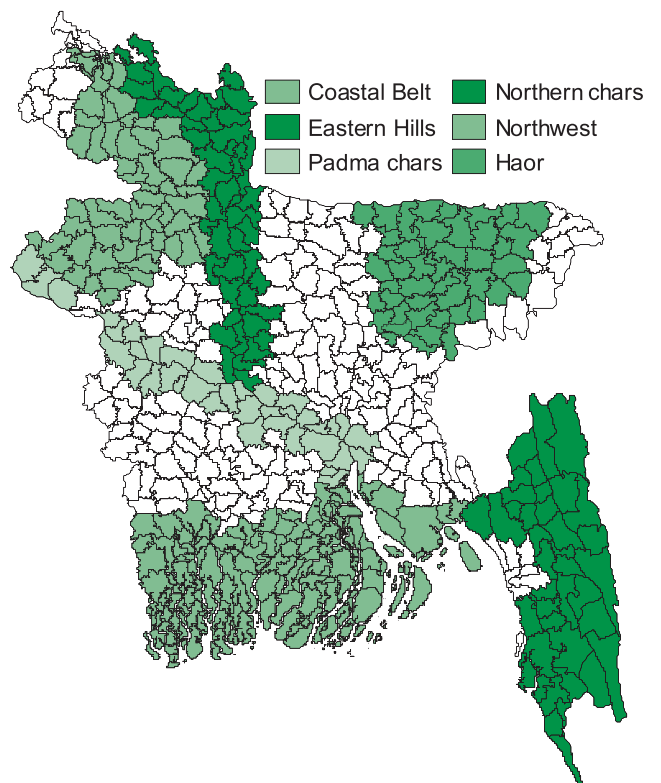# The Food Security and Nutrition Surveillance Project: Results from Round 7: February to May 2012

The Food Security and Nutrition Surveillance Project (FSNSP) provides up-to-date, seasonal information on the situation of food and nutrition security in Bangladesh for six surveillance zones, depicted in Figure 1, as well as the nation as a whole. In each household multiple members are interviewed to obtain commonly referenced and standardized indicators of food security, women's care and nutrition, as well as children's care and nutrition.

FSNSP estimates levels of food insecurity from household coping and food consumption patterns, because food insecurity – no matter if it is due to low availability of food stocks, low household access to foods, or biased utilization of a household's food stocks – results in a similar range of experiences and observables for households and individuals. All food security questions are asked to the person identified in each household as the manager of the kitchen.
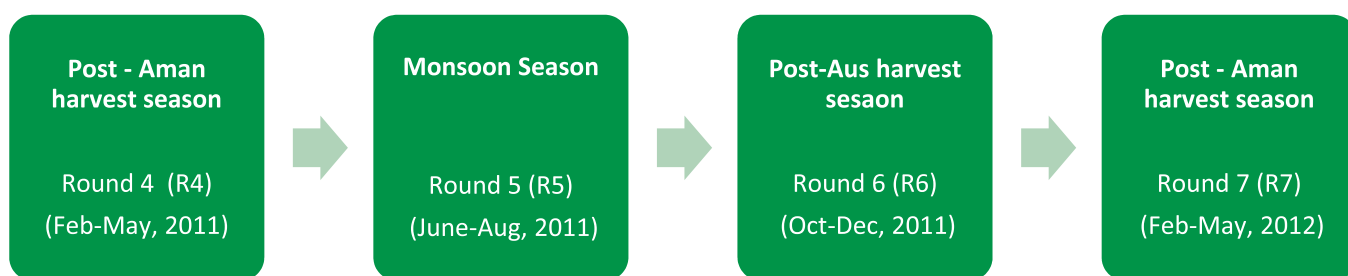
In each household, one non-pregnant woman, aged 10 to 49 years, is randomly selected to be interviewed about her diet and to have her height, weight, and

Figure 1: FSNSP surveillance zone

Coastal Belt   Northern chars
Eastern Hills   Northwest
Padma chars   Haor

Helen Keller INTERNATIONAL

BANGLADESH BUREAU OF STATISTICS

BRAC UNIVERSITY

European Union

mid-upper arm circumference (MUAC) measured. In addition, all pregnant women are interviewed about their diet and the care they have received during their pregnancy, and their MUAC measurement is recorded. In addition, if the youngest child in the household is less than six months of age, that child's mother is asked about the care she received during her pregnancy with this child.

In each household with a child less than five years of age, child caregivers are asked about the care and feeding practices for the youngest child in the household. Caregivers also provide information about recent childhood illnesses, and, if the child is reported to have been ill, additional questions about care during illness are asked. The height, weight, and MUAC of all children under five years of age in the household are recorded.

Figure 2: Time period of surveillance rounds included in this bulletin

Post - Aman harvest season Round 4 (R4) (Feb-May, 2011)	→	Monsoon Season Round 5 (R5) (June-Aug, 2011)	→	Post-Aus harvest sesaon Round 6 (R6) (Oct-Dec, 2011)	→	Post - Aman harvest season Round 7 (R7) (Feb-May, 2012)

This bulletin presents selected results from the seventh round of surveillance which took place from February to May 2012. This bulletin also presents estimates from the fourth, fifth, and sixth rounds of data collection, to show both seasonal variation and changes in indicators between the same season one year apart. The seventh round included 4,580 children less than five years of age and 9,140 women and adolescent girls aged 10 to 49 years in 9,024 households.

In this report, percentages given at the end of the bars of each graph are for the overall prevalence estimates for that particular indicator (regardless of severity). Adjusted Wald tests were used to determine the statistical significance of changes in indicators between surveillance rounds. In the graphs rounds of data collection are indicated by the letter R and the round of data collection (For example, Round 4 is indicated by R4). Additional details about the terms used in each graph can be found in the endnotes.
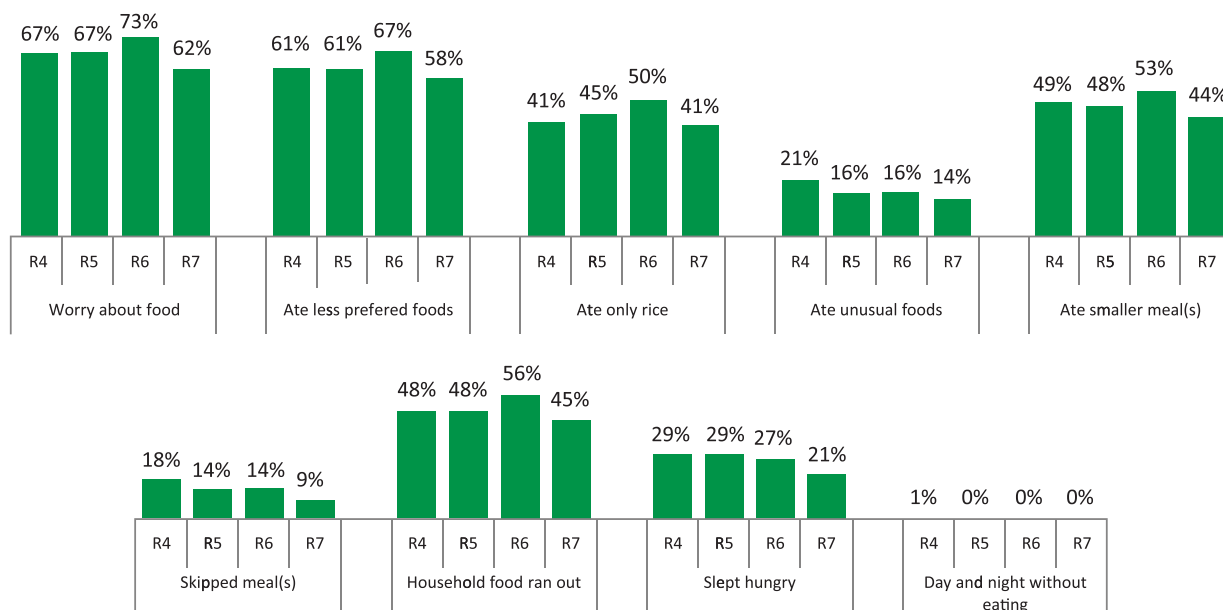
Food Security

There were significant changes in individual and composite indicators of food insecurity between the periods February to May 2011 (Round 4) and February to May 2012 (Round 7). Nationally, food insecurity as measured by Household Food Insecurity Access Scale (HFIAS) peaked in prevalence at the end of 2011 and fell significantly in early 2012 (Round 7). The proportion of households with a food deficit remained unchanged at a high prevalence throughout 2011, but fell by a third between Round 6 and Round 7 (the last season of 2011 and the first season of 2012). The proportion of households with inadequate diets also peaked in Round 6 and decreased in Round 7.

Among zones, the highest prevalence of food insecurity was in the Eastern hills (72%) followed by the Haor and Coastal belt (70% and 68%, respectively) though these were only significantly higher than the Padma chars. The highest prevalence of food deficit was in the Haor followed by the Northern chars both of which were significantly higher than the Padma chars. No other difference of food deficit between zones was significant in Round 7. The proportion of households with inadequate diets was highest in the Northern part of Bangladesh (Northwest and Northern chars).

Figure 3: Households experiencing food insecure conditions at least once in the month prior to the interview

Proportion of households nationally in which the kitchen manager reported that the household had ever experienced the listed conditions related to food insecurity in the month prior to the interview (presented from least to most severe, according to HFIAS).[i] These estimates are derived from self-reported perceptions of the food security situation (1).

Note: Responses to the indicators given in Figure 3 are grouped into a two scales utilizing internationally standardized methodology in Figure 4.

Figure 4: National prevalence of internationally standardized food security indicators by severity and round

Proportion of households in Bangladesh which fit internationally standardized categorizes of food insecurity by surveillance round (1; 2; 3; 4).
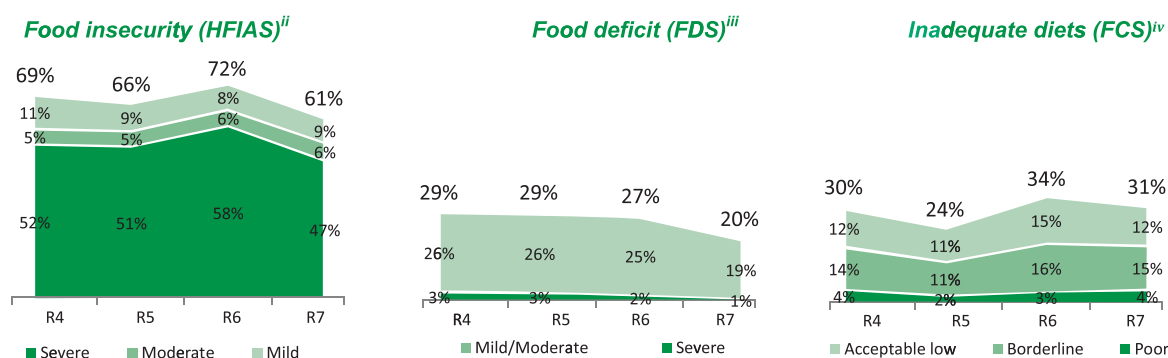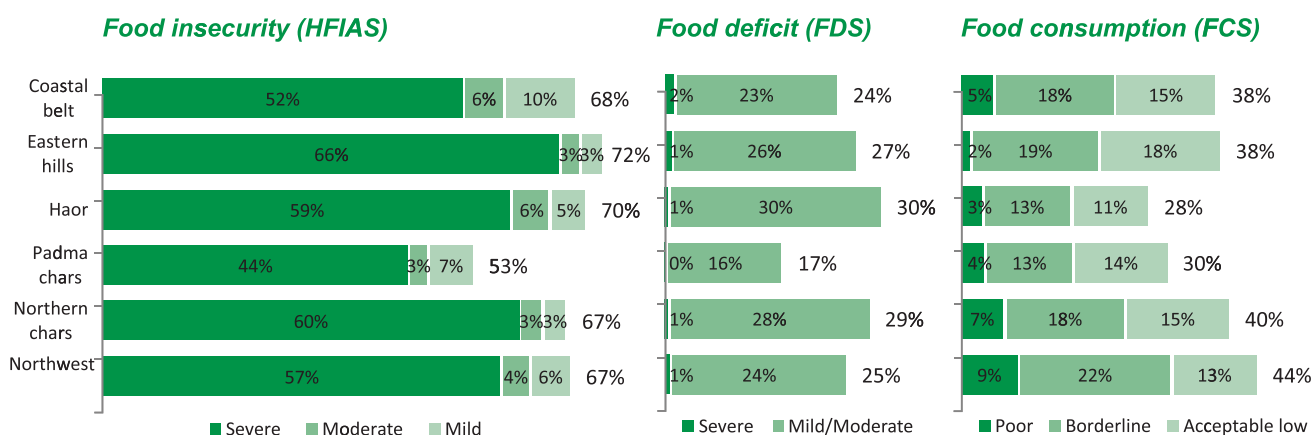

Figure 5: Prevalence of internationally standardized food security indicators during Round 7 by surveillance zone

Proportion of households which fit internationally standardized categorizes of food insecurity by surveillance zone during February to May 2012 (1; 2; 3; 4).

Care and nutrition for pregnant women and children

The proportion of pregnant women who were so thin as to pose a risk to the child they were carrying increased gradually between Round 4 and Round 6 and then fell sharply in Round 7, perhaps due to normal seasonal variation. None of the other indicators of adequate care for pregnant women changed dramatically between rounds 4 and 7. Additionally there was very little change in infant and young child feeding indicators. Only the decrease in the proportion of infants introduced to complementary feeding at six to eight months of age from Round 5 to Round 6 was statistically significant. The proportion of children who were ill, who sought care for illness, and who received home treatment for diarrhea did not change significantly between rounds. Wasting prevalence peaked in Round 5 (at 13%) which was significantly higher than Round 4 and Round 7 (both 10%). For child underweight no change between rounds was statistically significant. Among zones, the proportion of wasted children was highest in the Padma chars (12%) and lowest in the Northern chars and Northwest (8% each), while the proportion of underweight children was highest in the Haor (40%) and lowest in the Northern chars and Northwest (31% each). None of the differences between zones were statistically significant.

Figure 6: Care during pregnancy by round

The proportion of women pregnant during interview or with recent deliveries in Bangladesh who received the listed standards of care during their pregnancy and who are malnourished (based on MUAC) by surveillance round (5; 6).[v] A woman included in the recently completed pregnancy estimates had a child less than 6 months of age at the time of the interview.
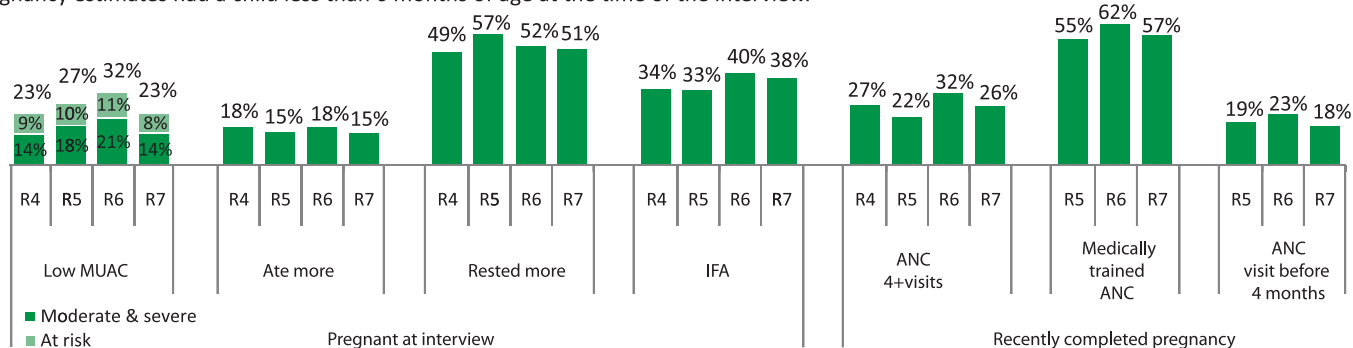

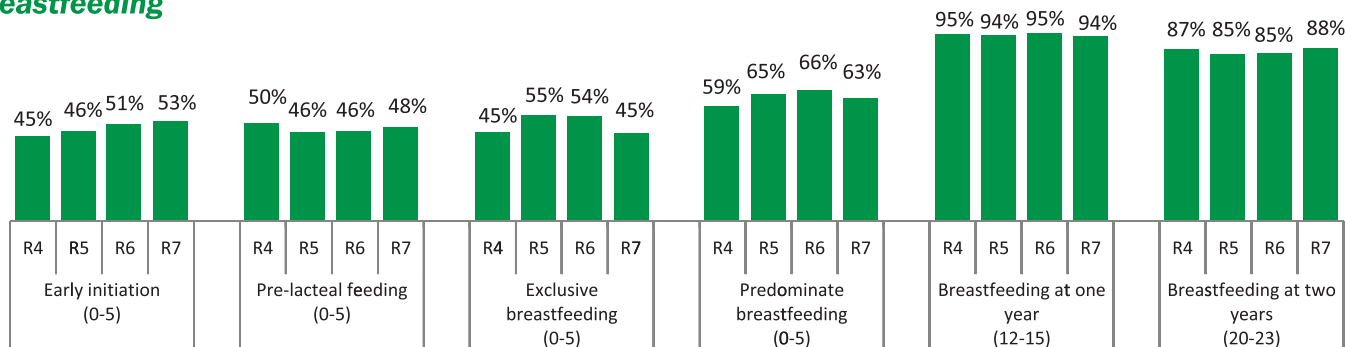## Figure 7: Infant and young child feeding practices by round

The proportion of children fed in line with the listed practices nationally.[vi] The age group in completed months is given in parenthesis. These indicators of infant and young child feeding practices of children are estimated using methodology from the World Health Organization (7; 8).

Breastfeeding
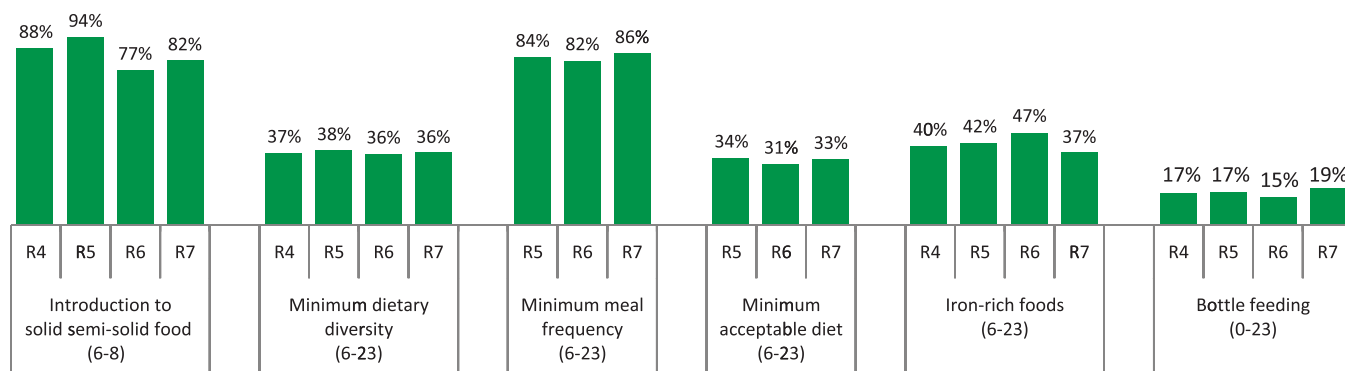

Complementary feeding[vii]

Figure 8: Child illness and care for sick children by round

The proportion of children in Bangladesh who were sick with the respective illness and who were reported to receive the listed standards of care by surveillance round (6).[viii]

Proportion ill:
- Fever: R4 44%, R5 48%, R6 44%, R7 50%
- Diarrhea: R4 14%, R5 12%, R6 10%, R7 13%

Care sought:
- Fever: R4 23%, R5 25%, R6 26%, R7 28%
- Diarrhea: R4 22%, R5 34%, R6 30%, R7 32%

Home treatment for diarrhea:
- Zinc: R4 13%, R5 18%, R6 15%, R7 19%
- ORS/RHF: R4 66%, R5 63%, R6 56%, R7 70%
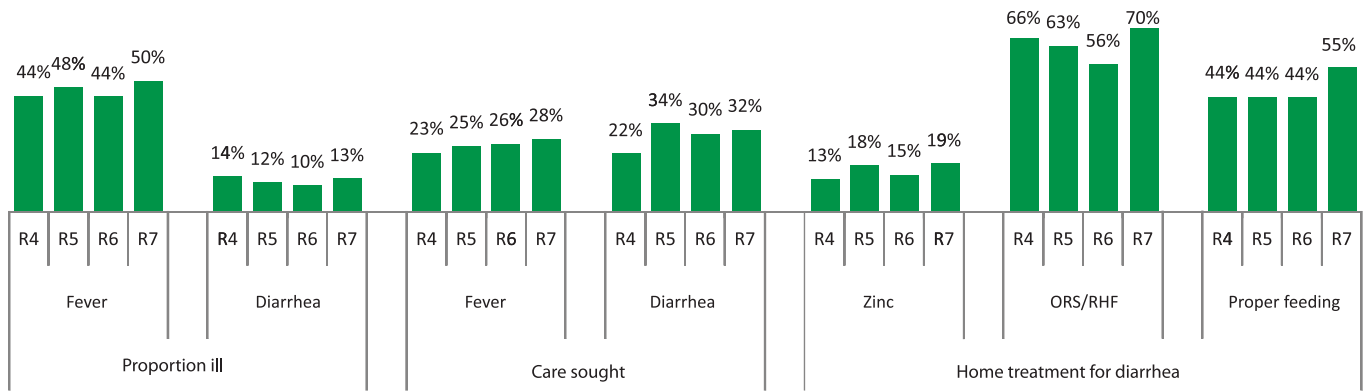- Proper feeding: R4 44%, R5 44%, R6 44%, R7 55%

Figure 9: National prevalence of child under nutrition by severity and round

Proportion of children under five years of age in Bangladesh who were wasted and underweight by surveillance round. The proportion of children 0 to 59 months of age who were classified as malnourished based on age, weight, and height measurements as assessed with reference to the World Health Organization's 2006 growth standards (9).[ix]

Acute (Wasting):
- R4: 10% (Moderate 8%, Severe 1%)
- R5: 13% (Moderate 11%, Severe 2%)
- R6: 12% (Moderate 10%, Severe 1%)
- R7: 10% (Moderate 9%, Severe 1%)

Underweight:
- R4: 32% (Moderate 25%, Severe 7%)
- R5: 36% (Moderate 28%, Severe 9%)
- R6: 35% (Moderate 26%, Severe 9%)
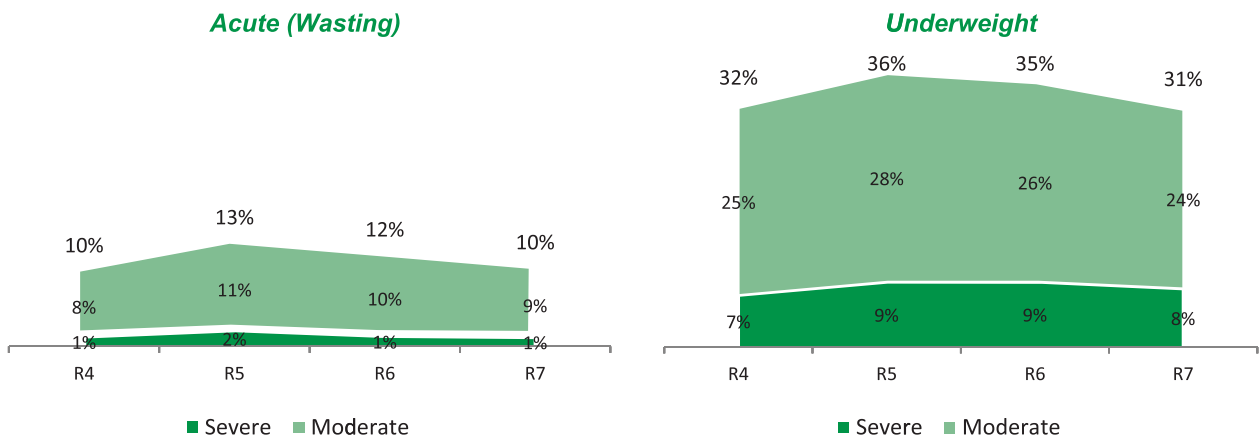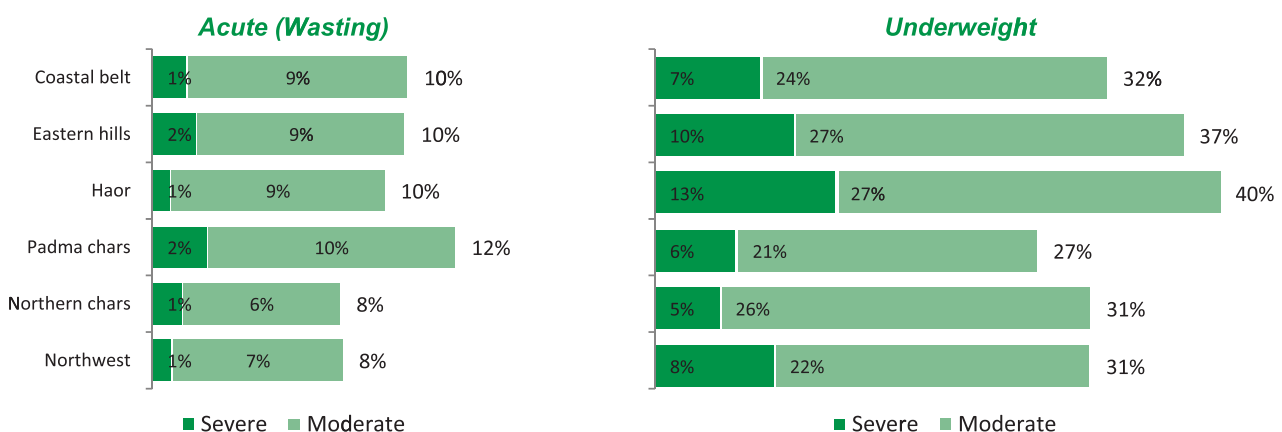- R7: 31% (Moderate 24%, Severe 8%)

Figure 10: Prevalence of child under nutrition during Round 7 by severity and zone

Proportion of children under five years of age who were wasted and underweight by surveillance zone during February to May 2012. The proportion of children 0 to 59 months of age who were classified as malnourished based on age, weight, and height measurements as assessed with reference to the World Health Organization's 2006 growth standards (9).[ix]

Acute (Wasting):
- Coastal belt: Severe 1%, Moderate 9%, total 10%
- Eastern hills: Severe 2%, Moderate 9%, total 10%
- Haor: Severe 1%, Moderate 9%, total 10%
- Padma chars: Severe 2%, Moderate 10%, total 12%
- Northern chars: Severe 1%, Moderate 6%, total 8%
- Northwest: Severe 1%, Moderate 7%, total 8%

Underweight:
- Coastal belt: Severe 7%, Moderate 24%, total 32%
- Eastern hills: Severe 10%, Moderate 27%, total 37%
- Haor: Severe 13%, Moderate 27%, total 40%
- Padma chars: Severe 6%, Moderate 21%, total 27%
- Northern chars: Severe 5%, Moderate 26%, total 31%
- Northwest: Severe 8%, Moderate 22%, total 31%

Nutritional status of women and adolescent girls

The proportion of underweight women decreased somewhat in the first season of the year between 2011 and 2012, while the proportion of women overweight increased sharply. In contrast, there was little change in the proportion of adolescent girls who were underweight. Thirty percent women in the Haor were chronically energy deficient which was significantly higher than the Northwest (17%). No other difference between zones was statistically significant. On the other hand, the proportion of overweight women was highest in the Padma chars (39%). This was significantly greater than that in the Haor and Northern chars (18% and 26%, respectively).

Figure 11: Nutritional status of women and adolescent girls

The proportion of adolescent girls and women who fell into categories of nutritional status based on BMI (6; 10; 11).[x]
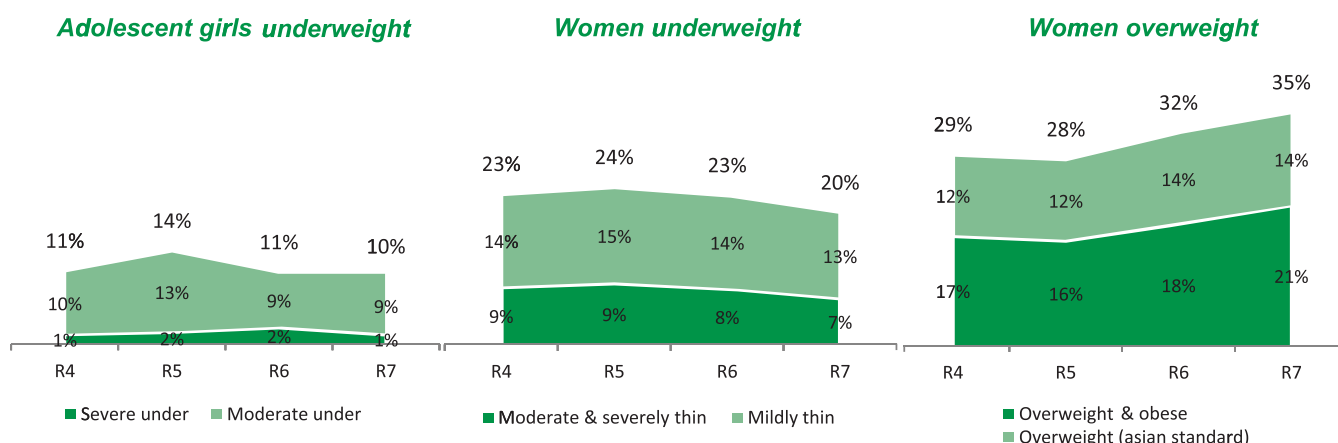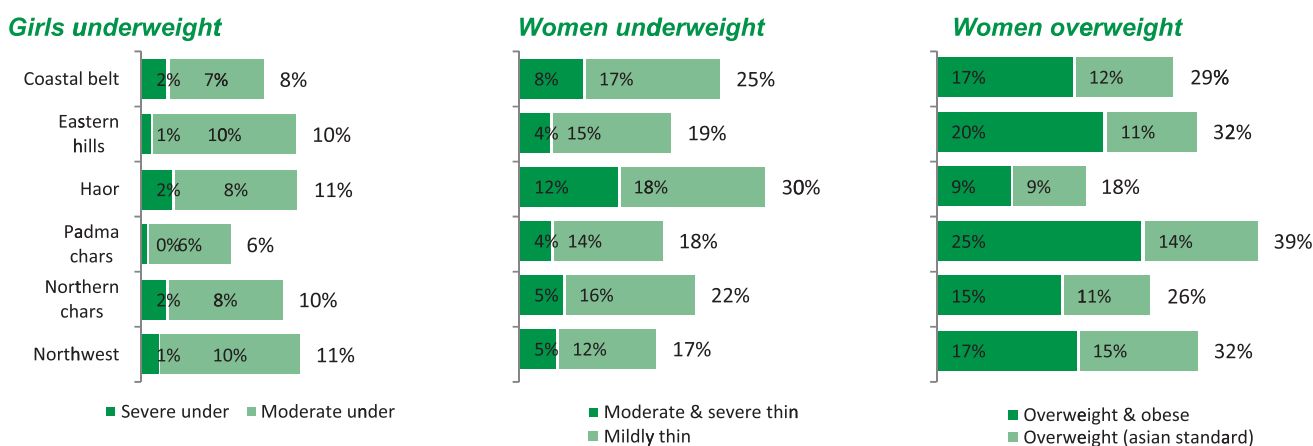

Figure 12: Nutritional status of women and adolescent girls by Round 7 by zone

The proportion of adolescent girls and women who fell into categories of nutritional status based on BMI during February to May 2012 by surveillance zone (6; 10; 11).[x]

ⁱ These indicators are ordered by severity as given in the Household Food Insecurity Access Scale (HFIAS) scale. Households and household members who practiced any of these behaviors for a reason other than difficulties obtaining food are not included (for example, a household member who skipped a meal due to illness).

Worry about food: Proportion of kitchen managers who report worrying about obtaining food for their household in the past month

Ate less preferred foods: Proportion of households in which any member had to eat food they felt was inferior, i.e. broken rice instead of whole rice

Ate only rice: Proportion of households in which any member ate only rice or rice and spices for a meal

Ate unusual foods: Proportion of households in which any member ate unusual or scavenged foods, i.e. water lily

Ate smaller meals: Proportion of households in which any member ate a smaller meal than they felt they needed

Skipped meals: Proportion of households in which any member skipped a meal

Food ran out: Proportion of kitchen managers who report that any food stored in the household ran out for the day and there was no money to buy more

Slept hungry: Proportion of households in which any member slept hungry at night, even if this individual did so after eating an inadequate meal

Day and night without eating: Proportion of households in which any member was unable to eat for 24 hours

ⁱⁱ All nine indicators listed in Figure 3 are used in HFIAS. Based around the premise that some coping responses are more serious than others and indicate a household is more food insecure, HFIAS categorizes households into three degrees of food insecurity based on the most "severe" coping mechanism they have employed (1), and a household is categorized as food insecure if worry about providing food occurred more than twice in the month before the interview.

ⁱⁱⁱ Only the three most severe indicators depicted in Figure 3 – household food stores running out, sleeping hungry, or going day and night without eating – are included in the Food Deficit Scale (FDS). FDS, identical to the internationally standardized indicator the Household Hunger Score, uses the reported frequency of experience of these three conditions to categorize households into categories of household food scarcity. A household is categorized as having a food deficit
if any one of these three experiences occurred more than three times or if more than two of these conditions were experienced in the month before the interview.

^{iv} FSNSP asks household kitchen managers about the frequency with which their household has eaten foods from eight standardized food groups in the week prior to the interview. These frequency scores are weighted in line with the Food Consumption Score (FCS) guidelines laid out by the World Food Program (3). Households are then grouped into food consumption categories using cut-offs designed for Bangladesh (4).

^v The following indicators of care during pregnancy were asked to women who were pregnant at the time of interview.

Nutritional status: Based on MUAC: fetus at moderate risk – MUAC<23.0cm; moderately and severely thin – MUAC≤22.1 cm (5).

Ate more: Proportion of women who report eating more during their pregnancy than they did prior to their pregnancy

Rested more: Proportion of women who report resting more during their pregnancy than they did prior to their pregnancy

Took IFA at least weekly: Proportion of women who report taking iron and folic acid (IFA) tablets in the last week

The following indicators of care during pregnancy were asked to women who gave birth in the six months prior to the interview (recently completed pregnancy)

4+ visits: Proportion of women who received at least four ANC visits from any provider

Medically trained: Proportion of women who obtained any ANC from a medically trained provider as defined by DHS (6)

Visit before the fourth month: Proportion of women who obtained their first ANC before their fourth month of pregnancy

^{vi} All indicators, except early initiation and pre-lacteal feeding are based on feeding practices the day before the interview (7; 8). Any cases where the respondent could not answer the question were excluded from the analysis.

Early initiation: Proportion of children born in the last 24 months who were reported to have been put to the breast within one hour of birth.

Pre-lacteal feeding: Proportion of children born in the last 24 months who were given anything other than breast milk in the first three days after delivery

Exclusive breastfeeding: Proportion of infants 0-5 months of age who are fed only breast milk (vitamins and medicines are also permitted)

Predominant breastfeeding: Proportion of infants 0 to 5 months of age who receive breast milk exclusively or breast milk and other non-milk based liquids (such as water, water-based drinks, fruit juice, and ritual fluids)

Continued breastfeeding at 1 year: Proportion of children 12 to 15 months of age who are fed breast milk

Continued breastfeeding at 2 years: Proportion of children 20 to 23 months of age who are fed breast milk

Introduction of solid, semi-solid or soft food: Proportion of infants 6 to 8 months of age who receive solid, semi-solid or soft foods the day before the interview

Minimum dietary diversity: Proportion of children 6 to 23 months of age who receive foods from 4 or more food groups the day before the interview

Minimum meal frequency: Proportion of children aged 6 to 23 months who receive solid or semi-solid foods the minimum number of times or more.

Minimum is defined as: 2 times for breastfed infants 6 to 8 months; 3 times for breastfed children 9 to 23 months; and 4 times for non-breastfed children 6 to 23 months a day.

Minimum acceptable diet: Proportion of children aged 6 to 23 months whose diet met both the minimum diversity and minimum frequency standards

Iron rich foods: Proportion of children aged 6 to 23 months who ate an iron-rich food, an iron-fortified food, or an iron supplement day before the interview

Bottle feeding: Proportion of children 0 to 23 months of age who are fed with a bottle the day before the interview

^{vii} Minimum meal frequency and minimum acceptable diet were not asked for all children in Round 4

^{viii} The following indicators were estimated for children who were reported ill with the respective symptoms in the two weeks preceding the interview:

Fever: Proportion of children 0 to 59 months of age whose caregiver reported that he/she had had fever

Diarrhea: Proportion of children 0 to 59 months of age whose caregiver reported that he/she had had diarrhea

Care sought: Proportion of children 0 to 59 months of age reported to have been sick with the listed illness who sought treatment from any provider except a pharmacy or traditional healer

Zinc: Proportion of children 6 to 59 months of age with a diarrheal episode who were reported to have received zinc during the illness

ORS/RHF: Proportion of children 6 to 59 months of age with a diarrheal episode who were reported to have received oral rehydration solution (ORS) and/or recommended home fluids (RHF), such as sugar-salt-water, or fluid from special saline (rice) during the episode

Adequate home care for diarrhea (proper feeding): Proportion of children 6 to 59 months of age with a diarrheal episode in who were reported to have received increased fluids and/or ORS and ate the same or more food during the episode

^{ix} Children whose measurements (z-score) indicate that they are between negative two standard deviations (-2 SD) and negative three standard deviation (-3 SD) from the mean of the reference population are classified as moderately malnourished for any given measure. Children who are below -3 SD are classified as severely malnourished (9).

Underweight: Proportion of children with low weight for their age

Acute (wasting): Proportion of children with low weight for their height

^x The nutritional status of non-pregnant women who have not recently given birth (no child less than 2 months of age, in line with DHS guidelines) is ascertained using body mass index (BMI, $weight_{kg}/height_m^2$) (6). For women, 19 to 49 years of age, nutritional status is calculated through the use of BMI cutoffs while for adolescents, 10 to 18 years of age, BMI-for-age z-scores are used (6; 10; 11)..

Girls underweight: Severe underweight – BMI z-score < -3 SD; Moderate underweight – BMI z-score greater than or equal to -3 SD but less than -2 SD,

Women underweight: Moderate and severe thin – BMI less than or equal to 17; Mildly thin – BMI greater than or equal to 17 but less than 18.5

Women overweight: Overweight (Asian standard) – BMI greater than 23 but less than or equal to 25; Overweight and obese – BMI>25

Highlights

- During 2011, the price of rice began to fall presumably, due in part to government efforts. The effects of this reduction were seen in early 2012 with reduced levels of food insecurity.

- Food insecurity and food deficit decreased in Round 7 compared to all three rounds of 2011.

- The Coastal belt and Haor were the most food insecure areas of the country during February to May 2012.

- Women's underweight is decreasing slowly while over weight is increasing much more rapidly.

- Child feeding indicators have changed little over the past year.

- Prevalence of child and women's underweight was highest in the Haor during February to May 2012

Works Cited

1. Coates, Jennifer, Swindale, Anne and Bilinsky, Paula. Household Food Insecurity Access Scale (HFIAS) for Measurement of Household Food Access: Indicator Guide
    (v. 3). Washington, D.C. : Food and Nutrition Technical Assistance II Project (FANTA-2), Academy for Educational Development, 2007.
2. Deitchler, Megan, et al. Validation of a Measure of Household Hunger for Cross-Cultural Use. Washington, D.C. : Food and Nurtrition Technical Assistance II Project
    (FANTA-2), Acedemy for Educational Development, 2010.
3. International Food Policy Research Institute. Validation of food frequency and dietary diversity as proxy indicators of household food security. Rome, Italy :
    World Food Programme, 2008.
4. Bangladesh Bureau of Statistics, World Food Programme, Institute for Public Health and Nutiriton, & United Nations Children's Fund. Bangladesh
    Household Food Security and Nutrition Assessment Report: 2009. New York, US & Rome, IT : World Food Programme & United Nations Children's Fund,
    2009.
5. United Nations High Commission for Refugees & World Food Programme. Guidelines for selective feeding: The management of malnutrition in emergencies.
    Rome, IT : United Nations High Commission for Refugees & World Food Programme, 2009.
6. Rutstein, Shea Oscar and Rojas, Guillermo. Guide to DHS statistics. Calverton, Maryland : ORC Macro, 2006.
7. World Health Organization. Indicators for assessing infant and young child feeding practices. Part 1: Definitions. Geneva, CH : World Health Organization,
    2008.
8. Indicators for assessing infant and young child feeding practices. Part 2: Measurement. Geneva, CH : World Health Organization, 2010.
9. Child growth standards: WHO Anthro (version 3.2.2, January 2011) and macros. World Health Organization. [Online] January 2011. [Cited: July 21, 2011.]
    http://www.who.int/childgrowth/software/en/.
10. Growth reference 5-19 years: Application tools. World Health Organization. [Online] January 2011. [Cited: July 21, 2011.]
    http://www.who.int/growthref/tools/en/.
11. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. WHO expert consultation. s.l. : The Lancet,
    2004, Vol. 363.

For additional information on the results of the seventh round of FSNSP, please contact

BRAC University

James P. Grant School of Public Health
5th Floor, icddr,b Building
68 Shahid Tajuddin Ahmed Sharani,
Mohakhali, Dhaka-1212, Bangladesh
Phone: 880-2-882 5131/882 5141/882 5043 Ext: 6016
Fax: +880-2-8810383

Contact:
Dr. Timothy G. Evans, Dean
E-mail: evanst@bracu.ac.bd

Food Security & Nutrition Surveillance Project
Contact:
Dr. Mohammad Akram Hussain, Project Manager
E-mail: ahussain@fsnsp.net

Helen Keller International

Bangladesh Office
P.O. Box 6066
Gulshan, Dhaka-1212, Bangladesh
Phone: 880-2-882 3055/882 7044/988 6958
Fax: 880-2-9855867

Contact:
Erica Roy Khetran, Country Director
E-mail: ekhetran@hki.org

Asia-Pacific Regional Office
Contact:
Nancy Haselow, Vice President and
Regional Director for Asia Pacific
E-mail: nhaselow@hki.org