

Nourish Life

MATERNAL, INFANT, AND YOUNG CHILD NUTRITION IN BANGLADESH

FORMATIVE RESEARCH SUMMARY REPORT



2019/20



TABLE OF CONTENTS

Background	04
Study design and purpose	05
Findings	07
Availability, access and attributes of nutritious foods	07
Maternal diet during pregnancy	09
Maternal diet during lactation	09
Consumption of Iron and Folic Acid supplements	10
Household trials	10
Nutrition for IYC	11
Breastfeeding	11
Complementary feeding	12
Dietary diversity	12
Responsive feeding	13
Use of micronutrient powders	13
Household trials for IYC	14
Use of health care services	15
Conclusion and key messages	15
References	16



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BACKGROUND

The Enhancing Nutrition Services to Improve Maternal and Child Health (ENRICH) initiative in the Thakurgaon district of Bangladesh aims to improve overall maternal, infant, and young child nutrition (MIYCN) and health outcomes. ENRICH works through nutrition-specific and nutrition-sensitive interventions to reduce malnutrition in the first 1,000 days of life-from conception to 23 months of age. Promoting increased consumption of nutritious foods and micronutrient supplements are essential practices at the household level and central to ENRICH success.

Bangladesh has made considerable progress in the status of many health indicators, yet undernutrition remains a serious problem for women and children. In 2016, ENRICH conducted a baseline study¹ in Thakurgaon district, which provided context for the formative research study. The baseline study yielded informative results, including:

- Infants and children: High levels of stunting and underweight, as well as sub-optimal feeding practices-particularly for aspects of complementary feeding; micronutrient powder (MNP) sachets had not yet reached the area (Tables 1, 2). Exclusive breastfeeding (EBF) of children under six months reached 70% and requires continued attention.
- Mothers of children <2 years: Sub-optimal dietary practices and low iron and folic acid (IFA) supplement consumption (Table 2).

TABLE 1. NUTRITIONAL STATUS OF CHILDREN FROM THE BASELINE ENRICH SURVEY

CHILDREN <5 YEARS		
31% Stunted (height for age)	20.8% Underweight (weight for age)	
TABLE 2. SELECT FEEDING/DIETARY PRACTICES FROM THE BASELINE ENRICH SURVEY		
CHILDREN 6 MONTHS – 2 YEARS OLD	MOTHERS OF CHILDREN < 2 YEARS OLD	
Minimum dietary diversity = 39.3%	Minimum dietary diversity = 23.8%	
Minimum meal frequency = 89.6%	Consumed ≥ 4 meals/day in last pregnancy = 46.8%	
Minimum acceptable diet = 38.8%	>90 IFA consumption in last pregnancy = 34.1%	

STUDY DESIGN AND PURPOSE

Formative research conducted in the Thakurgaon district between February and March 2018 was designed to better understand the current MIYCN practices from multiple perspectives.

Specifically, the research explored:

- Current household IYC1 feeding and dietary practices of pregnant and lactating women with an emphasis on barriers and opportunities within households and communities;
- Current routines and counseling related to nutrition within the health system—including health facility workers (HFW) and community health workers (CHW); and
- Feasibility and acceptability of several practices in household trials (HHT).

The formative research aimed to identify priority behaviours and key messages aligned with improving consumption of nutritious foods and micronutrient supplements by pregnant women and IYC, as well as to identify opportunities within the local context to promote these behaviours. These results have informed the development of a behaviour change intervention (BCI) strategy for ENRICH.

Household trials (HHT), also known as trials of improved practices (TIPs), is a participatory research method used to pre-test practices or behaviors with a selected number of respondents before introducing it more widely. This provides insight into the barriers and enabling factors participants experience for adopting a new practice, allowing a potential intervention to be refined. FIGURE 1. THAKURGAON DISTRICT, BANGLADESH



¹ Infants and young children (ages 0-23.9 months) Site selection for the formative research included two sub-districts of the Thakurgaon district (ENRICH project areas), which were purposefully selected to maximize sample diversity (**Figure 1**). A variety of qualitative methods engaged multiple respondents to explore topics in detail and provided rich data to triangulate (**Table 3**). After initial analysis of the formative research, HHT were conducted to test the feasibility and acceptability of several proposed behaviours for IYC 6-23 months, and for pregnant and lactating women.

TABLE 3. METHODS	AND	RESPONDEN	NTS/DATA	SOURCE
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DATA COLLECTION METHOD	RESPONDENTS/DATA SOURCE
Free-listing of foods available and consumed locally	Pregnant women; Lactating women; Caregivers of IYC
Market survey of local nutrient rich foods available and accessible	Community markets
Food attributes exercises of the perceptions of foods, barriers and opportunities for consumption	Pregnant women; Caregivers of IYC
In-depth interviews including photo-projective exercises* about healthy pregnancy/IYC, dietary/ feeding practices, influential household members and interactions with health workers	Pregnant women; Lactating women; Caregivers of IYC; Fathers
Qualitative 24-hour dietary recall	Pregnant women; Lactating women; Caregivers of IYC
Home observation of feeding main meal	Caregivers of IYC
Key informant interviews about service provision and counseling, and nutritional problems encountered	Heath facility workers; Community health workers
Health facility observations of the interactions between health facility workers and women/caregivers	Antenatal and IYC services
Household trials to test the feasibility and acceptability of identified behaviours/practices	Pregnant women; Lactating women; Caregivers of IYC

*A caregiver selects a photo of a woman or child and provides a narrative on health, diet, feeding, care, etc.



FINDINGS

Results from the formative research highlight important insights obtained on access, availability and attributes of local nutritious foods, nutrition of pregnant and lactating women, and IYC nutrition. Dietary/feeding practices and micronutrient consumption are addressed, as well as the role of health services and family influences on maternal and IYC nutrition.

Availability, access and attributes of nutritious foods

Results from market surveys revealed the availability of a variety of diverse foods considered "not costly" as well as others considered "costly." Principal among affordable animal source foods (ASF) were several varieties of fish and chicken eggs. Vegetables were plentiful, including a number of inexpensive leafy greens rich in vitamin A. Two types of affordable lentils, which are commonly eaten in the region, were also available. Foods from home production, cultivation and gathering from lands around the household also represented important sources of food, including many vegetables, fruits and eggs. Several of these fruits were rich in vitamin A; however, seasonality affected their availability.

Numerous positive attributes were voiced about local ASF and vitamin A rich foods. ASF were generally connected to "giving energy" to work as well as improving health for women–important attributes linked to their perception of a healthy pregnant or lactating woman. Some foods, such as chicken and fish, were specifically mentioned as being good for improving milk production during lactation–particularly relevant considering the commonly heard complaint of insufficient breastmilk. For IYC, feeding ASF was connected to "health, growth and strength."

Although women and caregivers of IYC did not differentiate vitamin A rich foods from other fruits and vegetables, all were associated with positive attributes including "a source of vitamins and nutritious." For pregnant women most vegetables and some fruits also provided strength and satiety. Lentils were connected with good health and were perceived to cool the body when eaten during hot weather. Milk was considered nutritious for women and children although some mentioned it as a cause of cough/cold or diarrhoea, and it is not always available.

Specific attributes (positive and negative) of selected locally available and affordable foods are provided in **Table 4**. These results provide important local insights on foods, words to emphasize and associate with these foods in BCI messaging, and a range of possibilities to improve dietary diversity.

PREGNANT AND LACTATING WOMEN AND IYC				
FOOD TYPE	POSITIVE ATTRIBUTES	NEGATIVE ATTRIBUTES		
Fish (small fish, farmed fish, dried fish)	 Nutritious, has vitamins, protein, calcium Good for health Helps to keep us active Helps with milk production Helps child grow and become strong Always available 	 May cause allergic reaction (puti, shrimp) Expensive to buy (dried fish) Smell/taste (for pregnant women) Bones (for children) During stomach illness, cannot be fed to children 		
Egg (chicken eggs)	 Nutritious, provides vitamins, energy Good for health and reduces body ache Delicious, tasty Produced at home 	 Excess consumption can cause diarrhoea Avoid consumption if suffering from jaundice (according to local healers) Can cause chest congestion (children) 		
Leafy greens (red amaranth, Lafa, Pui shak, spinach, radish leaves, Kochushak, local leafy greens)	 Nutritious, provides vitamins, energy Helps child grow Good for health, improves eyesight, cleans the blood Tasty Easily available, not costly, can cultivate at home 	 Lafa leaves can cause chest congestion Pui and Lafa leaves can be harmful for children causing cough and cold; also, cannot feed to children with dysentery Greens can cause diarrhoea 		
Yellow and red fruits and vegetables (carrot, pumpkin, papaya, mango)	 Nutritious, provides vitamins/ vitamin A Helps us to stay healthy Available in the house/area 	Some are expensiveSome are seasonal		

TABLE 4. PERCEIVED ATTRIBUTES OF SELECT ASF AND VITAMIN A RICH FOODS

Maternal diet during pregnancy

Women described a healthy pregnancy as one with good physical and mental health; specifically, by having the energy to work and a pleasant mood. Eating "good, healthy food" was connected to both the woman's health as well as to fetal health and a delivery without complication. Specific foods were mentioned such as meat, fish, milk, eggs and vegetables, demonstrating beliefs and a knowledge base to strengthen and build upon. Without nutritious foods, women perceive the fetus will suffer from malnutrition and become weak. As one pregnant woman described:

To keep the mother healthy, she needs to eat proper food, and if the mother is not eating well, then how could the child get food? That's why the mother needs to take good food.

pregnant woman

No significant food taboos during pregnancy were mentioned. Pregnant women reported trying to include ASF and vegetables in their daily meals. Advice received from relatives and friends included consuming ASF and this was reflected in the dietary recall data. Eggs, fish and farmed chicken meat were commonly mentioned sources of ASF, and in addition to their nutritional properties, pregnant women felt these foods helped improve their appetite for other foods. Knowledge of specific vitamin A rich vegetables and fruits was poor among respondents, as was their consumption of these foods. Beans/pulses were eaten by some women, but dairy was rare, and no women reported consuming seeds/nuts in the previous day.

Regarding meal frequency, most pregnant women mentioned they consumed three main meals during the day, as well as snacks, and they were aware of the importance of consuming adequate quantities of food during pregnancy—to take food frequently, but in small amounts.

Maternal diet during lactation

For the lactating woman, producing adequate breastmilk was perceived as a sign of health. Mothers stated the need to consume adequate quantities of nutritious foods to effectively breastfeed infants and have energy to remain active. Similar to pregnancy, all lactating women mentioned the importance of consuming ASF. Some ASF were prized for their perceived effect on breastmilk production, but a few women mentioned avoiding eggs and milk during lactation. However, actual consumption of ASF was variable. A common belief existed that foods the mother ate directly affected her infant's health through breastmilk. Thus, if a food was perceived detrimental to the infant, it was often restricted.

Similar to pregnant women, lactating women had positive perceptions of vegetables and tried to incorporate them into their daily meals. A few mothers described that eating "vitamin rich vegetables" helped increase breastmilk production. However, vitamin A rich vegetables were not differentiated from others and actual practice demonstrated low consumption of these important foods. Eating three to five times per day was considered adequate during lactation.

Despite low dietary diversity and insufficient frequency of meals in many cases, these results on maternal diet during pregnancy and lactation are promising to build upon for both pregnant and lactating women. Women possess some knowledge of the need for both quality foods and frequency of meals, and link this to desired health for themselves and their children. Opportunities to improve diet exist through building knowledge, defining doable actions for women in the home to improve diversity, and counseling to addresses local concerns while stressing affordable and available nutritious foods.

Consumption of Iron and Folic Acid supplements

Findings demonstrated that women were well aware of the need to consume IFA during pregnancy, but consumption was low among those interviewed, as found in the ENRICH baseline survey. While consumption of IFA was associated with positive comments, barriers were also mentioned including side effects, logistical challenges to obtain tablets and fears of excessive fetal growth. CHWs also described problems with stock-outs of IFA at health facilities. Addressing barriers through discussion of side effects, emphasizing healthy (versus excessive) fetal growth, and improving IFA stock can promote increased IFA consumption. Following IFA consumption guidelines during lactation also needs attention.

Daily oral iron and folic acid supplementation with 30-60 mg of elemental iron and 400 µg folic acid is recommended for pregnant women to prevent maternal anaemia, puerperal sepsis, low birth weight, preterm birth, and neural tube defects.²

Household trials

Based on initial findings from the formative research analysis, three recommended practices were identified to test using HHT for pregnant and lactating women (see **Table 5**). Each respondent was given one practice to try over five days with encouragement provided by the field researcher. Findings showed that all mothers could recall the practice tested, most complied with the practice and all intended to continue it. **Table 5** lists the specific facilitators and barriers of each practice from the HHT. Overall, HHT results were encouraging and provided helpful insights for the practices tested, such as promoting inexpensive ASF for both women and children, counseling women and their husbands to increase knowledge about vitamin A-rich fruits and vegetables, and providing a memory prompt for IFA.

TABLE 5: FACILITATORS AND BARRIERS TO PRACTICES DURING HHT FOR PREGNANT AND LACTATING WOMEN

HOUSEHOLD TRIALS (HHT) FOR PREGNANT AND LACTATING WOMEN			
PRACTICE	FACILITATORS	BARRIERS	
Consume IFA daily (lactating women)	 Belief that IFA improves health for mother and baby Doctors prescribe IFA and Community Health Workers advise to consume Easy to take Available free of cost 	Forget to consumeConstipation	
Eat at least 1 vitamin A rich food per day (pregnant/lactating women)	 Support from family members Food is produced/available in the home Awareness of its importance for both mother and baby 	• Sometimes difficult when money is an issue	
Eat at least 4 types of food every day (lactating women)	 Foods are available at home Have knowledge to modify diet from existing food Doctor recommended diverse diet 	 ASF are expensive Prefer to give ASF to child Do not want to demand food from husband (who purchases it) 	

Nutrition for IYC

Caring for the child's health was perceived as central to attaining these aspirations and this included IFA consumption during pregnancy, breastfeeding and adequate complementary feeding. Parents described healthy children as cheerful, playful and energetic.

Breastfeeding

Breastfeeding was almost universal in the Thakurgaon district; parents of young children were knowledgeable about its importance and linked it to positive outcomes such as the development of bones and brain. While awareness of EBF during the first six months was high, challenges to this practice existed including the cultural practice of feeding pre-lacteal foods to newborn infants. As one CHW stated:

The WHO recommends introduction of complementary (solid) foods at 6 months together with continued breastfeeding up to 2 years of age or beyond.³

I tell them 'when you have your delivery at home please put the baby to breast first.' But in our area people tend to provide sugar water and honey first.

CHW

11



Adequacy of breastmilk production was mentioned as a necessary condition for breastfeeding, which was linked to the mother's diet, including adequate food consumption and "good" food. As one mother stated:

The day I went to bed without dinner, the next day my child did not get any breast milk. mother of IYC

The emphasis that mothers place on their diet versus frequent breastfeeding to produce adequate milk is telling. It speaks to a need to focus on mothers' diet and care—to feel energized, healthy, and perceive they can produce and provide breastmilk—in addition to frequent feeding and the many benefits breastmilk provides for the infant. Women mentioned CHWs as a common source of advice on breastfeeding, but also included family members and media. Home visits by CHWs were uncommon. Continued breastfeeding after introduction of complementary feeding was common.

Complementary feeding

Dietary diversity

Parents share responsibility for feeding the child in that fathers are charged with purchasing key foods for the home and sharing any information gained about feeding. Mothers are responsible for preparing foods and feeding the infant, sometimes with help from older siblings or other family members. Family, such as grandparents, provides advice on feeding, brings food from the market, and helps with child care. School teachers, health workers and the media were mentioned as additional sources for information on complementary feeding. Mothers described feeding a diverse diet to children aged 6-23 months in addition to continuing to breastfeed. A variety of nutritious foods were mentioned that should be given to IYC, such as milk, egg, leafy vegetables, fish, meat (chicken, beef), potato, eggplant, fruits (apple, grapes, oranges, dates, carrots) and khichuri (dish made with different combinations of rice, lentils, vegetables and spices). Furthermore, if mothers learned that a particular food was beneficial for the child, they reported a willingness to try it. Most complementary foods were prepared from family foods; however, spicy family foods were washed with water before feeding to IYC to remove extra salt and spices. Food was also softened by hand to a consistency appropriate for the child before feeding. Nonetheless, despite demonstrating knowledge about nutritious foods and their preparation, and attributing positive qualities of these foods for children, actual feeding practices demonstrated lack of dietary diversity with about half receiving ASF, and fewer than half receiving vitamin A rich food.

The WHO recommends introduction of complementary (solid) foods at 6 months together with continued breastfeeding up to 2 years of age or beyond.³

Responsive feeding

Mothers and other caregivers were observed to encourage and help young children to eat. When time permitted, mothers appeared very involved in feeding. Older IYC fed themselves under supervision of mother or other family members. Some children were fed before the meal while others ate with family members. While children were offered a sufficient quantity of family foods during home observations, they fell short on consuming enough food. When they rejected food, mothers did not intervene with further encouragement or other strategies to help the child eat more.

Use of micronutrient powders

None of the children had consumed MNPs although a few mothers had heard of them and knew they were available for purchase through the market and from NGO health workers.

Overall, complementary feeding practices demonstrate a number of opportunities for intervention to improve the quality and quantity of the diet, building on parental knowledge and aspirations for their children. It is essential to identify doable actions defined for the home to improve dietary diversity through local foods, encourage sufficient quantity via feeding strategies, and to introduce MNPs successfully.

13

Household trials for IYC

Based on initial findings from the formative research analysis, three recommendations for IYC were identified to test using HHT (see **Table 6**). Each mother was given one practice to try over five days with encouragement provided by a field researcher. Findings demonstrated that all mothers could recall the practices tested, most complied with the practice and all but one intended to continue the practice (MNP).

The first practice in **Table 6** represented feeding a diverse diet; mothers commented on how the child liked the diet, and ate a greater quantity of food. This is of particular interest as none of the mothers managed to feed the child an adequate amount when testing the second practice, quantity of food. Dietary diversity may provide a key strategy here (to increase interest in eating and thus boost the quantity consumed), in addition to responsive feeding, and avoiding snacks before meals to ensure the child is hungry at mealtimes. Mothers were able to feed the recommended frequency of meals during the day. Most mothers used the MNP for at least two or three days. They found the MNP sachet easy to add and preferred to mix in a small amount of food to ensure the child consumed it. Specific facilitators and barriers from the HHT are found in **Table 6**.

HHT FOR IYC				
BEHAVIOUR/PRACTICE	FACILITATORS	BARRIERS		
Provide the baby with at least 4 types of foods	 Belief that baby will grow well/be healthy Available in the household Knowledge that food diversity is important Saves money (by keeping baby healthy) IYC liked diverse foods and ate more 	• Lack of appetite due to illness		
Feed baby adequate amount of food in adequate frequency	• Caregiver interest in feeding the baby more food	 Illness Baby not accustomed to eating larger amount Time consuming to feed baby Difficult to practice 		
Feed 1 MNP packet with main meal to the childt	 Baby accepted Baby had good appetite—easy to feed Easy to add MNP to food NGO workers recommend MNP Tried before 	 Lack of appetite Illness Baby rejected the taste Mother forgot to feed Cannot afford MNP 		

TABLE 6. FACILITATORS AND BARRIERS TO PRACTICES DURING HHT FOR IYC

Use of health care services

CHWs provide antenatal care (ANC) for pregnant women at the family welfare centres (health facilities) and reported that mothers generally visit monthly during pregnancy. They acknowledged the high volume of patients interfered with their ability to counsel on nutrition and in addition, felt that cultural beliefs and poverty were barriers to patients implementing the advice they gave. During health facility observations, IFA was available and given to pregnant women, but limited nutritional counseling was In undernourished populations, the WHO recommends nutrition education on increasing daily energy and protein intake for pregnant women to reduce the risk of low birth weight neonates.

A healthy diet during pregnancy contains adequate energy, protein, vitamins, and minerals obtained through the consumption of a variety of foods, including green and orange vegetables, meat, fish, beans, nuts, pasteurized dairy products, and fruit.⁴

provided (if it was provided at all) and breastfeeding was not mentioned. Health facility visits were reported to be uncommon for lactating mothers, and well child visits and routine growth monitoring did not occur. Caregivers routinely brought IYC to the health facility for vaccinations or consultations regarding illness. Home visits by CHWs rarely occurred.

When asked from whom women obtained information on diet during pregnancy, they cited a variety of sources, however most advice obtained was quite generic, such as to "eat more", "eat good food" or "eat in regular intervals" during pregnancy. Health workers were cited as major and trusted sources, while husbands advised and were most influential when it came to implementing advice. Relatives, friends, NGO workers, traditional birth attendants, local healers and media (television and print) were other named sources. Capacity building for CHWs represents an important opportunity to improve MIYCN counseling from a trusted source during health facility visits and home visits.

CONCLUSION AND KEY MESSAGES

Formative research and HHT led to a better understanding of the current MIYCN practices within the local context of Thakurgaon district and identified many opportunities for improving MIYCN at the household level. Engaging pregnant and lactating women, caregivers and families has great potential for influencing improved MIYCN. Healthcare workers require capacity building to take on a greater role in MIYCN counseling. Recommendations to improve MIYCN include the following behaviours/practices:

15

PREGNANT AND LACTATING WOMEN

Add at least one food (locally available and affordable) to daily meals from each of the following four groups:

- ASF, such as eggs, fish and chicken
 - » Orange, red or dark green vegetables
 - » Fruit, such as banana, mango, papaya, jackfruit and guava
 - » Dairy products, such as milk
- Take IFA supplementation daily or as recommended
- Stimulate adequate production of breastmilk by breastfeeding babies more frequently and for longer duration

INFANTS AND YOUNG CHILDREN

- Every day, feed IYC at least one food from four of the groups below:
 - » ASF, such as fish, chicken or meat
 - » Eggs
 - » Milk and dairy

- » Orange, red or dark green vegetables and fruits
- » Other vegetables and fruits
- » Pulses
- » Staples, such as rice or potatoes
- Add orange, red or dark green vegetables and fruit to IYC's daily meal
- Feed IYC adequate amounts of food; encourage through responsive feeding and giving a variety of foods
- Feed IYC MNPs as directed
- Take IYC to the clinic for regular visits and growth monitoring

SECONDARY BEHAVIOURS

- Include other members of the household (e.g. husband, mother-in-law, etc.) in counseling sessions to help and support priority behaviours
- Increase home visits and two-way communication for nutrition counseling by health workers

REFERENCES

- University of Toronto. (2017). Enhancing Nutrition Services to Improve Maternal and Child Health in Africa and Asia (ENRICH) Baseline Study Report BANGLADESH.
- World Health Organization e-Library of Evidence for Nutrition Actions (eLENA). Daily iron and folic acid supplementation during pregnancy. Available at https://www.who.int/elena/titles/guidance_summaries/daily_iron_pregnancy/en/
- World Health Organization. (2020). Infant and Young Child Feeding. Available at: https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding
- World Health Organization e-Library of Evidence for Nutrition Actions (eLENA). Nutrition Counseling during pregnancy. Available at: https://www.who.int/elena/titles/nutrition_counselling_pregnancy/en/





