USAID
FROM THE AMERICAN PEOPLE

fhi360
THE SCIENCE OF IMPROVING LIVES

Agricultural/Livelihood Mixed Methods Study: Baseline Evaluation

USAID's Strengthening Multisectoral Nutrition Programming through Implementation Science Activity

APRIL 2019

This report was prepared by Karen Katz, Patrick Olsen Taufique Joarder and Theresa Hoke

In collaboration with

care

PHD Partners in Health and Development

SMC Helping you live better

airn খুচরা কৃষি উপকরণ বিক্রেতাদের নেটওয়ার্ক

LifeChord health • wellbeing • connected

Acknowledgment

We would like to thank Mario Chen for his contributions to the study design and sample selection. Thanks also to Ayan Shankar Seal for technically reviewing the intervention description and to Jill Peterson and Tori LeBrun for text and data verification. The authors are grateful to the Ministry of Health and Family Welfare, Government of Bangladesh, for providing an initial list of survey respondents who potentially met the eligibility criteria, and to CARE International, a project partner, for supporting collection of the list. Special thanks go to Innovision for conducting the household listing and survey. Finally, the authors would like to thank the survey participants for their participation in our efforts to improve the nutritional status of women and children in Bangladesh. Finally, we are indebted to Jennifer Crum for her technical contributions and unfailing support to this study.

This study is made possible by the generous support of the American people through the U.S. Agency for International Development (USAID). The contents are the responsibility of FHI 360 and do not necessarily reflect the views of USAID or the United States Government. Financial assistance was provided by USAID under the terms of Cooperative Agreement No. AID-388-A-17-00004.

USAID's Strengthening Multisectoral Nutrition Programming through Implementation Science Activity is an implementation science project to test and refine multisectoral nutrition approaches in high stunting areas in Bangladesh, aiming to improve nutrition outcomes among pregnant and lactating women and children under 2 years of age. For additional information about the project contact: Jennifer Crum, Chief of Party, FHI 360 Bangladesh country office; email: jcrum@fhi360.org.

Authors:

Karen Katz, Deputy Director, Health Services Research, Program Sciences and Technical Support, Global Health, Population and Nutrition, FHI 360
Patrick Olsen, Research Associate, Health Services Research, Program Sciences and Technical Support, Global Health, Population and Nutrition, FHI 360
Taufique Joarder, Research Director, USAID's Strengthening Multisectoral Nutrition Programming through Implementation Science Activity, FHI 360
Theresa Hoke, Director, Health Services Research, Program Sciences and Technical Support, Global Health, Population and Nutrition, FHI 360

Suggested citation: Katz K, Olsen P, Joarder T and Hoke T. *Agricultural/Livelihood Mixed Methods Study: Baseline Evaluation*. Durham, North Carolina, USA and Dhaka, Bangladesh: FHI 360; 2019.

Table of Contents

List of Tables in the Report Body

List of Figures in the Report Body

List of Tables in the Annex

ABBREVIATIONS AND ACRONYMS

AIN	Aquaculture for Income and Nutrition
AIRN	Agro-Input Retailers' Network
ANC	antenatal care
BDHS	Bangladesh Demographic and Health Survey
BDT	Bangladeshi taka
CRCT	cluster randomized controlled trial
FANTA	Food and Nutrition Technical Assistance III
FAO	Food and Agriculture Organization
GoB	Government of Bangladesh
HFP	homestead food production
HH	household
HKI	Helen Keller International
IFA	iron and folic acid
IYCF	infant and young child feeding
KAP	knowledge, attitudes and practices
MAD	minimum acceptable diet
MDD	minimum dietary diversity
MMF	minimum meal frequency
MoHFW	Ministry of Health and Family Welfare
NGO	nongovernmental organization
NIPORT	National Institute of Population Research and Training
NPAN-2	Second National Plan of Action for Nutrition 2016–2025
ORS	oral rehydration solution
PLW	pregnant and lactating women
PNC	postnatal care
SBCC	social and behavior change communication
SPRING	Strengthening Partnerships, Results, and Innovations in Nutrition Globally
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
WASH	water, sanitation and hygiene
WHO	World Health Organization

EXECUTIVE SUMMARY

Background

The Government of Bangladesh (GoB) is committed to improving nutrition and eliminating malnutrition, with a specific focus on children, adolescent girls and pregnant and lactating mothers. While there have been positive trends in stunting and underweight since 2004, the decline rate of undernutrition has slowed. Gaps between urban and rural areas as well as between those in the highest and lowest wealth quintiles persist. Through USAID's Strengthening Multisectoral Nutrition Programming through Implementation Science Activity (the Project), FHI 360 is testing multisectoral nutrition intervention packages delivered through a coordinated approach with GoB, nongovernmental organizations (NGOs) and the private sector to improve the nutritional status of pregnant and lactating women (PLW) and children under 2 years of age.

One of the multisectoral packages includes conditional cash transfers for social protection. A cluster randomized controlled trial (CRCT) was designed to assess the effectiveness of two different interventions, packaged with nutrition-related service strengthening interventions, compared to the current standard of practice. Effectiveness will be measured in terms of the study's primary outcome: the percentage of children aged 6–23 months receiving a minimum acceptable diet (MAD), defined by the World Health Organization (WHO) as the proportion of children aged 6–23 months who receive both the minimum feeding frequency and minimum dietary diversity (MDD) for their age group and breastfeeding status (WHO, 2008). The intervention will be implemented in selected unions of Khulna and Barishal divisions. In 2018, a baseline survey was conducted to obtain information on indicators of interest prior to the initiation of intervention activities.

Goals and Objectives

The primary objective of this study is to compare the effectiveness of current standard practice with two multisectoral intervention packages focused on homestead food production (HFP):

- HFP supported by community farmers, social and behavior change communication (SBCC), strengthened health services and referrals to nutrition-related and other services
- HFP supported by retailers, SBCC, strengthened health services and referrals to nutrition-related and other services

The objective of the baseline survey is to provide reference measurements prior to the implementation of interventions. The key indicators of interest include MDD and minimum meal frequency (MMF), which will be used to calculate MAD, the study's primary outcome. Other areas of interest include (1) household (HH) food security, (2) mothers' knowledge, attitudes and practices (KAP) regarding young infant feeding, (3) knowledge and practices related to water, sanitation and hygiene (WASH), (4) gender norms and (5) use of health services including nutrition, maternal, newborn and child health services.

Method

This study uses a CRCT design. A total of 45 unions in Khulna and Barishal divisions of Bangladesh were randomly allocated to one of the three study arms: (1) private retailer-supported HFP, (2) community farmer-supported HFP or (3) no HFP intervention (comparison). Baseline outcome data were collected through face-to-face interviews using structured questionnaires with mothers and caregivers of children aged 6–23 months.

Thirty unions from Chuadanga and Jhenaidah districts from Khulna division and 15 unions from Perojpur district from Barishal division were selected for inclusion in the study. Innovision Consulting led the collection of data. The data collection teams began listing and verifying the eligibility criteria of HHs in the selected unions on August 29, 2018. A total of 26,057 HHs were listed. From this list, approximately 100 poor or extreme-poor mothers and caregivers from each union were randomly selected to participate in the HH surveys conducted from September 6 to December 1, 2018. A total of 4,067 mothers and caregivers of children aged 6–23 months participated in the survey interviews. Ethical approval to proceed with data collection was obtained from the Protection of Human Subjects Committee at FHI 360 and the National Research Ethics Committee of the Bangladesh Medical Research Council.

Results

Highlights of the survey results are presented below.

Sociodemographic and Household Characteristics

- The majority of women interviewed were mothers of children aged 6–23 months; only 1 percent were caregivers.
- Most women were married, and about two-thirds attended secondary school or college.
- Nearly all HHs surveyed obtain drinking water from an improved water source, usually a tube well or borehole; only 3 percent of HHs in both divisions treat their water before drinking.
- The majority of HHs (85 percent in Khulna and 78 percent in Barishal) have improved toilet facilities, most often a pit latrine with a slab.
- HH food security was measured using the Household Hunger Scale. In Khulna, 95 percent of HHs were classified as having little to no hunger, 5 percent as moderate hunger and 0.3 percent as severe hunger. In Barishal, the percentages were 90, 10 and 0.2 percent respectively.

Antenatal Care and Delivery

- Most mothers received antenatal care (ANC) (91 percent of mothers in Khulna, with an average of 4.2 ANC visits, and 83 percent in Barishal, with an average of 3.5 visits) during their last pregnancy. In both divisions, most mothers saw a qualified doctor, and two-thirds had the first ANC visit during their second trimester.
- Most mothers (85 percent) reported receiving a tetanus injection either during the current pregnancy or a previous one to prevent their baby from contracting neonatal tetanus. Nearly two-thirds bought or were given iron and folic acid (IFA) supplements during their last pregnancy.
- The majority of mothers had someone assisting them during the delivery of their last pregnancy. More mothers in Barishal reported delivering at home compared to mothers in Khulna.

Maternal Minimum Dietary Diversity

- Mothers' MDD was measured using the Minimum Dietary Diversity for Women scale. MDD was calculated based on the foods they consumed from 10 food groups in the day prior to the survey. Overall, 44 percent of Khulna mothers and 36 percent of Barishal mothers were considered to have a diverse diet.

Mothers' Knowledge, Attitudes and Practices About Maternal Nutrition, Infant and Young Child Feeding, Complementary Feeding, Supplements, Diarrhea and Health Services

- Half of the mothers in both divisions reported eating the same as usual during their last pregnancy. In Khulna, 25 percent of mothers ate more than usual, compared to 11 percent in Barishal. The same pattern was seen for rest: half of the mothers got the same amount of rest, while a higher percentage of mothers in Khulna reported resting more compared to those in Barishal.
- Mothers were asked seven questions to measure their knowledge of infant and young child feeding (IYCF) practices. On average, mothers in Khulna answered 3.15 correctly, while mothers in Barishal answered 2.97 correctly. Most knew that babies should be given the colostrum and be exclusively breastfed until 6 months of age. There were gaps in knowledge about the introduction of liquids before 6 months, the introduction timing of solid, semi-solid and soft foods, and breastfeeding within the first hour after birth.
- More than a third of mothers (38 percent in Khulna and 44 percent in Barishal) believed that water can be given to babies under 6 months of age. There were also misconceptions regarding when it is acceptable to introduce snack foods, with more than half of the mothers believing they can give these foods to babies between 6 and 12 months.
- While 60 percent of mothers knew at least one effect of iron deficiency, only a few knew it can lead to cognitive delays or anemia. Only 37 percent of mothers knew that salt is a source of iodine.
- Most mothers knew that babies should receive oral rehydration solution (ORS) if they have diarrhea, and over 90 percent could report at least one recommended treatment for diarrhea.
- Only 1 percent of mothers reported that their child had not been breastfed. About one-third of the babies were put to the breast within one hour of birth, and nearly 90 percent within the first 24 hours. One-fourth of babies in Barishal and over one-third in Khulna were fed something besides breast milk in the first three days after delivery, usually formula, milk from an animal or water.
- Over 95 percent of mothers reported that they were still breastfeeding their baby and had done so the day before the survey. On average, mothers reported their child ate solid, semi-solid or soft foods 3.06 times the day before the survey.
- Over 90 percent of mothers took their child to a health facility in the past six months (on average, 5.2 times in Khulna and 4.5 times in Barishal), mainly for coughing and trouble breathing and fever. About half of the mothers visit "unqualified" doctors when they need health care.

Infant and Young Child Feeding Indicators

- Over 90 percent of mothers in both divisions reported that they had breastfed their baby, continued breastfeeding during the first and second year and practiced age-appropriate breastfeeding. Only one-third reported initiating breastfeeding early and introducing solid, semi-solid or soft food at 6 months. Favorable practices were slightly more common among Khulna mothers compared to those in Barishal.
- In Khulna, 35 percent of mothers achieved MDD, and 70 percent achieved MMF, while 28 percent were considered to have a MAD. In Barishal, these percentages were 26, 62 percent and 19 respectively.

Household Decision-Making

- Only 39 percent of mothers can make decisions alone or jointly with their husband regarding their own health care, while just over half can make these decisions regarding the health care of their child. Mothers have the most decision-making authority on the foods to be cooked each day, with 73 percent reporting that they can make this decision alone or jointly with their husband.
- In terms of division of roles and responsibilities, over 90 percent of women are always or usually responsible for washing clothes, cleaning the house and preparing food. Only 10 percent are responsible for buying food. Over 90 percent reported being either very satisfied or somewhat satisfied with the division of responsibilities in their HH.
- Women's empowerment was explored through mothers' participation in HH decision-making on the generation and use of income, specifically with regard to the following activities: food crop farming, cash crop farming, livestock raising, wage or salary employment and fishing. Approximately two-thirds of women in both divisions felt that, if they wanted, they had input into or could make decisions regarding the production of at least two of the activities listed. Fewer felt they had input into the use of income generated from these activities, with 53 percent of mothers in Barishal and 58 percent in Khulna reporting that they had input into decisions regarding the use of income for at least one activity.

Next Steps

The results highlight gaps that can be addressed through the Project to improve health and nutrition outcomes of children under 2 years of age.

The study intervention activities will start in May 2019 and continue for two years. Activities in the intervention study arms will provide SBCC, strengthened health services and increased access to diverse food sources that could impact the MAD outcome and lead to improved maternal and infant nutritional status. An endline survey will be conducted towards the end of the intervention period to measure the impact of the study interventions. A process evaluation and cost-effectiveness analysis will occur between the surveys to help explain endline findings and explore the activity's implementation, feasibility, acceptability and cost, as well as offering recommendations for future scalable implementation.

Background

Undernutrition among children contributes significantly to global mortality and accounts for nearly half of deaths of children under 5 years of age (United Nations Children's Fund (UNICEF), WHO and the World Bank Group, 2018). The first 1,000 days (from pregnancy to a child's second birthday) are particularly crucial for establishing good nutrition and ensuring positive health outcomes throughout life. Poor fetal growth and chronic malnutrition lead to stunting in adulthood, lower attained education levels, decreased productivity, lower income in adulthood and decreased birthweight of future offspring for women (Black et al., 2013). Micronutrients (essential nutrients such as vitamin A, iron, iodine, zinc and folate) are necessary for fetal growth and development; deficiencies can lead to anemia, impaired cognitive development, poor immune function, blindness and impaired growth (Flour Fortification Initiative et al., 2009). Chronic malnutrition has been linked to poor immune function and increased risk of infectious diseases, including diarrheal disease and respiratory infections (Black et al., 2008; Save the Children, 2012; UNICEF, 2013).

According to the 2017 Joint Child Malnutrition Estimates, 155 million of children under 5 years of age had stunted growth, with South Asia and sub-Saharan Africa accounting for the majority of cases (UNICEF, WHO and the World Bank Group, 2017). While nearly one-fourth of the world's children are stunted, the global stunting prevalence declined from 32.7 percent in 2000 to 22.9 percent in 2016. The drivers of undernutrition are numerous and complex and include environmental, economic and socio-political factors (Black et al., 2008); effective strategies to address undernutrition therefore require comprehensive efforts that engage multiple sectors, including health, agriculture, WASH, social welfare, gender, education, labor and finance (Black et al., 2013; Food and Nutrition Technical Assistance III (FANTA) Project, 2017). For example, access to safe drinking (WASH sector) can help prevent diarrheal disease, leading to positive changes in nutrition status (WHO, UNICEF and U.S. Agency for International Development (USAID), 2015). On the other hand, gender inequality can contribute to inadequate nutrition among women and children when women are not empowered to make decisions on food and resource distribution within their HHs. In Bangladesh, male engagement in nutrition had a positive effect on improving dietary diversity and IYCF practices (FHI 360, 2016).

The GoB has made high-level commitments to nutrition with the endorsement of the World Health Assembly targets, the adoption of the National Nutrition Policy and participation in the international Scaling Up Nutrition Movement. According to the 2014 Bangladesh Demographic and Health Survey (BDHS) (National Institute of Population Research and Training (NIPORT), Mitra and Associates and ICF International, 2016), 36 percent of children under 5 years of age were stunted, 14 percent were wasted, and 33 percent were underweight. These results reflected positive trends in underweight and stunting decline since 2004.

Despite Bangladesh having met GoB 2016 targets as defined in the Health Population and Nutrition Sector Development Program, gaps remain in key indicators between rural and urban areas and between those in the highest and lowest wealth quintiles. For instance, according to the 2014 BDHS, 38 percent of rural children under 5 were stunted, compared to 31 percent of urban children. The wealth discrepancies are even greater: 49 percent of children under 5 in the lowest wealth quintile were stunted, compared to 19 percent in the highest quintile.

In 2017, the GoB approved the Second National Plan of Action for Nutrition 2016–2025 (NPAN-2). The Plan aims to improve nutrition and eliminate malnutrition, with a focus on children, adolescent girls and PLW. Specific targets of NPAN-2 include reducing stunting to 25 percent, wasting to less than 8 percent

and underweight to less than 15 percent among children under 5 years of age (Ministry of Health and Family Welfare (MoHFW), 2017).

Despite the achievements between 2004 and 2016, the decline in rate of stunting in Bangladesh has slowed in recent years. To achieve the ambitious World Health Assembly targets for stunting reduction by 2025, to which Bangladesh has made a global commitment, the country needs to increase the annual reduction rate to 3.3 percent. This goal requires high-level political commitment, a strong policy framework, effective coordinating mechanisms, adequate resourcing, strong involvement of local civil society groups and high-impact, cost-effective, multisectoral nutrition interventions.

In 2017, FHI 360 was awarded USAID's Strengthening Multisectoral Nutrition Programming through Implementation Science Activity. The five-year Project will test and refine multisectoral nutrition approaches, interventions and service delivery mechanisms in high stunting areas of Bangladesh, with a focus on PLW and children under 2 years of age. The Project is currently conducting mixed methods research to assess the impact of different multisectoral nutrition intervention packages delivered through a coordinated approach by the GoB, NGOs and the private sector on improving nutrition outcomes known to contribute to the overall healthy nutritional status of children under 2 years of age. The Project will also assess the fidelity of implementation and evaluate the adequacy, acceptability, relevance, coverage and cost-effectiveness of the packages. In addition, the Project will strengthen capacity among GoB stakeholders to interpret and utilize its findings, as well as other high-quality evidence related to nutrition programming, to inform future multisectoral nutrition policymaking and planning. The Project is directly supporting NPAN-2 by working through established structures that have been tested and shown to facilitate multisectoral activity convergence at subnational levels.

One of the multisectoral packages to be studied focuses on integrated agricultural and livelihood activities, known as HFP. The Project team designed a CRCT to assess the effectiveness of two different HFP interventions compared to the current standard of practice. Effectiveness will be measured in terms of the study's primary outcome: the percentage of children aged 6–23 months receiving a MAD, defined by WHO as the proportion of children aged 6–23 months receiving both the minimum feeding frequency and MDD for their age group and breastfeeding status (WHO, 2008). MAD was chosen as the primary outcome because NPAN-2 lists it as a priority indicator for development, and studies have demonstrated that MAD is associated with child growth. This outcome will be assessed using mothers' and caregivers' reports on child feeding practices. This report describes the results of the baseline survey conducted prior to the implementation of the interventions.

Homestead Food Production

Positive correlations between HH production and consumption of nutritious food have been widely documented by development organizations in Bangladesh (Ahmed and Chowdhury, 2017). Helen Keller International (HKI) has been implementing HFP alongside nutrition education in Bangladesh for over two decades. The main objective of these programs is to increase and ensure year-round availability and intake of micronutrient-rich foods. Several evaluations of HKI's HFP programs have demonstrated improvements in HH production and consumption of nutritious foods (both vegetables and animal sources of protein), particularly by PLW and children (HKI, 2010). The consumption of animal-source foods has been associated with young child growth (Krebs et al., 2011; Mosites et al., 2017). While evidence of an association between HFP and child growth is mixed, HFP offers a method to enhance the availability and consumption of animal-source foods for children under 2 years of age. Further evidence on HFP implementation is needed to elucidate which factors have the potential to enhance success in improving nutrition outcomes.

In 2017, the Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING) project reported dramatic improvements in women's dietary diversity and increased IYCF knowledge among PLW in Bangladesh through the Farmers' Nutrition School approach to homestead production of vegetables, fish and poultry. SPRING also demonstrated a positive correlation between HFP and women's empowerment (SPRING, 2017). The Bangladesh/MDG Fund demonstrated an increase in the percentage of HH income from gardening and poultry using a coupled approach of home production and market linkages (Levinson and Hussain, 2013). The GoB NPAN-2 recommends homestead gardening, small-scale livestock and poultry rearing to increase the availability and consumption of diverse, safe and nutritious food (GoB, 2017).

In addition, the international nonprofit research organization WorldFish has produced evidence demonstrating the important contribution that farming and consuming fish can make to HH nutrition and livelihoods. Recently, WorldFish implemented the USAID-funded Aquaculture for Income and Nutrition (AIN) project in the southwest part of Bangladesh. The final AIN report demonstrated an increase in both HH and commercial-level production of fish among project beneficiaries. In 2016, fish consumption was higher in HHs receiving AIN technical support (19.5 kg/capita) compared to non-AIN HHs (16.8 kg/capita) (Keus et al., 2017). The International Food Policy Research Institute has also demonstrated the sizeable potential of pond-based small fish cultivation for reducing micronutrient malnutrition, particularly vitamin A deficiency, among children in Bangladesh.

Study Interventions

In light of existing evidence and to generate the additional evidence needed to strengthen programs and policies, this study will deliver a set of HFP interventions aimed at supporting HHs in producing nutritious foods. The study will test two alternative channels for delivering material and technical support: a private retailers' network and community farmers. The study areas will be randomly allocated to the three study arms (two intervention arms and one comparison) in a 1:1:1 ratio. Poor and extreme-poor pregnant women and mothers of children aged 2 months and younger (at the time of enrollment) in the study areas will be offered intervention components. Poor and extreme poor is defined as a HH monthly per capita expenditure of less than 2,056 Bangladeshi taka (BDT) in Barishal and BDT2,019 in Khulna.

The interventions are briefly described below. Figure 1 summarizes the intervention components by study arm.

Private Retailers' Network

The private retailers' network will be operated in partnership with the Agro-Input Retailers' Network (AIRN). The Project team will invite all eligible HHs assigned to the HFP retailers' intervention arm to be linked to the nearest AIRN retailers. Interested HHs will receive training on gardening of nutritious vegetables as well as a package of quality inputs, comprising seeds and fertilizers, once during the project period. In addition to vegetable gardening, AIRN retailers and their local networks will also support participating HHs to produce a protein source by raising either poultry or fish.

Community Farmers

Community farmers will be supported to produce HFP components (e.g., seeds for storage, seedlings and compost) and will receive technical support. Beneficiary HHs will be linked to community farmers to receive training and inputs (seeds, saplings and fertilizers) once during the project period. If interested, farmers will also be linked to their local GoB agricultural extension worker to establish model farms,

where various improved poultry rearing and fish farming technologies will be demonstrated.

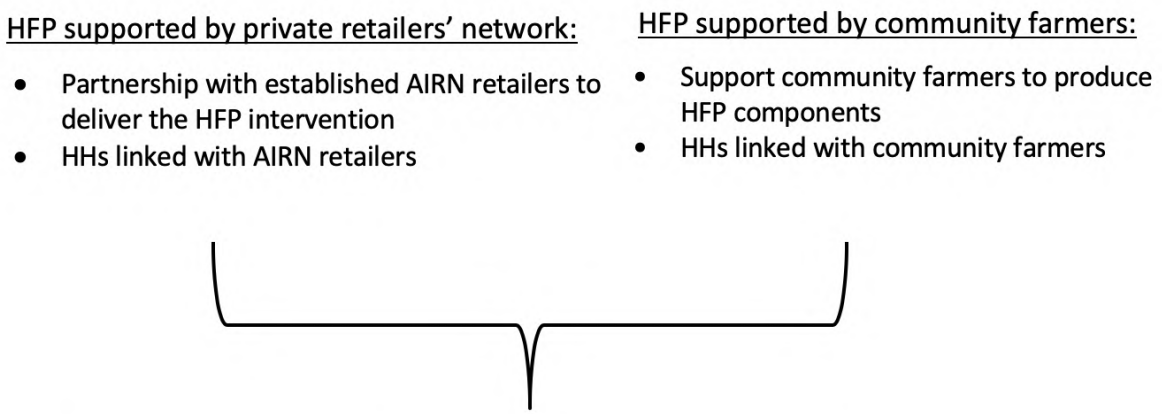
Social and Behavior Change Communication, Referrals and Improved Nutrition Service Quality

The package in both intervention arms will include identical components for SBCC, referrals to nutrition-related services and improved nutrition service quality. The primary targets for SBCC will be PLW (all pregnant women and mothers of children under 2 years of age) residing in the two intervention areas. Either the husband or mother-in-law will be a secondary target for SBCC. A mix of traditional and digital SBCC will be utilized, including weekly voice messages via mobile phone and the deployment of female Community Nutrition Promoters. The intervention will aim to increase health and nutrition service utilization by strengthening linkages between participants, community clinics and health clinic/facility services and by creating demand for quality nutrition-related services, including ANC, postnatal care (PNC), growth monitoring and promotion, nutrition commodities such as IFA and calcium supplements, childhood vaccinations and family planning.

Gender Sensitivity

Both HFP models will be implemented using a gender-sensitive lens. For instance, Community Nutrition Promoters will work with HHs to determine existing responsibilities and workloads of all HH members, including domestic chores. During these discussions, HH members will agree on individual responsibilities for HFP activities and on assuming responsibility for HH chores to allow PLW more time to engage in HFP and childcare.

Figure 1. Components of the intervention arms.



- Provide inputs and support to targeted HHs to produce nutritious foods from vegetable gardening, poultry rearing and fish culture
- Provide technical assistance on horticulture, poultry rearing and fish culture to all targeted HHs according to the intervention arm:
    - Provide training on gardening of nutritious vegetables and a package of quality inputs (seeds, saplings etc.)
    - Support the production of a protein source by raising either poultry or fish
- Support HHs to explore potential business opportunities with additional production and market linkages
- Convey SBCC message
- Referrals to health services
- Improving quality of health and nutrition services

OBJECTIVES AND OUTCOMES

The primary objective of this study is to compare the effectiveness of the current standard practice with two multisectoral intervention packages focused on HFP:

- HFP supported by community farmers, SBCC, strengthened health services and referrals to nutrition-related and other services
- HFP supported by retailers, SBCC, strengthened health services and referrals to nutrition-related and other services

The objective of the baseline survey is to provide reference measurements prior to the implementation of interventions. The key indicators of interest include MDD and MMF, which will be used to calculate MAD, the study's primary outcome. Other areas of interest include (1) HH food security, (2) mothers' KAP regarding young infant feeding, (3) knowledge and practices related to WASH, (4) gender norms and (5) use of health services including nutrition, maternal, newborn and child health services.

METHOD

Study Design

This study uses a CRCT design. A total of 45 unions in Khulna and Barishal divisions of Bangladesh were randomly allocated to one of the three study arms: (1) private retailer-supported HFP, (2) community farmer-supported HFP or (3) no HFP intervention (comparison).

Baseline outcome data were collected through face-to-face interviews using structured questionnaires with mothers and caregivers of children aged 6–23 months. Baseline data collection was conducted prior to initiation of intervention activities.

Process data will be collected upon initiation of the intervention, and endline data collection with a separate sample of mothers and caregivers will be conducted after two years. In addition, qualitative and cost data will be collected, and the results will be reported separately.

Target Populations and Sample Size

Bangladesh is divided into eight administrative divisions, 64 districts and 545 upazilas. Each division is divided into districts and each district into upazilas. The rural areas of upazilas are divided into unions. The areas of interest for this study are 45 unions selected from two divisions: Khulna and Barishal. These divisions were chosen because they are USAID's Feed the Future zones of influence in southern Bangladesh.

The target population for the study is poor and extreme poor mothers of children aged 6–23 months. Mothers have to be aged 18 years or older and come from HHs with a monthly per capita expenditure of less than BDT2,056 in Barishal and BDT2,019 in Khulna.

The target sample size was calculated to provide enough power for the evaluation study at endline. Face-to-face interviews will be conducted using structured questionnaires with independent samples of poor or extreme-poor mothers of children aged 6–23 months. Because the primary effectiveness outcome is MAD, measured in children aged 6–23 months, the sample size justification focuses on the number of mothers with children aged 6–23 months.

A sample of approximately 100 respondents per union on average, or 4,500 across the 45 unions, provides at least 80 percent power to detect a 10 percent difference (i.e., from 30 percent, based on adjusted 2014 BDHS estimates, to 40 percent for a superiority comparison (Menon et al. 2013; NIPORT, 2015)) in the primary outcome between the comparison arm and either of the intervention arms, with 5 percent significance level for a two-sided comparison and an intra-cluster correlation of 0.03. No adjustment for multiple comparisons has been included in the calculations. These calculations also account for up to 15 percent non-response rate (due to refusal or unavailability at the time of data collection).

Sampling Design and Recruitment

To select the unions for inclusion in this study, the team first selected three of the 13 districts in Khulna and Barishal. The purpose was to limit the zone of intervention to a manageable geographic area for implementation and oversight. There are nine districts under Khulna and four under Barishal (Feed the Future zones). The team selected two districts from Khulna and one from Barishal to achieve maximum representativeness of the population in the most efficient way possible based on the following criteria:

- Total number of unions in the district (scoring: 3 for districts with >60 unions, 2 for 30–60 unions, 1 for <30 unions)
- Total number of unions with >20,000 population (scoring: 3 for >40 such unions, 2 for 20–40 unions, 1 for <20 unions)
- Districts that are not prone to natural disasters (scoring: 3 for no history of natural disasters, 2 for some history of natural disasters, 1 for districts known for natural disasters)
- Virgin districts in terms of nutrition interventions (scoring: 3 for almost no ongoing nutritional interventions, 2 for some such interventions, 1 for many such interventions).

The team ranked the districts based on these criteria and selected those with the highest scores: Chuadanga and Jhenaidah districts from Khulna division and Perojpur district from Barishal division. There are 17 upazilas within these districts. To limit the number of intervention locations, the team selected nine upazilas (five from Khulna and four from Barishal) with the highest number of unions. A total of 30 unions were purposively selected from the upazilas under Khulna division and 15 unions from the upazilas under Barishal division, ensuring maximum possible geographical distance from one another (to avoid contamination) and larger population size (to minimize the chance of failing to find adequate samples).

Sampling

Prior to baseline survey data collection, the research team collected data to create the sampling frame of eligible respondents. CARE International, a project partner, obtained the initial list of HHs with children under 2 years of age from MoHFW. The research teams consulted with community members to ensure the accuracy and completeness of the list and included any additional HHs identified. There is a potential limitation in that some eligible HHs may be missing from the list depending on accuracy and whether lists are routinely updated. Further details about the HH listing procedure are described below under Field Implementation.

Once the listing was complete, the team entered the information collected into an electronic database for sample selection. Approximately 100 poor and extreme-poor mothers and caregivers from each union were randomly selected as respondents. Where there was more than one eligible child aged 6–23 months in a HH, one of the children was selected through random sampling, and the child's mother or caregiver was selected for the survey.

Data Collection Instruments and Other Measurements

The survey form was translated into Bangla, and all interviews were conducted in that language. The survey used at baseline included modules on the following domains:

- HH demographics and assets, including sociodemographic information on the child's mother and father, HH water and sanitation knowledge and practices, HH assets, food security and participation in social safety net programs.
- Maternal health, including ANC and PNC received, use of other health services such as child health and nutrition services, immunizations and IFA supplements, and mothers' MDD.
- Mothers' KAP regarding IYCF, with a focus on the child aged 6–23 months, including breastfeeding, complementary feeding and awareness, and trial and adoption of key IYCF practices.
- Gender norms, including roles in HH decision-making, HH roles and women's empowerment.

Field Preparation

Study approvals

This study was approved by the Protection of Human Subjects Committee at FHI 360 and the National Research Ethics Committee of the Bangladesh Medical Research Council. In addition, permission was sought from local government officials at the upazila and union levels to conduct the HH listing activity and survey the mothers.

Data Collector Training

Innovision Consulting led the data collection with 217 enumerators and 25 supervisors. The team was split into two groups: 153 enumerators responsible for the listing of HHs with mothers who had children aged 6–23 months and 64 enumerators trained to conduct the survey.

The survey team attended an initial training in Dhaka on August 13–17, 2018. The training included (1) research ethics, with an emphasis on safeguarding confidentiality and privacy, (2) information about the project and study objectives, (3) a detailed explanation of each question on the survey form, (4) instructions on how to use the tablets to complete the surveys and (5) interview techniques. In addition, mock interviews and a pretest were conducted. The pretest took place in Manikganji district, and changes to the survey form were made accordingly. Data collectors responsible for conducting the survey received additional training on September 4–5, 2018. The enumerators responsible for the HH listing attended one of the two regional training sessions that took place in Jhenaidah (on August 27) and Barishal (on August 30). These sessions included research ethics but focused on the HH listing questionnaire rather than the mothers' survey. All data collectors were required to pass an examination in research ethics in order to participate in data collection activities.

Field implementation

The baseline study was conducted in two stages. In the first stage, Innovision Consulting conducted a listing of eligible HHs using the initial list obtained from MoHFW as a starting point. The data collection teams visited HHs on the list to assess eligibility. Data collectors asked to speak to the head of the HH or, if unavailable, some other adult knowledgeable of the HH expenditures. After administering informed consent, the data collectors completed the HH listing form to record first name, age and sex of each HH member as well as the estimated average monthly HH expenditures on food and non-food items.

The team identified poor and extreme-poor HHs using measures derived from the Bangladesh Household Income and Expenditure Survey (Bangladesh Bureau of Statistics, 2017), which estimates HH poverty based on monthly per capita expenditure on food and non-food items. The information collected was also used to establish whether there was a child in the eligible age range in the HH. To help with data quality, the enumerators marked in chalk with "#" all HHs visited. If the visited HH had an eligible mother, it was marked with "##."

Among eligible HHs, unique HH IDs were assigned during the listing procedure, and entered into a database of possible study participants. The listing procedures started on August 29, 2018, and a total of 26,123 HHs were listed (see table 1). During the listing, the team found that the demarcation areas of some villages had changed; these changes were noted. To select the sample included in the interview, approximately 100 poor or extreme-poor mothers and caregivers from each union were randomly selected without replacement from the electronic database derived during the listing process. If more than one eligible child 6-23 months of age was found in a HH, one eligible child was randomly selected through random sampling. Field teams were provided a separate list of selected HHs for each of the 45 unions. To guide the interview process and ensure the correct HH was being interviewed, lists of selected HHs included information collected during the listing process, including HH address and/or identifiers, mother's name and age, and child sex and age.

Table 1. Households listed and surveys conducted, by district.

District	Total HHs listed	Did not consent to listing	HHs without mothers	Target sample size for mothers' survey	Mothers' surveys conducted
Chuadanga	3,354	4	9	600	564
Jhenaidah	13,675	85	71	2,400	2,190
Perojpur	9,094	3	16	1,500	1,313
Total	**26,123**	**92**	**96**	**4,500**	**4,067**

Once the sample was chosen, the team conducted HH surveys from September 6 to December 1, 2018. Three attempts were made to complete the interview of each mother or caregiver that had been randomly selected. If the interview was not completed after three attempts, the participant was marked as not found. Other reasons for not completing an interview were also documented (e.g., refusal, error in the sampling frame etc.). In addition, the team faced a number of challenges during data collection, including errors on the HH list (e.g., the inclusion of HHs that did not have children aged 6–23 months), families that had moved out of the union, unwillingness to provide information and difficulty identifying the correct HH based on the names of the mother and father. However, the sample size had been adjusted to account for up to 15 percent of non-response rate, so no replacement HHs were selected. The rate of non-response was monitored periodically to check if it was higher than 15 percent in some unions.

Surveys were conducted with a total of 4,067 mothers and caregivers of children aged 6–23—433 fewer participants than the targeted sample size (table 1). The average non-response rate per union was 9.6 percent (n=433). A number of quality control procedures were implemented during data collection to ensure the highest quality of data, including field team monitoring, daily team discussions, daily data checks and verification of selected variables for randomly selected HHs.

Electronic Data Collection and Data Quality

Quantitative data were collected electronically on password-protected tablets using SurveyCTO. Network permitting, the data were uploaded daily to the SurveyCTO web-based server. The data remained on the tablets until the collection was complete and all data were successfully uploaded onto the server. Data validation processes were carried out throughout the study, starting at the time of data entry. The electronic form was programmed to include predefined acceptable ranges for responses, conditionality rules for skip patterns and other logical applications to ensure that data were properly and accurately collected.

All variables used in the analysis and to construct derived variables were checked for completeness and consistency. Additionally, all variables were investigated for data entry errors and corrected where possible or set to missing. Data issues not resolved were not addressed analytically. No imputation of missing data was performed, but missing data patterns (e.g., percent missing per variable) were analyzed.

DATA ANALYSIS

Analysis of the baseline data was conducted using Stata version 15. Descriptive analysis was employed to produce simple summaries about the sample and measures. For the baseline report, the results are stratified by division. This will provide useful information for programmers and policy/decision-makers who work in these divisions. Summary statistics included mean and standard deviation for continuous variables, median and inter-quartile range for discrete variables, and frequencies and percents for categorical variables. For means, minimum and maximum values were also reported.

IYCF practices include the primary outcome measure (MAD) as well as other key IYCF indicators created as per WHO indicator guidelines on IYCF practices, including the handling of missing values (WHO, 2008). Missing data on breastfeeding was treated as “not currently breastfeeding” in the numerator and included in the denominator. Missing and “don’t know” data on foods and liquids given were treated as “not given” in the numerator and included in the denominator.

RESULTS

The results illustrated in this section include (1) mothers’ sociodemographic characteristics and the HH characteristics that can affect maternal and infant health, such as sources of water and sanitation and HH food security, (2) the care mothers received surrounding their last pregnancy, including ANC, delivery and PNC, (3) mothers’ knowledge and attitudes on IYCF practices and knowledge of diarrhea treatment, (4) maternal practices, including the use of health services and IYCF and (5) gender roles and women’s empowerment. The tables illustrating the results mentioned in this section can be found in the annex.

Sociodemographic Characteristics

The majority of women interviewed were mothers of children included in the study sample; only 1 were caregivers (annex, table 1). The average age of the mothers and caregivers was 26.36 years old, with approximately two-thirds of the sample aged 18–29 years old. Less than 2 percent were 40 years of age or older. The age distribution in the two divisions is similar. Nearly all women in both divisions were married, and most (95 percent) attended school or madrasa. While slightly less than one-third only attended primary school, the rest received higher education, with over 10 percent attending college (i.e., the equivalent of grades 11 and 12 in U.S. high schools). Most mothers practiced Islam.

While three-fourths of the mothers did not work to earn money, working was more common in Khulna compared to Barishal. The most common occupation was raising livestock or poultry (70 percent), while approximately 16 percent were self-employed, and 10 percent had wage labor.

Nearly all the mothers' husbands were currently employed; the most common occupations were wage labor, farming, self-employment and salary work. Overall, husbands were not as educated as mothers: only 83 percent of the husbands attended school or madrasa, and compared to the mothers, a higher percentage (46 percent) only attended primary school. About half of the husbands had secondary school or higher-level education. These patterns were similar for both divisions.

Mobile Phone Ownership and Use of Mass Media

Most HHs owned a mobile phone (96 percent), and over half of the mothers owned their own mobile phone. However, phone ownership was greater among mothers in Barishal compared to Khulna (annex, table 2). Nearly all the mothers reported not reading newspapers or magazines or listening to the radio. Many reported watching television; however, watching television at least once a week was more common among mothers in Khulna (61 percent) than Barishal (34 percent).

Household Members and Children in the Household

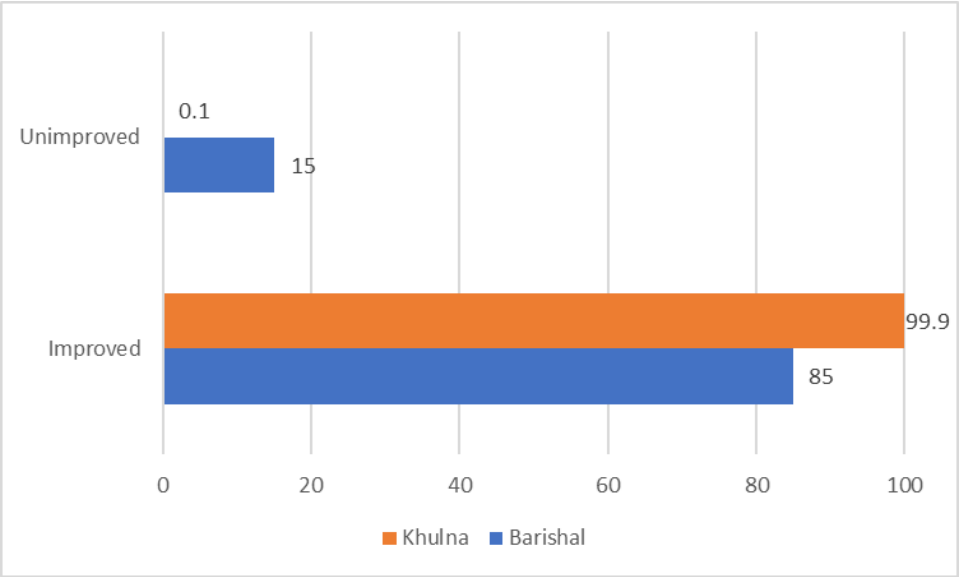
On average, mothers came from HHs with 5.2 members, including an average of 1.9 children aged between 6 months and 18 years (annex, table 3). Of the children included in the sample, half were males and half were females. The age distribution was similar across divisions, with 45 percent aged 6–12 months and the rest aged 13–23 months.

Household Water Source

There were differences regarding having improved or unimproved water sources and the location of these sources in the two divisions (figure 2 and annex, table 4). An improved water source is defined as a source protected from outside contamination, such as piped water into a dwelling, plot or yard, tube wells or boreholes, protected wells and rainwater collection. In Khulna, nearly all HHs get their drinking water from an improved water source (a tube well or borehole) usually located in their yard or plot (90 percent).

While 77 percent of HHs in Barishal also get their drinking water from a tube well or borehole, 7 percent use a different improved source, mostly rainwater, and 15 percent use surface water, an unimproved source. Compared to Khulna, only approximately one-fourth of the HHs in Barishal had a water source in their yard or plot, and the majority (71 percent) reported that their water source is elsewhere (on average, 13 minutes away from the house). Where needed, collection of water is usually done by an adult woman (86 percent) or, to a much lesser extent, by an adult male (11 percent).

Figure 2. Percentage of households with improved and unimproved water sources, by division.



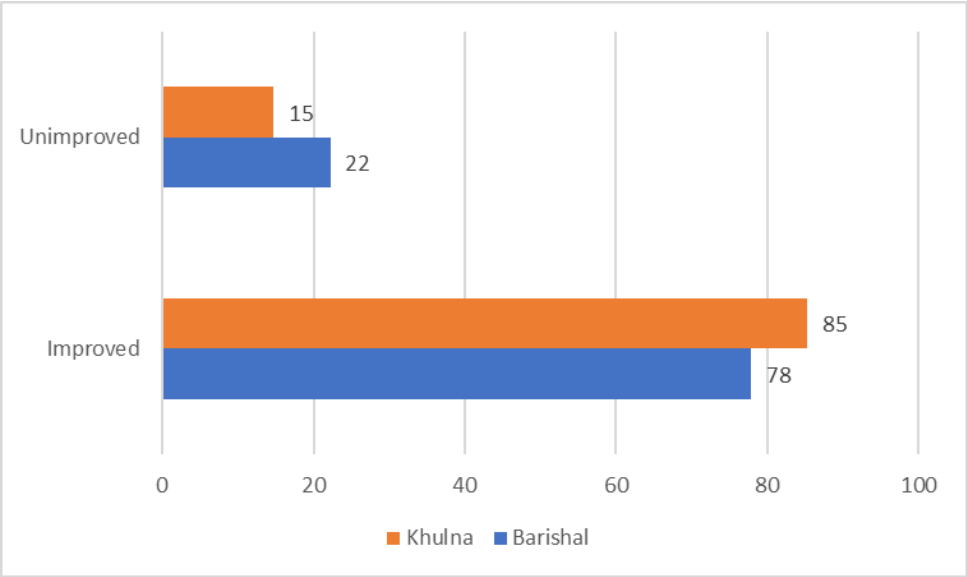
Despite the WASH program messages promoting the treatment of water before drinking, most HHs did not treat their water before drinking it, with HHs in Barishal treating it more often than HHs in Khulna. Only 8 percent of HHs in Khulna reported treating their drinking water, with most letting it stand and settle. Over one-fourth of the HHs in Barishal reported treating their water before drinking, with nearly one-third boiling the water, 41 percent using aluminum sulfate or alum (an effective water treatment method) and others straining it through a cloth, adding bleach or chlorine or using a water filter.

The majority of HHs in Barishal stored their water, with most using a covered container (88 percent) and only 8 percent using an uncovered container. In contrast, about half of the Khulna HHs did not store their water; those storing it mostly used a covered container (34 percent), while the rest (13 percent) used an uncovered container.

Household Sanitation

Improved sanitation facilities are facilities that hygienically separate human waste from human contact. These include flush toilets, ventilated improved pit latrines, pit latrines with slab and composting toilets. Unimproved facilities include pit latrines without slab or open defecation. The majority of HHs in the survey (85 percent in Khulna and 79 percent in Barishal) had improved toilet facilities (figure 3 and annex, table 5). The main type of improved toilet facility in both divisions was a pit latrine with slab; however, nearly one-fourth of HHs in Khulna had a ventilated improved pit latrine. The most common type of unimproved facility was a pit latrine without a slab. The majority of HHs did not share their toilets, but sharing was reported by 17 percent of mothers in Barishal and 38 percent in Khulna. Nearly all HHs that share facilities do so with other HHs and do not use public facilities.

Figure 3. Percentage of households with improved and unimproved toilet facilities, by division.



Nearly all HHs in Barishal had a place to wash hands, and most had water available. About half had their hand-washing station in a shared open space, while the other half had it in an open space that was not shared. Nearly half did not have any cleaning agent at the hand-washing station, while 36 percent had ash, mud or sand, and one-fourth had soap. Khulna had fewer HHs with a hand-washing station (84 percent), but most had water available. No cleaning agent was observed in 43 percent of these stations, while 41 percent had soap. Most of the remainder had ash, mud or sand. More than half of the HHs did not share the hand-washing place.

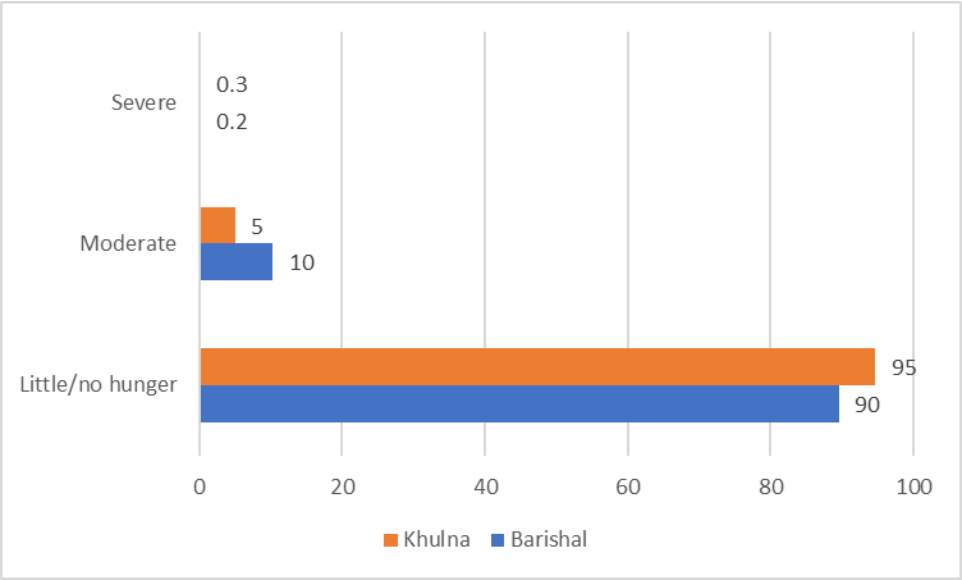
Household Assets

Khulna HHs were more likely to possess a television, an electric fan or electricity compared to HHs in Barishal (annex, table 6). Nearly all HHs in Khulna had an electric fan and electricity, while about half had a television. Possession of these assets was 65, 71 and 28 percent respectively in Barishal. Ownership of an almirah or wardrobe was 33 percent in Barishal and 21 percent in Khulna, while ownership of a refrigerator was about 11 percent in both divisions. Approximately one-fifth of HHs in both divisions had a bank account. Nearly half of the HHs in Khulna but only 6 percent in Barishal had cement walls in the homes. The majority of HHs (at least 80 percent in both divisions) had floors made of earth or sand.

Household Food Security

HH food insecurity in the 30 days preceding the survey was measured using the Household Hunger Scale developed by FANTA (Ballard et al., 2011). This scale takes into account (1) lack of food, (2) going to sleep hungry and (3) not eating for a day and night in the past 30 days. Based on the responses, twice as many HHs in Barishal were classified as having moderate or severe hunger compared to Khulna (figure 4). In Barishal, 89 percent of HHs were determined to have little or no hunger, 10 percent had moderate hunger, and less than 1 percent had severe hunger. The corresponding percentages in Khulna were 95, 5 and less than 1 percent respectively.

Figure 4. Percentage of households with severe, moderate or little or no hunger, by division.



One-fifth of HHs in Barishal and 12 percent in Khulna reported not having the resources to get food at least once in the 30 days preceding the survey (annex, table 7). In Barishal, about half of the mothers reported that it happened rarely (once), while the other half reported that it happened sometimes (3–10 times). In Khulna, 61 percent said it happened rarely and 34 percent that it happened sometimes. The rest (5 percent) reported that it happened often (more than 10 times). Fewer HHs reported going to sleep hungry in the past 30 days because there was not enough food (12 percent in Barishal and 6 percent in Khulna), with nearly all reporting that it happened rarely or sometimes. Less than 2 percent in both divisions reported not eating for a whole day and night because there was not enough food.

Participation in Social Safety Net Programs

Table 8 in the annex shows the extent of mothers' participation in social safety net programs, NGO programs and community committees. One-third of mothers in both divisions are currently participating in a social safety net program, and the benefit received is usually a cash transfer. Nearly half of the mothers are participating in an NGO program, with most receiving a cash transfer. Only 4 percent of mothers are participating in a community committee.

Antenatal Care

GoB guidelines recommend at least four ANC visits during pregnancy, with the first occurring during the first trimester. Over the course of the pregnancy, blood pressure should be monitored, blood should be drawn to check for anemia and urine cultured to check for asymptomatic bacteriuria. More mothers in Khulna (91 percent) reported receiving ANC during their last pregnancy compared to Barishal (83 percent) (annex, table 9). In both divisions, most mothers saw a qualified doctor; however, they also saw NGO health workers, nurses and midwives, and family welfare visitors. They were most likely to receive ANC in a private hospital or clinic, followed by their home; upazila health complexes and community clinics were also visited for this care. Less than 15 percent of mothers reported receiving the first ANC visit during their first trimester. Most received the first visit during the second trimester (64 percent), and approximately one-fifth received it in their third trimester. The average number of visits was 4.2 in

Khulna and 3.5 in Barishal. During these visits, over 90 percent had their blood pressure taken at least once, and approximately three-fourths gave a urine sample and a blood sample at least once. Samples were taken slightly more often in Barishal compared to Khulna.

Antenatal Care Immunizations, Supplements and Nutrition

Over the course of a pregnancy, a mother should receive a tetanus vaccination (if she hasn't already had one) to prevent the baby from contracting neonatal tetanus. In addition, she should eat a healthy diet and take IFA supplements to prevent anemia, puerperal sepsis, low birthweight and preterm birth. Vitamin A supplements are indicated to prevent night blindness.

About 70 percent of the mothers reported having an immunization card, but only about half of them had the card available to show the data collector (annex, table 10). Most mothers in both divisions (85 percent) reported receiving a tetanus injection either during this pregnancy or a prior pregnancy to prevent their baby from contracting neonatal tetanus.

Nearly two-thirds of mothers reported taking IFA supplements during their last pregnancy. About half started taking them during their second trimester, while the rest were evenly split between starting in their first or third trimester. The pattern was similar in both divisions. Very few mothers took any drugs for intestinal worms during their last pregnancy.

Only one-fifth of mothers reported eating more than usual during their last pregnancy. About half of the mothers ate the same as usual, and the remainder ate less than usual. Most mothers got the same amount or more rest than usual during their last pregnancy, with less than 10 percent getting less rest. Some differences emerged between the divisions. While similar percentages of mothers ate less than usual in both divisions, mothers in Khulna ate more than usual more often compared to Barishal mothers. Similarly, mothers in Khulna were more likely to report getting more rest than usual compared to Barishal mothers.

Delivery

Virtually all mothers had someone assisting them during the delivery of their last pregnancy; often, more than one person was present (annex, table 11). In Khulna, about 60 percent reported being assisted by a qualified doctor at the delivery and/or a nurse or midwife. In Barishal, mothers most often reported having a nurse or midwife in attendance, with one-third reporting a qualified doctor and one-fourth a traditional birth attendant. In both divisions, approximately half of the mothers reported that a relative, friend or family member assisted.

Mothers in Barishal were more likely to deliver at home compared to Khulna mothers. In Barishal, over half reported that their last delivery was at home, while over one-fourth said it was at a private hospital or clinic. In Khulna, over half reported that their delivery was at an NGO facility, and one-fourth said it was at home. For mothers who delivered at home, the main reason for not going to a facility was that they did not think it was necessary. However, over 20 percent of these mothers said that the cost is too high; this was reported more often among Barishal mothers compared to Khulna mothers.

Of the mothers whose last delivery was in a facility, nearly two-thirds in Barishal and three-fourths in Khulna delivered by caesarian section, representing 29 and 57 percent of all births respectively.

The majority of mothers said their babies were an average size at birth, while 16 percent reported that the baby was larger than average and a similar percentage that baby was smaller than average. Few reported that the baby was either very large or very small. Two-thirds of the babies in Khulna and less than half in Barishal were weighed at birth. The average weight was 2.9 kilograms.

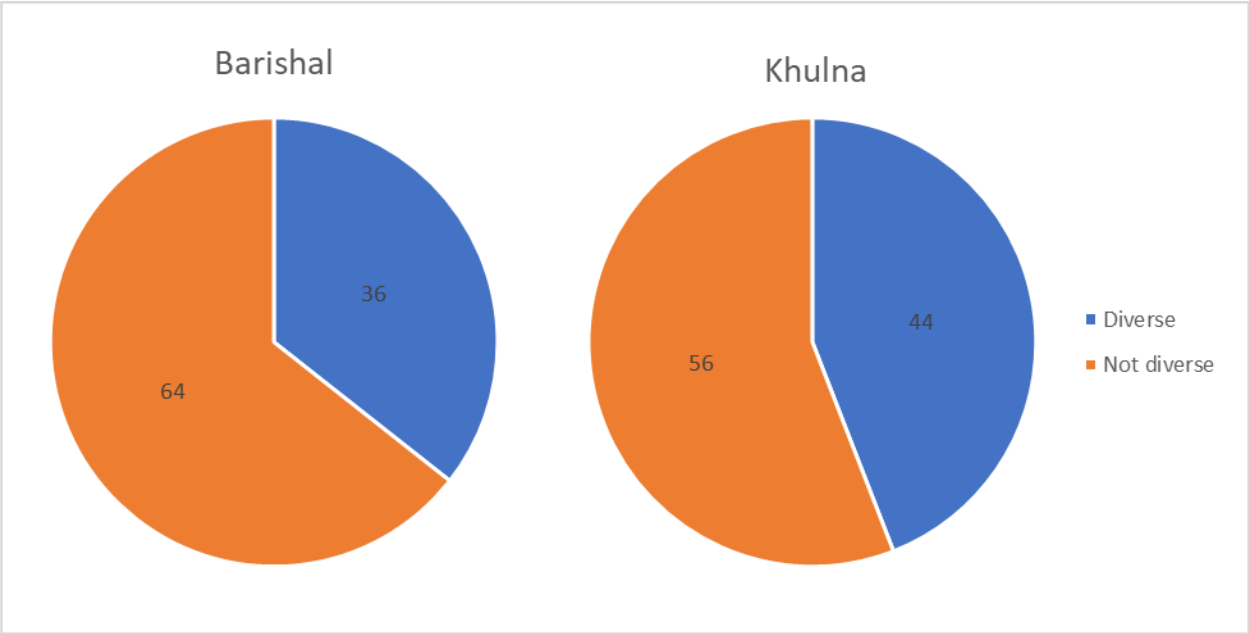
Most mothers did not receive any visit from a health professional after delivery; only 15 percent in both divisions reported that they did. In most cases, it was an NGO health worker who made the visit. The visit was most often made more than two days after delivery; however, in Barishal, it was more likely to be made within two days compared to Khulna. Of those who received a visit from a health professional, the majority (60 percent) were not given or did not purchase vitamin A supplements within two months after delivery.

Mothers' Minimum Dietary Diversity

Mothers' MDD scores were calculated based on the foods they consumed during the day before the survey using the Minimum Dietary Diversity for Women scale developed by the Food and Agriculture Organization (FAO) and FANTA (FAO and FHI 360, 2016). The score reflects the foods they consumed from 10 food groups: (1) grains, roots and tubers, (2) legumes, (3) nuts and seeds, (4) dairy products, (5) flesh foods (e.g., meat, poultry and fish), (6) eggs, (7) dark green, leafy vegetables, (8) vitamin A-rich fruits and vegetables, (9) other fruits and (10) other vegetables. If a mother consumed a food item in at least five of the 10 groups, her diet was considered diverse.

The specific foods consumed by mothers is shown in table 12 (annex). While most mothers ate grains, roots and tubers and, to a lesser extent, meat, fish and poultry, few ate nuts and seeds, and only one-fourth ate eggs. Overall, 44 percent of mothers in Khulna and 36 percent in Barishal were considered to have a diverse diet (figure 5). While the patterns of foods consumed are very similar in the two divisions, the difference in the overall score is reflected in higher consumption of dairy products and dark green, leafy vegetables in Khulna compared to Barishal.

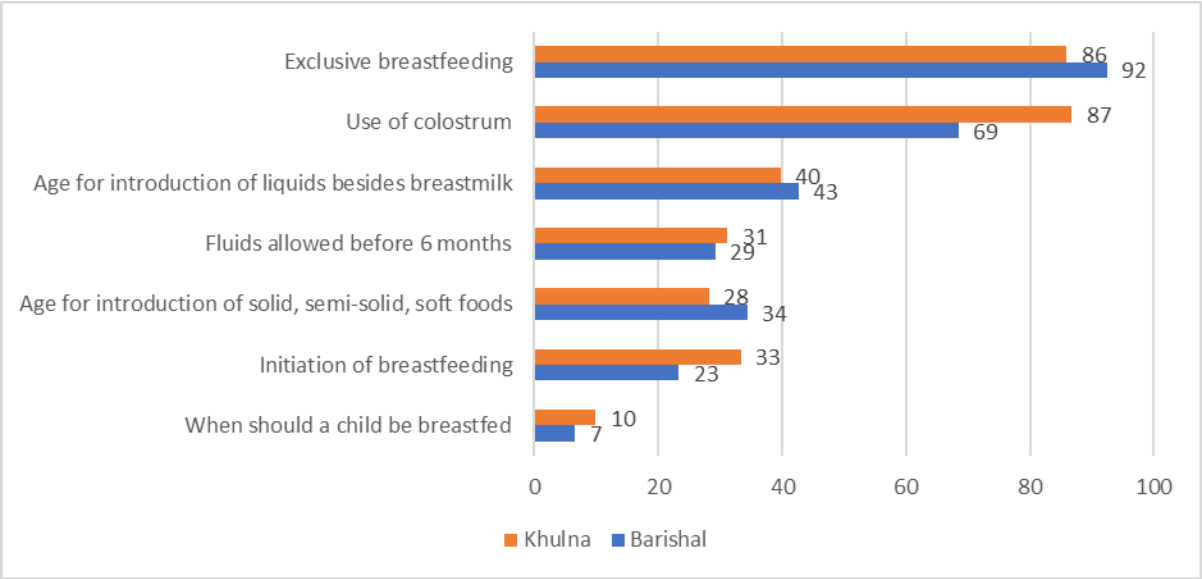
Figure 5. Percentage of mothers with minimum dietary diversity, by division.



Mothers' Knowledge About Infant and Young Child Feeding

Mothers were asked seven questions to measure their knowledge of IYCF practices (figure 6 and annex, table 13). The results reflect gaps in IYCF knowledge. Overall, mothers in Khulna answered 3.15 questions correctly, while mothers in Barishal answered 2.97 questions correctly. Mothers were most likely to know that babies should be exclusively breastfed until 6 months of age. The majority also knew that they should give the colostrum (or "first milk") to the baby. However, less than half of the mothers in both divisions knew that (1) liquids besides breast milk can be introduced at 6 months, (2) no other fluids aside from breast milk should be given to a baby younger than 6 months, (3) solid, semi-solid and soft foods should be introduced at 6 months and (4) breastfeeding should begin within the first hour after birth. Less than 10 percent of mothers knew that a baby should be breastfed whenever the baby wants.

Figure 6. Percentage of mothers with correct knowledge of infant and young child feeding indicators, by division.



Mothers' Knowledge About Complementary Feeding and Supplements

Table 14 in the annex shows mothers' KAP about complementary feeding. Mothers were asked at what age it is appropriate to introduce specific liquids and foods. The most misidentified items for babies younger than 6 months of age were water (38 percent in Khulna and 44 percent in Barishal) and cow or goat milk (16 percent in Khulna and 11 percent in Barishal). Aside from milk, 56–70 percent of mothers also thought it was acceptable to introduce snack foods (such as chips, biscuits and chocolate or candy) and other liquids (such as tea and fruit juice) to babies between 6 months and one year, whereas these should be introduced at a later age.

Minerals such as iron and iodine are essential in a child's diet. Iron deficiency can lead to impaired cognitive development, stunted growth, anemia and a weakened immune system. Iodine is critical to the development of the brain and nervous system, and deficiencies can impair intellectual abilities and ultimately affect school and work performance. Knowledge about iron among the mothers was moderate (annex, table 15). More than half (60 percent) of the mothers knew at least one effect of iron deficiency, but no mothers knew it could lead to cognitive delays and only 9 percent that it could cause anemia. Only 37 percent of mothers knew that salt is a source of iodine.

Mothers' Knowledge and Practices About Diarrhea

Table 16 (annex) shows mothers' knowledge of what to do when a child younger than 6 months or older than 6 months has diarrhea as well as their knowledge of hand-washing in order to prevent diarrhea. Most mothers knew that if a child either under 6 months or between 6 and 12 months has diarrhea, they should give the child ORS, and over 90 percent could report at least one recommended treatment for diarrhea. Zinc syrup is a recommended treatment when given with ORS. Many mothers reported using zinc syrup to treat diarrhea, with 27 and 50 percent reporting this for children under 6 months and between 6 and 12 months respectively.

Knowledge about hand-washing was fairly high, with most mothers washing their hands before eating (95 percent) and after using the toilet (85 percent). Fewer knew they should wash their hands before feeding a child (52 percent), after helping the child use the bathroom (39 percent) and before preparing or cooking food (46 percent).

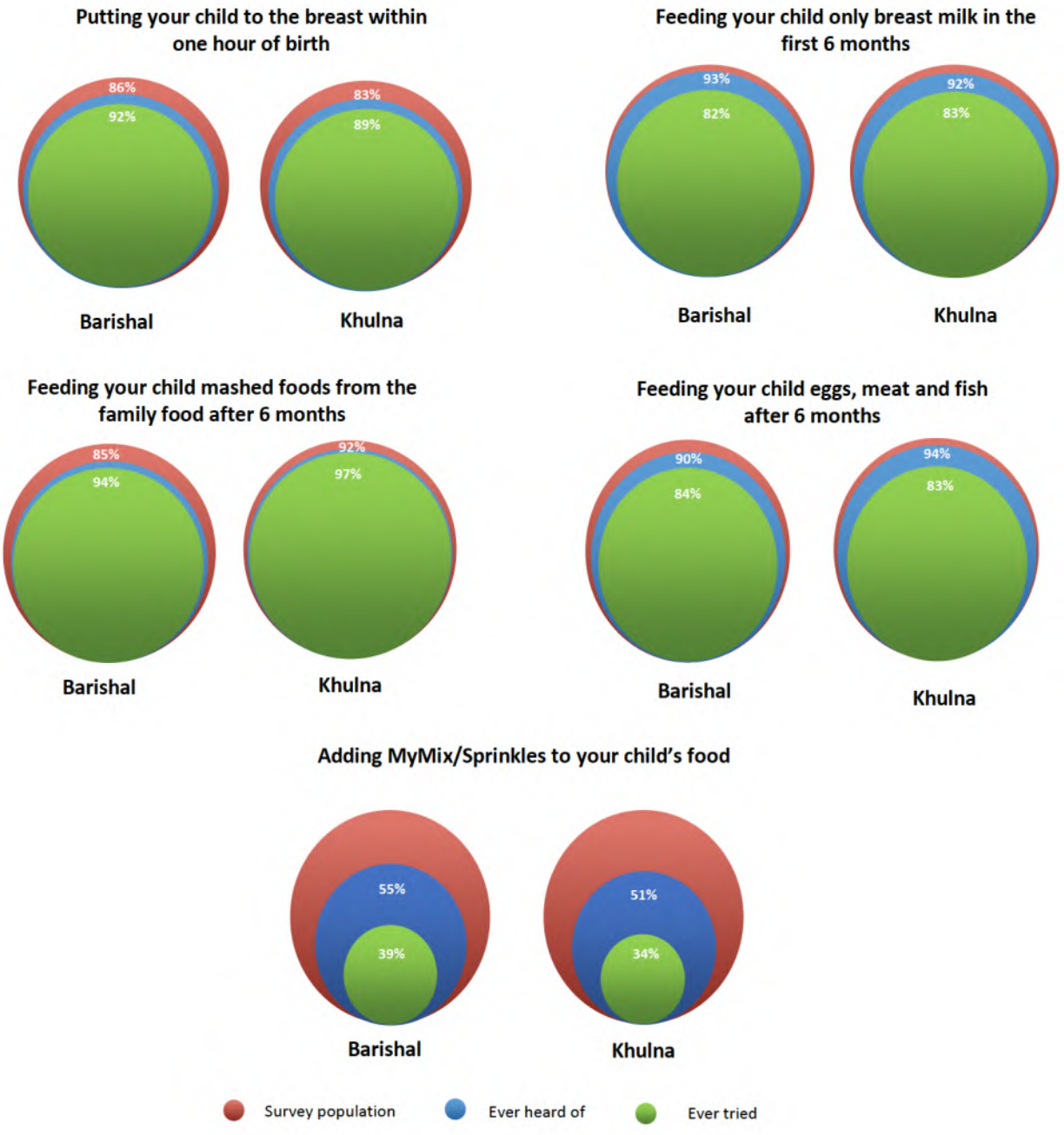
Awareness and Trial of Key Practices

Awareness and trial of key IYCF and maternal nutritional practices were measured using a module of questions adapted from Alive and Thrive. Awareness is defined as the mother reporting ever hearing of the specified practice; trial is when the mother who heard of the practice reports having ever tried it. Table 17 (annex) and figure 7 show that awareness and trial of most of the key messages are very high. Between 84 and 97 percent of mothers in both divisions had heard of the following key messages, and between 82 and 92 percent had ever tried them:

- A child should be breastfed within an hour after birth.
- A child should be exclusively breastfed for the first six months.
- A child should be fed mashed foods from the family food in addition to breastfeeding after 6 months.
- A child should be fed eggs, fish and meat at least once per day after 6 months.

The results differ from similar knowledge questions shown in table 13 (annex) and practice questions shown in tables 19–21 (annex), reflecting a discrepancy in responses based on how the question is asked. The only practice that was not as widely known or tried was adding Sprinkles (e.g., Pushtikona, MoniMix or MyMix) to the child's food. Just over half of the mothers had heard of this practice, and less than 40 percent of those had tried it.

Figure 7. Awareness and trial of key practices.



Use of Health Services

When health services are needed, half of the mothers usually visit an unqualified village doctor's chamber or office (annex, table 18). Unqualified doctors are not licensed or recognized by the state. The majority of mothers in Khulna (60 percent) seek medical help or treatment from an unqualified doctor, while 10 percent usually go to a pharmacy and 9 percent to a qualified doctor's chamber. In Barishal, 30 percent of mothers visit an unqualified doctor, 30 percent go to the pharmacy, 16 percent visit a

qualified doctor, and 13 percent go to the upazila health complex. On average, the facility they usually attend is a 32-minute walk for Khulna mothers and a 40-minute walk for Barishal mothers.

Over 90 percent of mothers in both divisions took their child to a health facility in the past six months, with an average of 5.2 visits for Khulna mothers and 4.5 visits for Barishal mothers. The two main reasons for these visits, cited by over 70 percent of mothers in both divisions, are coughing or trouble breathing and fever. Diarrhea was mentioned by one-third of mothers in Barishal and 16 percent of mothers in Khulna. Nearly all mothers who did not take their child to a health facility reported that the child was healthy and there was no reason to visit.

Early Initiation of Breastfeeding

The majority of mothers reported that their child had been breastfed; only 1 percent said that the child had not been breastfed (annex, table 19). The most common reasons for not breastfeeding were insufficient milk or the child was too ill or weak.

Recommendations from WHO and UNICEF state that babies should be breastfed within the first hour after birth and be exclusively breastfed for the first six months (UNICEF, 2005). Nearly one-third of the babies were put to the breast within the first hour of birth (this was slightly more common among Khulna mothers), and nearly 90 percent were put to the breast within the first 24 hours after birth. Nearly all mothers (96 percent) gave colostrum to their baby. Of those who did not, the main reasons were that they were told not to, they did not think it was good for the child, or they were following tradition.

One-fourth of babies in Barishal and over one-third in Khulna were given something besides breast milk in the first three days after delivery. Among those newborns, one-third were fed baby formula milk, 39 were given milk from an animal, and 18 percent were given water.

Current Breastfeeding and Supplemental Liquids

WHO and UNICEF recommend that babies continue to be breastfed for two years, with complementary feeding beginning at 6 months of age (UNICEF, 2005). Over 95 percent of mothers reported currently breastfeeding their babies and having done so the day before the survey (annex, table 20). Ten percent reported that their child drank from a bottle with a nipple, and nearly all that the child had plain water the day before. Between 14 and 20 percent of mothers reported giving their children other liquids, including milk (tinned, powder or fresh), juice or juice drinks, thin porridge and vitamin or mineral supplements, while 5 percent reported feeding the child formula.

Supplemental Foods

After 6 months of age, children should be given supplemental foods in addition to breast milk. On average, mothers reported that their child ate solid, semi-solid or soft foods 3.06 times the previous day (annex, table 21). The average number of times the child ate was slightly higher in Khulna compared to Barishal. Overall, 4 percent of children did not receive any meals during the previous day.

Most children ate grains, roots and tubers, and about half ate flesh foods (meat, fish or poultry). Legumes and nuts, dairy products, eggs, vitamin A-rich fruits and vegetables, and other fruits and vegetables were consumed by between 22 and 31 percent of children. The patterns were similar in both

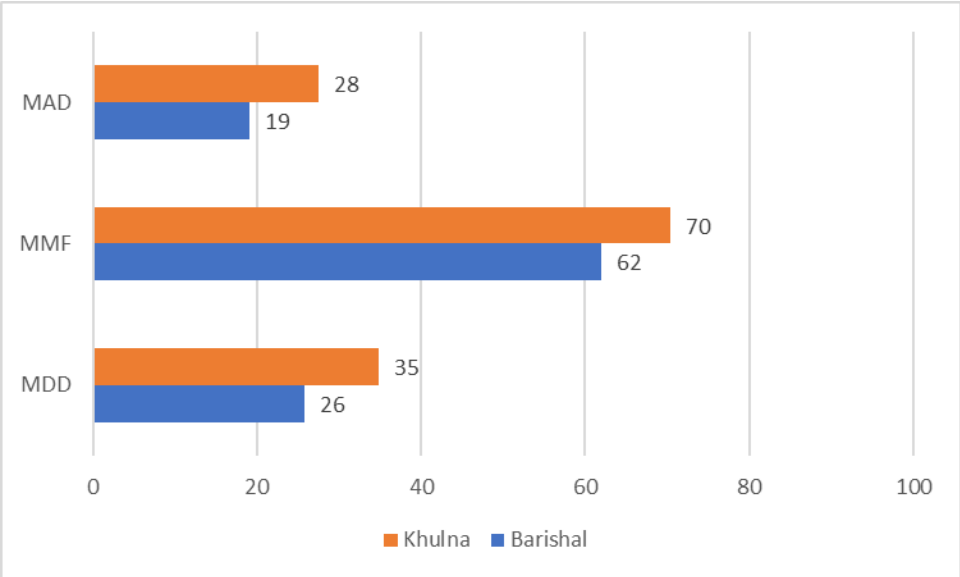
divisions; however, children in Khulna ate flesh foods, vitamin A-rich foods and other fruits and vegetables more often than children in Barishal.

Infant and Young Child Feeding Practices and Indicators

IYCF practices are shown in table 22 (annex). Results for the two divisions are similar; however, favorable practices are generally slightly more common in Khulna than Barishal. Over 90 percent of mothers reported that they ever breastfed, continued breastfeeding during the first and second year and practiced age-appropriate breastfeeding, giving either only breast milk or breast milk with complementary foods according to child age. Only one-third or less reported that they initiated breastfeeding early and introduced solid, semi-solid or soft foods at 6 months. Just under one-third of mothers reported giving a prelacteal feeding, a practice that is discouraged; this was reported more often in Khulna compared to Barishal.

About one-fourth of the children sampled (28 percent in Khulna and 19 percent in Barishal) were considered to have a MAD based on the mothers' reports (figure 8). MAD is a composite measure that includes MDD and MMF. While two-thirds of the children met MMF, only just under one-third met MDD.

Figure 8. Percentage of children showing minimum acceptable diet, minimum dietary diversity and minimum meal frequency, by division.

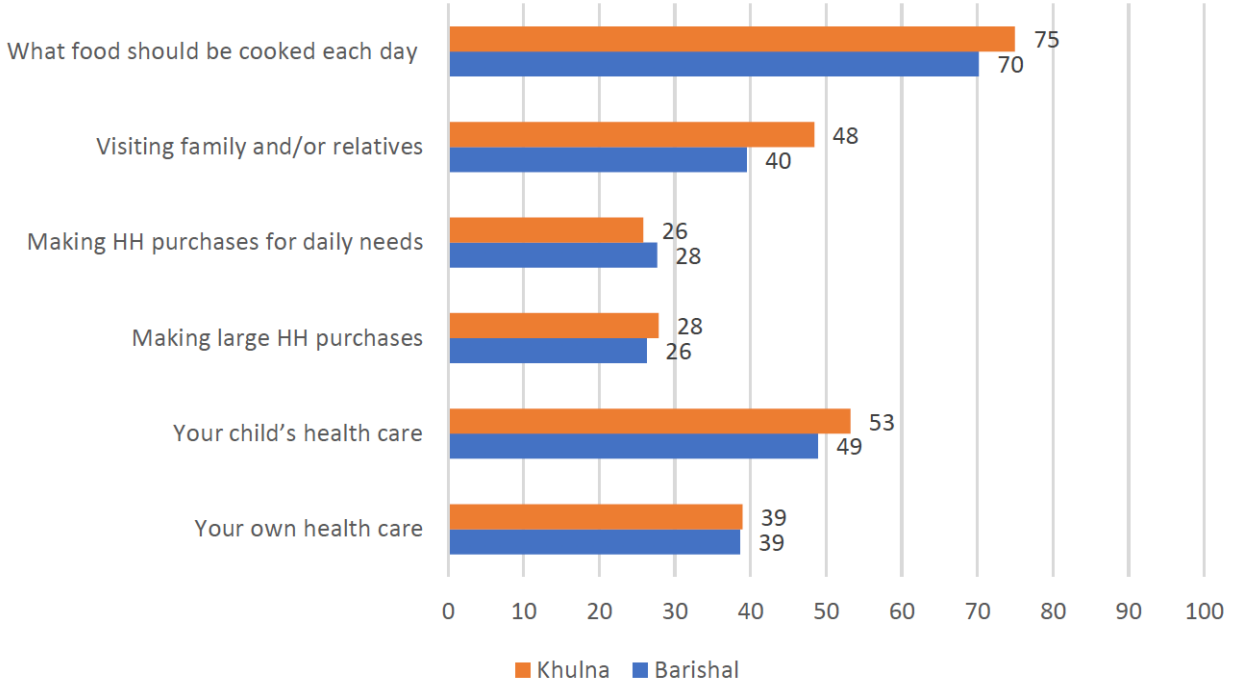


Household Decision-Making

Gender roles in HH decision-making were explored to determine the extent of mothers' control over their own health and nutrition and that of their children. Table 23 (annex) shows who makes key decisions in the HH regarding health care, HH purchases, visits to family and friends and what foods should be cooked each day. Only 39 percent of mothers felt they could make decisions alone or jointly with their husband regarding their own health care (figure 9). Just over half could make decisions regarding the health care of their child. Only about one-fourth could make decisions alone or jointly with their husband regarding large HH purchases or purchases for daily HH needs. Less than half could make decisions alone or jointly regarding visits to family members or friends. Mothers had the most decision-

making authority on foods should be cooked each day, with 73 percent being able to make this decision alone or jointly with their husband.

Figure 9. Percentage of mothers who can make household decisions on their own or jointly, by division.



Household Roles and Responsibilities

Mothers were asked about the division of labor on a number of HH responsibilities, including washing clothes, repairing the house, buying food, cleaning the house, preparing food and caring for or spending time with the children. Table 24 (annex) shows that over 90 percent of mothers in both divisions were always or usually responsible for washing clothes, cleaning the house and preparing the food, while 83 percent reported being always or usually responsible for caring for or spending time with the children. Only a few mothers were responsible for repairing the house and only 10 percent for buying food.

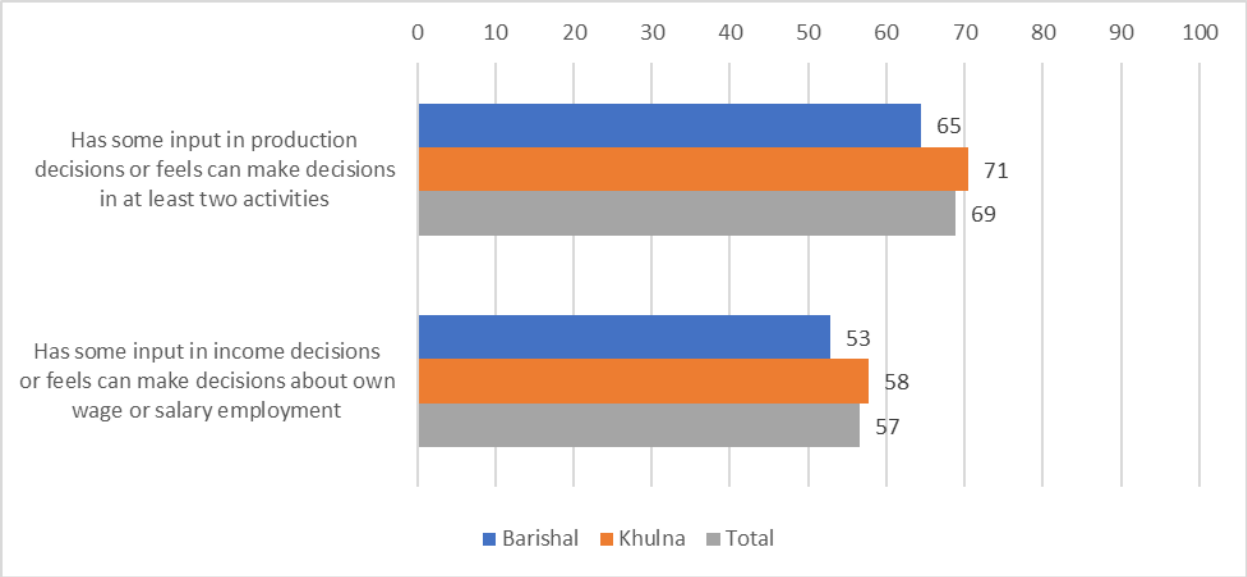
Overall, two out of three mothers felt that they did a lot more or a little more than their husband in terms of division of tasks. Mothers in Khulna were slightly more likely to report this, while more mothers in Barishal reported that their husbands did a lot or a little more. Over 90 percent of mothers were either very satisfied or somewhat satisfied with the division of responsibilities. Similarly, over 90 percent thought that their husband was very satisfied or somewhat satisfied with the division of responsibilities.

Household Decision-Making on Production and Income Generation

Women's empowerment was explored through mothers' participation in HH decision-making on the generation and use of income, specifically with regard to the following activities: food crop farming, cash crop farming, livestock raising, wage or salary employment and fishing (annex, table 25). Figure 10 shows that approximately two-thirds of women in both divisions felt that they had input or could make decisions regarding the production of at least two of these activities. Fewer felt that they had input into decisions about income generated from these activities or about their own wage or salary employment,

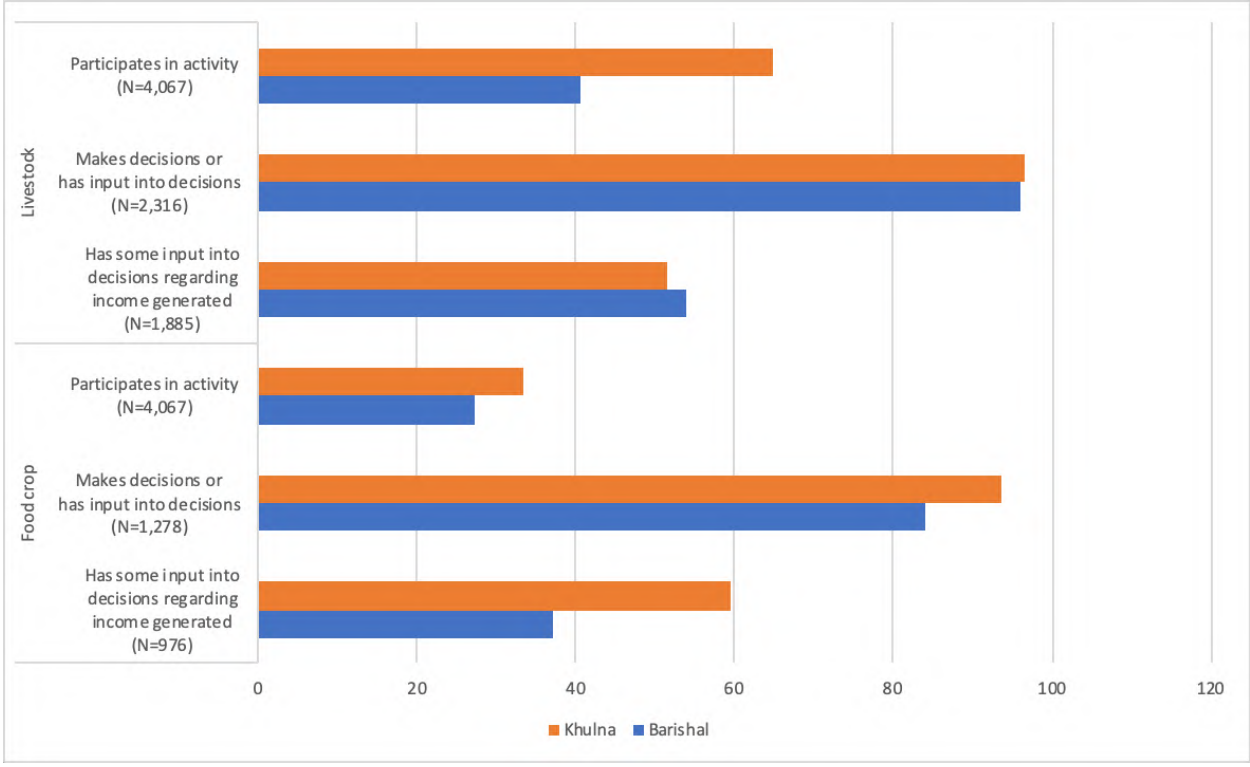
with 53 percent of Barishal mothers and 58 percent of Khulna mothers reporting that they had input into decisions regarding the use of income from at least one activity.

Figure 10. Percentage of mothers reporting input into decisions about production and income generation, by division.



The activities mothers were most likely to participate in were food crop farming (31 percent) and livestock raising (57 percent). Mothers in Khulna participated in these activities more often than mothers in Barishal. Figure 11 shows that the majority of the women participating in these activities felt that they could make decisions or have input into decisions regarding the production of these activities. Far fewer feel that they had input into decisions regarding the income generated from these activities. While women in Khulna appeared to be more empowered to make decisions about food crop farming, mothers' decision-making power regarding livestock raising appeared to be equal in the two divisions.

Figure 11. Percentage of mothers reporting input into decisions about livestock raising and food crop farming, by division.



Far fewer women reported being engaged in cash crop farming (20 percent), wage or salary employment (10 percent) and fishing (5 percent) (annex, table 25). Khulna mothers were more often involved in cash crop farming and wage or salary employment, while Barishal mothers were more likely to be engaged in fishing. Similar to food crop farming and livestock raising, women involved in these activities felt that they had greater decision-making power regarding the production of the activities and less power to decide about the income generated.

SUMMARY AND NEXT STEPS

The baseline survey results describe maternal and child nutrition and health KAP among poor and extreme-poor mothers and caregivers of children aged 6–23 months in Barishal and Khulna divisions. The results highlight gaps that can be addressed by the Project to improve health and nutrition outcomes of children under 2 years of age. The primary study outcome, MAD, was 19 percent in Barishal and 28 percent in Khulna. These results differed slightly from the 2014 BDHS, which observed higher MAD both in Barishal (24 percent) and in Khulna (31 percent). Of the two components that make up MAD, MDD is the area that shows the greatest need for improvement; only one-third of the mothers met MDD, whereas two-thirds met MMF.

The results on IYCF knowledge and practices were mixed. Knowledge about breastfeeding and giving colostrum to a newborn was high and supported by practices showing that nearly all the mothers surveyed breastfed and gave the colostrum to the baby. Most mothers were still breastfeeding their infant. However, only one-third began breastfeeding within the first hour after birth, which is the recommended practice. The results on complementary feeding reflect many misconceptions and practices that do not adhere to current recommendations. While infants should be exclusively breastfed for the first six months, the practice of giving liquids other than breast milk is common, even within the first three days after birth. The most common liquids provided were milk from an animal, formula and water. The use of formula is discouraged in Bangladesh since it is very expensive and can impact the ability to purchase other HH items needed. Further, practices such as preparing it with contaminated water, diluting it to make it last longer and storing it unhygienically can make it unsafe for the infant to drink. Knowledge about the introduction of age-appropriate foods and the importance of supplements such as salt was also low. For instance, many mothers believed it is acceptable to give snacks and fruit juice to babies aged 6–12 months.

The children in the study appear to be frequently sick, with the main symptoms being coughing or trouble breathing, fever and diarrhea. The average number of visits to a health facility is quite high, and there is a heavy reliance on visiting unqualified doctors for health care. Hygienic practices such as hand-washing are common but reflect areas for improvement to prevent the occurrence of diarrhea, such as washing hands before feeding a child, after helping the child use the bathroom and before preparing food. In both divisions, but particularly in Khulna, only a few mothers treat the water before drinking it; this increases the risk of diarrheal disease, one of the leading causes of child morbidity and mortality. Knowledge of ORS to treat diarrhea was very high in both divisions.

Maternal health practices show that most mothers received at least one ANC visit; however, less than 15 percent received it in their first trimester. In terms of type of care received, most mothers had their blood pressure taken at least once and received a tetanus injection, and many also had blood and urine taken and received iron supplements. Delivery at home is still common, especially in Barishal, but over half of the mothers had a qualified health professional in attendance. Rates of caesarian section for those delivering in a health facility were quite high, which has also been noted in other studies in Bangladesh (Haider et al., 2018). PNC was far less common than ANC; mothers and providers should be educated about its importance in maternal and infant health. The results on maternal nutrition also show the need to improve their dietary diversity.

Results on gender roles and HH decisions highlight the need for activities aimed at women's empowerment. The majority of mothers reported that they could not participate in decisions about their health care, and only about half could participate in decisions about the health care of their

children. While the majority can make decisions on what to cook on a daily basis, only 10 percent said they were responsible for buying food, which points to the need to include husbands and other HH members in education activities to ensure that diverse and nutritious foods are being purchased.

The HFP intervention activities will start in May 2019 and continue for two years. The activities in the intervention study arms will provide education, strengthened health services and increased access to protein sources that should impact the MAD outcome and ultimately lead to improved maternal and infant health. An endline survey will be conducted towards the end of the intervention period to measure the impact of the HFP interventions.

References

Ahmed M and Chowdhury M. Homestead Food Production (HFP) in Bangladesh: An Approach to Improve Diet Quality and Enhance Micronutrients-Rich Sustainable Food Security. *OIDA International Journal of Sustainable Development*. 09(10), 51-58; 2017.

Ballard T, Coates J, Swindale A and Deitchler M. *Household Hunger Scale: Indicator Definition and Measurement Guide*. FANTA Project. Washington, DC: FHI 360; 2011. Available from: www.fantaproject.org/sites/default/files/resources/HHS-Indicator-Guide-Aug2011.pdf.

Bangladesh Bureau of Statistics. Household Income and Expenditure Survey 2016–2017. Dhaka: Government of Bangladesh, Ministry of Planning; 2017.

Black RE, Allen LH, Bhutta ZA, Caulfield LE, de Onis M, Ezzati M et al. Maternal and Child Undernutrition: Global and Regional Exposures and Health Consequences. *The Lancet.* 371(9608):243-60; 2008. Available from: www.thelancet.com/article/S0140-6736(07)61690-0/abstract.

RE, Victora CG, Walker SP, Bhutta ZA, Christian P, De Onis M et al. Maternal and Child Undernutrition and Overweight in Low-Income and Middle-Income Countries. *The Lancet*. 382(9890):427–51; 2013. Available from: www.ncbi.nlm.nih.gov/pubmed/23746772.

FANTA. *Multisectoral Nutrition Programming: FANTA Achievements and Lessons Learned*. Washington, DC: FHI 360/FANTA; 2017. Available from: www.fantaproject.org/resource/multisectoral-nutrition-programming-fanta-achievements-and-lessons-learned.

FAO and FHI 360. *Minimum Dietary Diversity for Women: A Guide for Measurement*. Rome: FAO; 2016. Available from www.fao.org/3/a-i5486e.pdf.

FHI 360. *SHIKHA Project: Final Report*. Dhaka, Bangladesh: FHI 360; 2016. Available from: www.fhi360.org/resource/shikha-project-final-report.

Flour Fortification Initiative, Global Alliance For Improved Nutrition, Micronutrient Initiative, UNICEF, USAID, WHO and World Bank. *Investing in the Future: A United Call to Action on Vitamin and Mineral Deficiencies*; 2009. Available from: www.reliefweb.int/report/world/investing-future-united-call-action-vitamin-and-mineral-deficiencies-global-report-2009.

HKI. Homestead Food Production Model Contributes to Improved Household Food Security, Nutrition and Female Empowerment – Experience from Scaling-up Programs in Asia (Bangladesh, Cambodia, Nepal and Philippines). *Nutrition Bulletin*, Vol. 8 Issue 1; March 2010. Available from: www.fao.org/fileadmin/user_upload/wa_workshop/docs/Homestead_Food_Production_Nutrition_HKI.pdf.

Haider MR, Rahman MM, Moinuddin M, Rahman AE, Ahmed S, Khan MM. Ever-Increasing Caesarean Section and its Economic Burden in Bangladesh. *PLoS ONE*. 13(12). e0208623; 2018. Available from: www.journals.plos.org/plosone/article?id=10.1371/journal.pone.0208623.

Keus EH, Subasinghe R, Aleem NA, Sarwer RH, Islam MM, Hossain MZ et al. *Aquaculture for Income and Nutrition: Final Report*. Penang, Malaysia: WorldFish; 2017. Available from: www.pubs.iclarm.net/resource_centre/2017-30.pdf.

Krebs NF, Mazariegos M, Tshefu A, Bose C, Sami N, Chomba E et al. Meat Consumption is Associated with Less Stunting among Toddlers in Four Diverse Low-Income Settings. *Food and Nutrition Bulletin.* 32(3), 185–191; 2011. Available from: www.ncbi.nlm.nih.gov/pmc/articles/PMC3918945/.

Levinson FJ and Hussain D. *MDG Fund—2010–2013: Protecting and Promoting Food Security and Nutrition for Families and Children in Bangladesh. Final Evaluation.* MDG Fund; July 2013. Available from: www.mdgfund.org/sites/default/files/Bangladesh%20-%20Nutrition%20-%20Final%20Evaluation%20Report.pdf.

Mosites E, Aol G, Otiang E, Bigogo G, Munyua P, Montgomery JM et al. Child Height Gain is Associated with Consumption of Animal-Source Foods in Livestock-Owning Households in Western Kenya. *Public Health Nutrition*, 20(2), 336–345; 2017. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5233559/.

MoHFW. Second National Plan of Action for Nutrition (2016–2025); 2017.

NIPORT, Mitra and Associates and ICF International. *Bangladesh Demographic and Health Survey 2014*. Dhaka, Bangladesh, and Rockville, Maryland, USA: NIPORT, Mitra and Associates and ICF International; 2016. Available from: www.dhsprogram.com/pubs/pdf/FR311/FR311.pdf.

Menon P, Rawat R and Ruel M. Bringing Rigor to Evaluations of Large-Scale Programs to Improve Infant and Young Child Feeding and Nutrition: The Evaluation Designs for the Alive & Thrive Initiative. *Food and Nutrition Bulletin*, 34(3_suppl2), S195– S211; Sep 2013. Available from: www.journals.sagepub.com/doi/10.1177/15648265130343S206.

Save the Children. *Nutrition in the First 1000 Days: State of the World's Mothers 2012.* Save the Children; 2012. Available from: www.savethechildren.org/content/dam/usa/reports/advocacy/sowm/sowm-2012.pdf.

SPRING. *Bangladesh: Final Country Report*. Arlington, VA: FHI 360; 2017. Available from: www.spring-nutrition.org/publications/reports/bangladesh-final-country-report.

UNICEF. *Improving Child Nutrition: The Achievable Imperative for Global Progress*. UNICEF; April 2013. Available from: www.unicef.org/nutrition/files/Nutrition_Report_final_lo_res_8_April.pdf.

UNICEF [internet]. Breastfeeding: Impact on child survival and global situation; 2005. Available from: www.unicef.org/nutrition/index_24763.html.

UNICEF [internet]. Malnutrition; 2019. Available from: www.data.unicef.org/topic/nutrition/malnutrition.

UNICEF, WHO and the World Bank Group. Joint child malnutrition estimates – Levels and trends (2017 edition). Available from: www.who.int/nutgrowthdb/estimates2016/en/.

WHO. *Indicators for assessing infant and young child feeding practices. Part 1: Definitions*; Switzerland: WHO; 2008. Available from: www.who.int/maternal_child_adolescent/documents/9789241596664/en/.

WHO, UNICEF and USAID. *Improving Nutrition Outcomes with Better Water, Sanitation and Hygiene: Practical Solutions for Policies and Programmes*. Switzerland: WHO; 2015. Available from: www.who.int/water_sanitation_health/publications/washandnutrition/en/.

ANNEX: TABLES

Table 1. Mothers' sociodemographic characteristics.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Relationship to sampled child						
Mother	1,294	(98.6)	2,738	(99.4)	4,032	(99.1)
Primary caregiver	19	(1.4)	16	(0.6)	35	(0.9)
Mother's age						
18–29	876	(66.7)	1,899	(69.0)	2,775	(68.2)
30–39	411	(31.3)	812	(29.5)	1,223	(30.1)
40+	26	(2.0)	43	(1.6)	69	(1.7)
Mean age (SD)						
Mean (SD)	26.64 (5.92)		26.23 (5.97)		26.36 (5.96)	
Min, max	18, 52		18, 60		18, 60	
Marital status						
Currently married/living together	1,296	(98.7)	2,729	(99.1)	4,025	(99.0)
Separated	4	(0.3)	7	(0.3)	11	(0.3)
Deserted	1	(0.1)	2	(0.1)	3	(0.1)
Divorced	7	(0.5)	6	(0.2)	13	(0.3)
Widowed	4	(0.3)	10	(0.4)	14	(0.3)
Never married	1	(0.1)	0	(0.0)	1	(0.0)
Mother ever attended school or madrasa	1,255	(95.6)	2,611	(94.8)	3,866	(95.1)
Mother's education						
Primary	370	(29.5)	769	(29.5)	1,139	(29.5)
Secondary	723	(57.6)	1,570	(60.1)	2,293	(59.3)
College or higher	162	(12.9)	272	(10.4)	434	(11.2)
Mother's religion						
Islam	1,016	(77.4)	2,563	(93.1)	3,579	(88.0)
Hinduism	297	(22.6)	190	(6.9)	487	(12.0)
Buddhism	0	(0.0)	1	(0.0)	1	(0.0)
Mother works to earn money	236	(18.0)	723	(26.3)	959	(23.6)
Mother's occupation						
Wage labor	24	(10.2)	71	(9.8)	95	(9.9)
Salaried worker	24	(10.2)	15	(2.1)	39	(4.1)
Self-employed	44	(18.6)	105	(14.5)	149	(15.5)
Farming	2	(0.8)	2	(0.3)	4	(0.4)
Livestock/poultry	142	(60.2)	528	(73.0)	670	(69.9)
Currently not working	0	(0)	2	(0.3)	2	(0.2)

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Husband's occupation						
Wage labor	529	(40.8)	890	(32.6)	1,419	(35.3)
Salaried worker	175	(13.5)	237	(8.7)	412	(10.2)
Self-employed	292	(22.5)	479	(17.6)	771	(19.2)
Farming	232	(17.9)	1,034	(37.9)	1,266	(31.5)
Livestock/poultry	1	(0.1)	5	(0.2)	6	(0.1)
Currently not working	25	(1.9)	26	(1.0)	51	(1.3)
Works abroad	38	(2.9)	57	(2.1)	95	(2.4)
Other	4	(0.3)	1	(0.0)	5	(0.1)
Husband ever attended school or madrasa	1,111	(85.7)	2,214	(81.1)	3,325	(82.6)
Husband education						
Primary	516	(46.4)	1,000	(45.2)	1,516	(45.6)
Secondary	457	(41.1)	891	(40.2)	1,348	(40.5)
Higher than secondary	138	(12.4)	323	(14.6)	461	(13.9)

Table 2. Mobile phone ownership and use of mass media.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
HH member mobile phone ownership	1,262	(96.1)	2,653	(96.3)	3,915	(96.3)
Mother owns personal mobile phone	857	(65.3)	1,416	(51.4)	2,273	(55.9)
Mother reads a newspaper or magazine						
At least once a week	12	(0.9)	17	(0.6)	29	(0.7)
Less than once per week	51	(3.9)	66	(2.4)	117	(2.9)
Not at all	1,250	(95.2)	2,671	(97.0)	3,921	(96.4)
Mother listens to the radio						
At least once a week	28	(2.1)	30	(1.1)	58	(1.4)
Less than once per week	36	(2.7)	50	(1.8)	86	(2.1)
Not at all	1,249	(95.1)	2,674	(97.1)	3,923	(96.5)
Mother watches television						
At least once a week	440	(33.5)	1,683	(61.1)	2,123	(52.2)
Less than once per week	138	(10.5)	343	(12.5)	481	(11.8)
Not at all	735	(56.0)	728	(26.4)	1,463	(36.0)

Table 3. Children and household members.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Number of HH members						
Mean (SD)	5.45 (1.67)		5.12 (1.63)		5.23 (1.65)	
Min, max	2, 16		2, 17		2, 17	
Total number of children	1,760		3,439		5,199	
Children per HH						
Mean (SD)	1.96 (0.95)		1.87 (0.83)		1.90 (0.88)	
Min, max	1, 6		1, 7		1, 7	
Children aged 6–23 months	1,332		2,831		4,163	
Sex of sampled child						
Male	656	(50.0)	1,381	(50.1)	2,037	(50.1)
Female	657	(50.0)	1,373	(49.9)	2,030	(49.9)
Age of sampled child						
6–9 months	300	(22.8)	725	(26.3)	1,025	(25.2)
10–12 months	264	(20.1)	558	(20.3)	822	(20.2)
13–15 months	228	(17.4)	422	(15.3)	650	(16.0)
16–18 months	193	(14.7)	396	(14.4)	589	(14.5)
19–21 months	214	(16.3)	447	(16.2)	661	(16.3)
22–23 months	114	(8.7)	206	(7.5)	320	(7.9)

Table 4. Household water source.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
HH drinking water source						
Improved	**1,115**	**(84.9)**	**2,752**	**(99.9)**	**3,867**	**(95.1)**
Piped into dwelling	21	(1.6)	3	(0.1)	24	(0.6)
Piped into yard/plot	1	(0.1)	8	(0.3)	9	(0.2)
Piped to neighbor	5	(0.4)	0	(0)	5	(0.1)
Public tap/standpipe	11	(0.8)	1	(0.0)	12	(0.3)
Tube well/borehole	1,009	(76.8)	2,731	(99.2)	3,740	(92.0)
Protected well	0	(0)	9	(0.3)	9	(0.2)
Rainwater	68	(5.2)	0	(0)	68	(1.7)
Unimproved	**198**	**(15.1)**	**2**	**(0.1)**	**200**	**(4.9)**
Surface water	195	(14.9)	0	(0)	195	(4.8)
Other	3	(0.3)	2	(0.1)	5	(0.1)
Water source location						
In own dwelling	26	(2.0)	52	(1.9)	78	(1.9)
In own yard/plot	346	(26.7)	2,501	(91.2)	2,847	(70.5)
Elsewhere	923	(71.3)	189	(6.9)	1,112	(27.5)

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Roundtrip to water source (minutes)						
Mean (SD)	13.11 (11.31)		5.85 (4.32)		11.87 (10.81)	
Min, max	1, 100		1, 30		1, 100	
Who usually collects water for the HH						
Adult woman (15+ years)	791	(85.7)	187	(98.9)	978	(87.9)
Adult man (15+ years)	100	(10.8)	0	(0)	100	(9.0)
Female child (under 15)	21	(2.3)	1	(0.5)	22	(2.0)
Male child (under 15)	9	(1.0)	1	(0.5)	10	(0.9)
Don't know	2	(0.2)	0	(0)	2	(0.2)
Treat water before drinking						
Yes	344	(26.2)	224	(8.1)	568	(14.0)
No	968	(73.7)	2,529	(91.8)	3,497	(86.0)
Don't know	1	(0.1)	1	(0.0)	2	(0.0)
How is water treated*						
Boil	102	(29.7)	1	(0.5)	103	(18.1)
Add bleach/chlorine	39	(11.3)	0	(0)	39	(6.9)
Strain through cloth	76	(22.1)	5	(2.2)	81	(14.3)
Use water filter	37	(10.8)	19	(8.5)	56	(9.9)
Let it stand and settle	15	(4.4)	199	(88.8)	214	(37.7)
Aluminum sulfate/alum	143	(41.6)	0	(0)	143	(25.2)
Drinking water storage						
Covered container	1,156	(88.0)	934	(33.9)	2,090	(51.4)
Uncovered container	105	(8.0)	370	(13.4)	475	(11.7)
Roof tank	2	(0.2)	5	(0.2)	7	(0.2)
Cistern	4	(0.3)	3	(0.1)	7	(0.2)
No storage	46	(3.5)	1,442	(52.4)	1,488	(36.6)

*Multiple responses allowed.

Table 5. Household sanitation.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
HH toilet facility						
Improved	**1,022**	**(77.8)**	**2,350**	**(85.3)**	**3,372**	**(82.9)**
Flush to piped sewer system	0	(0)	1	(0.0)	1	(0.0)
Flush to septic tank	58	(4.4)	211	(7.7)	269	(6.6)
Flush to pit (latrine)	25	(1.9)	120	(4.4)	145	(3.6)
Ventilated Improved pit latrine	59	(4.5)	619	(22.5)	678	(16.7)
Pit latrine with slab	879	(66.9)	1,395	(50.7)	2,274	(55.9)
Composting toilet	1	(0.1)	4	(0.1)	5	(0.1)
Unimproved	**291**	**(22.2)**	**404**	**(14.7)**	**695**	**(17.1)**
Flush to somewhere else	3	(0.2)	6	(0.2)	9	(0.2)
Flush to unknown place	4	(0.3)	1	(0.0)	5	(0.1)
Pit latrine without slab/open pit	269	(20.5)	370	(13.4)	639	(15.7)
Hanging toilet/latrine	13	(1.0)	17	(0.6)	30	(0.7)

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
No facility (bush, field)	2	(0.2)	10	(0.4)	12	(0.3)
Facility shared with other HHs	216	(16.5)	1,053	(38.4)	1,269	(31.3)
Facility shared with other HHs/public						
Other HHs only	204	(94.4)	1,047	(99.4)	1,251	(98.6)
Public facility	12	(5.6)	6	(0.6)	18	(1.4)
Hand-washing station						
Observed	1,254	(95.5)	2,306	(83.7)	3,560	(87.5)
Not observed (not in dwelling/yard/plot)	56	(4.3)	419	(15.2)	475	(11.7)
Not observed (no permission to see)	0	(0)	18	(0.7)	18	(0.4)
Not observed (other reasons)	3	(0.2)	11	(0.4)	14	(0.3)
Presence of water at hand-washing station						
Water available	1,175	(93.7)	2,109	(91.5)	3,284	(92.3)
Water not available	79	(6.3)	197	(8.5)	276	(7.7)
Type of cleaning agent observed*						
Soap	312	(24.9)	933	(40.5)	1,245	(34.9)
Detergent	22	(1.7)	57	(2.5)	79	(2.2)
Ash, mud, sand	456	(36.4)	517	(22.4)	973	(27.3)
None	588	(46.9)	981	(42.5)	1,596	(44.1)
Type of hand-washing station observed						
Covered space (inside dwelling)	30	(2.4)	145	(6.3)	175	(4.9)
Open space, not shared	610	(48.6)	1,219	(52.9)	1,829	(51.4)
Open space, shared	614	(49.0)	942	(40.8)	1,556	(43.7)

*Multiple responses allowed.

Table 6. Household assets.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Television	362	(27.6)	1,446	(52.5)	1,808	(44.5)
Electric fan	856	(65.2)	2,653	(96.3)	3,509	(86.3)
Electricity	927	(70.6)	2,652	(96.3)	3,579	(88.0)
Almirah/wardrobe	431	(32.8)	573	(20.8)	1,004	(24.7)
Refrigerator	144	(11.0)	317	(11.5)	461	(11.3)
Any member of HH has a bank account	222	(16.9)	572	(20.8)	794	(19.5)
Main material of walls						
Cement	74	(5.6)	1,274	(46.3)	1,348	(33.1)
Other	1,239	(94.4)	1,480	(53.7)	2,719	(66.9)
Main material of floor						

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Cement	72	(5.5)	530	(19.2)	602	(14.8)
Earth or sand	1,163	(88.6)	2,213	(80.4)	3,376	(83.0)
Other	78	(5.9)	11	(0.4)	89	(2.2)

Table 7. Household food security.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
HH hunger scale						
Little/no hunger	1,176	(89.6)	2,607	(94.7)	3,783	(93.0)
Moderate hunger	135	(10.3)	139	(5.0)	274	(6.7)
Severe hunger	2	(0.2)	8	(0.3)	10	(0.2)
No food to eat in the past 30 days due to lack of resources	257	(19.6)	324	(11.8)	581	(14.3)
Frequency in the past 30 days						
Rarely (1–2 times)	127	(49.4)	198	(61.1)	325	(55.9)
Sometimes (3–10 times)	127	(49.4)	109	(33.6)	236	(40.6)
Often (more than 10 times)	3	(1.2)	17	(5.2)	20	(3.4)
Go to sleep hungry in the past 30 days because not enough food	157	(12.0)	154	(5.6)	311	(7.6)
Frequency in the past 30 days						
Rarely (1–2 times)	72	(45.9)	93	(60.4)	165	(53.1)
Sometimes (3–10 times)	84	(53.5)	56	(36.4)	140	(45.0)
Often (more than 10 times)	1	(0.6)	5	(3.2)	6	(1.9)
Whole day and night without eating because not enough food	25	(1.9)	45	(1.6)	70	(1.7)
Frequency in the past 30 days						
Rarely (1–2 times)	16	(64.0)	27	(60.0)	43	(61.4)
Sometimes (3–10 times)	9	(36.0)	17	(37.8)	26	(37.1)
Often (more than 10 times)	0	(0)	1	(2.2)	1	(1.4)

Table 8. Participation in social safety net programs.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Participation in social safety net program						
Currently participating	438	(33.4)	918	(33.3)	1,356	(33.3)
Participated in the last 12 months	18	(1.4)	60	(2.2)	78	(1.9)
Participated before 12 months	26	(2.0)	71	(2.6)	97	(2.4)
Never participated	831	(63.3)	1,705	(61.9)	2,536	(62.4)
Type of benefit received from this						

program						
Non-cash, agricultural/livestock inputs	42	(8.7)	61	(5.8)	103	(6.7)
Cash transfer	426	(88.4)	920	(87.7)	1,346	(87.9)
No benefits	14	(2.9)	68	(6.5)	82	(5.4)
Participation in NGO program						
Currently participating	533	(40.6)	1,412	(51.3)	1,945	(47.8)
Participated in the last 12 months	18	(1.4)	39	(1.4)	57	(1.4)
Participated before 12 months	54	(4.1)	72	(2.6)	126	(3.1)
Never participated	708	(53.9)	1,231	(44.7)	1,939	(47.7)
Type of benefit received from this program						
Non-cash, agricultural/livestock inputs	21	(3.5)	27	(1.8)	48	(2.3)
Cash transfer	557	(92.1)	1,478	(97.0)	2,035	(95.6)
Other	1	(0.2)	2	(0.1)	3	(0.1)
No benefits	26	(4.3)	16	(1.1)	42	(2.0)
Participation in any community committee						
Currently participating	71	(5.4)	90	(3.3)	161	(4.0)
Participated in the last 12 months	4	(0.3)	7	(0.3)	11	(0.3)
Participated before 12 months	5	(0.4)	16	(0.6)	21	(0.5)
Never participated	1,233	(93.9)	2,641	(95.9)	3,874	(95.3)

Table 9. Antenatal care.*

	Barishal (N=1,294)		Khulna (N=2,738)		Total (N=4,032)	
	N	(%)	N	(%)	N	(%)
ANC during last pregnancy	1,068	(82.5)	2,495	(91.1)	3,563	(88.4)
Who did you see**						
Qualified doctor	861	(80.6)	2,088	(83.7)	2,949	(82.8)
Nurse/midwife	117	(11.0)	328	(13.2)	445	(12.5)
Family welfare visitor	113	(10.6)	316	(12.7)	429	(12.0)
Subassistant community medical officer	13	(1.2)	44	(1.8)	57	(1.6)
NGO health worker	302	(28.3)	745	(29.9)	1,047	(29.4)
Skilled birth attendant	23	(2.2)	173	(6.9)	196	(5.5)
Traditional birth attendant	6	(0.6)	10	(0.4)	16	(0.5)
Other	30	(2.8)	111	(4.5)	141	(4.0)
Where received ANC**						
Home	298	(27.9)	795	(31.9)	1,093	(30.7)
Hospital/medical college	27	(2.5)	29	(1.2)	56	(1.6)
District hospital	57	(5.3)	276	(11.1)	333	(9.4)
MCWC	44	(4.1)	101	(4.1)	145	(4.1)
Upazila health complex	243	(22.8)	341	(13.7)	584	(16.4)
Community clinic	93	(8.7)	430	(17.2)	523	(14.7)
Other public sector	19	(1.8)	39	(1.6)	58	(1.6)
NGO clinic	48	(4.5)	102	(4.1)	150	(4.2)
Private hospital/clinic	569	(53.3)	1,715	(68.7)	2,284	(64.1)

	Barishal (N=1,294)		Khulna (N=2,738)		Total (N=4,032)	
	N	(%)	N	(%)	N	(%)
Pharmacy	28	(2.6)	96	(3.9)	124	(3.5)
When did you first receive ANC						
During first trimester	136	(12.7)	380	(15.2)	516	(14.5)
During second trimester	705	(66.0)	1,591	(63.8)	2,296	(64.4)
During third trimester	225	(21.1)	523	(21.0)	748	(21.0)
Don't know	2	(0.2)	1	(0.0)	3	(0.1)
Number of ANC visits						
Mean (SD)	3.53 (2.24)		4.21 (2.74)		4.00 (2.62)	
Min, max	1, 15		1, 32		1, 32	
Blood pressure measured at least once	1,010	(94.6)	2,299	(92.1)	3,309	(92.9)
Gave urine sample at least once	847	(79.3)	1,836	(73.6)	2,683	(75.3)
Gave blood sample at least once	828	(77.5)	1,756	(70.4)	2,584	(72.5)

*Respondents identifying as caregivers were not asked these questions.
**Multiple responses allowed.

Table 10. Antenatal care: immunizations, supplements and nutrition.

	Barishal (N=1,294)		Khulna (N=2,738)		Total (N=4,032)	
	N	(%)	N	(%)	N	(%)
Immunization card present						
Yes (seen)	383	(35.9)	919	(36.8)	1,302	(36.5)
Yes (not seen)	391	(36.6)	888	(35.6)	1,279	(35.9)
No	294	(27.5)	682	(27.3)	976	(27.4)
Don't know	0	(0)	6	(0.2)	6	(0.2)
Total	1,068		2,495		3,563	
Received injection during this or previous pregnancy to prevent tetanus	1,108	(85.6)	2,303	(84.1)	3,411	(84.6)
Took IFA supplements during pregnancy	857	(66.2)	1,711	(62.5)	2,568	(63.7)
Began taking IFA supplements during						
First trimester	207	(24.2)	410	(24.0)	617	(24.0)
Second trimester	480	(56.0)	899	(52.5)	1,379	(53.7)
Third trimester	167	(19.5)	390	(22.8)	557	(21.7)
Don't know	3	(0.4)	12	(0.7)	15	(0.6)
Took drug for intestinal worms during pregnancy	14	(1.1)	34	(1.2)	48	(1.2)
Amount of food eaten during last pregnancy*						
Less than usual	435	(33.6)	885	(32.3)	1,320	(32.7)
Same as usual	714	(55.2)	1,176	(43.0)	1,890	(46.9)
More than usual	145	(11.2)	676	(24.7)	821	(20.4)
Don't know	0	(0)	1	(0.0)	1	(0.0)

	Barishal (N=1,294)		Khulna (N=2,738)		Total (N=4,032)	
	N	(%)	N	(%)	N	(%)
Amount of rest during last pregnancy*						
Less than usual	171	(13.2)	197	(7.2)	368	(9.1)
Same as usual	747	(57.7)	1,100	(40.2)	1,847	(45.8)
More than usual	375	(29.0)	1,439	(52.6)	1,814	(45.0)
Don't know	1	(0.1)	2	(0.1)	3	(0.1)

**Caregivers were not asked these questions.*

Table 11. Delivery.*

	Barishal (N=1,294)		Khulna (N=2,738)		Total (N=4,032)	
	N	(%)	N	(%)	N	(%)
Who assisted in delivery during last pregnancy**						
Qualified doctor	449	(34.7)	1,662	(60.7)	2,111	(52.4)
Nurse/midwife	711	(55.0)	1,703	(62.2)	2,414	(59.9)
Family welfare visitor	1	(0.1)	12	(0.4)	13	(0.3)
Skilled birth attendant	22	(1.7)	33	(1.2)	55	(1.4)
Traditional birth attendant	333	(25.7)	390	(14.2)	723	(17.9)
NGO health worker	28	(2.2)	14	(0.5)	42	(1.0)
Relative/friend/family	621	(48.0)	1,279	(46.7)	1,900	(47.1)
Other	5	(0.4)	1	(1.0)	33	(0.9)
No one	2	(0.2)	6	(0.2)	8	(0.2)
Where did you give birth during your last pregnancy						
Home	719	(55.6)	688	(25.1)	1,407	(34.9)
Hospital/medical college	21	(1.6)	22	(0.8)	43	(1.1)
District hospital	42	(3.2)	207	(7.6)	249	(6.2)
MCWC	10	(0.8)	20	(0.7)	30	(0.7)
Upazila health complex	119	(9.2)	178	(6.5)	297	(7.4)
Community clinic	1	(0.1)	42	(1.5)	43	(1.1)
Other public sector	2	(0.2)	8	(0.3)	10	(0.2)
NGO clinic	6	(0.5)	12	(0.4)	18	(0.4)
Other NGO	1	(0.1)	0	(0)	1	(0.0)
Private hospital/clinic	368	(28.4)	1,546	(56.5)	1,914	(47.5)
Pharmacy	1	(0.1)	4	(0.1)	5	(0.1)
Other, private	4	(0.3)	11	(0.4)	15	(0.4)
Reason for not delivering at health facility**						
Cost too high	215	(29.9)	88	(12.8)	303	(21.5)
Too far/no transportation	65	(9.0)	15	(2.2)	80	(5.7)
Not necessary	552	(76.8)	587	(85.3)	1,139	(81.0)
No support from family	17	(2.4)	30	(4.4)	47	(3.3)
Other	14	(1.9)	8	(1.1)	22	(1.4)
Last pregnancy delivered by caesarean section (of births in facilities)	370	(64.3)	1,548	(75.5)	1,918	(73.1)

	Barishal (N=1,294)		Khulna (N=2,738)		Total (N=4,032)	
	N	(%)	N	(%)	N	(%)
Total births in facilities	575		2,050		2,625	
Last pregnancy delivered by caesarean section (among all births)	370	(28.6)	1,548	(56.5)	1,918	(47.6)

	Barishal (N=1,294)		Khulna (N=2,738)		Total (N=4,032)	
	N	(%)	N	(%)	N	(%)
Child size at birth						
Very large	23	(1.8)	43	(1.6)	66	(1.6)
Larger than average	156	(11.9)	501	(18.2)	657	(16.2)
Average	892	(67.9)	1,570	(57.0)	2,462	(60.5)
Smaller than average	163	(12.4)	510	(18.5)	673	(16.5)
Very small	67	(5.1)	118	(4.3)	185	(4.5)
Don't know	12	(0.9)	12	(0.4)	24	(0.6)
Child weighed at birth	603	(45.9)	1,815	(65.9)	2,418	(59.5)
Weight recorded from						
Card	72	(11.9)	167	(9.2)	239	(9.9)
Recall	531	(88.1)	1,648	(90.8)	2,179	(90.1)
Weight in kilograms						
Mean (SD)	2.9	(0.72)	2.9	(0.71)	2.9	(0.72)
Range (min,max)	(1,7)		(1,7.5)		(1,7.5)	
Received visit after delivery from**						
Qualified doctor	8	(0.6)	24	(0.9)	32	(0.8)
Nurse/midwife	11	(0.9)	11	(0.4)	22	(0.6)
Family welfare visitor	17	(1.3)	36	(1.3)	53	(1.3)
Subassistant community medical officer	0	(0.0)	7	(0.3)	7	(0.2)
Skilled birth attendant	11	(0.9)	28	(1.0)	39	(1.0)
Traditional birth attendant	6	(0.5)	4	(0.2)	10	(0.3)
NGO health worker	127	(9.8)	229	(8.4)	356	(8.8)
Did not receive visit	1,103	(85.2)	2,334	(85.2)	3,437	(85.2)
Other	13	(1.0)	72	(2.6)	85	(2.1)
How soon after delivery did they visit						
Within one hour	25	(13.0)	17	(4.1)	42	(6.9)
Within one day	23	(12.0)	6	(1.4)	29	(4.8)
Within two days	38	(19.8)	20	(4.8)	58	(9.6)
More than two days	103	(53.6)	362	(87.2)	465	(76.6)
Don't know	3	(1.6)	10	(2.4)	13	(2.1)
Given or purchased vitamin A supplements within two months after delivery	76	(39.6)	155	(37.3)	231	(38.1)

*Respondents identifying as caregivers were not asked these questions.
**Multiple responses allowed.

Table 12. Mothers' minimum dietary diversity.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Grains, roots, tubers	1,306	(99.5)	2,747	(99.7)	4,053	(99.7)
Pulses (beans, peas,	477	(36.3)	969	(35.2)	1,446	(35.6)

lentils)						
Nuts and seeds	79	(6.0)	210	(7.6)	289	(7.1)
Dairy products	123	(9.4)	573	(20.8)	696	(17.1)
Meat, fish, poultry	969	(73.8)	2,091	(75.9)	3,060	(75.2)
Eggs	352	(26.8)	706	(25.6)	1,058	(26.0)
Dark green leafy vegetables	323	(24.6)	1,100	(39.9)	1,423	(35.0)
Vitamin A-rich fruits/ vegetables	455	(34.7)	951	(34.5)	1,406	(34.6)
Other vegetables	774	(58.9)	1,671	(60.7)	2,445	(60.1)
Other fruits	519	(39.5)	1,120	(40.7)	1,639	(40.3)
Mother's dietary diversity score	468	(35.6)	1,215	(44.1)	1,683	(41.4)

Table 13. Mothers' infant and young child feeding knowledge.

Knowledge	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Initiation of breastfeeding	306	(23.3)	917	(33.3)	1,223	(30.1)
Colostrum	900	(68.5)	2,389	(86.7)	3,289	(80.9)
When should a child be breastfed	87	(6.6)	272	(9.9)	359	(8.8)
Exclusive breastfeeding	1,213	(92.4)	2,365	(85.9)	3,578	(88.0)
Other fluids before 6 months	383	(29.2)	859	(31.2)	1,242	(30.5)
Correct age for introducing liquids	559	(42.6)	1,092	(39.7)	1,651	(40.6)
Correct age for introducing solid, semi-solid and soft foods	452	(34.4)	777	(28.2)	1,229	(30.2)
IYCF knowledge score (out of 7)						
Mean (SD)	2.97 (1.27)		3.15 (1.17)		3.09 (1.21)	
Min, max	0.0, 6.0		0.0, 6.0		0.0, 6.0	

Table 14. Mothers' knowledge—complementary feeding.

	Barishal <5 months	Khulna <5 months	Barishal 6–11 months	Khulna 6–11 months	Barishal >=12 months	Khulna >=12 months	Barishal Don't know	Khulna Don't know
Appropriate age (months) to give a child the following foods:	%	%	%	%	%	%	%	%
Water	43.6*	37.7*	53.7	59.5	0.2	0.2	2.4	2.6
Rice, bread, pressed rice	4.6*	3.3*	89.3	94.2	5.5	2.0	0.6	0.5

Legumes	1.1*	1.6*	93.5	91.2	4.0	4.9	1.3	2.3
Green leafy vegetables	0.8*	1.5*	94.2	94.1	4.0	3.3	0.9	1.1
Vitamin A-rich vegetables (yams)	0.9*	1.6*	92.7	90.7	5.4	6.4	1.0	1.3
Papaya/mango	2.1*	3.3*	90.2	90.7	6.2	4.6	1.5	1.3
Bananas	2.0*	2.9*	89.8	90.1	7.1	5.7	1.1	1.2
Meat	0.0*	0.7*	42.3	53.5	42.3	42.6	6.4	3.2
Poultry	0.8*	1.8*	81.4	84.2	15.4	12.6	2.4	1.5
Fish (big)	0.4*	1.7*	81.4	88.7	16.0	8.8	2.2	0.8
Fish (small)	0.1*	0.7*	34.7	31.4	59.2	63.7	6.0	4.3
Eggs	3.4*	2.5*	92.8	93.6	3.0	3.4	0.8	0.5
Nuts/seeds	0.0*	0.5*	56.1*	45.0*	56.1	49.5	8.6	5.0
Milk (cow, goat)	11.3*	16.2*	71.7*	77.1*	13.9	5.4	3.0	1.4
Snack foods	0.7*	1.5*	56.3*	59.3*	39.4	37.1	3.7	2.1
Other liquids (tea, fruit juice)	3.1*	3.4*	79.0*	76.8*	14.3	16.4	3.6	3.4
Semi-solid foods	2.3*	1.6*	91.2	94.3	6.0	3.8	0.5	0.3

*Incorrect response.

Table 15. Mothers' knowledge—supplements.

Variable	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Identify effect of iron deficiency						
Impaired learning*	11	(0.8)	12	(0.4)	23	(0.6)
Impaired development*	139	(10.6)	502	(18.2)	641	(15.8)
Lower height*	24	(1.8)	136	(4.9)	160	(3.9)
Weakened immune system*	296	(22.5)	744	(27.0)	1,040	(25.6)
Feel tired*	56	(4.3)	128	(4.6)	184	(4.5)
Become anemic*	170	(12.9)	210	(7.6)	380	(9.3)
Other	52	(4.0)	175	(6.4)	227	(5.6)
Don't know	565	(43.0)	847	(30.8)	1,412	(34.7)
Knowledge- iron deficiency	696	(53.0)	1,732	(62.9)	2,428	(59.7)
Identify iodine source						
Salt*	541	(41.2)	959	(34.8)	1,500	(36.9)
Other	94	(7.2)	267	(9.7)	361	(8.9)
Don't know	678	(51.6)	1,528	(55.5)	2,206	(54.2)
Knowledge- iodine source	541	(41.2)	959	(34.8)	1,500	(36.9)

*Correct response.

Table 16. Mothers' knowledge and practices—diarrhea.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Child feeding when child under 6 months has diarrhea*						
Give ORS**	1,175	(89.5)	2,467	(89.6)	3,642	(89.6)
Feed less than usual	14	(1.1)	43	(1.6)	57	(1.4)
Continue breastfeeding**	601	(45.8)	1,346	(48.9)	1,947	(47.9)
Breastfeed more often**	91	(6.9)	135	(4.9)	226	(5.6)
Give syrups**	303	(23.1)	779	(28.3)	1,082	(26.6)
Give traditional medicine	171	(13.0)	38	(1.4)	209	(5.1)
Give treated water**	11	(0.8)	4	(0.1)	15	(0.4)
Give carrot juice or rice water	32	(2.4)	117	(4.2)	149	(3.7)
Other	85	(6.5)	246	(8.9)	331	(8.1)
Don't know	79	(6.0)	79	(2.9)	158	(3.9)
Child feeding when child over 6 months has diarrhea*						
Give ORS**	1,195	(91.0)	2,631	(95.5)	3,826	(94.1)
Feed less than usual	50	(3.8)	186	(6.8)	236	(5.8)
Continue breastfeeding**	500	(38.1)	1,129	(41.0)	1,629	(40.1)
Breastfeed more often**	121	(9.2)	125	(4.5)	246	(6.0)
Give syrups**	538	(41.0)	1,478	(53.7)	2,016	(49.6)
Give traditional medicine	219	(16.7)	82	(3.0)	301	(7.4)
Give treated water**	7	(0.5)	12	(0.4)	19	(0.5)
Give rice water**	172	(13.1)	516	(18.7)	688	(16.9)
Other	202	(15.4)	673	(24.4)	875	(21.5)
Don't know	56	(4.3)	27	(1.0)	83	(2.0)
Identified at least one recommended treatment for and over 6 months	1,191	(90.7)	2,612	(94.8)	3,803	(93.5)
Hand-washing*						
Before eating	1,259	(95.9)	2,608	(94.7)	3,867	(95.1)
After using the toilet	1,149	(87.5)	2,302	(83.6)	3,451	(84.9)
Before feeding the child	664	(50.6)	1,453	(52.8)	2,117	(52.1)
After helping child use the bathroom	419	(31.9)	1,151	(41.8)	1,570	(38.6)
Before preparing/cooking food	542	(41.3)	1,326	(48.1)	1,868	(45.9)
Other	133	(10.1)	136	(4.9)	269	(6.6)
Don't know	7	(0.5)	3	(0.1)	10	(0.2)

*Multiple responses allowed.
**Correct response.

Table 17. Mothers' awareness and trial of key practices.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Has heard about any of the following child feeding practices:						
Start breastfeeding immediately after	1,126	(85.8)	2,293	(83.3)	3,419	(84.1)

	Barishal (N=1,313)	Khulna (N=2,754)	Total (N=4,067)
	N (%)	N (%)	N (%)
delivery			
Heard about this practice from			
Family member	237 (21.0)	471 (20.5)	708 (20.7)
Friend/neighbor	182 (16.2)	457 (19.9)	639 (18.7)
Health worker	347 (30.8)	415 (18.1)	762 (22.3)
Nurse/dispensary	35 (3.1)	88 (3.8)	123 (3.6)
Radio/TV	127 (11.3)	324 (14.1)	451 (13.2)
NGO worker	71 (6.3)	131 (5.7)	202 (5.9)
Health center	86 (7.6)	287 (12.5)	373 (10.9)
Other	41 (3.6)	120 (5.2)	161 (4.7)
Tried this practice	1,033 (91.7)	2,036 (88.8)	3,069 (89.8)
Main reason never tried			
Do not know	8 (8.6)	34 (13.2)	42 (12.0)
Insufficient breast milk	21 (22.6)	82 (31.9)	103 (29.4)
Family members discouraged me	2 (2.2)	2 (0.8)	4 (1.1)
Other people discouraged me	0 (0.0)	3 (1.2)	3 (0.9)
Doctor forbade me	5 (5.4)	19 (7.4)	24 (6.9)
Did not feel it was necessary	4 (4.3)	9 (3.5)	13 (3.7)
Other	53 (57.0)	108 (42.0)	161 (46.0)
Exclusive breastfeeding until 6 months	1,233 (93.9)	2,534 (92.0)	3,767 (92.6)
Heard about this practice from			
Family member	249 (20.2)	457 (18.0)	706 (18.7)
Friend/neighbor	181 (14.7)	539 (21.3)	720 (19.1)
Health worker	417 (33.8)	542 (21.4)	959 (25.5)
Nurse/dispensary	38 (3.1)	86 (3.4)	124 (3.3)
Radio/TV	121 (9.8)	393 (15.5)	514 (13.6)
NGO worker	75 (6.1)	158 (6.2)	233 (6.2)
Religious leader	1 (0.1)	1 (0.0)	2 (0.1)
Health center	93 (7.5)	244 (9.6)	337 (8.9)
Other	58 (4.7)	114 (4.5)	172 (4.6)
Tried this practice	1,020 (82.7)	2,117 (83.5)	3,137 (83.3)
Main reason never tried			
Do not know	3 (1.4)	4 (1.0)	7 (1.1)
Mother did not want	15 (7.0)	13 (3.1)	28 (4.4)
Family members told me to feed something else	7 (3.3)	30 (7.2)	37 (5.9)
Others told me to feed something else	2 (0.9)	16 (3.8)	18 (2.9)
Insufficient breast milk	176 (82.6)	328 (78.7)	504 (80.0)
Other	10 (4.7)	26 (6.2)	36 (5.7)
Feeding baby mashed family foods in addition to breastfeeding starting at 6 months	1,121 (85.4)	2,531 (91.9)	3,652 (89.8)
Heard about this practice from			

	Barishal (N=1,313)	Khulna (N=2,754)	Total (N=4,067)
	N (%)	N (%)	N (%)
Family member	242 (21.6)	532 (21.0)	774 (21.2)
Friend/neighbor	198 (17.7)	690 (27.3)	888 (24.3)
Health worker	372 (33.2)	491 (19.4)	863 (23.6)
Nurse/dispensary	23 (2.1)	76 (3.0)	99 (2.7)
Radio/TV	91 (8.1)	317 (12.5)	408 (11.2)
NGO worker	62 (5.5)	177 (7.0)	239 (6.5)
Religious leader	3 (0.3)	0 (0.0)	3 (0.1)
Health center	73 (6.5)	179 (7.1)	252 (6.9)
Other	57 (5.1)	69 (2.7)	126 (3.5)
Tried this practice	1,053 (93.9)	2,457 (97.1)	3,510 (96.1)
Main reason never tried			
Child does not like it	20 (29.4)	36 (48.6)	56 (39.4)
Not enough food at home	8 (11.8)	4 (5.4)	12 (8.5)
Did not have required ingredients	2 (2.9)	2 (2.7)	4 (2.8)
Ingredients too expensive	1 (1.5)	2 (2.7)	3 (2.1)
Child not old enough	11 (16.2)	7 (9.5)	18 (12.7)
Other	2 (2.9)	5 (6.8)	7 (4.9)
Did not feel it was necessary	24 (35.3)	18 (24.3)	42 (29.6)
Feeding animal protein at least once per day for children older than 6 months	1,177 (89.6)	2,585 (93.9)	3,762 (92.5)
Heard about this practice from			
Family member	237 (20.1)	518 (20.0)	755 (20.1)
Friend/neighbor	167 (14.2)	597 (23.1)	764 (20.3)
Health worker	411 (34.9)	539 (20.9)	950 (25.3)
Nurse/dispensary	34 (2.9)	68 (2.6)	102 (2.7)
Radio/TV	119 (10.1)	403 (15.6)	522 (13.9)
NGO worker	74 (6.3)	170 (6.6)	244 (6.5)
Religious leader	1 (0.1)	1 (0.0)	2 (0.1)
Health center	78 (6.6)	217 (8.4)	295 (7.8)
Other	56 (4.8)	72 (2.8)	128 (3.4)
Tried this practice	994 (84.5)	2,137 (82.7)	3,131 (83.2)
Main reason never tried			
Do not know	0 (0.0)	1 (0.2)	1 (0.2)
Child does not like it	21 (11.5)	47 (10.5)	68 (10.8)
Did not have money	103 (56.3)	240 (53.6)	343 (54.4)
Too expensive	17 (9.3)	99 (22.1)	116 (18.4)
Child not old enough	22 (12.0)	29 (6.5)	51 (8.1)
Other	4 (2.2)	9 (2.0)	13 (2.1)
Did not feel it was necessary	16 (8.7)	23 (5.1)	39 (6.2)

	Barishal (N=1,313)	Khulna (N=2,754)	Total (N=4,067)
	N (%)	N (%)	N (%)
Adding MyMix/Sprinkles to child's food	726 (55.3)	1419 (51.5)	2145 (52.7)
Heard about this practice from			
Family member	88 (12.1)	109 (7.7)	197 (9.2)
Friend/neighbor	65 (9.0)	177 (12.5)	242 (11.3)
Health worker	329 (45.3)	392 (27.6)	721 (33.6)
Nurse/dispensary	14 (1.9)	68 (4.8)	82 (3.8)
Radio/TV	62 (8.5)	101 (7.1)	163 (7.6)
NGO worker	116 (16.0)	473 (33.3)	589 (27.5)
Health center	36 (5.0)	71 (5.0)	107 (5.0)
Other	16 (2.2)	28 (2.0)	44 (2.1)
Tried this practice	282 (38.8)	482 (34.0)	764 (35.6)
Main reason never tried			
Do not know	18 (4.1)	42 (4.5)	60 (4.3)
Child does not like it	54 (12.2)	126 (13.4)	180 (13.0)
Did not have money	100 (22.5)	160 (17.1)	260 (18.8)
Too expensive	11 (2.5)	25 (2.7)	36 (2.6)
Child not old enough	23 (5.2)	52 (5.5)	75 (5.4)
Other	21 (4.7)	78 (8.3)	99 (7.2)
Did not feel it was necessary	217 (48.9)	454 (48.5)	671 (48.6)

Table 18. Use of health services.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Where do you usually seek advice/medical help or treatment for illness?						
Home	6	(0.5)	77	(2.8)	83	(2.0)
District hospital	20	(1.5)	83	(3.0)	103	(2.5)
Upazila health complex	165	(12.6)	138	(5.0)	303	(7.5)
Maternal and Child Welfare Center	19	(1.4)	13	(0.5)	32	(0.8)
Union Health and Family Welfare Center	23	(1.8)	49	(1.8)	72	(1.8)
Community clinic	46	(3.5)	122	(4.4)	168	(4.1)
Private hospital/clinic	20	(1.5)	77	(2.8)	97	(2.4)
Qualified doctor's chamber	212	(16.1)	253	(9.2)	465	(11.4)
Unqualified village doctor's chamber	388	(29.6)	1,639	(59.5)	2,027	(49.8)
Pharmacy	405	(30.8)	282	(10.2)	687	(16.9)
Other	9	(0.7)	21	(0.8)	30	(0.7)
Walking distance to health facility in minutes						
Median (IQR)	30.0 (15,60)		20.0 (10,30)		25.0 (10,35)	
Min, max	1, 360		1, 420		1, 420	
Took child to this facility for any reason in the past six months	1,234	(94.4)	2,490	(93.0)	3,724	(93.5)
Number of times took child to this facility						

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
in the past six months						
Mean (SD)	4.5 (4.2)		5.2 (4.63)		5.0 (4.5)	
Min, max	1,101		1,60		1,101	
Reason for visit*						
Vaccination	108	(8.8)	443	(17.8)	551	(14.8)
Growth monitoring	4	(0.3)	18	(0.7)	22	(0.6)
Vitamin A supplementation	14	(1.1)	60	(2.4)	74	(2.0)
De-worming	9	(0.7)	18	(0.7)	27	(0.7)
Nutrition counseling	30	(2.4)	86	(3.5)	116	(3.1)
Malaria test/treatment/prevention	19	(1.5)	11	(0.4)	30	(0.8)
Cough/trouble breathing	908	(73.6)	1,860	(74.7)	2,768	(74.3)
Fever	1,013	(82.1)	1,768	(71.0)	2,781	(74.7)
Diarrhea	407	(33.0)	390	(15.7)	797	(21.4)
Other	151	(12.2)	259	(10.5)	410	(11.2)
Reason for not visiting*						
No reason to visit/family is healthy	72	(98.6)	173	(92.5)	245	(94.2)
Other	1	(1.4)	19	(7.3)	20	(7.7)

*Multiple responses allowed

Table 19. Early initiation of breastfeeding.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Child ever breastfed	1,299	(98.9)	2,728	(99.1)	4,027	(99.0)
Why wasn't the child breastfed						
Mother was ill/weak	1	(7.7)	2	(7.7)	3	(7.7)
Child was ill/weak	0	(0)	4	(15.4)	4	(10.3)
Nipple/breast problems	0	(0)	2	(7.7)	2	(5.1)
Insufficient milk	6	(46.2)	9	(34.6)	15	(38.5)
Mother working	2	(15.4)	0	(0)	2	(5.1)
Child refused	1	(7.7)	3	(11.5)	4	(10.3)
Mother died	1	(7.7)	1	(3.8)	2	(5.1)
Other	2	(15.4)	5	(19.2)	7	(17.9)
How long after birth did you first put your child to the breast						
Less than one hour	341	(26.3)	910	(33.4)	1,251	(31.1)
1–23 hours	835	(64.3)	1,476	(54.1)	2,311	(57.4)
More than 24 hours	99	(7.6)	221	(8.1)	320	(7.9)
Don't know/don't remember	24	(1.8)	121	(4.4)	145	(3.6)
What did you do with the first milk (colostrum)						
Gave to the child	1,229	(94.6)	2,618	(96.0)	3,847	(95.5)
Did not give to the child	56	(4.3)	91	(3.3)	147	(3.7)
Don't know	14	(1.1)	19	(0.7)	33	(0.8)
Why did you not give the first milk						

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Not good for the baby	19	(33.9)	18	(19.8)	37	(25.2)
Baby was not thirsty	1	(1.8)	0	(0)	1	(0.7)
It was yellow	1	(1.8)	3	(3.3)	4	(2.7)
It is the tradition	3	(5.4)	13	(14.3)	16	(10.9)
Told to do so	13	(23.2)	28	(30.8)	41	(27.9)
Other	19	(33.9)	29	(31.9)	48	(32.7)
Child given anything besides breast milk during the first three days after delivery	335	(25.5)	944	(34.3)	1,279	(31.4)
What was child given to drink other than breast milk*						
Milk (from animal)	106	(31.6)	387	(41.0)	493	(38.5)
Plain water	96	(28.7)	138	(14.6)	234	(18.3)
Sugar or glucose water	41	(12.2)	12	(1.3)	53	(4.1)
Gripe water	3	(0.9)	47	(5.0)	50	(3.9)
Sugar-salt-water solution	2	(0.6)	3	(0.3)	5	(0.4)
Baby formula milk	60	(17.9)	362	(38.3)	422	(33.0)
Honey	66	(19.7)	61	(6.5)	127	(9.9)
Prescribed medicine	17	(5.1)	33	(3.5)	50	(3.9)
Other	14	(4.2)	17	(1.8)	31	(2.4)

*Multiple responses allowed

Table 20. Current breastfeeding and supplemental liquids.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Currently breastfeeding	1,232	(94.8)	2,653	(97.3)	3,885	(96.4)
Child breastfed yesterday during the day or at night	1,226	(93.4)	2,638	(95.8)	3,864	(95.0)
Child drank from a bottle with a nipple yesterday	168	(12.8)	257	(9.3)	425	(10.4)
Child drank yesterday						
Plain water	1,309	(99.7)	2,739	(99.5)	4,048	(99.5)
Infant formula	105	(8.0)	111	(4.0)	216	(5.3)
Milk (tinned, powdered, fresh)	183	(13.9)	578	(21.0)	761	(18.7)
Juice or juice drinks	144	(11.0)	408	(14.8)	552	(13.6)
Clear broth/clear soup	40	(3.0)	144	(5.2)	184	(4.5)
Drink or eat vitamin or minerals	284	(21.6)	522	(19.0)	806	(19.8)
ORS	35	(2.7)	86	(3.1)	121	(3.0)
Any other liquids	112	(8.5)	197	(7.2)	309	(7.6)
Yogurt	11	(0.8)	41	(1.5)	52	(1.3)
Thin porridge	229	(17.4)	367	(13.3)	596	(14.7)

Table 21. Supplemental foods.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Grains, roots and tubers	1,213	(92.4)	2,603	(94.5)	3,816	(93.8)
Legumes and nuts	334	(25.4)	580	(21.1)	914	(22.5)
Dairy products (milk, yogurt, cheese)	349	(26.6)	828	(30.1)	1,177	(28.9)
Flesh foods (meat, fish, poultry)	617	(47.0)	1,529	(55.5)	2,146	(52.8)
Eggs	421	(32.1)	855	(31.0)	1,276	(31.4)
Vitamin A-rich fruits and vegetables	342	(26.0)	922	(33.5)	1,264	(31.1)
Other fruits and vegetables	308	(23.5)	901	(32.7)	1,209	(29.7)
Number of times ate solid, semi-solid, soft foods						
Median (IQR)	3 (2,3)		3 (2,4)		3 (2,4)	
Min, max	0, 15		0, 31		0, 31	
Children that received zero meals	69	(5.3)	88	(3.2)	157	(3.9)

Table 22. Infant and young child feeding practices and indicators.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Ever breastfed	1,299	(98.9)	2,728	(99.1)	4,027	(99.0)
Early initiation of breastfeeding	341	(26.3)	910	(33.4)	1,251	(31.1)
Received prelacteal feeding	335	(25.5)	944	(34.3)	1,279	(31.4)
Continued breastfeeding first year	293	(93.3)	560	(96.6)	853	(95.4)
Continued breastfeeding second year	224	(89.2)	462	(92.4)	686	(91.3)
Age-appropriate breastfeeding	1,162	(93.4)	2,552	(95.7)	3,714	(95.0)
Introduced to sold, semi-solid or soft food	196	(30.6)	478	(36.3)	674	(34.4)
MDD	339	(25.8)	958	(34.8)	1,297	(31.9)
MMF	814	(62.0)	1,939	(70.4)	2,753	(67.7)
MAD	251	(19.1)	756	(27.5)	1,007	(24.8)

Table 23. Household decision-making among currently married mothers and caregivers.

	Barishal (N=1,296)		Khulna (N=2,729)		Total (N=4,025)	
	N	(%)	N	(%)	N	(%)
Decisions made alone or jointly with husband						
Your own healthcare	500	(38.6)	1,061	(38.9)	1,561	(38.8)
Your child's healthcare	634	(48.9)	1,452	(53.2)	2,086	(51.8)
Making large HH purchases	341	(26.3)	758	(27.8)	1,099	(27.3)
Making purchases for daily HH needs	358	(27.6)	703	(25.8)	1,061	(26.4)
Visit to family and/or relatives	512	(39.5)	1,322	(48.4)	1,834	(45.6)
What food should be cooked each day	910	(70.2)	2,047	(75.0)	2,957	(73.5)

Table 24. Household roles and responsibilities among currently married mothers and caregivers.

	Barishal (N=1,296)		Khulna (N=2,729)		Total (N=4,025)	
	N	(%)	N	(%)	N	(%)
Responsibilities usually or always done by respondent (not shared)						
Washing clothes	1,264	(97.5)	2,671	(97.9)	3,935	(97.8)
Repairing house	134	(10.3)	334	(12.2)	468	(11.6)
Buying food	147	(11.3)	244	(8.9)	391	(9.7)
Cleaning the house	1,222	(94.3)	2,618	(95.9)	3,840	(95.4)
Preparing food	1,232	(95.1)	2,569	(94.1)	3,801	(94.4)
Caring for or spending time with children	995	(76.8)	2,338	(85.7)	3,333	(82.8)
Husband's overall involvement in the division of tasks						
He does a lot more	184	(14.2)	75	(2.7)	259	(6.4)
He does a little more	226	(17.4)	372	(13.6)	598	(14.9)
He does the same	99	(7.6)	354	(13.0)	453	(11.3)
I do a little more	564	(43.5)	1,406	(51.5)	1,970	(48.9)
I do a lot more	223	(17.2)	522	(19.1)	745	(18.5)
Satisfaction with how HH responsibilities are divided						
Very satisfied	760	(58.6)	1,413	(51.8)	2,173	(54.0)
Somewhat satisfied	499	(38.5)	1,230	(45.1)	1,729	(43.0)
Somewhat dissatisfied	7	(0.5)	47	(1.7)	54	(1.3)
Very dissatisfied	11	(0.8)	11	(0.4)	22	(0.5)
No response	19	(1.5)	28	(1.0)	47	(1.2)
How satisfied do you think your husband is with how HH responsibilities are divided						
Very satisfied	742	(57.3)	1,467	(53.8)	2,209	(54.9)
Somewhat satisfied	511	(39.4)	1,151	(42.2)	1,662	(41.3)
Somewhat dissatisfied	4	(0.3)	40	(1.5)	44	(1.1)

	Barishal (N=1,296)		Khulna (N=2,729)		Total (N=4,025)	
	N	(%)	N	(%)	N	(%)
Very dissatisfied	9	(0.7)	10	(0.4)	19	(0.5)
No response	30	(2.3)	61	(2.2)	91	(2.3)

Table 25. Household decision-making about production and income generation.

	Barishal (N=1,313)		Khulna (N=2,754)		Total (N=4,067)	
	N	(%)	N	(%)	N	(%)
Has some input into decisions or feels can make decisions in at least two activities	439	(64.5)	1,383	(70.5)	1,822	(68.9)
Has some input into income decisions or feels can make decisions	291	(52.8)	989	(57.8)	1,280	(56.6)
Participated in activities in the past 12 months:						
Food crop farming	357	(27.2)	921	(33.4)	1,278	(31.4)
Has some input into decisions	178	(49.9)	615	(66.8)	793	(62.1)
Has some input into decisions regarding income generated	102	(37.1)	417	(59.5)	519	(53.2)
Feels can make decisions	128	(42.5)	634	(75.0)	762	(66.5)
Cash crop farming	156	(11.9)	643	(23.3)	799	(19.6)
Has some input into decisions	49	(31.4)	316	(49.1)	365	(45.7)
Has some input into decisions regarding income generated	23	(17.2)	161	(36.1)	184	(31.7)
Feels can make decisions	49	(35.5)	270	(52.1)	319	(48.6)
Livestock raising	534	(40.7)	1,782	(64.7)	2,316	(56.9)
Has some input into decisions	420	(78.7)	1,261	(70.8)	1,681	(72.6)
Has some input into decisions regarding income generated	224	(53.8)	758	(51.6)	982	(52.1)
Feels can make decisions	366	(80.4)	1,246	(77.3)	1,612	(78.0)
Wage or salary employment	82	(6.2)	338	(12.3)	420	(10.3)
Has some input into decisions	49	(59.8)	196	(58.0)	245	(58.3)
Has some input into decisions regarding income generated	29	(45.3)	122	(48.4)	151	(47.8)
Feels can make decisions	39	(57.4)	163	(59.1)	202	(58.7)
Fishing or fish pond culture	95	(7.2)	100	(3.6)	195	(4.8)
Has some input into decisions	54	(56.8)	55	(55.0)	109	(55.9)
Has some input into decisions regarding income generated	8	(13.3)	20	(37.7)	28	(24.8)
Feels can make decisions	22	(35.5)	31	(49.2)	53	(42.4)