

**BASELINE EVALUATION OF NUTRITION AT THE  
CENTER (N@C) - CARE BANGLADESH  
INTERVENTION PROGRAM**

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# Chapter 1

## INTRODUCTION

### 1.1 Background

Maternal and child malnutrition continues to be one of the leading causes of mortality and morbidity in developing countries. Despite gains globally, undernourishment in the developing world remains high and has even increased in southern Asia and sub-Saharan Africa (35% and 27% of the population, respectively).<sup>1</sup> Approximately 870 million people are estimated to have been undernourished in the period 2010-12 with consequences that affect each stage in the lifecycle and across generations.<sup>2</sup> Nutrition has come to the forefront of global health and development, with an increasingly expanding body of evidence linking poor maternal and child nutritional status to impaired cognitive development, and impaired human capital later on in life. Malnourished mothers are more likely to die in childbirth and have low birth weight babies who, in turn, face higher mortality rates and increased risk of acute and chronic diseases<sup>3</sup>. Stunted children face lifelong consequences in reduced mental capacity, lower retention in school and reduced lifetime earnings.<sup>4</sup>

Narrow sectorial strategies will not solve the problem: social and behavior change strategies without the availability of sufficient nutritious food will be of limited benefit. Other obstacles such as poor absorption of nutrients resulting from chronic gut damage (environmental enteropathy), or low empowerment of the women to purchase adequate food for her children or make decisions that affect the family's health, may further limit the overall impact of nutritional interventions. Finally, women who are themselves undernourished are more likely to give birth to preterm babies and less able to support their health and nutrition.<sup>5</sup>

Improved nutritional outcomes are intimately tied to Millennium Development Goals in improving maternal health, reducing child mortality, and eradicating extreme poverty and hunger. Towards this end, a nutrition-sensitive approach incorporates specific nutrition goals and actions while simultaneously addressing upstream determinants of fetal and child nutrition, such as household food security, access to health services, and availability of safe and hygienic environments<sup>6</sup>. In addition to addressing nutrition holistically and in a multi-sectorial approach, the Lancet, a scientific peer-reviewed journal has highlighted nutrition-sensitive programs as a novel and promising platform for delivering nutrition-specific interventions, which are interventions addressing more immediate determinants of nutrition<sup>7</sup>. Finally, approaches have been incorporated through efforts by multi-lateral organization and host countries. The new Scaling-Up Nutrition program funded by the United Nations includes over 20 countries in Africa

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<sup>1</sup> Food and Agricultural Organization of the United Nations, the State of Food Insecurity in the World. 2012.

<sup>2</sup> Food and Agricultural Organization, World Food Insecurity and Malnutrition: Scope, Trends, Causes and Consequences. [Ftp://ftp.fao.org/docrep/fao/010/ai799e/ai79902.pdf](ftp://ftp.fao.org/docrep/fao/010/ai799e/ai79902.pdf)

<sup>3</sup> World Health Organization, Essential nutrition actions: improving maternal, newborn, infant and young child health and nutrition. 2013

<sup>4</sup> Ibid

<sup>5</sup> Robert Black, Maternal and child undernutrition: global and regional exposures and health consequences. Lancet, 2008

<sup>6</sup> Marie Ruel et al, Nutrition-sensitive interventions and programmes: how can they help accelerate progress in improving maternal and child nutrition? Lancet, 2013

<sup>7</sup> Ibid

and Asia and couples nutrition specific interventions with complementary strategies addressing issues such as gender inequality, food security and social protection, and access to safe water<sup>8</sup>.

Nutrition at the Center (N@C) will combine best practices together with country-specific needs to implement and evaluate an integrated approach to improve maternal and child nutrition, which includes activities related to strengthen:

- (1) Infant and young child feeding (IYCF) and maternal nutrition practices
- (2) Food security
- (3) Water, sanitation and hygiene (WASH) practices
- (4) Women's empowerment and
- (5) Maternal health

This integrated approach is expected to yield a significant sustainable impact for families and communities and validate the effectiveness of CARE's women and community-centered programmatic approach. The following document outlines the procedures involved in the initiation, planning, implementation, reporting, and evaluation of N@C in selected districts in Bangladesh, Zambia, Ethiopia, and Benin.

The Nutrition at the Center (N@C) program builds on the knowledge generated from previous CARE nutrition programs as well as Food Security, Water Sanitation and Hygiene, Infant and Young Child Feeding and Women' Empowerment. The integrated approach to nutrition programming includes effective multi-sectorial and cross-cutting interventions in resource-poor settings without food aid.

### **Program Goals, Bangladesh Component**

Poor nutritional status remains a persistent problem in the Bangladesh. According to the 2011 Bangladesh DHS, IYCF indicators remain poor: while breastfeeding is a universal practice, only 21% of children aged 6-23 months are fed appropriately according to IYCF practices; complementary feeding practices are not introduced in a timely fashion for all children; and 67% of breastfed children receive complementary foods<sup>9</sup>.

Anemia remains prevalent among women and children. Half of children aged 5-50 months are severely anemic, and 29% are mildly anemic. Women's nutritional status has improved only slightly over the past 10 years, with 24% of ever-married women of reproductive age being malnourished (BMI <18.5). 42% of women aged 15-49 years are anemic and 35% are mildly anemic<sup>10</sup>. Overall, 65% of women aged 15-49 years of age are food secured; however disparities exist between socioeconomic levels: only 35% of households in the lowest wealth quintile were food secured, compared to 90% of households in the highest wealth quintile<sup>11</sup>.

The goal of Nutrition at the Center is to improve the nutritional status for women (aged 15-49) and children less than 3 years of age in identified resource poor geographical areas. Program objectives aim to:

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<sup>8</sup> Noreen Mucha, Implementing Nutrition-Sensitive Development: Reaching Consensus. November 2012

<sup>9</sup> Bangladesh DHS, 2011

<sup>10</sup> Ibid

<sup>11</sup> Ibid

- Improve nutrition-related behaviors
- Improve use of maternal and child health and nutrition services
- Increase household adaption of appropriate water and sanitation practices
- Increase availability and equitability access to quality food

Nutrition at the Centre in association with CARE Bangladesh, are implementing nutrition program in two upazilas, namely Derai and Biswamberpur under Sunamganj district. For being able to measure the possible impact of the program and assess the current nutritional status, a baseline evaluation was conducted. This report presents key findings of the baseline evaluation.

## 1.2 Objectives of the survey

The purpose of the baseline evaluation was to collect quantitative information on the status of nutrition-related topics and be able to measure achievement/impact of the program during the Final Evaluation. Nutrition-related topics include: infant and young child feeding, food security, WASH, and women's empowerment.

The impact indicators for N@C are as follows:

- Reduction of stunting among children under 3 years of age
- Reduction of anemia prevalence among children under 2 years of age
- Reduction of anemia prevalence among women of reproductive age (15-49)

The specific indicators/objectives were to assess/determine the status of the following:

- Household food security
- Household's Water, Sanitation and Hygiene (WASH) practices
- Infant and Young Child Feeding (IYCF) practices
- Current nutritional status of children aged 0-36 months and among women of reproductive age
- Women empowerment and household food security issues as a part of the factors involve in the project context.
- Identify and analyze lessons learned for future programming.

## 1.3 Technical approach and methods

To address the objectives, a survey was conducted using face to face interviews. In addition, anthropometric measurements were taken using appropriate scales and blood specimens were collected and analyzed using HemoCue. The study design was a four-cell comparison type:

Intervention vs. Control  
Baseline vs. Final Evaluation

Derai and Biswamberpur upazilas under Sunamganj district was the intervention or project area, while Itna and Nikli upazilas under Kishoreganj district was the control area. The baseline

survey collected information based on representative samples from both intervention and control/comparison populations. The reason for including a control area/population was to distinguish/identify the effect of the extraneous factors that might have had influence on the program outcomes. The evaluation included the following indicators:

| <b>Category</b>                          | <b>Indicators</b>  |
|--|--|
| Household Food Security                  | Women's Dietary Diversity<br>Household Hunger Scale<br>Coping Strategy Index   |
| Water, Sanitation and Hygiene            | Access to clean water frequency<br>Access to sanitary latrine frequency<br>Proper disposal of children feces frequency<br>Proper hand washing frequency  |
| Nutritional Status                       | a) Children: Wasting, Underweight, Stunting, Anemia<br>b) Childbearing Women: Body Mass Index, Anemia  |
| Infant and Young Child Feeding Practices | Early initiation of breastfeeding<br>Exclusive breastfeeding<br>Timely complementary feeding<br>Introduction of solid, semisolid and soft foods<br>Minimum meal frequency<br>Minimum dietary diversity<br>Minimum acceptable diet<br>Continued breastfeeding at one year<br>Continued breastfeeding at two years<br>Consumption of iron-rich or iron-fortified foods<br>Bottle feeding |
| Women's Empowerment                      | Mobility Index<br>Community Social Capital Index<br>Household Decision Making Index<br>Gender Attitude and Believe Index   |

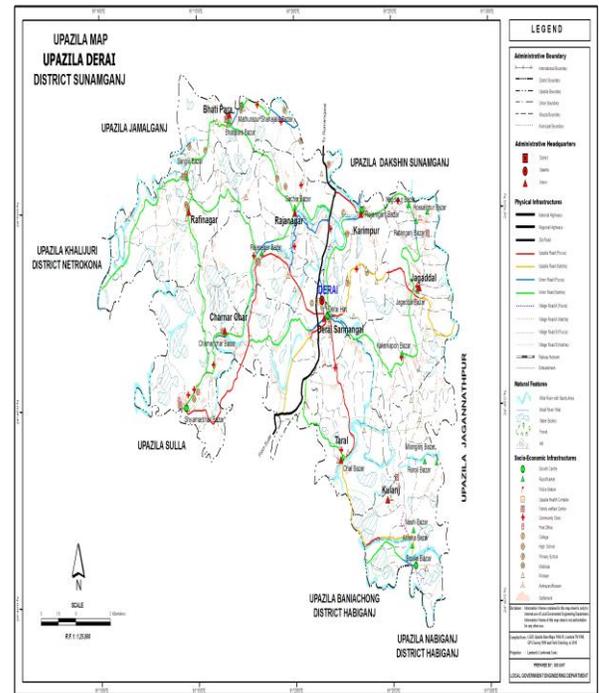
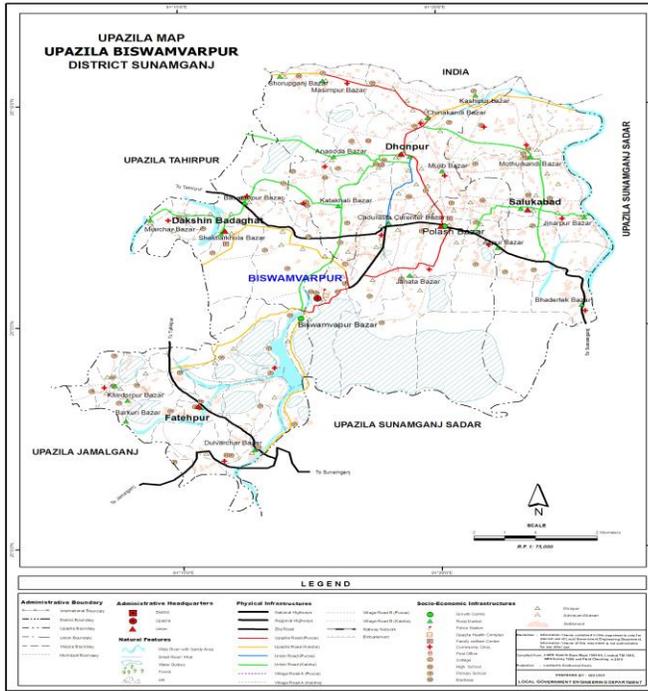
### 1.3.1 Coverage and respondents

The baseline survey covered two intervention sub-districts/upazilas of Suamganj (Derai and Biswamberpur upazilas) and two control sub-districts/upazilas of Kishoreganj districts ( Itna and Nikly upazilas).

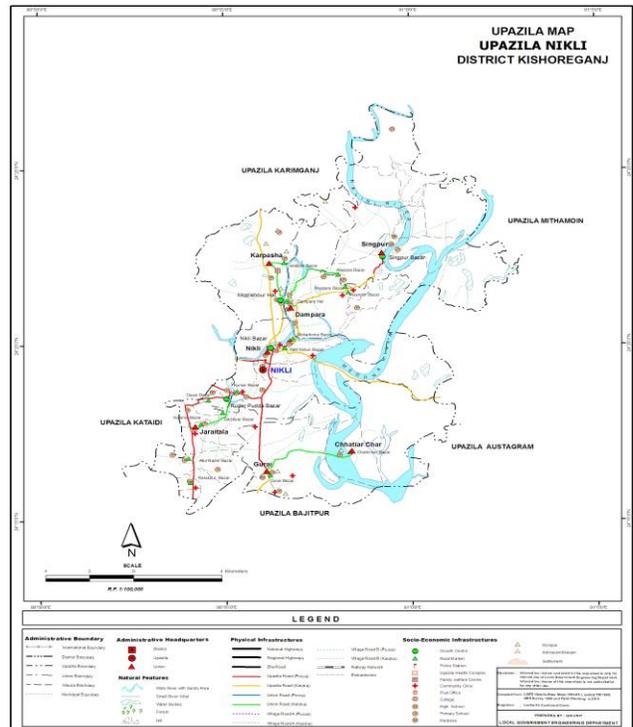
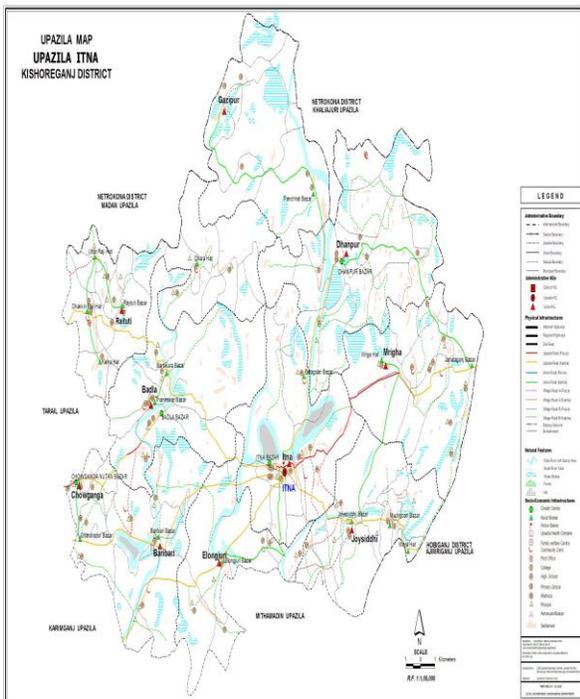
The target or study groups were:

- Children age 0-35 months for anthropometric measurements and 6-23 months for anemia;
- Non-pregnant mothers of under two children for BMI, anemia.

**Figure 1: Intervention sub-district**



**Figure 2: Comparison sub-district**



### **1.3.2 Sample design and selection of sample**

The sample for the baseline survey was representative and covers the population residing in dwelling units in the intervention and control/comparison areas. The main target populations were children age 0-35 months and their mothers/caregivers of intervention and comparison areas.

#### **Sample size:**

The target sample size was

Intervention Group: 1195 children aged 0-35 months (divided into 5 age groups, 0-5, 6-11, 12-17, 18-23 and 24-36 months).

Comparison Group: 781 children aged 0-35 months (divided into 5 age groups as above).

Total sample size of children was 1976 children (1195 + 781 =). Height and weight of these children were measured. All mothers/caregivers of these children were interviewed. Height, weight and MUAC of non-pregnant mothers were also measured for assessing body mass index (BMI).

Hb measurements were done by HemoCue for assessing anemia from 434 non pregnant mothers and 396 children aged 6-23 months taking equally from both intervention and control areas. Estimation of sample size was done using acceptable margin of error, level of confidence and power.

#### **Selection of sample:**

The main target group, children aged 0-35 months and their mothers/caregivers were selected using the following inclusion and exclusion criteria:

Inclusion criteria for children:

- Children aged 0-35 months
- Children who permanently live with family members in the survey area
- Youngest child if mother has two children of age less than 24 months.

Exclusion criteria for children:

- Foster children
- Children with any known or suspected chronic or congenital disease or physical deformity that is associated with growth problem.

Inclusion criteria for women:

- Mother or primary caregivers of a child age <36 months
- Women/mothers who permanently live in household in the designated upazilas/unions.

- Mother with a child <6 months/youngest if a household has more than one mother with a child aged 0-35 months.

Exclusion criteria for women:

- Any eligible women living in the selected union for less than 6 months
- Women/mother with any known or suspected chronic or congenital disease

Attempts were made to select and interview mothers/caregivers of children aged 0-35 months taking from each Union of the survey upazilas proportional to the population of Union. From each Union of survey upazilas, firstly the Ward with largest population was selected. Then starting from a prominent point in the Ward (market, school, etc.), households were visited contiguously for identifying households with eligible children (child age 0-35 months). If found an eligible child (child age 0-35 months) in a household, mother or caregiver of the child were interviewed, and this procedure continued until required number of children of four age groups were found and subsequently mothers/caregivers interviewed.

Height/length and weight of children age 0-35 months were measured using appropriate scale. Height and weight of non-pregnant mothers were measured.

Blood specimen was collected using HemoCue from every fourth child aged 6-23 months.

**Inclusion and exclusion criteria for women for collecting blood specimen were:**

Inclusion criteria

- Non-pregnant female
- Willing to participate in the study
- Willing to provide blood samples and permission to store samples

Exclusion criteria

- Suffering from any severe, acute or chronic illnesses
- Currently pregnant
- Refusal to participate in the study
- Refusal to provide blood samples and permission to store samples

**Inclusion and exclusion criteria of children for blood sample:**

Inclusion criteria:

- Age within 6-23 months
- Willing to participate (Mother) and provide blood sample

Exclusion Criteria are:

- Age of children outside the range of eligibility
- Suffering from any illness

Table 1.1 gives actual sample size of mothers/children by age group, according to intervention and control areas. Exactly 1206 mothers of under three children from intervention and 792 from control districts were selected and interviewed. Table 1.2 gives women and children sample by age group, and intervention and control unions.

| <b>Table 1.1: Number of children and their mothers in the sample from Intervention district: Sunamganj and Control district: Kishoreganj by age groups</b> |   |  |
|--|---|--|
| <b>Age in months</b>   | <b>Intervention District:<br/>Sunamganj</b> | <b>Control district:<br/>Kishoreganj</b> |
| 0-5  | 185   | 185                                      |
| 6-11   | 96  | 95                                       |
| 12-17  | 96  | 95                                       |
| 18-23  | 277   | 141                                      |
| 24-35  | 552   | 276                                      |
| Total(0-23 months)   | 654   | 516                                      |
| Total(0-35 months)   | 1206  | 792                                      |
| Total months/women   | 1206  | 792                                      |

| <b>Table 1.2: Number of children and their mothers included in the sample by Intervention and Control unions and age</b> |  |   |  |   |                                     |                                      |
|--|--|---|--|---|-------------------------------------|--------------------------------------|
|  | <b># of<br/>children<br/>0-23<br/>months</b> | <b># of<br/>children<br/>0-5<br/>months</b> | <b># of<br/>children<br/>6-23<br/>months</b> | <b># of<br/>children<br/>24-35<br/>months</b> | <b># of<br/>mothers<br/>for BMI</b> | <b># of<br/>children<br/>Hemocue</b> |
| <b>Intervention unions:</b>  |  |   |  |   |                                     |                                      |
| Badhaghat  | 21   | 6   | 15   | 12  | 30                                  | 7                                    |
| Dhonpur  | 82   | 23  | 59   | 68  | 140                                 | 28                                   |
| Fotepur  | 21   | 6   | 15   | 13  | 30                                  | 8                                    |
| Polosh   | 27   | 7   | 20   | 22  | 44                                  | 9                                    |
| Solukabad  | 52   | 14  | 38   | 44  | 88                                  | 17                                   |
| Bhatipara  | 43   | 12  | 31   | 38  | 67                                  | 14                                   |
| Charnerchar  | 49   | 14  | 35   | 42  | 77                                  | 16                                   |
| Sharmangal   | 35   | 10  | 25   | 30  | 63                                  | 12                                   |
| Jagdal   | 77   | 22  | 55   | 67  | 122                                 | 25                                   |
| Karimpur   | 50   | 14  | 36   | 42  | 84                                  | 16                                   |
| Kulanz   | 58   | 17  | 41   | 51  | 100                                 | 20                                   |
| Rafinagar  | 55   | 16  | 39   | 47  | 92                                  | 18                                   |
| Rajnagar   | 42   | 12  | 30   | 36  | 69                                  | 14                                   |
| Tarol  | 42   | 12  | 30   | 40  | 76                                  | 14                                   |
| <b>Total</b>   | <b>654</b>                                   | <b>185</b>                                  | <b>469</b>                                   | <b>552</b>                                    | <b>1082</b>                         | <b>218</b>                           |
| <b>Control Unions:</b>   |  |   |  |   |                                     |                                      |
| Badla  | 31   | 12  | 19   | 16  | 42                                  | 12                                   |
| Buribari   | 20   | 7   | 13   | 11  | 29                                  | 8                                    |
| Chawganga  | 28   | 10  | 18   | 15  | 39                                  | 11                                   |
| Dhanpur  | 19   | 5   | 14   | 13  | 30                                  | 10                                   |
| Elonguri   | 24   | 9   | 15   | 13  | 33                                  | 10                                   |
| Itna   | 44   | 15  | 29   | 23  | 60                                  | 18                                   |
| Joysidhi   | 32   | 12  | 20   | 17  | 45                                  | 12                                   |
| Mriga  | 40   | 15  | 25   | 22  | 59                                  | 15                                   |
| Raitali  | 44   | 16  | 28   | 21  | 61                                  | 19                                   |
| Chhatirchar  | 17   | 6   | 11   | 8   | 24                                  | 6                                    |

|              | # of children<br>0-23<br>months | # of children<br>0-5<br>months | # of children<br>6-23<br>months | # of children<br>24-35<br>months | # of mothers<br>for BMI | # of children<br>Hemocue |
|--------------|---------------------------------|--------------------------------|---------------------------------|----------------------------------|-------------------------|--------------------------|
| Dampara      | 33                              | 12                             | 21                              | 18                               | 51                      | 15                       |
| Gurui        | 28                              | 10                             | 18                              | 16                               | 41                      | 12                       |
| Jaruitala    | 38                              | 14                             | 24                              | 20                               | 52                      | 16                       |
| Karpasha     | 26                              | 9                              | 17                              | 14                               | 37                      | 11                       |
| Nikli        | 55                              | 20                             | 35                              | 29                               | 78                      | 24                       |
| Singpur      | 37                              | 13                             | 24                              | 20                               | 53                      | 16                       |
| <b>Total</b> | 516                             | 185                            | 331                             | 276                              | 734                     | 215                      |

| <b>Table 1.2a: Actual sample from baseline evaluation</b> |              |               |
|---|--------------|---------------|
|   | # of mothers | # of children |
| <b>Intervention unions:</b>                               |              |               |
| Badhaghat   | 33           | 33            |
| Dhonpur   | 150          | 150           |
| Fotepur   | 34           | 34            |
| Polosh  | 49           | 49            |
| Solukabad   | 96           | 96            |
| Bhatipara   | 81           | 81            |
| Charnerchar   | 91           | 91            |
| Sharmangal  | 65           | 65            |
| Jagdal  | 144          | 144           |
| Karimpur  | 92           | 92            |
| Kulanz  | 109          | 109           |
| Rafinagar   | 102          | 102           |
| Rajnagar  | 78           | 78            |
| Tarol   | 82           | 82            |
| <b>Total</b>  | 1206         | 1206          |
| <b>Control Unions:</b>                                    |              |               |
| Badla   | 47           | 47            |
| Buribari  | 31           | 31            |
| Chawganga   | 43           | 43            |
| Dhanpur   | 32           | 32            |
| Elonguri  | 37           | 37            |
| Itna  | 67           | 67            |
| Joysidhi  | 49           | 49            |
| Mriga   | 62           | 62            |
| Raitali   | 65           | 65            |
| Chhatirchar   | 25           | 25            |
| Dampara   | 51           | 51            |
| Gurui   | 44           | 44            |
| Jaruitala   | 58           | 58            |
| Karpasha  | 40           | 40            |
| Nikli   | 84           | 84            |
| Singpur   | 57           | 57            |
| <b>Total</b>  | 792          | 792           |

## **1.4 Implementation**

The study was implemented by Associates for Community and Population Research (ACPR), a survey research organization located in Dhaka. A three member research team headed by Professor Dr. M. Sekander Hayat Khan was responsible for implementing the survey.

### **1.4.1 Development, pre-testing and finalization of questionnaire**

A questionnaire was used for interviewing mothers/caregivers. The questionnaire was drafted and modified by CARE in collaboration with ACPR research team. After preparation of definitive questionnaire in English, this was translated by ACPR into Bangla. The questionnaire was pre-tested on 13 February, 2014 and then finalized in consultation with CARE.

### **1.4.2 Recruitment and training of field staff**

All the field staff was recruited from among qualified and experienced staff who had participated in at least three studies of similar nature. The minimum qualification for data collection staff was a graduation degree from a recognized university or institution.

The data collection staff was provided with 15 days intensive training including two days of field practice from February 20 to March 06, 2014. Training included lectures on how to conduct an interview and complete the questionnaire, mock interviews by participants, how to take anthropometric measurements and blood sample using HemoCue and field practice. The training strategy aimed at developing a uniform understanding of the concepts of different terms and that of the items in the instruments. Attempts were made to ensure a uniform pattern in administering the instruments. The training plan put more emphasis on skill training on the real situation rather than classroom training. At every stage of the training performance and progress of the trainees were reviewed. After completion of the training, those with superior performance were selected as supervisor and others as enumerators.

### **1.4.3 Data collection**

Data collection consisted of the following components:

- Conducting interviews with mothers/caregivers of 0-35 months children
- Taking anthropometric measurements of mothers and children and
- Collection of blood specimens

Fieldwork for the survey was carried out by five interviewing teams, each consisting of one male team leader, one female supervisor, four female interviewers/enumerators, and one logistic staff for assisting with carrying measuring scales. Data collection was implemented in one phase, starting on March 7 and ending on April 04, 2014

The interviewers interviewed mothers/caregivers of 0-35 month's children using the questionnaire. Weight of the children and mothers were measured by electronic digital scale (Tanita, HD 318), with 100 gram of precision. Mother and Child's weight was taken together, followed by the weight of the mother only, and then child's weight was obtained by taking the difference of the two measures. Child's length was measured by locally made wooden length

board. Mother’s height was measured by locally made wooden height board. MUAC of the child was measured by the TALC tape. Weight, length, MUAC was taken three times and the average was taken. Hemoglobin of the young children was assessed by the HemoCue photometer (HemoCue AB, Angleholm Sweden). WHO cut off value was considered to define anemia (<11 gm %).

Data quality was ensured through four quality control officers. In addition, CARE Bangladesh monitored fieldwork by using its own mechanism. After a day’s work in the field, every filled-in questionnaire was cross-checked by another interviewer, to check for correctness of the entry, missing out of any information or any inconsistency. The quality control officers conducted routine checks and re-interviews on sample basis and made corrections if any fault was detected.

#### 1.4.4 Assessment of Hemoglobin

Blood specimens from the finger tip were used by making a prick with a lancet/needle after taking all aseptic precautions. Hemoglobin was measured on the finger prick sample with the HemoCue machine. The survey teams were trained on how to collect blood sample and use HemoCue for appropriate application in the field. The survey teams calibrated the HemoCue machines daily by using the standardized micro-cuvette. Hemoglobin readings were recorded directly in the field and shared with the survey participants.

#### 1.4.5 Anthropometric measurements

Assuming that nutritional status might act as a covariate of biochemical markers among children and perhaps in pregnant and lactating women of childbearing age, anthropometric measurements of children (Weight, MUAC, and Length/Height) and women (Weight, MUAC and Height) were recorded as indicators of general nutritional status. Techniques used are described in section 1.4.3 above. Measurements on height, weight and MUAC were subsequently compared to the standards according to the WHO 2006 growth standards and the nutritional status was assessed by z-score.

For children, the following definitions and cut-off points were used for assessing nutritional status:

##### Definition of under nutrition

| State       | Cut-off                       | Cut-off (severe)              |
|-------------|-------------------------------|-------------------------------|
| Wasting     | <-2 weight-for-height z-score | <-3 weight-for-height z-score |
| Stunting    | <-2 height-for-age z-score    | <-3 height-for-age z-score    |
| Underweight | <-2 weight-for-age z-score    | <-3 weight-for-age z-score.   |

For women/mothers, body mass index [BMI – (weight (kg)/height (m)<sup>2</sup>)] was calculated from weight and height data. The following standard cut-off values were followed to comment on the nutritional status. Chronic Energy deficiency (CED) and severe CED were defined as BMI (kg/m<sup>2</sup>) <18.5 and <16.0 respectively.

## Definition of Chronic Energy Deficiency (CED)

| <i>State</i> | <i>Cut-off</i>                 |
|--------------|--------------------------------|
| CED          | BMI (kg/m <sup>2</sup> ) <18.5 |
| Severe CED   | BMI (kg/m <sup>2</sup> ) <16.0 |

### 1.4.6 Infant and Young Child Feeding (IYCF) indicators

Adequate nutrition is vital for child health and development. The period from birth up to two years of age is mostly important because of the rapid growth and brain development that occurs during this time. The Infant and Young Child Feeding (IYCF) practice provides information on key indicators related to optimal feeding practices. Feeding practices included in this report are related to breastfeeding practices, feeding of solid and semi-solid foods to breastfed and non-breastfed children and micronutrient intake. Feeding guidelines have been used for the introduction of complementary foods to children aged 6-23 months.

In 1991, WHO released a set of indicators designed to be used in population-based surveys to measure adherence to recommended feeding practices. However, most of these indicators focused on breastfeeding practices. Recently, the indicators have been updated to include a greater focus on appropriate feeding practices for children of complementary feeding age (6-23 months). The effort by an interagency working group has resulted in a set of simple, valid and reliable indicators that measure food-related aspects of complementary feeding (including dietary variety and frequency of eating episodes), as well as current guidance on the feeding of non-breastfeeding infants and young children up to 24 months of age. The IYCF indicators are given below. Estimated values of these indicators are presented in the results section of the report.

**Indicator 1: *Timely Initiation of Breastfeeding*: Proportion of children 0-23 months who were put to the breast within one hour of birth**

**Indicator 2: *Exclusive breastfeeding under 6 months*: Proportion of infants 0-5 months who are fed exclusively with breast milk**

**Indicator 3: *Timely Complementary feeding***: Proportion of infants 6-9 months who received breastmilk and a solid or semi-solid food (based on 24-hour dietary recall). Solid and semi-solid foods are defined as mushy or solid foods, not fluids.

**Indicator 4: *Introduction of Solid, semi-solid or soft foods***: Proportion of infants 6-8 months who receive solid, semi-solid or soft foods

**Indicator 5: *Continued breastfeeding at 12-15 month***: Proportion of children 12-15 months old who are fed breastmilk

**Indicator 6:** *Minimum dietary diversity:* Proportion of children 6-23 months who receive foods from 4 or more food groups

**Indicator 7:** *Minimum meal frequency:* Proportion of breastfed and non-breastfed children 6-23 months who receive solid, semi-solid or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more

**Indicator 8:** *Minimum acceptable diet:* Proportion of children 6-23 months of age who receive a minimum acceptable diet (apart from breastmilk)

**Indicator 9:** *Consumption of iron rich or iron fortified foods at home:* Proportion of children 6-23 months old who receive an iron-rich food or iron-fortified food that is specially designed for infants and young children, or that is fortified in the home.

**Indicator 10:** *Bottle feeding:* Proportion of children 0-23 months old who were fed with a bottle during the previous day

#### **1.4.7 Data management and analysis**

Data was computerized in the data entry cell of ACPR using a data entry program. Data analysis was performed using Statistical Packages as per an analysis plan suggested by CARE and developed by the research team. Results are presented in Tables. Important indicators are highlighted by Figures.

## **Chapter 2**

### **KEY FINDINGS**

This chapter provides key findings or results of the baseline evaluation. Findings on basic background characteristics of households and respondents, households' food security, maternal care, use of water and toilets, hygiene practices, nutritional status of women and children, issues related to women's empowerment, infant and young child feeding practices with indicators are discussed and presented in the following.

#### **2.1 Characteristics of survey respondents/women**

This chapter provides an overview of demographic and socioeconomic characteristics of respondents/mothers, which includes age, education, marital status, age at first marriage, number of times became pregnant, and number of living children. This information helps one to interpret findings and understand results presented in the report.

Information on housing characteristics of responding mothers (of 0-35 month's old children) is also presented in this section. These include condition of household, sources of drinking water, ownership of land and homestead, availability of electricity, possession of household durable goods, food security, etc.

Basic background characteristics of 1998 mothers of 0-35 month's children drawn from intervention and comparison areas are presented in Table 2.1. Majority of women/mothers (82.2 percent) are in the age group 20-34 years. The mean age is 26.5 years.

Thirty two percent of women have no education, while 46.5 percent have some primary or completed primary education and 2 percent have above secondary level education. The scenario is same both among intervention and control area women.

About 99 percent are currently married. The mean age at first marriage is about 17 years. About 10 percent of intervention and 7 percent of control women are currently pregnant

**Table 2.1: Characteristics of Women/mothers**

Percentage distribution mothers who have at least one child of age less than three years by selected background characteristics, according to Intervention and Control areas

| <b>Characteristics</b>            | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
|-----------------------------------|---------------------------|----------------------|------------|
| <b>Age</b>                        |                           |                      |            |
| < 20 years                        | 6.8                       | 10.0                 | 8.1        |
| 20-34                             | 83.3                      | 80.6                 | 82.2       |
| 34+                               | 9.9                       | 9.5                  | 9.7        |
| Mean age                          | 26.8                      | 26.1                 | 26.5       |
| <b>Education:</b>                 |                           |                      |            |
| No education                      | 32.2                      | 32.3                 | 32.2       |
| Some primary                      | 32.3                      | 35.9                 | 33.7       |
| Primary completed                 | 14.1                      | 10.7                 | 12.8       |
| Some secondary                    | 17.9                      | 17.7                 | 17.8       |
| Secondary completed               | 1.6                       | 1.4                  | 1.5        |
| Some higher education             | 1.1                       | 1.3                  | 1.2        |
| Higher education completed        | 0.3                       | 0.1                  | 0.3        |
| Adult education                   | 0.3                       | 0.5                  | 0.4        |
| Religious education only          | 0.2                       | 0.1                  | 0.2        |
| <b>Current Marital status:</b>    |                           |                      |            |
| Married (monogamous)              | 98.7                      | 98.6                 | 98.6       |
| Divorced or separated             | 0.9                       | 0.9                  | 0.9        |
| Widowed                           | 0.4                       | 0.5                  | 0.5        |
| <b>Age at marriage (Mean) :</b>   |                           |                      |            |
|                                   | 17.2                      | 16.6                 | 16.9       |
| <b>Currently pregnant:</b>        |                           |                      |            |
| Yes                               | 9.8                       | 7.0                  | 8.7        |
| No                                | 89.2                      | 92.3                 | 90.4       |
| Don't know/Not sure               | 1.0                       | 0.6                  | 0.9        |
| <b>Number of living children:</b> |                           |                      |            |
| 1                                 | 25.5                      | 26.6                 | 26.0       |
| 2                                 | 24.8                      | 27.3                 | 25.8       |
| 3                                 | 22.1                      | 21.1                 | 21.7       |
| 4                                 | 12.0                      | 13.6                 | 12.7       |
| 5 or more                         | 15.6                      | 11.4                 | 13.9       |
| Number                            | 1206                      | 792                  | 1998       |

## 2.2 Household characteristics

Table 2.2 represents the percent distribution of households by their characteristics in intervention and control areas. About 90 percent (88.8 percent in intervention vs. 91.9 percent in control) women have own house. Nearly 96 percent of households have earth/sand floor, 94.2 percent have tin/metal roof, and 67.5 percent households have tin walls. Forty two percent households own cattle/cow/buffalo, 51 percent own chickens and 7 percent keep these animals inside the house. Thirty seven percent of intervention households against 55.8 percent of control dispose animal feces in open place and nearly 35 percent of all households use animal feces as fuel/fertilizer (Table 2.2).

**Table 2.2: Household Characteristics**

Percentage distribution of women/mothers by household characteristics, according to Intervention and Control areas

| <b>Characteristics</b>                   | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
|--|---------------------------|----------------------|------------|
| <b>Household size (Mean):</b>            | 6.32                      | 5.78                 | 6.11       |
| <b>Own agricultural land:</b>            |                           |                      |            |
| Yes                                      | 28.5                      | 39.0                 | 32.7       |
| No                                       | 71.5                      | 61.0                 | 67.3       |
| <b>Own any house:</b>                    |                           |                      |            |
| Yes                                      | 88.8                      | 91.9                 | 90.0       |
| No                                       | 11.2                      | 8.1                  | 10.0       |
| <b>Ownership of farm animal:</b>         |                           |                      |            |
| Cattle/cow/buffalo                       | 42.0                      | 40.7                 | 41.5       |
| Goat                                     | 7.8                       | 3.2                  | 6.0        |
| Sheep                                    | 3.2                       | 1.5                  | 2.5        |
| Chickens                                 | 47.4                      | 56.0                 | 50.8       |
| Ducks                                    | 16.3                      | 20.6                 | 18.0       |
| Other                                    | 0.2                       | 1.1                  | 0.6        |
| <b>Keep any animal inside the house:</b> |                           |                      |            |
| Yes                                      | 6.8                       | 6.4                  | 6.6        |
| No                                       | 93.2                      | 93.6                 | 93.4       |
| <b>Where dispose animal feces:</b>       |                           |                      |            |
| Open place/yard                          | 37.1                      | 55.8                 | 44.7       |
| Pit for collection of animal feces       | 23.5                      | 6.0                  | 16.4       |
| Thrown into the water                    | 0.8                       | 1.9                  | 1.3        |
| Others                                   | 0.4                       | 0.0                  | 0.2        |
| Use feces as a fuel/fertilizer           | 37.6                      | 30.7                 | 34.8       |
| No proper disposal                       | 0.5                       | 5.5                  | 2.5        |
| <b>Main material of floor:</b>           |                           |                      |            |
| Earth/Sand                               | 94.2                      | 97.9                 | 95.6       |
| Cement                                   | 5.6                       | 2.1                  | 4.2        |
| Tile                                     | 0.2                       | 0.0                  | 0.2        |
| <b>Main material of roof:</b>            |                           |                      |            |
| Grass roof                               | 6.4                       | 0.3                  | 4.0        |
| Metal roof/Tin                           | 90.9                      | 99.4                 | 94.2       |
| Stone or tile roof/Tally                 | 0.1                       | 0.0                  | 0.1        |
| Plastic alone                            | 0.1                       | 0.0                  | 0.1        |
| Plastic plus grass                       | 0.1                       | 0.1                  | 0.1        |
| Cement                                   | 2.5                       | 0.3                  | 1.6        |
| <b>Main material of walls:</b>           |                           |                      |            |
| Earth/Sand/Mud/Clay                      | 26.9                      | 1.3                  | 16.8       |
| Bamboo, corn stalks                      | 8.2                       | 3.9                  | 6.5        |
| Stone/Fired Brick                        | 2.1                       | 0.0                  | 1.3        |
| Cement                                   | 8.6                       | 1.5                  | 5.8        |
| Tile                                     |                           |                      |            |
| Mud brick or wattle                      | 0.8                       | 0.0                  | 0.5        |
| Tin                                      | 50.8                      | 92.8                 | 67.5       |
| Other                                    | 2.5                       | 0.5                  | 1.7        |

| Characteristics   | Intervention areas | Control areas | All  |
|---|--------------------|---------------|------|
| <b>HH has mosquito nets:</b>                              |                    |               |      |
| Yes   | 96.6               | 97.3          | 96.9 |
| No  | 3.4                | 2.7           | 3.1  |
| <b>Cooking places:</b>                                    |                    |               |      |
| In a room used for living or sleeping                     | 6.3                | 1.8           | 4.5  |
| In a separate room in the same building used as a kitchen | 18.4               | 0.3           | 11.2 |
| In a separate building used as kitchen                    | 41.2               | 68.8          | 52.2 |
| Outdoors  | 34.1               | 29.2          | 32.1 |
| Number  | 1206               | 792           | 1998 |

The survey collected information on household ownership of selected durable assets. The percent distribution of households by possession of various durable goods, according to intervention and control areas is given in Table 2.3. It is interesting to see that 79 percent of households (76.3 percent of intervention and 83.2 percent of control) own mobile /cell phone, 61 percent own chair, about half own table, 23 percent own electric fan and 12.3 percent own television. Variations in the ownership pattern by intervention and control areas are not significant.

Asset quintiles, popularly known as wealth index, are calculated using ownership of assets and principal component analysis. Table 2.4 gives asset quintiles by intervention and control areas.

| <b>Table 2.3: Ownership of household assets</b>   |                    |               |      |
|---|--------------------|---------------|------|
| Percent distribution of women/mothers by ownership of household assets, according to intervention and control areas |                    |               |      |
| Assets  | Intervention areas | Control areas | All  |
| Radio   | 1.2                | 0.4           | 0.9  |
| Television  | 12.4               | 12.2          | 12.3 |
| Mobile phone  | 76.3               | 83.2          | 79.0 |
| Telephone land  | 0.2                | 0.1           | 0.2  |
| Refrigerator  | 1.3                | 1.4           | 1.4  |
| Animal-drawn cart   | 0.7                | 0.9           | 0.8  |
| Table   | 53.6               | 43.7          | 49.7 |
| Chair   | 65.7               | 53.3          | 60.8 |
| Electric fan  | 19.2               | 28.3          | 22.8 |
| DVD/VCD player  | 2.3                | 2.0           | 2.2  |
| Water pump  | 2.0                | 5.4           | 3.4  |
| Number  | 1206               | 792           | 1998 |

| <b>Asset quintiles</b> | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b>   |
|------------------------|---------------------------|----------------------|--------------|
| Lowest                 | 20.0                      | 19.9                 | 20.0         |
| Second                 | 20.4                      | 20.1                 | 20.3         |
| Middle                 | 18.7                      | 20.7                 | 19.5         |
| Fourth                 | 19.9                      | 19.4                 | 19.7         |
| Highest                | 21.1                      | 19.8                 | 20.6         |
| <b>Total</b>           | <b>100.0</b>              | <b>100.0</b>         | <b>100.0</b> |
| <b>Number</b>          | <b>1206</b>               | <b>792</b>           | <b>1998</b>  |

### **2.3 Household food security**

Food security is an important issue in any under developed country like Bangladesh. At household level, food security refers to the ability of the household to secure, either from its own production or through purchases, adequate food for meeting the dietary needs of all members of the household. The survey collected information on production and access to food, storage of food, services received from agricultural extension worker, coping strategy and households by hunger status.

#### **2.3.1 Agricultural production and access to food**

Table 2.5 gives distribution of households by production of food, access to agricultural land and main sources of household food. **It is seen that 97.8 percent purchase some kind of food, 57.1 percent trade/borrow food, and 45.7 percent produce food. Among those who produce food, in 88.6 percent cases husbands produce food. About 45 percent of households have land to grow food and 60 percent sell some food from own land.**

Table 2.6 shows percent distribution of households by possession of kitchen garden, type of food produce in it, and use of these food items by intervention and control areas. It can be seen that nearly one-third households have kitchen garden, and 63.4 percent are owned by the respondents or their husbands. Kitchen gardens produce mainly vegetables, fruits, beans, etc., and mostly these are used for personal/family consumption (Table 2.6).

**Table 2.5: Access to food**

Percent distribution of household by production of food, access to land and main source of household food, according to Intervention and Control areas

|  | <b>Intervention<br/>areas</b> | <b>Control<br/>areas</b> | <b>All</b> |
|--|-------------------------------|--------------------------|------------|
| <b>Main sources of household food:</b> |                               |                          |            |
| Produce food                           | 39.9                          | 54.5                     | 45.7       |
| Purchase food                          | 98.8                          | 96.5                     | 97.8       |
| Food for work                          | 6.9                           | 17.2                     | 11.0       |
| Government foodaid                     | 1.0                           | 0.6                      | 0.6        |
| NGO foodaid                            | 8.2                           | 0.9                      | 5.3        |
| Trade/Borrowfood                       | 55.7                          | 59.3                     | 57.1       |
| Charity/Beg                            | 1.3                           | 1.1                      | 1.3        |
| Number                                 | 1206                          | 792                      | 1998       |
| <b>Who produce it?</b>                 |                               |                          |            |
| Self (respondent)                      | 3.3                           | 2.8                      | 3.1        |
| Husband                                | 84.0                          | 93.8                     | 88.6       |
| Other female family members/clan       | 2.1                           | 1.6                      | 1.9        |
| Other male family members/clan         | 28.3                          | 20.6                     | 24.6       |
| Neighbors/relative/friend              | 1.9                           | 6.5                      | 4.1        |
| Farm collective/labour                 | 35.1                          | 24.3                     | 30.0       |
| Other                                  | 0.2                           | 0.0                      | 0.1        |
| Number                                 | 481                           | 432                      | 913        |
| <b>Have any land to grow food:</b>     |                               |                          |            |
| Yes                                    | 38.5                          | 54.2                     | 44.7       |
| No                                     | 61.5                          | 45.8                     | 55.3       |
| Number                                 | 1206                          | 792                      | 1998       |
| <b>Sell any food from own land:</b>    |                               |                          |            |
| Yes                                    | 61.4                          | 57.8                     | 59.7       |
| No                                     | 38.6                          | 42.2                     | 40.3       |
| Number                                 | 464                           | 429                      | 893        |

| <b>Table 2.6: Kitchen garden</b>  |                           |                      |            |
|---|---------------------------|----------------------|------------|
| Percent distribution of households by possession of kitchen garden, types of food produce on it, and use of these food items, according to Intervention and Control areas |                           |                      |            |
|   | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
| <b>Have home/kitchen garden for growing food:</b>   |                           |                      |            |
| Yes   | 33.5                      | 28.3                 | 31.4       |
| No  | 66.5                      | 71.7                 | 68.6       |
| Number  | 1206                      | 792                  | 1998       |
| <b>Who owns it:</b>   |                           |                      |            |
| You (Respondent)  | 16.8                      | 37.5                 | 24.2       |
| Your husband  | 39.4                      | 38.8                 | 39.2       |
| Both you and your husband   | 4.5                       | 2.7                  | 3.8        |
| Other Male relative   | 29.7                      | 15.2                 | 24.5       |
| Other Female relative   | 8.2                       | 3.6                  | 6.5        |
| Land owner  | 1.0                       | 1.3                  | 1.1        |
| Neighbor  | 0.5                       | 0.0                  | 0.3        |
| Others  | 0.0                       | 0.9                  | 0.3        |
| Number  | 404                       | 224                  | 628        |
| <b>Type of food produce on it:</b>  |                           |                      |            |
| Grains: wheat, corn oats, rice  | 4.2                       | 3.7                  | 5.1        |
| Roots or tubers: White potatoes, white yams, sweet potato   | 14.9                      | 24.6                 | 18.3       |
| Pulses/legumes/nuts e.g. Beans, groundnuts etc.   | 66.6                      | 51.3                 | 61.1       |
| Vitamin A-rich plant foods (Pumpkin, Carrots etc.)  | 45.3                      | 41.1                 | 43.8       |
| Dark green, leafy vegetables  | 51.0                      | 67.0                 | 56.7       |
| Other fruits or vegetables  | 79.2                      | 62.5                 | 73.2       |
| Chili, garlic, onion & ginger   | 8.2                       | 6.7                  | 7.6        |
| Other   | 0.0                       | 2.7                  | 1.0        |
| Number  | 404                       | 224                  | 628        |
| <b>Main uses of these food:</b>   |                           |                      |            |
| Personal/Family Consumption   | 100                       | 100                  | 100        |
| Sale  | 12.4                      | 17.0                 | 14.0       |
| Barter trade  | 0.5                       | 1.3                  | 0.8        |
| Number  | 404                       | 224                  | 628        |
| <b>Type of food have to buy:</b>  |                           |                      |            |
| Grains: wheat, corn, oats, rice   | 91.0                      | 80.6                 | 86.9       |
| Roots or tubers: White potatoes, white yams, sweet potato   | 98.0                      | 94.1                 | 96.4       |
| Pulses/legumes/nuts e.g. Beans, groundnuts etc  | 97.5                      | 95.6                 | 96.7       |
| Meat, poultry, fish, seafood (e.g., pigs, fish, rabbits, birds etc)   | 99.4                      | 98.4                 | 99.0       |

|  | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
|--|---------------------------|----------------------|------------|
| Eggs   | 96.8                      | 88.9                 | 93.7       |
| Milk and milk products   | 89.8                      | 84.0                 | 87.5       |
| Vitamin A-rich plant foods (Pumpkin, Carrots etc.)                             | 94.9                      | 89.9                 | 92.9       |
| Dark green, leafy vegetables   | 96.8                      | 89.3                 | 93.8       |
| Other fruits or vegetables   | 95.9                      | 90.5                 | 93.7       |
| Coffee/tea/coco  | 77.6                      | 65.6                 | 72.8       |
| Cooking related items (oil, salt, flour)                                       | 99.7                      | 99.2                 | 99.5       |
| Snacks (sugar, junk foods)   | 92.8                      | 92.2                 | 92.5       |
| Other (specify)  | 0.2                       | 2.1                  | 1.0        |
| Vitamin C rich fruits: Lemon, orange, guava, amloki, amra, star fruit, satkora | 87.0                      | 98.4                 | 91.5       |
| Number   | 1206                      | 792                  | 1998       |

### 2.3.2 Food preservation and storage

Table 2.7 shows that preservation of fruits and vegetables at household level is not common. If preservation is done at all, solar drying method is commonly used. About 69 percent households store food items/crops in the post-harvest period, and mainly rice and potatoes are stored. Storing is done for future household consumption.

| <b>Table 2.7: Preservation and storage of food</b>  |                           |                      |            |
|---|---------------------------|----------------------|------------|
| Percent distribution of households by preservation and storage of food, according to Intervention and Control areas |                           |                      |            |
|   | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
| <b>In last 12 months whether preserved any fruits/vegetable</b>   |                           |                      |            |
| Yes   | 9.5                       | 24.0                 | 15.3       |
| No  | 90.5                      | 76.0                 | 84.7       |
| Number  | 1206                      | 792                  | 1998       |
| <b>Method of preservation used:</b>   |                           |                      |            |
| Solar drying  | 87.8                      | 98.4                 | 94.4       |
| Other drying  | 16.5                      | 3.2                  | 8.2        |
| Pickling  | 2.6                       | 0.5                  | 1.3        |
| Number  | 115                       | 190                  | 305        |
| <b>Type of fruit/vegetable preserved:</b>   |                           |                      |            |
| Mango   | 5.2                       | 0.5                  | 2.3        |
| Baroi Codes adapt locally   | 28.7                      | 3.2                  | 12.8       |
| White pumpkin (Chalkumra)   | 22.6                      | 15.3                 | 18.0       |
| Chili   | 19.1                      | 66.8                 | 48.9       |

|   | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
|---|---------------------------|----------------------|------------|
| Tetul/Tamarind Codes adapt locally                                      | 0.0                       | 0.5                  | 0.3        |
| Seed (Bean)   | 53.9                      | 26.3                 | 36.7       |
| chick pea   | 1.7                       | 0.0                  | 0.7        |
| Ground nut  | 0.0                       | 2.6                  | 1.6        |
| Potato/ Sweet potato  | 19.1                      | 18.4                 | 18.7       |
| Onion/ Garlic   | 1.7                       | 27.4                 | 17.7       |
| Others  | 0.9                       | 3.7                  | 2.6        |
| Number  | 115                       | 190                  | 305        |
| <b>In the last post-harvest period, stored any crops that you grew:</b> |                           |                      |            |
| Yes   | 60.3                      | 78.3                 | 69.0       |
| No  | 39.7                      | 21.7                 | 31.0       |
| Number  | 464                       | 429                  | 893        |
| <b>Variety of crops stored:</b>   |                           |                      |            |
| Rice  | 91.7                      | 95.3                 | 94.2       |
| Pulses  | 3.3                       | 4.1                  | 3.8        |
| Bhutta  | 3.3                       | 0.7                  | 1.4        |
| Mustard seeds   | 1.7                       | 1.4                  | 1.4        |
| Potato  | 30.0                      | 50.7                 | 44.7       |
| Pumpkin   | 11.7                      | 19.6                 | 17.3       |
| Others  | 3.3                       | 4.1                  | 3.8        |
| Number  | 60                        | 148                  | 208        |
| <b>Purpose of storing crops:</b>  |                           |                      |            |
| Food for household consumption  | 100                       | 100                  | 100        |
| To sell for higher price  | 43.3                      | 52.0                 | 49.5       |
| Seed for planting   | 36.7                      | 18.9                 | 24.0       |
| Number  | 60                        | 148                  | 208        |

### 2.3.3 Assistance from Agricultural and Live-stock Extension Workers

The survey asked women/respondents if Agricultural and Live-stock Extension Workers visited them in the last 12 months, if visited, the type of services received from them. Table 2.8 shows that only 5 percent were visited by Agricultural Extension Workers and 2.5 percent by Live-stock Workers. Mostly they provided advice.

| <b>Table 2.8: Assistance from agricultural and live-stock extension workers</b>   |                           |                      |            |
|---|---------------------------|----------------------|------------|
| Percent distribution of households by receiving assistance from Agricultural and Livestock extension workers, according to Intervention and Control areas |                           |                      |            |
|   | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
| <b>In the last 12 months, any visit by agricultural extension worker:</b>   |                           |                      |            |
| Yes   | 6.5                       | 1.9                  | 4.7        |
| No  | 93.2                      | 97.0                 | 94.7       |
| Don't know  | 0.3                       | 1.1                  | 0.7        |
| Number  | 1206                      | 792                  | 1998       |
| <b>Type of services received from them:</b>   |                           |                      |            |
| Advice  | 89.7                      | 100.0                | 91.4       |
| Demonstration   | 19.2                      | 6.7                  | 17.2       |
| Training  | 17.9                      | 13.3                 | 17.2       |
| Inputs(e.g. seeds)  | 25.6                      | 33.3                 | 26.9       |
| Number  | 78                        | 15                   | 93         |
| <b>Any visit by Livestock/fisheries:</b>  |                           |                      |            |
| Yes   | 2.7                       | 2.1                  | 2.5        |
| No  | 97.2                      | 97.1                 | 97.1       |
| Don't know  | 0.1                       | 0.8                  | 0.4        |
| Number  | 1206                      | 792                  | 1998       |
| <b>Type of services received from them:</b>   |                           |                      |            |
| Advice  | 81.8                      | 35.3                 | 66.0       |
| Demonstration   | 6.1                       | 0.0                  | 4.0        |
| Training  | 18.2                      | 5.9                  | 14.0       |
| Inputs(e.g. fish fry)   | 3.0                       | 0.0                  | 2.0        |
| Vaccine/medicines   | 45.5                      | 82.4                 | 58.0       |
| Number  | 33                        | 17                   | 50         |

### 2.3.4 Household hunger and coping strategy

Table 2.9 depicts households' food security status and level of hunger. It is evident that the level of household hunger is quite significant that needs attention. Table 2.9 shows that 56.5 percent of intervention against 28.8 percent of control households faced the problem of not having any food to eat for lack of money/resources in the last one month. Twenty one percent in intervention and 12.6 percent of control households reported that some household members had to go to sleep at night for not having enough food. Twelve percent of intervention and 8.5 percent of control women reported that some members were without food for not having enough food at some occasion.

To address household hunger problem, the strategies followed were- ate less favored or cheaper food (36 percent in intervention vs. 13.6 percent in control), bought food on credit (32 percent in

intervention vs. 14.9 percent in control), ate less (32 percent in intervention vs. 15.1 percent in control), borrowed food (29.6 percent in intervention and 18.2 percent in control), and so on.

| <b>Table 2.9: Household Hunger</b>   |                           |                      |            |
|--|---------------------------|----------------------|------------|
| Percent distribution of households by responses on household hunger during last one month, according to Intervention and Control areas |                           |                      |            |
| <b>Hunger level</b>  | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
| <b>There was ever no food to eat in the HH for lack of money/resources:</b>  |                           |                      |            |
| Yes  | 56.5                      | 28.8                 | 45.5       |
| No   | 43.5                      | 71.2                 | 54.5       |
| Number   | 1206                      | 792                  | 1998       |
| <b>Frequencies of happening this:</b>  |                           |                      |            |
| Rarely (1-2 times)   | 37.9                      | 53.5                 | 41.8       |
| Sometimes (3-10 times)   | 53.6                      | 40.4                 | 50.3       |
| Often (more than 10 times)   | 8.5                       | 6.1                  | 7.9        |
| Number   | 681                       | 228                  | 909        |
| <b>Any HH member had to go to sleep at night for not having enough food:</b>   |                           |                      |            |
| Yes  | 20.8                      | 12.6                 | 17.6       |
| No   | 79.2                      | 87.4                 | 82.4       |
| Number   | 1206                      | 792                  | 1998       |
| <b>Frequencies of happening this:</b>  |                           |                      |            |
| Rarely (1-2 times)   | 69.3                      | 61.0                 | 67.0       |
| Sometimes (3-10 times)   | 29.9                      | 36.0                 | 31.6       |
| Often (more than 10 times)   | 0.8                       | 3.0                  | 1.4        |
| Number   | 251                       | 100                  | 351        |
| <b>Any member were without food because of not having enough food:</b>   |                           |                      |            |
| Yes  | 12.1                      | 8.5                  | 10.7       |
| No   | 87.9                      | 91.5                 | 89.3       |
| Number   | 1206                      | 792                  | 1998       |
| <b>Frequencies of happening this:</b>  |                           |                      |            |
| Rarely (1-2 times)   | 65.8                      | 68.7                 | 66.7       |
| Sometimes (3-10 times)   | 32.9                      | 29.9                 | 31.9       |
| Often (more than 10 times)   | 1.4                       | 1.5                  | 1.4        |
| Number   | 146                       | 67                   | 213        |

| <b>Table 2.10: Coping strategy</b>   |                           |                      |             |
|--|---------------------------|----------------------|-------------|
| Percent distribution of mothers/households by coping strategies followed with food problems, according to Intervention and Control areas |                           |                      |             |
| <b>Strategies</b>  | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b>  |
| <b>In the past 7 days, experienced any incidence of shortage of food or money to buy food:</b>   |                           |                      |             |
| Yes  | 41.4                      | 21.8                 | 33.6        |
| No   | 58.6                      | 78.2                 | 66.4        |
| <b>Had experience of</b>   |                           |                      |             |
| Eat less favored or cheaper food   | 36.0                      | 13.6                 | 27.1        |
| Borrow food, or rely on help from a friend or relative   | 28.6                      | 18.2                 | 24.5        |
| Buy food on credit   | 32.1                      | 14.9                 | 25.3        |
| Get wild food or hunt crops  | 4.1                       | 1.6                  | 3.1         |
| Fishing as a alternative food source   | 4.2                       | 3.0                  | 3.8         |
| Consume seed (stock held for next season)  | 0.2                       | 0.5                  | 0.3         |
| Send household members with family or friends  | 4.4                       | 6.9                  | 5.4         |
| Send household members ask for charity   | 2.4                       | 3.4                  | 2.8         |
| Eat less (Limit portion size at mealtime)  | 32.0                      | 15.1                 | 25.3        |
| Give adults less food in order for small children to eat   | 23.5                      | 12.5                 | 19.2        |
| Feed working members of HH at the expense of non-working members   | 11.9                      | 6.8                  | 9.9         |
| Reduce number of meals eaten in a day  | 20.9                      | 12.7                 | 17.7        |
| Skip entire days without eating  | 7.6                       | 6.8                  | 7.3         |
| <b>Number</b>  | <b>1206</b>               | <b>792</b>           | <b>1998</b> |

### 2.3.5 Women's dietary diversity

Minimum dietary diversity is defined as the proportion of the women who receive food from 4 or more food groups during the previous day of the survey.

Table 2.12 shows that almost all the women receive cereals, white roots and tubers (86.3%), fish (85.1%), oil (96.1%) and spices (99.4%). Table 2.12a gives proportion of women by consumption of various groups of food.

**Table 2.12: Women's dietary diversity**

Percent distribution of mothers by consumption of different type of food in a normal day (yesterday) by intervention and control areas

| <b>Type of food:</b>          | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
|-------------------------------|---------------------------|----------------------|------------|
| Cereal                        | 99.8                      | 99.7                 | 99.7       |
| Vitamin A rich vegetables     | 8.7                       | 18.4                 | 12.6       |
| White roots and tubers        | 84.7                      | 88.8                 | 86.3       |
| Dark green leafy vegetables   | 41.0                      | 35.6                 | 38.9       |
| Other vegetables              | 48.7                      | 65.8                 | 55.5       |
| Vitamin A rich fruits         | 6.0                       | 7.4                  | 6.6        |
| Other fruits                  | 5.6                       | 5.3                  | 5.5        |
| Organ meat                    | 0.6                       | 0.4                  | 0.5        |
| Flesh meats                   | 7.0                       | 5.9                  | 6.6        |
| Eggs                          | 10.3                      | 14.5                 | 12.0       |
| Fish                          | 84.1                      | 86.7                 | 85.1       |
| Legumes, nuts and seeds       | 45.1                      | 41.8                 | 43.8       |
| Milk and milk products        | 17.5                      | 30.4                 | 22.6       |
| Oils and fats                 | 10.1                      | 9.7                  | 10.0       |
| Other oils                    | 96.3                      | 95.8                 | 96.1       |
| Spices, Condiments            | 99.5                      | 99.4                 | 99.4       |
| Other sweets                  | 36.1                      | 33.0                 | 34.8       |
| Other salty ready-made snacks | 8.1                       | 9.5                  | 8.7        |
| Other beverages               | 22.1                      | 2.9                  | 14.5       |
| Other                         | 1.2                       | 1.8                  | 1.5        |
| Number                        | 1206                      | 792                  | 1998       |

### 2.3.6 Material health

The survey collected information on certain maternal care such as use of antenatal care, delivery assistance and post natal care during last pregnancy. This information can be used to identify the gaps between the target and actual situations.

#### Antenatal care

The reproductive health care services that a mother receives during her pregnancy and at the time of delivery are important for the well-being of the mother and her child. Antenatal checkup facilitates detection and treatment of complications during pregnancy. Antenatal care (ANC) can be assessed according to the type of service provider, number of visits made, the stage of pregnancy at the time of first ANC visit and consumption of iron folic acid tablets.

Table 2.13 shows that only 38 percent of intervention and 31 percent of control women received antenatal care from a provider at least once during the last pregnancy, while XX percent received care from medically trained provider (doctors, nurses or midwives).

| <b>Table 2.13: Number of antenatal care visits and stage of pregnancy</b>  |                           |                      |              |
|--|---------------------------|----------------------|--------------|
| Percent distribution of women with a live birth in the last three years preceding the survey by number of antenatal care (ANC) visits during the last pregnancy and the stage of pregnancy at the time of the first visit, according to Intervention and Control areas |                           |                      |              |
| <b>Number and timing of ANC visits</b>   | <b>Intervention areas</b> | <b>Control areas</b> | <b>Total</b> |
| <b>Number of ANC visits</b>  |                           |                      |              |
| None   | 62.1                      | 68.8                 | 64.8         |
| 1  | 11.0                      | 12.5                 | 11.6         |
| 2  | 9.5                       | 8.8                  | 9.3          |
| 3  | 8.8                       | 5.1                  | 7.3          |
| 4+   | 8.5                       | 4.8                  | 7.1          |
| Median number of visits (for those with ANC)   | 2.0                       | 2.0                  | 2.0          |
| Providers of ANC   |                           |                      |              |
| Number of women  | 1206                      | 792                  | 1998         |

### **Delivery Care:**

Delivery care is an important component of maternal and newborn care. Proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections. Place of delivery and the provider who conducted or assisted in the delivery are very important.

### **Place of delivery:**

Table 2.13a gives the percent distribution of mothers by place of delivery and by providers who assisted in the delivery. It shows that a high proportion of births both in the intervention (88.9.percent) and control areas (91.8 percent) occurred at home. Only 10.4 percent of deliveries of intervention and 8.0.percent of control area births occurred at hospitals/clinics.

| <b>Table 2.13a: Place of delivery</b>  |                           |                      |            |
|--|---------------------------|----------------------|------------|
| Percent distribution of last birth of mothers who give birth at different places, according to Intervention and Control areas. |                           |                      |            |
|  | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
| Home   | 88.9                      | 91.8                 | 90.0       |
| <b>Govt. Institution:</b>  |                           |                      |            |
| Medical College Hospital   | 2.3                       | 1.0                  | 1.8        |
| District/Sadar hospital  | 1.3                       | 1.9                  | 1.6        |
| MCWC   | 0.3                       | 0.1                  | 0.3        |
| UHC  | 2.9                       | 1.5                  | 2.4        |
| FWC  | 0.1                       | 0.0                  | 0.2        |
| <b>NGO Institution:</b>  |                           |                      |            |
| NGO clinic   | 0.3                       | 0.0                  | 0.2        |
| <b>Private Medical Institution:</b>  |                           |                      |            |
| Private hospital/clinic  | 3.2                       | 3.3                  | 3.3        |
| Private Medical College Hospital   | 0.0                       | 0.3                  | 0.1        |
| Others   | 0.6                       | 0.1                  | 0.4        |
| Number of women  | 1206                      | 792                  | 1998       |

### **Assistance during delivery:**

Assistance during delivery influences the delivery outcome and the health of the mother and the child. Table 2.13b shows that only 10.8 percent of all the deliveries in the intervention area are assisted by skilled personnel/health personnel. The corresponding figure in the control area is 8.9 percent. Skilled personnel/ health personnel includes doctors, nurses, midwives, FWV, CSBA, SACMO and paramedics, MA and FWA.

**Table 2.13b: Delivery assistance**

Percent distribution of last births of mothers who was assisted by different persons, according to Intervention and Control areas.

|                                   | <b>Intervention<br/>areas</b> | <b>Control<br/>areas</b> | <b>All</b> |
|-----------------------------------|-------------------------------|--------------------------|------------|
| <b>Health Personnel:</b>          |                               |                          |            |
| Qualified doctor                  | 6.8                           | 5.6                      | 6.3        |
| Nurse/midwife/paramedic           | 3.7                           | 2.9                      | 3.4        |
| Family welfare visitor            | 0.0                           | 0.3                      | 0.1        |
| Community skilled birth attendant | 0.1                           | 0.0                      | 0.1        |
| M A/SACMO                         | 0.1                           | 0.0                      | 0.1        |
| Health assistant                  |                               |                          |            |
| Family welfare assistant          | 0.1                           | 0.1                      | 0.1        |
| <b>Other person:</b>              |                               |                          |            |
| Trained TBA                       | 33.1                          | 35.4                     | 34.0       |
| Untrained TBA                     | 53.6                          | 55.6                     | 54.4       |
| Unqualified doctor                | 1.7                           | 0.1                      | 1.1        |
| NGO worker                        | 0.2                           | 0.0                      | 0.2        |
| Relatives                         | 0.4                           | 0.1                      | 0.3        |
| No one                            | 0.2                           | 0.0                      | 0.2        |
| Number of women                   | 1206                          | 792                      | 1998       |

**Postnatal care:**

Women may experience problems in the postpartum/postnatal period, the six weeks following delivery. Such problems can be detected and treated through proper follow-up visits for women in the postpartum period. In the survey, respondents were asked if anyone check on them after giving birth, how long after birth checkup was done and where/who conducted the postnatal checkup.

Table 2.13c presents data on physical checkup and providers of postnatal checkup by intervention and control areas. It appears that prevalence of postnatal checkup is very low both in intervention (14.7 percent) and control (11percent) areas. Home (34.5), private hospital/clinic (24.2 percent) and UHC (12.9 percent) are the main sources of postnatal checkup.

**Table 2.13c Postnatal care for mothers**

Percent distribution of last birth in the last three years preceding the survey for which the mothers received postnatal checkup within 42 days of delivery, according to Intervention and Control areas.

|                                     | <b>Intervention<br/>areas</b> | <b>Control<br/>areas</b> | <b>All</b> |
|-------------------------------------|-------------------------------|--------------------------|------------|
| Postnatal check up (PNC):           |                               |                          |            |
| Yes                                 | 14.7                          | 11.0                     | 13.2       |
| No                                  | 85.3                          | 89.0                     | 86.8       |
| Number of women                     | 1206                          | 792                      | 1998       |
| <b>PNC done at:</b>                 |                               |                          |            |
| Home                                | 36.7                          | 29.9                     | 34.5       |
| Govt. Institution:                  |                               |                          |            |
| Medical College Hospital            | 15.3                          | 6.9                      | 12.5       |
| District/Sadar hospital             | 6.2                           | 14.9                     | 9.1        |
| MCWC                                | 1.1                           | 1.1                      | 1.1        |
| UHC                                 | 11.9                          | 14.9                     | 12.9       |
| FWC                                 | 0.6                           | 0.0                      | 0.4        |
| Community clinic                    | 0.6                           | 0.0                      | 0.4        |
| <b>NGO Institution:</b>             |                               |                          |            |
| NGO clinic                          | 2.8                           | 0.0                      | 1.9        |
| NGO Satellite clinic                | 0.6                           | 0.0                      | 0.4        |
| <b>Private Medical Institution:</b> |                               |                          |            |
| Private hospital/clinic             | 22.0                          | 28.7                     | 24.2       |
| Qualified doctor's chamber          | 0.0                           | 1.1                      | 0.4        |
| Pharmacy                            | 2.3                           | 0.0                      | 1.5        |
| Private Medical College Hospital    | 0.0                           | 2.3                      | 0.8        |
| Number of women                     | 177                           | 87                       | 264        |

## 2.4 Water, Sanitation and Hygiene practices

The survey collected information on sources of drinking water, practice of hand washing, sanitation facilities at households, type of toilet use and disposal of child feces and waste water.

### 2.4.1 Access to clean water, hand washing

Table 2.14 shows that almost all the households (98.8 percent) use Tube well water for drinking. Only 2.6 percent households treat/boil water to make it safe.

Hand washing with soap before and after meals, work and defecation is essential and hygienic. Table 2.15 shows that the primary or main source of water used for purposes like cooking and hand washing are tube well (73.5 percent) and surface water (river, lake, pond water). About 76 percent of intervention and 91 percent of control area respondents use soap for hand washing

before eating, similar proportion (86.3 percent) use before preparing food, before feeding the child (88.5 percent) and only one-third use soap for hand washing after toilet use.

| <b>Table 2.14: Sources of drinking water</b>   |                           |                      |            |
|--|---------------------------|----------------------|------------|
| Percent distribution of households by sources of drinking water, according to Intervention and Control areas |                           |                      |            |
| <b>Sources</b>   | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
| <b>Primary sources of drinking water:</b>  |                           |                      |            |
| Piped water into dwelling  | 0.2                       | 0.1                  | 0.2        |
| Public tap/standpipe   | 0.5                       | 0.4                  | 0.5        |
| Tubewell/Deep Tubewell   | 98.4                      | 99.5                 | 98.8       |
| Protected dug well   | 0.1                       | 0.0                  | 0.1        |
| Unprotected dug well   | 0.2                       | 0.0                  | 0.2        |
| Surface water (river, HAOR dam, lake, pond, stream, canal, irrigation channels)                              | 0.6                       | 0.0                  | 0.4        |
| Number   | 1206                      | 792                  | 1998       |
| <b>Whether treat water to make it safe:</b>  |                           |                      |            |
| Yes  | 4.0                       | 0.5                  | 2.6        |
| No   | 96.0                      | 99.5                 | 97.4       |
| Number   | 1206                      | 792                  | 1998       |
| <b>Usually follow to make water safe:</b>  |                           |                      |            |
| Boil water   | 18.8                      | 25.0                 | 19.2       |
| Strain it through a cloth  | 54.2                      | 50.0                 | 53.8       |
| Use water filter (ceramic/sand/composite/etc)  | 41.7                      | 25.0                 | 40.4       |
| Let it stand and settle  | 2.1                       | 0.0                  | 1.9        |
| Use purifying tablets  | 2.1                       | 0.0                  | 1.9        |
| Number   | 48                        | 4                    | 52         |

| <b>Table 2.15: Hand washing</b>  |                           |                      |            |
|--|---------------------------|----------------------|------------|
| Percent distribution of households by practice of hand washing and sources of water, according to Intervention and Control areas |                           |                      |            |
|  | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
| <b>Primary/main source of water used for purposes like cooking and hand washing:</b>   |                           |                      |            |
| Piped water into dwelling  | 0.5                       | 0.1                  | 0.4        |
| Public tap/standpipe   | 0.4                       | 0.6                  | 0.5        |
| Tubewell/Deep Tubewell   | 74.6                      | 71.8                 | 73.5       |
| Protected dug well   | 0.2                       | 0.0                  | 0.1        |
| Unprotected dug well   | 0.9                       | 0.0                  | 0.6        |
| Surface water (river, HAOR dam, lake, pond, stream, canal, irrigation channels)  | 23.2                      | 27.4                 | 24.9       |
| Other  | 0.2                       | 0.0                  | 0.1        |
| Number   | 1206                      | 792                  | 1998       |
| <b>Hand washing with soap:</b>   |                           |                      |            |
| <b>Before eating</b>   |                           |                      |            |
| Never  | 75.6                      | 90.7                 | 81.6       |
| Always   | 17.6                      | 4.8                  | 12.5       |
| Sometimes  | 6.8                       | 4.5                  | 5.9        |
| <b>Before preparing food</b>   |                           |                      |            |
| Never  | 80.8                      | 94.7                 | 86.3       |
| Always   | 11.9                      | 1.5                  | 7.8        |
| Sometimes  | 7.3                       | 3.8                  | 5.9        |
| <b>Before feeding the child</b>  |                           |                      |            |
| Never  | 86.4                      | 91.8                 | 88.5       |
| Always   | 9.1                       | 2.1                  | 6.4        |
| Sometimes  | 4.5                       | 6.1                  | 5.1        |
| <b>After toilet use</b>  |                           |                      |            |
| Never  | 26.1                      | 46.1                 | 34.0       |
| Always   | 56.1                      | 32.1                 | 46.5       |
| Sometimes  | 17.8                      | 21.8                 | 19.4       |
| <b>After changing a baby</b>   |                           |                      |            |
| Never  | 72.6                      | 65.7                 | 69.9       |
| Always   | 21.0                      | 17.0                 | 19.4       |
| Sometimes  | 6.4                       | 17.3                 | 10.7       |
| <b>After processing of cow dung for fuel</b>   |                           |                      |            |
| Never  | 84.9                      | 70.2                 | 79.1       |
| Always   | 11.4                      | 16.3                 | 13.3       |
| Sometimes  | 3.7                       | 13.5                 | 7.6        |
| <b>Presence of water at the specific place for hand washing:</b>   |                           |                      |            |
| Yes  | 62.0                      | 88.4                 | 72.4       |
| No   | 38.0                      | 11.6                 | 27.6       |
| Number   | 1205                      | 791                  | 1996       |
| <b>Presence of cleaning agent in the HHs:</b>  |                           |                      |            |
| Soap   | 95.0                      | 76.3                 | 88.8       |
| ASR/mud/sand   | 14.0                      | 23.1                 | 17.0       |
| None   | 0.1                       | 1.1                  | 0.5        |
| Number   | 719                       | 355                  | 1074       |

## 2.4.2 Use of latrine and disposal of child feces:

Table 2.16 gives percent distribution of households by type of toilet use, disposal of child's feces and waste water by intervention and control areas. Results show that pit latrine without slab/open pit (44.6 percent in intervention and 37.6 percent in control), pit/latrine with slab/water sealed (42 percent in intervention and 35.2 percent in control) and hanging latrine (11.9 percent) are the main type of toilets used by household members. More than half of households (50% in intervention vs. 71.2 percent in control) share toilet facilities with other households. About two-thirds of households throw child feces in the yard/open yard (64.3 percent in intervention vs. 61.1 percent in control). Old/used cloth is mainly used by most rural menstruating women (94.1 percent in intervention vs. 92.6 percent in control).

**Table 2.16: Sanitation facility and disposal of child's feces**  
Percent distribution of HHs by type of toilet use, disposal of child's feces and waste water etc, according to Intervention and Control areas

|  | Intervention areas | Control areas | All  |
|--|--------------------|---------------|------|
| <b>Type of toilet use:</b>                                 |                    |               |      |
| Flush/pour flush to piped sewer system                     | 0.2                | 0.0           | 0.2  |
| Flush/pour flush to septic tank                            | 1.2                | 0.1           | 0.8  |
| Flush/pour flush to pit latrine                            | 0.2                | 0.1           | 0.2  |
| Ventilated improved pit latrine (VIP)                      | 3.6                | 3.5           | 3.6  |
| Pit latrine with slab/water sealed                         | 42.0               | 35.2          | 39.3 |
| Pit latrine without slab/open pit                          | 44.6               | 37.6          | 41.8 |
| Bucket   | 0.7                | 0.3           | 0.6  |
| Hanging toilet/hanging latrine                             | 4.9                | 22.6          | 11.9 |
| No facilities/bush/field                                   | 2.6                | 0.5           | 1.8  |
| Number   | 1206               | 792           | 1998 |
| <b>Whether share toilet facility with other households</b> |                    |               |      |
| Yes  | 50.0               | 71.2          | 58.5 |
| No   | 50.0               | 28.8          | 41.5 |
| Number   | 1175               | 788           | 1963 |
| <b>What is done to dispose of child's stool:</b>           |                    |               |      |
| Dropped into toilet facility/latrine                       | 8.0                | 5.4           | 7.0  |
| Buried   | 0.2                | 0.0           | 0.1  |
| Put into container for trash                               | 4.4                | 0.9           | 3.0  |
| In yard/open yard  | 64.3               | 61.1          | 63.0 |
| In sink or tub   | 0.1                | 0.1           | 0.1  |
| Thrown into waterway                                       | 10.9               | 15.9          | 12.9 |
| Washed or rinsed away                                      | 12.1               | 16.6          | 13.9 |
| Number   | 1145               | 755           | 1900 |
| <b>Where waste water is disposed?</b>                      |                    |               |      |
| Dropped into toilet facility                               | 2.2                | 0.0           | 1.1  |
| Put into container for trash                               | 0.7                | 0.0           | 0.4  |
| In yard/open yard  | 1.4                | 0.0           | 0.8  |

|  | <b>Intervention<br/>areas</b> | <b>Control<br/>areas</b> | <b>All</b> |
|--|-------------------------------|--------------------------|------------|
| Outside of yard                            | 10.8                          | 21.6                     | 15.9       |
| Thrown into waterway                       | 84.2                          | 77.6                     | 81.1       |
| Don't know                                 | 0.7                           | 0.8                      | 0.8        |
| Number                                     | 139                           | 125                      | 264        |
| <b>What usually use when menstruating:</b> |                               |                          |            |
| Nothing                                    | 2.2                           | 0.5                      | 1.5        |
| Old cloth                                  | 94.1                          | 92.6                     | 93.5       |
| Reusable pads                              | 0.2                           | 5.7                      | 2.4        |
| Disposable pads                            | 2.7                           | 1.1                      | 2.1        |
| Tampons                                    | 0.2                           | 0.0                      | 0.2        |
| Other                                      | 0.5                           | 0.1                      | 0.4        |
| Number                                     | 1206                          | 792                      | 1998       |

## 2.5 Women empowerment: Freedom to move and role is decision making

Role of women in important household decision making is an indicator of women empowerment. To assess women's decision making autonomy, the survey collected information on women's freedom to visit places and role in important decision making.

### 2.5.1 Mobility

Table 2.17a gives percent distribution of women/mothers by level of freedom to visit places. It shows that only 25.6 percent of intervention and 19.4 percent of control women have the freedom to go to the market alone for buying and selling things. But nearly four fifths (80 percent of intervention vs. 73.9 percent in control) can fetch water on own. About one-third have the freedom to attend training/adult literacy classes of their own. The level of freedom to visit health facility, attending community meeting, visiting friends, etc is similar to the scenario as above (table 2.17a).

| <b>Table 2.17a: Women empowerment: Freedom to visit places</b>   |                               |                          |            |
|--|-------------------------------|--------------------------|------------|
| Percent distribution of mothers by level of freedom to visit different places of their own according to Intervention and Control areas |                               |                          |            |
| <b>Activities</b>  | <b>Intervention<br/>areas</b> | <b>Control<br/>areas</b> | <b>All</b> |
| <b>Can go to the market to buy or sell things:</b>   |                               |                          |            |
| Not at all   | 23.5                          | 56.2                     | 36.5       |
| If someone accompanies me  | 50.8                          | 24.4                     | 40.3       |
| On my own  | 25.6                          | 19.4                     | 23.2       |
| <b>Can fetch water on own:</b>   |                               |                          |            |
| Not at all   | 1.8                           | 1.4                      | 1.7        |
| If someone accompanies me  | 3.1                           | 2.8                      | 3.0        |
| On my own  | 79.9                          | 73.9                     | 77.5       |
| Not applicable   | 15.2                          | 22.0                     | 17.9       |

| Activities   | Intervention areas | Control areas | All  |
|--|--------------------|---------------|------|
| <b>Can attend training/adult literacy classes:</b>         |                    |               |      |
| Not at all   | 11.7               | 45.8          | 25.2 |
| If someone accompanies me                                  | 47.4               | 30.6          | 40.7 |
| On my own  | 40.9               | 23.6          | 34.0 |
| <b>Can visit health facility:</b>                          |                    |               |      |
| Not at all   | 2.7                | 2.0           | 2.4  |
| If someone accompanies me                                  | 76.0               | 70.2          | 73.7 |
| On my own  | 21.4               | 27.8          | 23.9 |
| <b>Can go to community meeting etc:</b>                    |                    |               |      |
| Not at all   | 8.7                | 39.4          | 20.9 |
| If someone accompanies me                                  | 46.6               | 34.7          | 41.9 |
| On my own  | 44.7               | 25.9          | 37.2 |
| <b>Can visit close by friends:</b>                         |                    |               |      |
| Not at all   | 1.9                | 3.2           | 2.4  |
| If someone accompanies me                                  | 35.0               | 49.6          | 40.8 |
| On my own  | 63.1               | 47.2          | 56.8 |
| <b>Can go outside the village alone:</b>                   |                    |               |      |
| Not at all   | 3.2                | 15.7          | 8.1  |
| If someone accompanies me                                  | 71.5               | 63.6          | 68.4 |
| On my own  | 25.4               | 20.7          | 23.5 |
| <b>Can attend religious gathering, mosque/ temple etc:</b> |                    |               |      |
| Not at all   | 3.6                | 8.1           | 5.4  |
| If someone accompanies me                                  | 55.6               | 44.3          | 51.1 |
| On my own  | 40.9               | 47.6          | 43.5 |
| Number   | 1206               | 792           | 1998 |

## 2.5.2 Role in households' decision making

Table 2.17b gives percent distribution of women by role in important decision making about household and other activities, according to intervention and control areas. It is evident that the role of women in decision making on important household activities is negligible. Only 9 percent women can take decision alone about own health care, similar is the situation about child's health, household purchase for daily needs, and visiting parents family. About large household purchase, only 2 percent women have the freedom to take decision. The scenario is identical both in intervention and control areas.

**Table 2.17b: Women empowerment –Role in decision making**

Percent distribution of mothers by role in decision making about important household and other activities according to intervention and control areas

| Decision about                          | Intervention areas | Control areas | All  |
|---|--------------------|---------------|------|
| <b>Own health:</b>                      |                    |               |      |
| You (respondent)                        | 9.6                | 8.6           | 9.2  |
| Your husband                            | 62.0               | 67.2          | 64.1 |
| Both you and your husband               | 18.1               | 14.5          | 16.7 |
| Mother/Father In-law                    | 8.5                | 7.4           | 8.1  |
| Mother/Father                           | 1.5                | 1.8           | 1.6  |
| Other                                   | 0.2                | 0.5           | 0.4  |
| <b>Child's health:</b>                  |                    |               |      |
| You (respondent)                        | 12.4               | 8.3           | 10.8 |
| Your husband                            | 44.1               | 54.5          | 48.2 |
| Both you and your husband               | 33.7               | 27.1          | 31.1 |
| Mother/Father In-law                    | 8.8                | 8.0           | 8.5  |
| Mother/Father                           | 1.1                | 1.4           | 1.2  |
| Other                                   | 0.0                | 0.6           | 0.3  |
| <b>Large household purchases:</b>       |                    |               |      |
| You (respondent)                        | 2.6                | 1.4           | 2.1  |
| Your husband                            | 54.5               | 59.5          | 56.5 |
| Both you and your husband               | 26.0               | 24.9          | 25.6 |
| Mother/Father In-law                    | 14.5               | 11.6          | 13.4 |
| Mother/Father                           | 1.6                | 1.6           | 1.6  |
| Other                                   | 0.8                | 1.0           | 0.9  |
| <b>HH purchases for daily needs:</b>    |                    |               |      |
| You (respondent)                        | 14.8               | 12.9          | 14.0 |
| Your husband                            | 44.2               | 49.1          | 46.1 |
| Both you and your husband               | 25.8               | 24.7          | 25.4 |
| Mother/Father In-law                    | 12.9               | 10.7          | 12.0 |
| Mother/Father                           | 1.5                | 1.9           | 1.7  |
| Other                                   | 0.9                | 0.6           | 0.8  |
| <b>Own visit to parent's family:</b>    |                    |               |      |
| You (respondent)                        | 13.0               | 15.7          | 14.1 |
| Your husband                            | 46.2               | 45.5          | 45.9 |
| Both you and your husband               | 25.2               | 28.2          | 26.4 |
| Mother/Father In-law                    | 14.8               | 10.1          | 13.0 |
| Mother/Father                           | 0.6                | 0.5           | 0.6  |
| Other                                   | 0.2                | 0.1           | 0.2  |
| <b>Family visit to parent's family:</b> |                    |               |      |
| You (respondent)                        | 4.7                | 4.0           | 4.5  |
| Your husband                            | 45.9               | 51.5          | 48.1 |
| Both you and your husband               | 31.3               | 31.6          | 31.4 |
| Mother/Father In-law                    | 16.7               | 11.7          | 14.7 |

| Decision about  | Intervention areas | Control areas | All  |
|---|--------------------|---------------|------|
| Mother/Father   | 1.1                | 0.9           | 1.0  |
| Other   | 0.3                | 0.3           | 0.3  |
| <b>Spending own money:</b>  |                    |               |      |
| You (respondent)  | 54.3               | 49.7          | 52.5 |
| Your husband  | 24.1               | 21.1          | 22.9 |
| Both you and your husband   | 20.1               | 26.9          | 22.8 |
| Mother/Father In-law  | 1.3                | 1.6           | 1.5  |
| Mother/Father   | 0.2                | 0.5           | 0.3  |
| Other   | 0.0                | 0.1           | 0.1  |
| <b>Spending husband's money:</b>  |                    |               |      |
| You (respondent)  | 2.2                | 2.1           | 2.2  |
| Your husband  | 58.9               | 71.5          | 63.9 |
| Both you and your husband   | 32.3               | 23.0          | 28.6 |
| Mother/Father In-law  | 5.6                | 2.9           | 4.6  |
| Mother/Father   | 0.1                | 0.1           | 0.1  |
| Other   | 0.8                | 0.4           | 0.7  |
| Number  | 1206               | 792           | 1998 |
| <b>When to live together with husband:</b>  |                    |               |      |
| You (respondent)  | 0.8                | 0.1           | 0.5  |
| Your husband  | 48.3               | 39.6          | 44.9 |
| Both you and your husband   | 50.9               | 60.3          | 54.6 |
| Number  | 1190               | 781           | 1971 |
| <b>Use of family planning:</b>  |                    |               |      |
| You (respondent)  | 14.2               | 10.9          | 12.9 |
| Your husband  | 30.5               | 20.2          | 26.4 |
| Both you and your husband   | 55.3               | 68.9          | 60.7 |
| Number  | 1206               | 792           | 1998 |
| <b>Whether to give baby something other than breast milk in first 3 days after birth:</b> |                    |               |      |
| You (respondent)  | 67.6               | 80.7          | 72.8 |
| Your husband  | 6.6                | 2.9           | 5.2  |
| Both you and your husband   | 13.9               | 5.1           | 10.4 |
| Mother/Father In-law  | 10.3               | 8.8           | 9.7  |
| Mother/Father   | 1.6                | 2.5           | 2.0  |
| <b>When to introduce solid/soft food to child:</b>  |                    |               |      |
| You (respondent)  | 74.0               | 85.6          | 78.6 |
| Your husband  | 4.1                | 2.3           | 3.4  |
| Both you and your husband   | 12.5               | 5.6           | 9.8  |
| Mother/Father In-law  | 8.5                | 5.6           | 7.3  |
| Mother/Father   | 0.9                | 1.0           | 1.0  |
| Other   |                    |               |      |
| <b>How food is shared when not have enough food:</b>                                      |                    |               |      |

| Decision about            | Intervention areas | Control areas | All  |
|---------------------------|--------------------|---------------|------|
| You (respondent)          | 70.9               | 70.1          | 70.6 |
| Your husband              | 1.6                | 1.8           | 1.7  |
| Both you and your husband | 15.3               | 18.6          | 16.6 |
| Mother/Father In-law      | 15.3               | 18.6          | 16.6 |
| Mother/Father             | 10.9               | 8.3           | 9.9  |
| Other                     | 1.2                | 1.1           | 1.2  |
| Number                    | 1206               | 792           | 1998 |

Role of rural women in decision making about spending own money and baby feeding is somewhat more prominent than level of freedom in other activities. About half (54.3 percent in intervention vs. 49.7 percent in control) have the freedom to spend own money. About three-fourths can decide whether to give baby something other than breast milk, when to introduce solid/soft food to child or how food is to be shared when not having enough food (table 2.17b).

### 2.5.3 Gender attitude and belief

Table 2.18 depicts a simple picture of women's attitude towards gender and belief. Results in table 2.18 shows that 31 percent women of intervention and 47.1 percent of control women approve hitting wife by husband if wife goes out without telling him. Similar proportion approve hitting wife by husband for neglecting children, arguing with husband, refusing to have sex, and for failing to cook food properly.

| <b>Table 2.18: Gender attitude and belief</b>  |                    |               |      |
|--|--------------------|---------------|------|
| Percent distribution of mothers by their attitude towards gender and belief, according to intervention and control areas |                    |               |      |
| Issues   | Intervention areas | Control areas | All  |
| Approve hitting wife by husband if she goes out without telling him: Q30   | 31.0               | 47.1          | 37.4 |
| Approve hitting wife by husband for neglecting children: Q31   | 31.5               | 48.4          | 38.2 |
| Approve hitting wife by husband if she argues with him: Q32  | 36.8               | 58.7          | 45.5 |
| Approve hitting wife by husband if she refuses MELAMESHA with him: Q33   | 11.4               | 14.4          | 12.6 |
| Approve hitting wife by husband if she did not cook food properly: Q34   | 28.4               | 46.6          | 35.6 |
| Number   | 1206               | 792           | 1998 |

#### 2.4.4 Presence and participation in government program/safety net

Table 2.11 gives percent distribution of women by their awareness about presence of government program/safety net in the community and participating in those programs

Results show that with most women are not aware of presence of safety net programs or such programs do not exist in the intervention area.

| <b>Table 2.11: Presence of Govt. programs, receiving assistance</b>  |                           |                      |            |
|--|---------------------------|----------------------|------------|
| Percent distribution of respondents by presence and participation in program/safety net, according to intervention and control areas |                           |                      |            |
|  | <b>Intervention areas</b> | <b>Control areas</b> | <b>All</b> |
| <b>Presence of Govt. programs/safety net in the village</b>  |                           |                      |            |
| Agriculture: Farmer group - Gov  | 0.4                       | 0.0                  | 0.3        |
| WASH   | 0.9                       | 0.0                  | 0.6        |
| Nutrition  | 2.6                       | 0.6                  | 1.8        |
| Maternal Health  | 0.3                       | 30.9                 | 12.5       |
| Child Health   | 0.6                       | 33.0                 | 13.4       |
| Education: SMC committee-Gov   | 2.3                       | 17.2                 | 8.2        |
| Economic Development: Haor Unnayan group   | 0.1                       | 0.5                  | 0.3        |
| Women's Empowerment: VGD, VGF, PW voucher scheme, Food for work  | 1.1                       | 0.5                  | 0.9        |
| Climate Change (example: local program name)   | 0.1                       | 0.0                  | 0.1        |
| Number   | 101                       | 655                  | 756        |
| <b>Received any inputs/assistance in last 12 months:</b>   |                           |                      |            |
| Food for work  | 1.7                       | 0.6                  | 1.3        |
| School feeding program   | 2.6                       | 0.6                  | 1.8        |
| Plot or land for household consumption   | 0.1                       | 0.1                  | 0.1        |
| Seeds distribution   | 6.0                       | 0.4                  | 3.8        |
| Ag machinery   | 1.4                       | 0.1                  | 0.9        |
| Livestock  | 2.2                       | 0.0                  | 1.3        |
| Poultry  | 5.6                       | 0.6                  | 3.6        |
| Fisheries  | 0.1                       | 0.0                  | 0.1        |
| Vehicle  | -                         | -                    | -          |
| Sewing machine   | 0.1                       | 0.1                  | 0.1        |
| Latrine (new or renovated)   | 4.9                       | 0.0                  | 3.0        |
| Water pump (new or renovated)  | 0.4                       | 0.0                  | 0.3        |
| Adapt locally Fertilizer   | 0.2                       | 0.0                  | 0.1        |
| Other  | 8.0                       | 0.4                  | 5.0        |
| Cash for work (80 days)  | 1.3                       | 11.5                 | 5.4        |
| Number   | 1206                      | 792                  | 1998       |

## 2.6 Nutritional status

Malnutrition among children and women is a serious health problem in many countries including Bangladesh. The survey collected anthropometric data of children aged 6-35 months and for non-pregnant women. Height and weight were measured using appropriate scales. Blood sample was collected from a subsample of children and women.

### 2.6.1 Nutritional status of children

For assessing the level and extent of malnutrition, height and weight of 0-35 month's children (1206 from intervention and 792 of control) and blood sample of sub-sample of 6-23 month's children were taken using the procedure as discussed in the methodology section. Results are presented below.

#### Anemia

For assessing anemia among children aged 6-23 months, two cut-offs are used: Hemoglobin less than 105g/L or 10.5g/dl, and less than 110g/L or 11.0g/dl. Table 19 presents prevalence of anemia status 1 (cutoff: hemoglobin less than 10.5g/dl) and anemia status 2 (cut-off: hemoglobin less than 11.0g/dl). It is evident that prevalence of anemia of type 1 and type 2 among children aged 6-23 months is very high both in intervention (76.6 percent of type 1, 85.5 percent of type 2) and control areas (75.2 percent of type 1, 88.5 percent of type 2).

**Table 2.19: Anemia Status 1 (Cut off <105g/L or 10.5g/dl) among children 6-23 months**

| Area         | Anemic<br>% n | Not Anemic<br>% n | N   |
|--------------|---------------|-------------------|-----|
| Intervention | 76.6(167)     | 23.4(51)          | 218 |
| Control      | 75.2(161)     | 24.8(53)          | 214 |

Anemia Status 2 (Cut off <110g/L or 11.0g/dl) among children 6-23 months

| Area         | Anemic<br>% n | Not Anemic<br>% n | N   |
|--------------|---------------|-------------------|-----|
| Intervention | 85.3(186)     | 14.7(32)          | 218 |
| Control      | 88.8(190)     | 11.2(24)          | 214 |

#### Malnutrition

Using height and weight data of children aged 0-35 months, nutritional status are assessed and presented in Table 20. The definition and cut-off points are used as described in methodology section 1.4.5

Stunting (Height for age): Results in the Table 21a and Table 21b show that prevalence of stunting is quite high intervention and control children. Among children of intervention area,

46.4 percent are stunted, while 18.2 percent are severely stunted (shorter for age). Stunting is higher among children of age group 12-35 months. Prevalence of stunting and severely stunting among children aged 0-35 months of control area are 40.3 percent and 13.9 percent respectively. Pattern of malnutrition by group is similar to that among intervention children.

**Table 2.20a: Anthropometric data for children in the Intervention**

Nutritional Status of children 0-35 months- Percentage of children under three years classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by age and gender.

| Background characteristic | Height-for-age |               |                   | Weight-for-height |               |                |                   | Weight-for-age |               |               |                 | # of Children<br>N |
|---------------------------|----------------|---------------|-------------------|-------------------|---------------|----------------|-------------------|----------------|---------------|---------------|-----------------|--------------------|
|                           | % below -3 SD  | % below -2 SD | Mean Z-Score (SD) | % below -3 SD     | % below -2 SD | % above + 2 SD | Mean Z-Score (SD) | % below -3 SD  | % below -2 SD | % above +2 SD | Mean Z-Score SD |                    |
| <b>Age in months</b>      |                |               |                   |                   |               |                |                   |                |               |               |                 |                    |
| 0-35                      | 18.2           | 46.4          | 1.54              | 2.2               | 10.0          | 1.3            | 1.90              | 9.1            | 35.4          | 0.8           | 1.60            | 1206               |
| 0 – 5                     | 6.5            | 17.8          | 1.82              | 3.8               | 10.3          | 2.7            | 1.90              | 8.6            | 19.5          | 0.5           | 1.81            | 185                |
| 6 - 11                    | 13.5           | 31.3          | 1.70              | 4.2               | 9.4           | 3.1            | 1.91              | 6.3            | 31.3          | 1.0           | 1.69            | 96                 |
| 12 -23                    | 21.2           | 54.7          | 1.45              | 0.8               | 9.9           | 1.6            | 1.90              | 9.9            | 37.5          | 1.3           | 1.62            | 373                |
| 24-35                     | 21.0           | 53.1          | 1.46              | 2.4               | 10.1          | 0.4            | 1.89              | 9.2            | 40.0          | 0.5           | 1.59            | 552                |
| <b>Gender</b>             |                |               |                   |                   |               |                |                   |                |               |               |                 |                    |
| Male                      | 18.4           | 45.9          | 1.54              | 3.7               | 10.9          | 1.4            | 1.89              | 9.3            | 36.8          | 0.8           | 1.63            | 625                |
| Female                    | 18.1           | 47.0          | 1.53              | 0.7               | 9.1           | 1.2            | 1.90              | 9.0            | 33.9          | 0.9           | 1.66            | 581                |

\*Nutritional status Z-scores using WHO 2006 standards

**Table 2.20b: Anthropometric data for children in the Control**

Nutritional Status of children 0-35 months- Percentage of children under 3 years classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by age and gender.

| Background characteristic | Height-for-age |               |                   | Weight-for-height |               |                |                   | Weight-for-age |               |               |                 | # of children<br>N |
|---------------------------|----------------|---------------|-------------------|-------------------|---------------|----------------|-------------------|----------------|---------------|---------------|-----------------|--------------------|
|                           | % below -3 SD  | % below -2 SD | Mean Z-Score (SD) | % below -3 SD     | % below -2 SD | % above + 2 SD | Mean Z-Score (SD) | % below -3 SD  | % below -2 SD | % above +2 SD | Mean Z-Score SD |                    |
| <b>Age in months</b>      |                |               |                   |                   |               |                |                   |                |               |               |                 |                    |
| 0-35                      | 13.9           | 40.3          | 1.60              | 2.4               | 9.5           | 2.9            | 1.9               | 5.9            | 25.9          | 1.3           | 1.74            | 792                |
| 0 – 5                     | 4.3            | 14.6          | 1.85              | 2.7               | 10.3          | 4.3            | 1.90              | 4.9            | 15.7          | 1.6           | 1.84            | 185                |
| 6 – 11                    | 7.4            | 27.4          | 1.72              | 2.1               | 8.4           | 4.2            | 1.92              | 2.1            | 22.1          | 2.1           | 1.78            | 95                 |
| 12 -23                    | 19.1           | 50.8          | 1.49              | 2.5               | 10.2          | 2.5            | 1.90              | 9.3            | 28.0          | 1.3           | 1.72            | 236                |
| 24-35                     | 18.1           | 52.9          | 1.47              | 2.2               | 8.7           | 1.8            | 1.91              | 5.1            | 32.2          | 0.7           | 1.67            | 276                |
| <b>Gender</b>             |                |               |                   |                   |               |                |                   |                |               |               |                 |                    |
| Male                      | 12.3           | 38.6          | 1.61              | 2.0               | 10.8          | 2.0            | 1.89              | 7.1            | 25.8          | 1.0           | 1.74            | 407                |
| Female                    | 15.6           | 42.1          | 1.53              | 2.9               | 8.1           | 3.9            | 1.90              | 4.7            | 26.0          | 1.6           | 1.66            | 385                |

\*Nutritional status Z-scores using WHO 2006 standards

Wasting (weight for height): Prevalence of wasting is approximately 10 percent both in intervention and control children

Underweight: Underweight indicates severe presence of malnutrition. Results show that 35.4 percent of children aged 0-35 months of intervention and 25.9 percent of control are suffering from underweight problem, and 9.1 percent of intervention and 5.9 percent of control children are severely underweight.

## 2.6.2 Nutritional status of women/mothers

Anemia and Body Mass Index (BMI) are assessed for non pregnant women/mothers.

### Anemia

For assessing the prevalence and level of anemia among non-pregnant women/mothers, three cut-off points of hemoglobin level are used: Mild Anemia (11-11.99g/dl), Moderate Anemia (8-10.99g/dl), and Severe Anemia (hemoglobin less than 8g/dl). Table 22a shows that 33.5 percent women of intervention and 43.1 percent of control are anemic. Most of the anemic women are mild or moderately anemic.

**Table 2.21a: Mother’s Anemia Status, non-pregnant**

| Area         | Not Anemic | Mild <sup>a</sup><br>% | Moderate <sup>b</sup><br>% | Severe <sup>c</sup><br>% | N   |
|--------------|------------|------------------------|----------------------------|--------------------------|-----|
| Intervention | 66.5(133)  | 21.5(43)               | 12.0(24)                   | 0.0(0)                   | 200 |
| Control      | 56.9(112)  | 29.9(59)               | 12.7(25)                   | 0.5(1)                   | 197 |

**a:** (11-11.99g/dl); **b:** (8-10.99g/dl) ; **c:** < 8 g/dl

### BMI

Body Mass Index (BMI) was calculated for non-pregnant women. Mean BMI was found somewhat lower for women of intervention area (29.4kg/m<sup>2</sup>) compared with control women (30.9kf/m<sup>2</sup>).

Prevalence of chronic energy deficiency (CED) in women, as defined by BMI less than 18.5kg/m<sup>2</sup>, is higher but negligible in intervention area. About half of the women are overweight (53.9 percent in intervention vs. 45.4 percent in control). Obesity among women is quite high and it is much higher among control women (36.1 percent in intervention vs, 49.7 percent in control).

**Table 2.21b: Mother’s BMI Status\***, non-pregnant

| Area         | Mean BMI | < 18.5 <sup>a</sup><br>% | (18.5-24.9) <sup>b</sup><br>% | (> 25-<br>29.9) <sup>c</sup><br>% | > 30.0 <sup>d</sup><br>% | N    |
|--------------|----------|--------------------------|-------------------------------|-----------------------------------|--------------------------|------|
| Intervention | 29.4220  | 0.1                      | 9.9                           | 53.9                              | 36.1                     | 1082 |
| Control      | 30.8784  | 0.0                      | 4.9                           | 45.4                              | 49.7                     | 733  |

\*Does not include women who self-reported as pregnant at the time of the survey

**a:** Underweight; **b:** Normal; **c:** Overweight; **d:** Obese

## 2.7 Infant and Young Child Feeding (IYCF) Practices

The IYCF practice provides information on key indicators related to optimal feeding practices. Feeding practices include breastfeeding practices, feeding of solid and semi-solid foods to breastfed and non-breastfed children and micronutrient intake.

### 2.7.1 Initiation of breastfeeding and Exclusive breastfeeding

Results on initiation of breastfeeding for 0-23 months old children are given in Table 2.23a. For 40 percent children aged 0-23 months in intervention area and 44.6 percent in control area, breastfeeding was initiated immediately after birth. Only a few started breastfeeding (5.5 percent in intervention vs. 2.3 percent in control) after 24 hours or more after birth.

Table 2.23a: Timely initiation of breastfeeding (children 0 -23 months)

|                                | Control<br>% (n) | Intervention<br>% (n) |
|--------------------------------|------------------|-----------------------|
| Immediately                    | 40.0(205)        | 44.6(292)             |
| In less than 1 hour            | 26.3(135)        | 30.3(198)             |
| One hour to less than 24 hours | 28.3(145)        | 22.8(149)             |
| 1 day (24 hours or more)       | 5.5(28)          | 2.3(15)               |
| Do not know/remember           | -                | -                     |
| <b>Total</b>                   | 654              | 513                   |

**Exclusive breastfeeding is defined as proportion of infants aged 0-5 months who received only breast milk during the previous 24 hours.** Table 2.23b shows that prevalence of exclusive breastfeeding in intervention and control areas are 87.6 percent and 75.7 percent respectively. Information on early feeding practices of infants can also be seen in Table.2.23b.

Table 2.23b: Early feeding practices of infants (Pre-lacteals)

| <b>Early feeding practices</b>  | Control<br>% (n) | Intervention<br>% (n) |
|---|------------------|-----------------------|
| % of children who received <b>any</b> other liquid/drink besides breastmilk during the first 3 days after birth | 23.3(120)        | 19.9(130)             |
| % children who received only animal milk  | 5.8(7)           | 8.5(11)               |
| % children who received plain water   | 14.2(17)         | 10.8(14)              |
| % children who received gripe water   | 4.2(5)           | 5.4(7)                |
| % children who received sugar-salt water solution (ORS)   | -                | -                     |
| % children who received fruit juice   | -                | -                     |
| % children who received infant formula  | 5.8(7)           | 3.8(5)                |
| % children who received other liquid  | 80.0(96)         | 84.6(110)             |

### **2.7.2 Timely complementary feeding and continued breastfeeding**

Timely complementary feeding indicator measures the proportion of infants 6-9 months of age who receive breast milk and a solid or semi-solid (based on 24 hour dietary recall). Nearly 82 percent of intervention against 79.1 percent of control infants aged 6-9 months received complementary feeding timely (Table 2.24a).

Continued breastfeeding is defined as the proportion of children 12-15 months of age who were fed breast milk as part of continued breastfeeding. Table B4 shows almost universal prevalence of continued breastfeeding among children aged 12-15 months both in intervention and control areas. This prevalence is 95 percent among children aged 16-24 months.

Table 2.24a: Timely complementary feeding (Feeding practices (during previous 24 hours) of infants 0 – 5.9 months by intervention and control group

|  | Control<br>% (n) | Intervention<br>%(n) |
|--|------------------|----------------------|
| % infants who were breastfed (yesterday)                             | 99.5(183)        | 100.0(185)           |
| % infants who received vitamin syrup/cough syrup/ any other medicine | 23.9(189)        | 18.4(222)            |
| % infants who received oral rehydration salt/ORS, (tasty saline)     | 3.2(25)          | 1.9(23)              |
| % infants who received plain water                                   | 81.7(647)        | 91.6(1105)           |
| % infants who received infant formula                                | 3.0(24)          | 2.1(25)              |
| % infants who received milk (fresh, tinned, powder)                  | 24.7(196)        | 17.9(216)            |
| % infants who received juice or juice drinks                         | 4.3(34)          | 3.9(47)              |
| % infants who received clear broth                                   | 2.8(22)          | 2.2(26)              |
| % infants who received other water-based liquids                     | 0.5(4)           | 0.7(8)               |
| % infants who received sour milk or yogurt                           | 4.3(34)          | 0.5(6)               |
| % infants who received thin porridge                                 | 6.4(51)          | 5.1(61)              |
| % infants who received tea or coffee                                 | 0.8(6)           | 12.8(154)            |
| % of infants who received any other liquids                          | -                | -                    |
| <b>Total (N)</b>   | 792              | 1206                 |

Table 2.24b: Continued breastfeeding (Continued breastfeeding at 1 year and at 16 – 23 months by intervention and control group)

|  | Control<br>% (n) | Intervention<br>% (n) |
|--|------------------|-----------------------|
| % children 12-15 months continued breastfed  | 100.0(63)        | 98.2(55)              |
| % children 16 -23 months continued breastfed | 94.8(164)        | 95.3(302)             |

### 2.7.3 Introduction of solid, semi-solid or soft food

Table 2.24c shows that 73.5 percent of infants 6-8 months of age in intervention area received solid, semi-solid or soft food during the last 24 hours and the corresponding figure for control area is 80 percent.

Prevalence of complementary feeding among breastfed infants (6-8 months) is 72.9 percent in intervention and 81.4 percent in control areas (Table 2.24c)

Table 2.24c: Introduction of solid, semi-solid or soft food: Proportion of infants and young children who received solid, semi-solid or soft foods during previous day by breastfeeding practice, according to intervention and control areas.

|  | Control<br>% (n) | Intervention<br>% (n) |
|--|------------------|-----------------------|
| % all infants 6 – 8 months who received solid, semi-solid or soft foods during previous day                    | 73.5(36)         | 80.0(48)              |
| Total  | 49               | 60                    |
| % infants 6 – 8 months who were breastfed and received solid, semi-solid or soft foods during previous day     | 72.9(35)         | 81.4(48)              |
| % infants 6 – 8 months who were non-breastfed and received solid, semi-solid or soft foods during previous day | 2.0(1)           | 0.0(0)                |

#### 2.7.4 Complementary foods eaten by children aged 6-23 months by food groups

Table 2.25 presents proportion of children aged 6-23 months who ate complementary food by food groups, according to intervention and control areas.

Table 2.25: Minimum dietary diversity: Proportion of infants who received minimum **dietary diversity** (food from 4 or more food groups) by breastfeeding practice, according to intervention and control areas

|  | Control<br>% (n) | Intervention<br>% (n) |
|--|------------------|-----------------------|
| % all children 6 – 23 months who received minimum dietary diversity            | 82.5(273)        | 85.9(403)             |
| Total  | 331              | 469                   |
| % breastfed children 6 – 23 months who received minimum dietary diversity      | 82.2(263)        | 85.6(387)             |
| Total  | 320              | 452                   |
| % non- breastfed children 6 – 23 months who received minimum dietary diversity | 90.9(10)         | 100.0(17)             |
| Total  | 11               | 17                    |

## 2.7.5 Minimum meal frequency and consumption of iron-rich food

The minimum meal frequency or the minimum number of meals consumed by a child during the last 24 hours is a proxy for adequate energy from complementary food. The recommended minimum feeding frequencies are:

- 1 times for breastfed infants 6-8 months
- 2 times for breastfed infants 9-23 months
- 3 Times for non-breastfed infants 6-23 months.

Table 2.26 gives proportion of children aged 6-23 months (breastfed and non-breastfed) by minimum meal frequency, according to intervention and control areas. Receiving minimum meals is quite low both in intervention and control areas.

Table 2.26: Minimum meal frequency: Percent of children 6 – 23 months with minimal meal frequency by breastfeeding practice and intervention site

|   | Control<br>% (n) | Intervention<br>% (n) |
|---|------------------|-----------------------|
| % all children 6 – 23 months who received minimum meal frequency            | 43.8(145)        | 54.4(255)             |
| Total   | 331              | 469                   |
| % breastfed children 6 – 23 months who received minimum meal frequency      | 43.4(139)        | 54.1(245)             |
| Total   | 320              | 452                   |
| % non- breastfed children 6 – 23 months who received minimum meal frequency | 62.5(10)         | 54.5(6)               |
| Total   | 16               | 11                    |

Table 2.27 gives mean and median meals by age group, breastfeeding practice and intervention and control areas, for 6-23 months children. Standard deviations are also provided.

Table 2.27: Mean and Median meal frequency: Mean (sd) and median meal frequency by age group, breastfeeding practice and intervention area, for children 6 – 23 months (for all children including those who had 0 meals)

| Age group (months)              | Control<br>N=     |        | Intervention<br>N=    |        |
|---------------------------------|-------------------|--------|-----------------------|--------|
|                                 | mean<br>±sd       | median | mean<br>±sd           | median |
| <b>Breastfed children n (%)</b> |                   |        |                       |        |
| 6 - 23                          | 4.12(±5.675)(305) | 3.00   | 3.79(±1.474)<br>(438) | 4.00   |
| 6 - 8                           | 2.77(±1.555)(35)  | 2.00   | 3.00(±1.414)<br>(48)  | 3.00   |
| 9 – 11                          | 3.73(±1.633)(44)  | 3.00   | 3.24(±1.372)<br>(34)  | 3.00   |
| 12 – 23                         | 4.40(±6.499)(226) | 4.00   | 3.95(±1.448)<br>(356) | 4.00   |
| <b>Non breastfed children</b>   |                   |        |                       |        |
| 6 – 23                          | 3.91(±1.700)(11)  | 4.00   | 4.44(±2.308)<br>(16)  | 4.00   |
| 6 – 8                           | 3.00(0.0)(1)      | 3.00   | 3.00(0.0)(1)          | 3.00   |
| 9 – 11                          | 4.00(0.0)(1)      | 4.00   | 4.00(0.0)(1)          | 4.00   |
| 12 – 23                         | 4.00(±1.871)(9)   | 4.00   | 4.44(±2.308)<br>(16)  | 4.00   |

Table 2.28 shows that proportion of children aged 6-23 months who consumed iron rich or iron fortified foods and meat during last 24 hours preceding the survey. Consumption of iron-rich food is not common (less than 3 percent) and only 7 percent consumed meat items.

Table 2.28: Minimum acceptable diet: Proportion of children 6 – 23 months with minimal acceptable diet by breastfeeding practice and intervention area

|   | Control<br>% (n) | Intervention<br>% (n) |
|---|------------------|-----------------------|
| % all children 6 – 23 months who received minimum acceptable diet           | 42.29(140)       | 53.30(250)            |
| % breastfed children 6 – 23 months who received minimum acceptable diet     | 41.87(134)       | 52.98(240)            |
| % non- breastfed children 6 – 23 months who received minimum meal frequency | 12.5(2)          | 12.5(2)               |

Table 2.29: Consumption of iron-rich fortified food: Proportion of children 6-23 months consuming iron-rich or iron fortified foods and meat during previous day by intervention area

|  | Control<br>% (n) | Intervention<br>% (n) |
|--|------------------|-----------------------|
| % children 6 – 23 months who consumed iron-rich foods      | 3.0(7)           | 1.1(4)                |
| % children 6 – 23 months who consumed iron fortified foods | 0.8(2)           | 1.1(4)                |
| % children 6 – 23 months who consumed meat                 | 6.8(16)          | 7.0(16)               |
| <b>Total</b>   | <b>236</b>       | <b>373</b>            |

Table 2.30: Bottle feeding: Proportion of children 0 – 23 months who were fed with a feeding bottle, by age and intervention area

| <b>Proportion of children 0 – 23 months who were fed with a feeding bottle</b> | Control<br>% (n) | Intervention<br>% (n) |
|--|------------------|-----------------------|
| % children 0 – 5 months who were fed with a feeding bottle                     | 13.0(24)         | 9.7(18)               |
| % children 6 - 11 months who were fed with a feeding bottle                    | 20.0(19)         | 9.4(9)                |
| % children 12 – 23 months who were fed with a feeding bottle                   | 8.9(21)          | 2.1(8)                |

### 2.7.6 Infant and Young Child Feeding (IYCF) Indicators

The 10 WHO recommended IYCF indicators as discussed in the methodology section 1.4.6 are given in Table 2.31.

**Table 2.31: WHO IYCF indicators**

| Key IYCF Practices by indicator                                | Intervention |     |       |             |
|--|--------------|-----|-------|-------------|
|  | N            | n   | %     | CI          |
| IYCF 1: Timely Initiation of Breast Feeding (0-23) months      | 654          | 654 | 100   |             |
| Immediately  | 654          | 292 | 44.6  | 38.89,50.30 |
| <1 hour  | 654          | 198 | 30.3  | 23.89,36.70 |
| 1to 23 hours   | 654          | 149 | 22.8  | 16.06,29.54 |
| 1 day or after   | 654          | 15  | 2.3   | -5.29,9.89  |
| IYCF 2: Exclusive Breast Feeding (0-5) months                  | 185          | 162 | 87.6  | 82.52,92.67 |
| IYCF 3: Timely Complementary Feeding (6-9) months              | 71           | 58  | 81.7  | 71.75,91.65 |
| IYCF 4: Introduction of Solid/Semi-solid or soft food (6-8) m  | 60           | 48  | 80.0  | 68.68,91.32 |
| IYCF 5: Continued BF at (12-15) months                         | 56           | 55  | 98.2  | 94.69,101.7 |
| IYCF 6: Minimum Dietary Diversity (6-23) months                | 469          | 403 | 85.9  | 82.50,89.29 |
| IYCF 7: Minimum Meal Frequency (6-23) months                   | 469          | 255 | 54.4  | 48.29,60.51 |
| IYCF 8: Minimum Acceptable Diet (6-23) months                  | 469          | 250 | 53.30 | 47.11,59.48 |
| IYCF 9: Iron Rich or Fortified Solid/Semi-solid Foods (6-23) m | 373          | 4   | 1.1   | -9.12,11.32 |
| IYCF 10: Bottle Feeding (0-23)m                                | 654          | 35  | 5.4   | -2.09,12.89 |

| Key IYCF Practices by indicator                                    | Control |     |       |             |
|--|---------|-----|-------|-------------|
|  | N       | n   | %     | CI          |
| IYCF 1: Timely Initiation of Breast Feeding (0-23)m                | 515     | 513 | 99.6  |             |
| Immediately  | 513     | 205 | 40.0  | 33.29,46.71 |
| <1 hour  | 513     | 135 | 26.3  | 18.87,33.73 |
| 1to 23 hours   | 513     | 145 | 28.3  | 20.97,35.63 |
| 1 day or after   | 513     | 28  | 5.5   | -2.94,13.94 |
| IYCF 2: Exclusive Breast Feeding (0-5)m                            | 185     | 140 | 75.7  | 68.59,82.80 |
| IYCF 3: Timely Complementary Feeding (6-9)m                        | 67      | 53  | 79.1  | 68.15,90.05 |
| IYCF 4: Introduction of Solid/Semi-solid or soft food (6-8)months  | 49      | 36  | 73.5  | 59.08,87.92 |
| IYCF 5: Continued BF at (12-15)months                              | 63      | 63  | 100.0 | 100         |
| IYCF 6: Minimum Dietary Diversity (6-23) months                    | 331     | 273 | 82.5  | 77.99,87.00 |
| IYCF 7: Minimum Meal Frequency (6-23)months                        | 331     | 145 | 43.8  | 35.72,51.88 |
| IYCF 8: Minimum Acceptable Diet (6-23)months                       | 331     | 140 | 42.29 | 34.10,50.47 |
| IYCF 9: Iron Rich or Fortified Solid/Semi-solid Foods (6-23) month | 236     | 7   | 3.0   | -9.64,15.64 |
| IYCF 10: Bottle Feeding (0-23)m                                    | 515     | 64  | 12.4  | 4.33,20.47  |