What are/would be the advantages of only giving breast milk to your baby for the first 6 months?							
Children aren't sick/are healthy	23	9	51%	20%	31%	3.48	*0.002*
Child is gaining weight	23	11	51%	24%	27%	2.81	*0.008*
Fewer expenses due to better health of children	12	5	27%	11%	16%	2.51	0.052
Negative Consequences: What are/would be the disadvantages of only giving breast milk to your baby for the first 6 months?							
No negative consequences	23	15	51%	33%	18%	1.93	0.067
Mothers are weak, frequently hungry, lose weight, get sore breasts and less sleep at night	9	1	20%	2%	18%	6.00	*0.008*
Social Norms: Do most people approve of feeding breastmilk only?							
Yes	45	24	100%	53%	47%	-	*0.000*
Maybe	1	8	2%	18%	-16%	0.12	*0.015*
Social Norms: Who are/would be the people that approve of you only giving breast milk to your baby for the first 6 months?							
Mother-in-law	26	15	58%	33%	24%	2.46	*0.017*
Other immediate family members	13	3	29%	7%	22%	4.16	*0.006*
NGO workers	35	25	78%	56%	22%	2.56	*0.022*
Professional doctors	21	4	47%	9%	38%	6.03	*0.000*
Social Norms: Who are/would be the people that disapprove of you only giving breast milk to your baby for the first 6 months?							
Mother-in-law and husband	2	15	4%	33%	-29%	0.11	*0.000*
Other family members	12	26	27%	58%	-31%	0.30	*0.003*
Access - How difficult is it to get the support you need to give only breast milk to your baby for the first 6 months?							
Very difficult	1	16	2%	36%	-33%	0.05	*0.000*
Not difficult at all	38	5	84%	11%	73%	24.00	*0.000*
Reminders - How difficult is it to remember to give only breast milk to your baby for the first 6 months?							
Somewhat difficult or very difficult	5	30	11%	67%	-56%	0.08	*0.000*
Not difficult at all	41	13	91%	29%	62%	18.94	*0.000*
Risk- How likely is it that your baby will become malnourished?							
Very likely	0	6	0%	13%	-13%	0.00	*0.013*
Somewhat likely or very likely	8	27	18%	60%	-42%	0.17	*0.000*
Not likely at all	29	1	64%	2%	62%	19.65	*0.000*
Don't know	6	17	13%	38%	-24%	0.28	*0.007*
Risk- How likely is it your child will get diarrhea?							
Very likely		6	0%	13%	-13%	0.00	*0.013*
Somewhat likely or very	7	29	16%	64%	-49%	0.13	*0.000*
Not likely at all	24	2	53%	4%	49%	11.10	*0.000*
Severity - How serious will it be if your child becomes malnourished?							
Very serious	7	15	16%	33%	-18%	0.40	*0.042*
Not serious at all	14	2	31%	4%	27%	5.90	*0.001*
Severity - How serious will it be if your child gets diarrhea?							
Somewhat serious or very serious	22	31	49%	69%	-20%	0.47	*0.043*
Not serious at all	14	2	31%	4%	27%	5.90	*0.001*
Divine Will - Do you think God causes malnutrition?							
Yes	3	14	7%	31%	-24%	0.18	*0.003*
No	42	25	93%	56%	38%	9.60	*0.000*
Don't know	0	6	0%	13%	-13%	0.00	*0.013*
Divine Will - Do you think God causes diarrhea?							
No	38	30	84%	67%	18%	2.50	*0.042*
Don't know	1	7	2%	16%	-13%	0.14	*0.029*
Universal Motivators - What do you desire most in life?							
Want to be a healthy and ideal mother	9	0	20%	0%	20%	12.25	*0.001*

Annex B: Significant Determinants/Responses for Feeding ASF

Significant Determinants/Responses	# Doers	# Non-doers	% Doers	% Non-doers	Percentage Pt. Diff.	Estim. Relative Risk	P-value
Self-Efficacy: What makes it easy/would make it easy for you to feed your baby from these (animal source) food items each day?							
Rearing livestock at home	22	11	49%	24%	24%	2.60	*0.014*
Having a market or other vendor near the home easy	17	16	38%	36%	2%	1.09	0.500
Foods are available in the market	7	0	16%	0%	16%	11.66	*0.006*
Family members purchase and collect animal source food	25	0	56%	0%	56%	21.25	*0.000*
Having available cash	9	16	20%	36%	-16%	0.49	0.079
Children like eating animal source food	6	0	13%	0%	13%	11.38	*0.013*
Self-Efficacy - What makes it difficult/would make it difficult for you to feed your baby from these food items (animal source) each day?							
When child is sick	23	8	51%	18%	33%	3.91	*0.001*
When do not have available cash	2	25	4%	56%	-51%	0.05	*0.000*
Positive Consequences: What are/would be the advantages of feeding your baby from these (animal source) food items each day?							
Child develops well; walks, speaks early	13	1	29%	2%	27%	7.90	*0.000*
Child is happy and rarely cries	9	0	20%	0%	20%	12.25	*0.001*
Negative Consequences: What are/would be the disadvantages of feeding your baby from these (animal source) food items each day?							
No disadvantages	37	24	82%	53%	29%	3.60	*0.003*
Social Norms: Who are the people that approve/would approve of you feeding your baby from these food items (animal source) each day?							
Father-in-law	3	11	7%	24%	-18%	0.24	*0.019*
Other family members	45	25	100%	56%	44%	-	*0.000*
Access - How difficult is it/would it be to get all of these items?							
Very difficult	4	28	9%	62%	-53%	0.07	*0.000*
Not difficult at all	24	4	53%	9%	44%	7.43	*0.000*
Reminders - When you prepare meals for your baby, how difficult is it/would it be to remember to include foods from these food items?							
Very difficult	0	7	0%	16%	-16%	0.00	*0.006*
Somewhat difficult and very difficult	13	29	29%	64%	-36%	0.26	*0.001*
Not difficult at all	31	15	69%	33%	36%	3.79	*0.001*
Perceived Risk - How likely is it that your child will become sick/ malnourished in the coming year?							
Very likely	0	9	0%	20%	-20%	0.00	*0.001*
Somewhat likely and very likely	11	21	24%	47%	-22%	0.40	*0.023*
Not likely at all	22	7	49%	16%	33%	4.11	*0.001*
Perceived Severity - How serious would it be if your baby became sick/ malnourished?							
Very serious	6	17	13%	38%	-24%	0.28	*0.007*
Not serious at all	12	2	27%	4%	22%	5.09	*0.004*
Perceived Action Efficacy - How likely is it that your baby would become sick/ malnourished if you feed him/her ASF each day?							
Very likely	0	6	0%	13%	-13%	0.00	*0.013*
Somewhat likely and very likely	9	27	20%	60%	-40%	0.20	*0.000*
Not likely at all	30	6	67%	13%	53%	8.71	*0.000*
Universal Motivators - What do you desire most in life?							
Want a happy life	9	16	20%	36%	-16%	0.49	0.079

Annex C: Barrier Analysis Questionnaire for EBF and Feeding ASF

Group: ❑ Doer ❑ Non-Doer

Barrier Analysis Questionnaire
Exclusive Breastfeeding for Mothers of Children
3 – 10 months

Behavior Statement
Mothers of children ages 0 – 6 months feed them only breast milk.

Demographic Data
Interviewer's Name: _____Questionnaire No.: _____
Date: ____/____/____Para: _____ Union:_____ Ethnicity:_____

Scripted Introduction:
Hi, my name is_____; and I am part of a study team looking into infant feeding practices. The study includes a discussion of this issue and will take about 20 minutes. I would like to hear your views on this topic. You are not obliged to participate in the study and no services will be withheld if you decide not to. Likewise, if you choose to be interviewed, you will not receive any gifts, special services or remuneration. Everything we discuss will be held in strict confidence and will not be shared with anyone else.
Would you like to participate in the study? [If yes, please sign below. If not, thank them for their time.]

Interviewer's Name: **Interviewee or Witness Name:**

Signature and date: **Signature and date:**

Section A - Doer/Non-doer Screening Questions

1. How old is your youngest child? (write the age in months) _____
- ❑ A. 3-10 months
- ❑ B. 0-3 month →*end the interview and look for another respondent*
- ❑ C. 11 months or older →*end the interview and look for another respondent*
- ❑ D. Don't Know / won't say →*End interview and look for another respondent*

2. Have you ever breastfed this child?
- ❑ A. yes
- ❑ B. No →*End the interview and look for another respondent*
- ❑C. Do not remember / no response →*End interview and look for another respondent*

3. Now I would like you to remember back when your baby was very young – even when s/he was a newborn. Please tell me how old the baby was when you first gave him/her any liquids other than breast milk – like water, juice, cow's milk or goat's milk.
- ❑ A. 6 months or older
- ❑ B. 0-6 months →*Mark as Non-doer*

❑ C. Do not remember / no response →*End interview and look for another respondent*

4. Please tell me how old the baby was when you first gave him/her semi solid foods – like soup, porridge …….
   ❑ A. 6 months or older
   ❑ B. 0-6 months →*Mark as Non-doer*
   ❑ C. Do not remember / no response →*End interview and look for another respondent*

DOER /NON-DOER CLASSIFICATION TABLE

DOER (all of the following)	**Non-Doer** (any of the following)	**Do Not Interview** (any of the following)
Question 1 = A		Question 1 = B or C or D
Question 2 = A		Question 2 = B or C
Question 3 = A	Question 3 = B	Question 3 = C
Question 4 = A	Question 4 =B	Question = C

Group: ❑ Doer ❑ Non-doer

Section B – Research Questions

1a. ***Doers***: What makes it ***easy*** for you to give only breast milk to your baby for the first 6 months? Why?
1b. ***Non-doers***: What would make it ***easier*** for you to give only breast milk to your baby for the first 6 months? Why?
(Write all responses below. Probe with "What else?")

2a. ***Doers***: What makes it ***difficult*** for you to give only breast milk to your baby for the first 6 months? Why?
2b. ***Non-doers***: What would make it ***difficult*** for you to give only breast milk to your baby for the first 6 months? Why?
(Write all responses below. Probe with, "What else?")

3a. ***Doers:*** What are the ***advantages*** of only giving breast milk to your baby for the first 6 months? Why?
3b. ***Non-doers:*** What would be the ***advantages*** of only giving breast milk to your baby for the first 6 months? Why?
(Write all responses below. Probe with, "What else?")

4a. ***Doers:*** What are the ***disadvantages*** of only giving breast milk to your baby for the first 6 months? Why?
4b. ***Non-doers:*** What would be the ***disadvantages*** of only giving breast milk to your baby for the first 6 months? Why?
(Write all responses below. Probe with "What else?")

5a. ***Doers:*** Who are all the people that ***approve*** of you only giving breast milk to your baby for the first 6 months? Why do they approve?

5b. ***Non-doers:*** Who are all the people that ***would approve*** of you only giving breast milk to your baby for the first 6 months? Why would they approve?
(Write all responses below. Probe with "Who else?" Try to get specific types of people)

6a. ***Doers:*** Who are all the people that ***disapprove*** of you only giving breast milk to your baby for the first 6 months? Why do they disapprove?
6b. ***Non-doers:*** Who are all the people that ***would disapprove*** of you only giving breast milk to your baby for the first 6 months? Why would they disapprove?
(Write all responses below. Probe with "Who else?" Try to get specific types of people)

7a. ***Doers:*** How difficult is it to get the support you need to give only breast milk to your baby for the first 6 months?
7b. ***Non-doers:*** How difficult would it be to get the support you need to give only breast milk to your baby for the first 6 months?
- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all

8a. ***Doers:*** How difficult is it to remember to give only breast milk to your baby for the first 6 months?
8b. ***Non-doers:*** How difficult would it be to give only breast milk to your baby for the first 6 months? Very difficult, somewhat difficult, or not difficult at all?
- ❑ a. Very difficult
- ❑ b. Somewhat difficult
- ❑ c. Not difficult at all.

9. ***Doers and Non-doers*****:** How likely is it that your baby will become malnourished? Very likely, somewhat likely, or not likely at all
- ❑ a. Very likely
- ❑ b. Somewhat likely
- ❑ c. Not likely at all.

10. ***Doers and Non-doers*****:** How likely is it that your baby will get diarrhea? Very likely, somewhat likely, or not likely at all
- ❑ a. Very likely
- ❑ b. Somewhat likely
- ❑ c. Not likely at all.

11. ***Doers and Non-doers*****:** How serious would it be if your baby becomes malnourished? very serious, somewhat serious, or not serious at all?
- ❑ a. Very serious
- ❑ b. Somewhat serious
- ❑ c. Not serious at all

12. ***Doers and Non-doers*****:** How serious would it be if your baby gets diarrhea? very serious, somewhat serious, or not serious at all?

- ❑ a. Very serious
- ❑ b. Somewhat serious
- ❑ c. Not serious at all

13. ***Doers and Non-doers*****:** How likely is it that your baby will become malnourished if you only breast feed for the first 6 months? Very likely, somewhat likely, or not likely at all
- ❑ a. Very likely
- ❑ b. Somewhat likely
- ❑ c. Not likely at all.

14. ***Doers and Non-doers*****:** How likely is it that your baby will get diarrhea if you only breast feed for the first 6 months? Very likely, somewhat likely, or not likely at all
- ❑ a. Very likely
- ❑ b. Somewhat likely
- ❑ c. Not likely at all.
- ❑ d. Don't Know / Won't say

15. ***Doers and Non-doers:*** Do you think that God causes malnutrition?
- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

16. ***Doers and Non-doers:*** Do you think that God causes diarrhea?
- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

17. ***Doers and Non-doers*****:** Are there any cultural rules or taboos against only breastfeeding your baby for 6 months?
- ❑ a. Yes
- ❑ b. Maybe
- ❑ c. No

THANK THE RESPONDENT FOR HER TIME!

Group: ❑ Doer ❑ Non-doer

Barrier Analysis Questionnaire:
Complementary Feeding
For Mothers of Children 6 – 24 months

Behavior Statement
Mothers of children ages 6 – 24 (full) months feed their children animal source food each day during meals.

Demographic Data
Interviewer's Name: _____ Questionnaire No.: _____Date: ____/____/_____ Para: _____Union: _____Ethnicity:_____

Scripted Introduction:
Hi, my name is_____; and I am part of a study team looking into child feeding practices. Before I continue I would like to know the age of your youngest child. (*If the child is not in the desired age range (see question 1), thank the mother and look for another respondent.)* The study includes a discussion of feeding practices and will take about 15 - 20 minutes. I would like to hear your views on this topic. You are not obliged to participate in the study and no services will be withheld if you decide not to. Also, if you decide to participate you won't receive any compensation, gifts or services. Everything we discuss will be held in strict confidence and will not be shared with anyone else.
Would you like to participate in the study? [If yes, please sign below. If not, thank them for their time.]
Interviewer Name: **Interviewee or Witness Name:**
Signature and date: **Signature and date:**

Section A - Doer/Non-doer Screening Questions

1. How old is your youngest child?_____(← write the age in months here)
- ❑a. 6 months - 24 months
- ❑b. 5 months or younger→*End interview and look for another mother*
- ❑c. Older than 24 months → End interview and look for another mother
- ❑d. Don't Know / Won't say→ *End interview and look for another mother*

2. I would like to you think about all the food items you fed your baby in the last 2 days. What type of foods did you feed your baby <u>something other than breast milk</u>? *(This question is just to help the mother to remember what the baby ate.)*
   - ❑a. _____ (foods name)
   - ❑b. Do not know / no response →*End interview and look for another respondent*

3. Please tell me all the different foods you remember feeding to your baby in the last two days. (*If the mother mentions a dish that has several ingredients, ask her to list them all. Check all the boxes of foods the mother mentions*.)
   - ❑ a. Do not know / no response →*End interview and look for another respondent*
   - ❑b. <u>Dairy products</u>: [milk, yogurt or milk made any product]

❑c. Flesh foods: [frog, small fish, large fish, crab, dry fish, Nappi, chicken, liver, pork, beef, snail, squirrel] [list would vary according to the community]

❑d. Eggs

❑e. others [anything related to animal source, according to the community]

DOER /NON-DOER CLASSIFICATION TABLE

DOER (all of the following)	**Non-Doer** (any ONE of the following)	**Do Not Interview** (any ONE of the following)
Question 1 = A		Question 1 = B or C or D
Question 3 = **two** or more boxes checked from C through d	Question 3 = one **or none** boxes checked from C through E	Question 3 = A

Group: ❑ Doer ❑ Non-doer

Behavior Explanation

(Show the mother the photo/picture of the different food items of animal source foods and place it where she can see it during the entire interview. Briefly explain the picture and make sure she understands the idea of animal source foods. She doesn't need to know the names of the groups or their nutritional value, but she does need to recognize the foods in the picture.*)*

In the following questions I am going to be talking about different food items. When I mention the "animal source foods", I am talking about foods in these items [Point to the picture of the different food items and keep the picture in view throughout the interview.]

Section B – Research Questions

(Perceived Positive Consequences)

1a. ***Doers:*** What are the **advantages** of feeding your baby from these (animal source) food items each day? Why?

1b. ***Non-doers:*** What would be the **advantages** of feeding your baby from these (animal source) food items each day? Why?

(Write all responses below. Probe with "What else?")

(Perceived Negative Consequences)

2a. ***Doers:*** What are the **disadvantages** of feeding your baby from these (animal source) food items each day? Why?

2b. ***Non-doers:*** What would be the **disadvantages** of feeding your baby from these (animal source) food items each day? Why?

(Write all responses below. Probe with "What else?")

(Perceived Self-efficacy)

3a. ***Doers:*** What makes it **easy** for you to feed your baby from these (animal source) food items each day? Why?

3b. ***Non-doers:*** What would make it ***easy*** for you to feed your baby from these (animal source) each day? Why?

(Write all responses below. Probe with "What else?")

(Perceived Self-efficacy)

4a. ***Doers:*** What makes it ***difficult*** for you to feed your baby from these food items (animal source) each day? Why?

4b. ***Non-doers:*** What would make it ***difficult*** for you to feed your baby from these food items (animal source) each day? Why?

(Write all responses below. Probe with "What else?")

(Perceived Social Norms)

5a. ***Doers:*** Who are the people that ***approve*** of you feeding your baby from these food items (animal source) each day? Why do they approve?

5b. ***Non-doers:*** Who are the people that ***would approve*** of you feeding your baby from these food items (animal source) each day? Why would they approve?

(Write all responses below. Probe with "Who else?")

(Perceived Social Norms)

6a. ***Doers:*** Who are the people that ***disapprove*** of you feeding your baby from these food items (animal source) each day? Why do they disapprove?

6b. ***Non-doers:*** Who are the people that **would disapprove** of you feeding your baby from these food items (animal source) each day? Why would they disapprove?

(Write all responses below. Probe with "Who else?")

(Perceived Access)

7a. ***Doers:*** How difficult is it to get all of these items? Would you say it is Very difficult, somewhat difficult or not difficult at all?

- ❑ a. *Very difficult*
- ❑ b. *Somewhat difficult*
- ❑ c. *Not difficult at all*

7b. ***Non-doers:*** How difficult would it be to get all of these items? Would you say it is Very difficult, somewhat difficult or not difficult at all?

- ❑ a. *Very difficult*
- ❑ b. *Somewhat difficult*
- ❑ c. *Not difficult at all*

(Perceived Cues for Action / Reminders)

8a. ***Doers:*** When you prepare meals for your baby, how difficult is it to **remember** to include foods from these food items?

- ❑ a. *Very difficult*
- ❑ b. *Somewhat difficult*
- ❑ c. *Not difficult at all*

8b. ***Non-doers:*** When you prepare meals for your baby, how difficult do you think it **would be to remember** to include foods from these food items? *Very difficult, somewhat difficult, or not difficult at all?*

- ❑ a. *Very difficult*
- ❑ b. *Somewhat difficult*

❑ c. *Not difficult at all*
❑ d. *Don't Know / Won't say*

(Perceived Susceptibility / Perceived Risk)

9. ***Doers and Non-doers*****:** How likely is it that your child will become sick/ malnourished in the coming year? Very likely, somewhat likely, or not likely at all?
❑ a. *Very likely*
❑ b. *Somewhat likely*
❑ c. *Not likely at all*

(Perceived Severity)

10. ***Doers and Non-doers*****:** How serious would it be if your baby became sick/ malnourished? A very serious problem, somewhat serious problem, or not serious at all?
❑ a. *Very serious problem*
❑ b. *Somewhat serious problem*
❑ c. *Not serious at all*

(Action Efficacy)

11. ***Doers and Non-doers*****:** How likely is it that your baby would become sick/ malnourished if you feed him/her foods from these food items (animal source) each day? Very likely, somewhat likely, not very likely?
❑ a. *Very likely*
❑ b. *Somewhat likely*
❑ c. *Not likely at all*

(Perception of Divine Will)

12a. ***Doers and Non-doers:*** Do you think that God causes children to become malnourished?
❑ a. Yes
❑ b. Maybe
❑ c. No

(Culture)

13. ***Doers*** **and Non-doers:** Are there any cultural rules or taboos that you know of against feeding your baby from these food items each day?
❑ a. Yes
❑ b. Maybe
❑ c. No

Now I'm going to ask you a question unrelated to nutrition

(Universal Motivator)

14. ***Doers*** **and Non-doers:**
What is the <u>one</u> thing that you desire most in life?

THANK THE RESPONDENT FOR HIS OR HER TIME!