The Food Security Nutritional Surveillance Project: Results from Round 13: February - April 2014

November 2014

The Food Security Nutritional Surveillance Project (FSNSP) provides up-to-date, seasonal information on the food and nutrition security of Bangladesh in six surveillance zones (Figure 1), as well as in the nation as a whole. Multiple members of each household 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, or 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 and weight measured. In addition, all pregnant women are interviewed about their diet and the care they have received during their pregnancy, and the circumference of their mid-upper arm is measured. In addition, all pregnant women are interviewed about their diet and the care they have received during their pregnancy, and the circumference of their mid-upper arm is measured (MUAC). 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 had received during her pregnancy with this child.

In each household with a child less than five years of age, child caregivers are asked about 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.
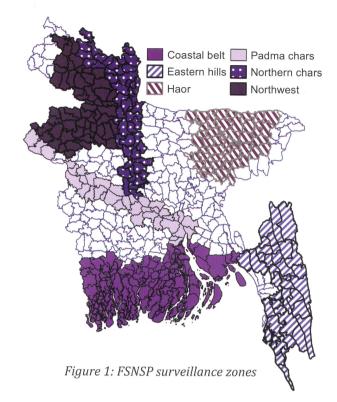
This bulletin presents selected results from the thirteenth round of surveillance, which took place from February to April 2014. The bulletin also includes estimates from past rounds of data collection to show both seasonal variation and changes in indicators between years.

Percentages given at the end of bars in each graph indicate 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 (For example, Round 13 is indicated by R13). Additional details about the terms used in each graph can be found in the endnotes.

Figure 1: FSNSP surveillance zones

Preliminary results

The thirteenth round surveyed 9,024 households, including 4,730 children less than five years of age and 9,166 women and adolescent girls aged 10 to 49 years. A total of 786 of surveyed households were headed by women. No seasonal trends were apparent for main sources of income or asset ownership. However, distinct geographical patterns were apparent. Rural areas had a high proportion of households with their primary income earners involved in agriculture, while salaries were the primary source of income in urban areas. In rural areas, wood, straw and animal dung were the main cooking fuel whereas in urban areas the use of natural gas piped to households was prevalent. Seventeen percent (17%) of households received remittances (either internal or external).[i] Ninety percent (90%) possessed a mobile phone and 64% households had access to electricity (connection or solar).

Water, sanitation and hygiene
While 98% of households had access to a safe source of drinking water and 98% had soap available in the household, just over one-third of households had access to improved sanitation facilities.[ii] In addition, few caregivers reported washing hands with soap at critical times. For example, only around 20% used soap to wash their hands after cleaning a child (after defecation) and only around 2% before feeding a child.

Food security
Figure 2 displays seasonal variation in average the cost of a standard food basket as well as wage rate for men and women. In line with past years results, women's daily wage rates were roughly half that of men's in both agricultural and non-agricultural occupations. Food insecurity as measured by Household Food Insecurity Access Scale (HFIAS) and food deficit as measured by Food Deficit Scale (FDS) decreased significantly from Round 12 to 13 (see figure 3). The proportion of households with inadequate dietary diversity (consisting of households with poor, borderline, and acceptable low FCS values) decreased slightly from Round 12 to Round 13, in line with the common pattern across seasons. By all measures, food insecurity was highest in the Northern chars and Coastal belt than other areas (see figure 4). The prevalence of households with inadequate dietary diversity was highest in Northern chars followed by the Northwest and Eastern hills.

Nutritional status of women and adolescent girls
Between Rounds 12 and 13 the proportion of women underweight reduced and the proportion overweight increased. Both of these changes are in line with the seasonal prevalence rates seen in 2011 and 2012. Among zones, the prevalence of chronic energy deficiency (CED, BMI<18.5) among women was highest in Haor, but low BMI for age among adolescent girls and the proportion of overweight women were highest in the Padma chars zone.

Maternal Care
The nutritional status of the pregnant women improved significantly in Round 13 compared to the previous rounds.[1] The proportion of pregnant women who received four or more ANC visits during their pregnancy remained relatively constant over the rounds. Sixty-seven (67%) of women received antenatal care (ANC) from a medically trained health care provider which was significantly higher than in Round 10 and Round 12. Women who began ANC before their fourth month of pregnancy increased slightly from, the previous rounds, and 32% of women reported to taking iron supplements during their pregnancy. The proportion of VAC received by post-partum women remain constant has remained relatively constant since 2012, with roughly one-third of women nationally reported receiving a VAC within 6 weeks of Post natal check-up within 30 days after birth increased by approximately 7% over the last year.

Child care, feeding, and nutrition

The proportion of children ill with diarrhea who were taken to a doctor and proportion who received zinc both increased in Round 13 (see figure 9). There was little change in breastfeeding and complementary feeding indicators, although the proportion of children who were given pre-lacteal feeds decreased in Round 13 (see figure 10). The proportion of undernourished children reduced from Round 4 to Round 13 (see Figure 11). Among zones, the prevalence of underweight was significantly greater in the Eastern Hills, Haor and Northern chars zone, while wasting was slightly but significantly more prevalent in the Northern chars, Coastal belt, and Northwest (see Figure 13).

Food Security

Figure 2: Seasonal variation in food costs and wage rates by round
The mean price of the average, per person, daily amount of food eaten (1)[iii], and the average daily wage rate of agricultural and non-agricultural daily labor by gender of worker. [iv]
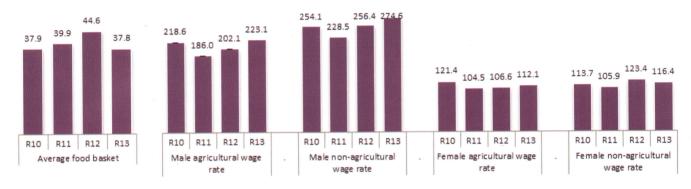

Figure 3: National prevalence of internationally standardized food security indicators by severity and round
The proportion of households in Bangladesh which fit internationally standardized categorizes of food insecurity by surveillance round (1; 2; 3; 4)
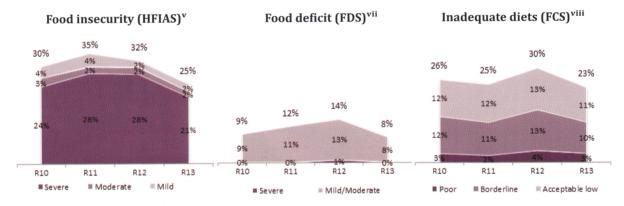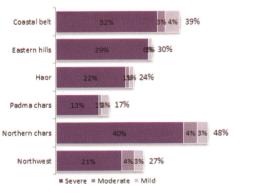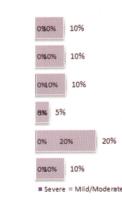

Figure 4: Prevalence of internationally standardized food security indicators during Round 13 by surveillance zone
The proportion of households which fit internationally standardized categorizes of food insecurity by surveillance zone (1; 2; 3; 4)

[1] The large change in the proportion of fetuses at risk between Round 13 and Round 12 is due to a slight change in the distribution of MUAC measures between the rounds. Changes in the mean MUAC of pregnant women between round 12 and Round 13 are in line with seasonal variation observed in previous years.

Figure 5: Nutritional status of women and adolescent girls

The proportion of adolescent girls and women who fell into categories of nutritional status based on BMI (5; 10; 11). The overall prevalence indicates global underweight for adolescent girls underweight (BMI for age z-score<-2S.D.), chronic energy deficiency (CED) for women underweight (BMI<18.5), and overweight and obese by the Asian cutoff for women overweight (BMI>23) (5; 10; 11). [viii]

Adolescent girls underweight

9%   11%   14%   7%
8%   9%   12%   6%
2%   2%   2%   1%
R10   R11   R12   R13

■ Severe under   ■ Moderate under

Women underweight

15%   19%   17%   14%
10%   12%   11%   9%
5%   7%   6%   4%
R10   R11   R12   R13

■ Moderate & severely thin   ■ Mildly thin

Women overweight

41%   36%   39%   44%
16%   15%   16%   14%
24%   21%   23%   30%
R10   R11   R12   R13

■ Overweight (asian standard)
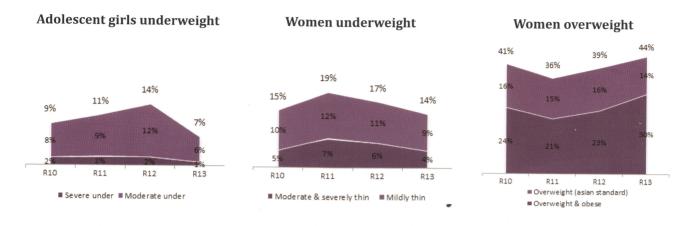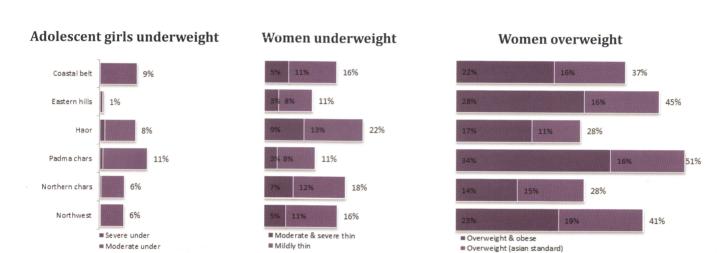■ Overweight & obese

Figure 6: Nutritional status of women and adolescent girls during Round 13 by zone

The proportion of adolescent girls and women who fell into categories of nutritional status based on BMI during October to December 2012 by surveillance zone (5; 10; 11). [ix]

Adolescent girls underweight

Coastal belt — 9%
Eastern hills — 1%
Haor — 8%
Padma chars — 11%
Northern chars — 6%
Northwest — 6%

■ Severe under
■ Moderate under

Women underweight

Coastal belt — 5% 11% — 16%
Eastern hills — 3% 8% — 11%
Haor — 9% 13% — 22%
Padma chars — 3% 8% — 11%
Northern chars — 7% 12% — 18%
Northwest — 5% 11% — 16%

■ Moderate & severe thin
■ Mildly thin

Women overweight

Coastal belt — 22% 16% — 37%
Eastern hills — 28% 16% — 45%
Haor — 17% 11% — 28%
Padma chars — 34% 16% — 51%
Northern chars — 14% 15% — 28%
Northwest — 23% 19% — 41%

■ Overweight & obese
■ Overweight (asian standard)

Maternal Care

Figure 7: Care during pregnancy by round

The proportion of women who were pregnant during interview or with recent deliveries who received the listed standards of care during their pregnancy (5; 6). [ix]

	Fetus at risk (MUAC<23cm)	Ate more	Rested more	IFA	4+ visits	Medically trained	Visit before 4th month
R10	22%	14%	59%	24%	42%	53%	35%
R11	23%	12%	56%	24%	37%	60%	30%
R12	26%	19%	63%	38%	39%	55%	28%
R13	12%	12%	56%	32%	41%	67%	42%

Currently pregnant — Completed pregnancy

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Figure 8: Post natal care during pregnancy by round
The proportion of women with children under 6 months of age who have received post-natal care.[viii]

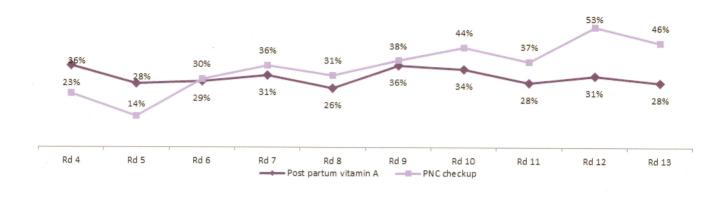Legend: Post partum vitamin A — PNC checkup

Figure 9: 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 (5). [x]
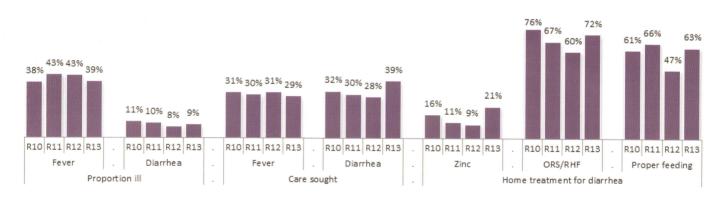

Figure 10: Infant and young child feeding practices by round
The proportion of children fed in line with the listed practices nationally.[xi] The age group in completed months is given in parenthesis. These indicators of infant and young child feeding practices of children are estimated using methodology from the World Health Organization (7; 8).
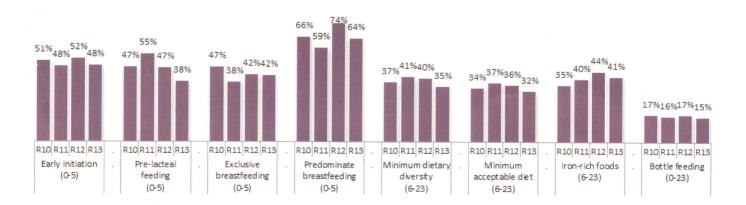
Figure 11: Recent trends in the prevalence of child under nutrition (moderate and severe, 0 to 59 months)
The proportion of children under five years of age in Bangladesh who were wasted and underweight by surveillance round. The proportion of children 0 to 59 months of age who were classified as malnourished based on age, weight, and height measurements as assessed with reference to the World Health Organization's 2006 growth standards (9). The overall or total prevalence indicates global malnutrition of children.[xii]
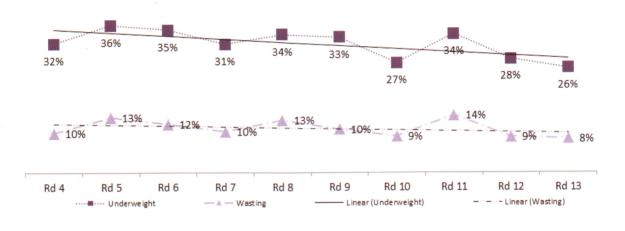

Figure 12: National prevalence of child under nutrition by severity and round
The proportion of children under five years of age in Bangladesh who were wasted and underweight by surveillance round. The proportion of children 0 to 59 months of age who were classified as malnourished based on age, weight, and height measurements as assessed with reference to the World Health Organization's 2006 growth standards (9). The overall or total prevalence indicates global malnutrition of children.[xii]
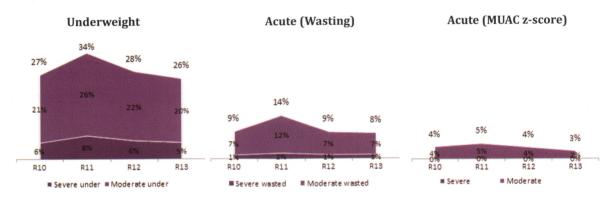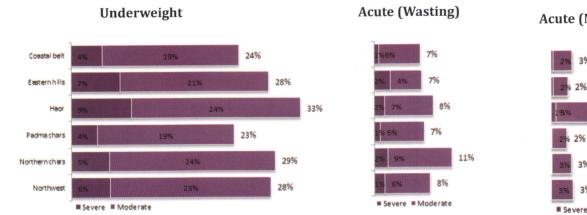

Figure 13: Prevalence of child under nutrition during Round 13 by severity and zone
Proportion of children under five years of age who were wasted and underweight by surveillance zone during October to December 2012.The proportion of children 0 to 59 months of age who were classified as malnourished based on age, weight, and height measurements as assessed with reference to the World Health Organization's 2006 growth standards (9).[ix]

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Highlights

The price of an average food basket declined between Rounds 11 and 13. At the same time, both agricultural and non-agricultural wage rates increased. However, wages remained much lower for women than for men.

The nutritional status of pregnant women improved significantly in Round 13, as did coverage of antenatal care.

The proportion of children who were given pre-lacteal feeds decreased significantly in Round 13.

The proportion of children ill with diarrhea who were taken to a doctor and the proportion who received zinc increased significantly in Round 13.

The prevalence of underweight and wasting peaked in the monsoon season of each year (Round 5 in 2011, Round 8 in 2012 and Round 11 in 2013), and is the lowest to date in Round 13.

In Round 13, Padma chars zone had the highest proportion of girls underweight (11%) and women overweight (51%) but proportion of women underweight was highest in Haor zone (22%).

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[i]Remittances (transfer of fund from migrant workers to their community) are internal if it is sent and received within Bangladesh. An external source of remittance denotes transfers from outside Bangladesh.

[ii]Improved sources of drinking water and sanitation: Sources of drinking water and basic sanitation have been categorized following the WHO/UNICEF Joint Monitoring Programme for water supply and sanitation (JMP) guidelines where an improved source of drinking water denotes to a source piped into dwelling and an improved source of sanitation denotes to a facility which is not shared and either piped swear system, septic tank, pit latrine with slab and/or ring latrine with slab. Water and sanitation sources has been categorized following the WHO/UNICEF Joint Monitoring Programme for water supply and sanitation (JMP) guideline (13).

[iii]**Average food basket:** FSNSP tracks the average market price of several food commodities in local markets nationwide. The cost of the average per-capita, daily amount of each food commodity, as reported in the Report of the Household Income & Expenditure Survey (HIES): 2010 (12), is added together to create the price of the average daily, per capita Bangladeshi food basket.

[iv]**Daily wage rate:** Labor wage rates were calculated by asking all households that reported that one or more member was working for a daily wage in the month prior to the interview disclose the cash wage that male and female household members received on the last day worked for both agriculture and non-agriculture occupations.

[v]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.

[vi]Only the three most severe indicators of individual HFIAS categories– 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.

[vii]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).

[viii]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, $weight_{kg}/height_m^2$)(5). 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 (5; 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 17; Mildly thin – BMI greater than or equal to 17 but less than 18.5
Women overweight: Overweight– BMI greater than 23 but less than 25; Overweight and obese – BMI greater than or equal to 25

[ix]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 (6).
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 (5)
Visit before the fourth month: Proportion of women who obtained their first ANC before their fourth month of pregnancy
Post partum vitamin A: Proportion of women who took vitamin A supplementation after delivery
PNC check up: Proportion of women who took post natal check up

[x]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

[xi]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)
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 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

[xii]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. All children whose z-score falls below -2 SD are classified as globally malnourished (9).
Underweight: Proportion of children with low weight for their age
Acute (wasting): Proportion of children with low weight for their height

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