



NUTRITION, HEALTH AND DEMOGRAPHIC SURVEY OF BANGLADESH-2011

A Preliminary Report

**Professor Dr. M. Akhtaruzzaman
Professor Dr. Md. Nazrul Islam Khan
Professor Dr. Sheikh Nazrul Islam**

Supported by



**Institute of Nutrition and Food Science University of Dhaka
Dhaka-1000, Bangladesh**

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Dr. M. Akhtaruzzaman

BSc (Hons), MSc (DU), PhD (Biochem, Okayama, Japan)
Professor, Institute of Nutrition & Food Science, University of Dhaka
Dhaka-1000, Bangladesh

Dr. Md. Nazrul Islam Khan

BSc (Hons) MSc (DU), MS (Food and Nutrition Planning, UPLB, The Philippines)
PhD (Human Nutrition, UPLB, The Philippines)
Professor, Institute of Nutrition & Food Science, University of Dhaka
Dhaka-1000, Bangladesh

and

Dr. Sheikh Nazrul Islam

B Pharm (Hons), M Pharm (DU), PhD (Immunol, Strathclyde, Glasgow, UK)
Fellow: UNU, NSICT, ASB, PDF (Immunol, UK)
Professor, Institute of Nutrition & Food Science, University of Dhaka
Dhaka-1000, Bangladesh

**Institute of Nutrition and Food Science
University of Dhaka
Dhaka-1000, Bangladesh**

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Preface

The Nutrition, Health and Demographic Survey of Bangladesh-2011 (NHDSBD-2011) is the newest ever leading comprehensive survey conducted in Bangladesh. It is a representative household sample survey, which is independently designed and implemented by a group of teachers of the Institute of Nutrition and Food Science (INFS), University of Dhaka with financial support of USAID Bangladesh. A large body of Research Team including Fahmida Akter as a Research Associate was involved in this survey.

The NHDSBD-2011 attempts to address the most national concern of nutrition, health and demographic issues of the mass population of the country. It is the 5th survey of this line conducted in Bangladesh and is initiated after 17 years of the last survey (1996) conducted by INFS, University of Dhaka. Since its inception, the INFS, DU conducted 4 nationwide surveys (1964, 1975-76, 1982 and 1996) in limited households (700 to 1300 hh), most of which focused on the nutrition aspects along with little health issue. The NHDSBD-2011 is conducted on vast number of households (~7000 hh comprising 31066 people) of both rural and urban settings among representative mass population of the country. This survey provides up-to-date information on nutrition, health and demographic profile and social progress including *socioeconomic condition, food security, sanitation and hygiene, child and maternal health and nutrition, family planning, women empowerment, domestic violence, AIDS/STDs/STIs/TB/NCDs related knowledge, attitude and prevalence*.

Members of the Technical Advisory Committee (TAC) consisting of experts from government, non-governmental and international organizations as well as researchers and professionals working in the Health, Nutrition and Population Sector, put forth their valuable opinion in major phases of the survey

We hope that the survey findings would essentially be useful for monitoring and assessment as well as development of Nutrition, Health Population Sectors Program and to attain the Millennium Development Goals (MDGs) and Poverty Reduction Strategy (PRS) of Bangladesh.

We express our thanks to TAC members, Research Team and USAIDS for their active efforts and supports in successful completion of the survey.

Dr. Sheikh Nazrul Islam

B. Pharm (Hons), M. Pharm (DU), PhD (Immunol, Strathclyde, Glasgow, UK)
Fellow: UNU, NSICT, ASB, PDF (Immunol, UK)

Professor, Institute of Nutrition & Food Science, University of Dhaka
Dhaka-1000, Bangladesh

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1 Introduction

The “Nutrition, Health and Demographic Survey of Bangladesh-2011”(NHDSBD-2011) under the project “Assessing and Improving the Consumption Effects of Agriculture Policies and Programs in Bangladesh” is a comprehensive survey. It incorporated the most important aspects related to population, health, nutrition, agriculture and food security for the first time in Bangladesh. The NHDSBD-2011 was implemented and conducted by Dr. M. Akhtaruzzaman, Dr. Md. Nazrul Islam Khan, and Dr. Sheikh Nazrul Islam, Professors of the Institute of Nutrition and Food Science, University of Dhaka. A large body of Research Team including Fahmida Akter as a Research Associate was involved in this survey. The research was financed by USAIDS Bangladesh.

This study is a nationally representative sample household survey designed to provide detail information on the basic national indicators of socio-economic progress including demographic structure; household income-expenditure; housing condition; ownership of land and other resources; agricultural cropping pattern and production including fishery, livestock and poultry, vegetable production; food security (individual as well as household level); household food habit and food consumption pattern; seasonal variation in food consumption; nutritional status (especially under 5 children and women of reproductive age); light and alternative energy sources; smoking status; sanitation and hygiene; women empowerment; information awareness; livelihood security and participation in social work; domestic violence; daily physical activity level of adult men and women; KAP (Knowledge, Attitude and Practice) about nutrition; KAP about hygiene in cooking; drinking water and water purification; toilet facility and domestic waste management; lifestyle and dietary pattern of old age people; child health including breastfeeding status, primary health care coverage, vaccination, disease frequency and treatment, infant and young child feeding practices; adolescent health; disease frequency and treatment of family members; AIDS/STDs/STIs/TB/NCDs related KAP; maternal and reproductive health including health practices in reproductive age, antenatal care (ANC), vaccination, weight gain, care during delivery, postnatal care (PNC) of mother and newborn, birth outcome; family planning including knowledge, current use and sources of family planning methods, knowledge and use of menstrual regulation (MR), age of sterilization.

The method of data collection was mainly individual interviewing (women of the household) and observation in case of some information. Nutritional status is measured in both direct (anthropometric, biochemical and clinical) and indirect (dietary intake) methods. Blood and urine samples from specific age group of people were collected to assess the acute nutritional status by biochemical indices.

Data on anthropometric parameters (height in cm, weight in kg and MUAC in mm) and clinical signs and symptom were collected from all of the household members. Among biochemical parameters specially blood glucose (mmol/L) of men and women of ≥ 40 years of age and hemoglobin level (mmol/L) of women of 13-40 years of age were analyzed. Urine sample was collected from children of U5 and women of ≥ 50 years of age. Clinical signs of hair, eyes, lips, gums, tongue, gland, skin, nail, skeletal, edema, lean and thin and others of all of the members of the household were collected. Collection of blood and urine specimen and estimation of blood glucose and hemoglobin levels were made by paramedics under the supervision of a physician. Ethical permission was obtained from the Ethical Board of the Faculty of Biological Science, University of Dhaka.

This preliminary report presents the key findings of the data collected in the household survey. Comprehensive and detailed report is scheduled to be released by mid of 2013. It is expected that the findings in the final report will not differ substantially from this preliminary report. However, the results presented here should be regarded as provisional and may be subjected to modification.

In order to examine trends, the findings of this NHDSBD-2011 survey will be compared to the findings of the previous nationally representative surveys of respective sectors like BDHS 2011, Health Bulletin 2012, Household Income Expenditure Survey 2010, and Agriculture Census 2008.

Moreover, this comprehensive and huge data in nutrition, health, agriculture and food security of the mass population throughout the country could be used to investigate the epidemiological association or relationship among variables of different sectors. More specifically, the NHDSBD-2011 is intended to provide updated information on overall demographic situation; agriculture and food security; sanitation and hygiene; maternal, child and geriatric health and nutrition; AIDS//STDs/STIS/TB/NCDs related KAP; women empowerment; domestic violence and family planning to meet the monitoring and evaluation needs for policy makers and the researchers for improving nutrition, agriculture, health and family planning services in the country.

2 Organization of the NHDSBD-2011

2.1 Sampling design

A two stage stratified random sampling technique was employed in drawing sample of NHDSBD-2011 under the framework of Integrated Multipurpose Sample (IMPS) design developed on the basis of the sampling frame based on the Population and Housing Census 2001. The IMPS design consisted of 1000 Primary Sampling Units (PSUs) throughout the country that comprises 640 rural and 360 urban PSUs. The PSU was defined as continuous two or more enumeration areas (EA) used in Population and Housing Census 2001. Each PSU comprised of around 200 households.

In the first stage 251 out of the total 1000 IMPS PSUs were drawn. These PSUs were selected from seven division including Chittagong Hill Tracts. The number of PSUs selected from each district is proportional to the total number of PSUs of corresponding district. Seventy percent PSUs is selected from rural strata and 30% from urban strata thus making 176 rural PSUs and 75 urban PSUs. In the second stage, 30 households were selected from each of the rural PSUs and urban PSUs (located in the municipal areas). Considering the diversity of the household characteristics in the PSU is very low, 30 households were randomly selected from the frame of each selected PSU to have the representative households of that particular PSU area of BBS.

A household mapping/listing operation was carried out in all selected EAs from December 2010 to January 2011. The resulting lists of the households were used as the sampling frame for the selection of households in the second stage of sampling. On average, 30 households were selected from each PSU using an equal probability systematic sampling technique. In this way, 7,530 households were selected for the NHDSBD-2011 survey. Thus, a NHDSBD-2011 sample cluster is made for an EA. The survey was designed to obtain 7,530 complete interviews with women of the selected households. Accordingly 2,280 interviews were allocated to urban areas and 5,250 to rural areas. Mainly women of the selected households were eligible respondents for the questionnaire but in case of some particular information like agricultural production, land ownership, male counterpart of the women respondent was also interviewed. Table 2.1 shows the number of sample PSUs covered in the NHDSBS-2011.

Table 2.1: The number of sample PSUs covered in the NHDSBD-2011

Sl. no.	Name of Division	Number of PSU selected		
		Urban PSU	Rural PSU	Total
1.	Dhaka	21	45	66
2.	Rajshahi	8	18	26
3.	Khulna	11	25	36
4.	Barisal	6	18	24
5	Sylhet	4	10	14
6.	Rangpur	10	27	37
7.	Chittagong and Chittagong Hill Tracts (CHT)	13 3	23 9	36 12
Total no. of PSU		76	175	251

The total number of households in each BBS identified PSU is 200- 250.

2.2 Questionnaire development

A questionnaire was designed and prepared to record data on indicators of household socioeconomic and socio-demographic status, agriculture, household food security, lifestyle, health and nutrition, women empowerment, domestic violence and family planning. The NHDSBD-2011 questionnaire was divided into major three components

Section-A: Food production and consumption

Section-B: Lifestyle and Demographic information

Section-C: Nutrition and health

The draft questionnaire was prepared and then circulated to and were reviewed and approved by the members of review committee (see Annex) on 15th January 2011. The questionnaire was prepared in English and after approval it was translated to Bangla. The questionnaire was pre-tested in February 2011 before finalization.

2.3 Training and fieldwork

The questionnaire was pretested on 100 households in a rural area (Shaturia) and 100 households in an urban area in Dhaka district in February 2011. After pretesting some revision and modification were made based on the observations and feedback from the field and suggestions made by the pretesting teams.

Interviewers, data quality control officers and supervisors were recruited in last week of February 2011 based on educational background, experiences in the same line survey. Training for the survey team was conducted for three weeks from February 26, 2011 to March 19, 2011. Training included lectures and demonstration on how to ask questions to obtain the information, record and thus, complete the questionnaire. Field practice was also exercised.

Towards the end of the training course, the trained enumerators spent several days in practice by interviewing households in various locations nearer to Dhaka. Fieldwork of the NHDSBD-2011 was carried out by 3 interview teams, each team consisting of one male supervisor, one data quality control officer, four female interviewers and one logistics staff member. In the field, completed questionnaires were checked by the data quality control officer and supervisor to ensure data quality. Any problem detected was addressed and asked the field team to solve it. Data collection was started on the 25th March, 2011 and completed on the 24th March, 2012.

2.4 Data management and processing

After field level checking all questionnaires were periodically returned to Dhaka for data processing at Institution of Nutrition and Food Science. The data processing was started shortly after completion of fieldwork. It consisted of office editing, coding inserting food code, converting food consumed to edible portion, data entry and editing inconsistencies detected by the computer program. The data processing was done by eight data entry operators and four data entry supervisors. It was started on 1st June 2012 and ended on 31st October 2012. Finally, data analysis was carried out and tables were generated from the cleaned data using Microsoft Excel, Microsoft Access, STATA and SPSS.

2.5 Coverage of sample

Table 2.2 shows the results of the household interviews. A total of 7,530 households were selected for the survey but interviews were successfully completed in 6,274 households, or 83.32% of households. The principal reason for non-response among eligible interviewees was their absence at home and refusal for giving blood sample.

Table 2.2: Coverage of sample

	Urban		Rural		Total	
	Number	Percent	Number	Percent	Number	Percent
Total Household selected	2,280	100.0	5,250	100.0	7,530	100.0
Total Household occupied	1,900	84.4	4,374	83.3	6,274	83.3
Household response rate		84.4		83.3		83.3

3 Key Findings from NHDSBD-2011

3.1 Socio-economic profile of the household

This section provides information on the social, economic and demographic characteristics of the households included in the NHDSBD-2011. It presents information on household population characteristics such as household composition, family size, housing condition, household income and expenditure, source of light and electricity. This information is intended to assist in the assessment of the representativeness of the survey.

In the NHDSBD-2011, a household is defined as a person or a group of related and/or unrelated persons who usually live in the same dwelling unit(s), have common cooking and eating arrangements and acknowledge one adult member as the head of the household. A member of the household is the person who usually lives in the household. Visitor is someone who is not a member of the household but stayed in the household in the night before the interview.

Household population by age, sex and residence

The most important demographic variables are age and sex which are the primary basis of demographic classification in vital statistics, censuses and surveys. The distribution of the household population in the NHDSBD-2011 is shown in table 3.1.1 by five-year age groups, according to sex and urban-rural residence. The household population includes 31066 persons comprising 70% rural and 30% urban. Females constitute 51.24% of the total population.

Table 3.1.1: Household population by age, sex and residence

Age	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
<5	21.9	21.6	21.8	22.4	21.6	22.0	22.3	21.6	21.9
5-9	10.9	11.1	11.0	11.3	12.8	12.1	11.2	12.3	11.8
10-14	8.0	7.7	7.8	7.9	7.4	7.7	7.9	7.5	7.7
15-19	3.5	5.6	4.6	4.4	5.3	4.9	4.2	5.4	4.8
20-24	4.0	14.2	9.3	4.2	14.4	9.4	4.1	14.3	9.4
25-29	10.5	13.8	12.2	10.3	13.1	11.7	10.4	13.3	11.9
30-34	11.9	7.5	9.6	11.5	7.4	9.4	11.6	7.4	9.5
35-39	10.4	4.8	7.5	9.7	4.3	7.0	9.9	4.5	7.1
40-44	6.1	2.0	4.0	5.5	1.9	3.7	5.7	1.9	3.8
45-49	3.8	2.1	2.9	3.0	2.0	2.5	3.2	2.0	2.6
50-54	2.2	2.2	2.2	2.2	2.8	2.5	2.2	2.6	2.4
55-59	1.9	2.3	2.1	2.2	2.0	2.1	2.1	2.1	2.1
60-64	1.2	1.8	1.5	1.5	1.8	1.7	1.4	1.8	1.6
65-69	1.2	1.2	1.2	1.0	1.0	1.0	1.1	1.1	1.1
70-74	1.2	1.2	1.2	1.3	1.1	1.2	1.3	1.1	1.2
75-79	0.6	0.2	0.4	0.6	0.3	0.4	0.6	0.3	0.4
80 +	0.8	0.7	0.8	0.9	0.8	0.8	0.9	0.8	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total population	4479	4840	9319	10668	11079	21747	15147	15919	31066

The overall proportion of the younger age groups is substantially larger than the older age groups for each sex and both urban and rural areas. More than 41% of the household population is under 15 years of age and 21.9% is under 5 years age. Persons +60 years age accounts for just 5.1% of the total population and the proportion of the population age +60 years is somewhat lower in urban

(5.0%) than rural (5.2%) areas. Persons age 15-59 years, who are the productive human capital of the country, accounts for 53.5% of the total population.

Household composition

Table 3.1.2 shows that 70% of the households in Bangladesh compose 3 to 5 members. In HIES 2010 it was 65.2%. The corresponding figures for urban and rural areas are 71.7% and 69.4% respectively. Average household size is 5.0 members in Bangladesh; urban household size is slightly smaller than the rural household size.

Table 3.1.2: Mean size of household according to residence

Number of member	Urban	Rural	Total
1		0.0	0.0
2	0.1	0.1	0.1
3	19.8	17.4	18.2
4	28.6	26.9	27.4
5	23.3	25.1	24.5
6	13.3	14.5	14.1
7	6.2	8.2	7.6
8	4.1	4.2	4.2
9+	4.6	3.5	3.8
Total	100.0	100.0	100.0
Mean size of HH	4.9	5.0	5.0
Number of HH	1900	4374	6274

Income- expenditure

Table 3.1.3 provides information on monthly income and expenditure by the households and by per capita in urban, rural and national level. Average monthly income per household at current price was estimated at taka 11839. It was taka 11479 at the national level in 2011 (HIES 2010). Per capita monthly income was estimated taka 2368, which is 8% less than the per capita monthly income (taka 2553) as estimated in HIES 2010 at national level. This difference may be due to sampling fluctuation and other issues related to methodology of data collection. Average monthly expenditure per household at current price was estimated taka 8325 and per capita monthly expenditure was estimated taka 1665 at national level.

Table 3.1.3: Monthly income and expenditure of surveyed household (Taka)

	Urban		Rural		Total	
	Income	Expenditure	Income	Expenditure	Income	Expenditure
Mean (per household)	13728	9286	11018	7908	11839	8325
Mean (per capita)	2802	1895	2204	1582	2368	1665

Table 3.1.4 provides the percentage distribution of monthly expenditure of the households. It is seen that food accounts for 66.6%, 67.1% and 66.9% of total expenditure at urban, rural and national level respectively. HIES 2010 reported 54.81% monthly food expenditure per household and it was 62% of total expenditure per household in HFSNA 2009 (Household Food Security and Nutrition Assessment in Bangladesh 2009). Therefore percentage of monthly food expenditure has increased significantly in both rural and urban settings and it may be due to rising of food prices.

Housing condition and cooking facilities

The information about characteristics of households, including arrangement of lighting, main housing materials, number of bed room and the place and type of fuel used for cooking also collected in this

survey. In order to assess the general well-being and socioeconomic status of household members, these physical characteristics of a household are important.

Table 3.1.4: Percentage distribution of monthly Expenditure of surveyed Household

	Urban	Rural	Total
Food	66.6	67.1	66.9
Education	5.4	4.5	4.8
Medicine	4.1	3.6	3.8
Transport	5.0	4.2	4.5
Living	6.7	3.2	4.4
Clothes	6.2	5.3	5.6
Agriculture	2.4	9.2	6.9
Others	3.5	2.8	3.1
Total	100.0	100.0	100.0

Table 3.1.5 presents information on household characteristics. It is seen that 59.2% of all households has access to electricity and the second most common lighting arrangement is kerosin light- (43.7% in rural areas and 36.4% at national level. One of the most practical indications of the extent of crowding in households is the number of rooms used for sleeping. Crowding in one sleeping room facilitates the risks of infection. It shows that 44.2% households use only one room and 35.7% household use two rooms for sleeping nationally. Pattern of using the number of bed room is almost same in both rural and urban residence. The most common roofing material is tin and 88.3 percent of households live in dwellings with tin roofs. In rural households wall of the hose is mostly made of tin (43.9%) while in urban households it is concrete or cement (38.3%). Nationally 66.1 percent households have walls made of tin or concrete. The type of material used for floor is an indicator of economic standing of the household as well as an indicator of potential exposure to disease-causing agents. The most commonly used floor materials in Bangladesh are clay or earth. Three out of four households use earth or clay as the main floor material; it is 75.5% nationally. The other floor materials used in the country are cement or concrete- 40.2% of urban households has concrete floors. Earth floor is almost universal in rural areas (83%).

Nationally 81.2% households have separate kitchen for cooking. Those who have no separate kitchen, they usually cook in open space or share with others or do it in the living room. The indoor air quality and the degree to which household members are exposed to the risk of respiratory infections and other diseases is associated with the type of fuel used for cooking, the place where cooking is done and the type of stove or burner. Almost all rural households use solid fuels (95.3%) for cooking using wood and “*kharkuta*” which means agricultural crops, grass, straw, shrubs, animal dung, coal etc. In urban areas, 82.6% of the households use wood and “*kharkuta*”. About 89.9% households use wood burner which do not have any system for ventilating the indoor pollution from cooking fumes. Liquid petroleum gas (LPG) and natural gas is mostly used in urban areas.

3.2 Food Security

The concept of food security is a broader horizon encompassing a large number of aspects like agro-economic, infrastructural and social along with health and nutrition. Food security refers to physical and social access by all people at all times to enough food for a healthy productive life (FAO, 2000). Conversely, food insecurity exists when people lack transiently or persistently, access to sufficient quantities of safe and nutritious food required for normal growth and development and for an active and healthy life.

As per Millennium Development Goals one (MDG-1), Bangladesh by the year 2015 has to eradicate hunger, chronic food insecurity and extreme destitution. The essential elements of the concept of

food security are availability of food, ability to acquire it from the market and the ability to utilize the consumed food in the body system.

Table 3.1.5: Household characteristics: Percent distribution of households by housing characteristics according to residence

Household Characteristics	Urban	Rural	Total
<i>Arrangement of lighting in the house</i>			
Kerosin light	19.5	43.7	36.4
Electric light	77.1	51.4	59.2
Kerosin + electricity	2.0	1.9	2.0
Solar light	0.4	1.8	1.4
Generator light	1.1	1.1	1.1
Total	100.0	100.0	100.0
<i>No of bed room of the house</i>			
One	42.2	45.2	44.2
Two	34.4	36.3	35.7
Three	14.2	11.8	12.5
Four	5.6	4.0	4.4
Five and above	3.7	2.8	3.1
Total	100.0	100.0	100.0
<i>Roof materials of the house</i>			
Bamboo fencing/palm leaves/bamboo	2.4	4.6	3.9
Tin	85.4	89.6	88.3
Concrete	10.1	3.7	5.7
Taly	1.2	1.1	1.1
Others	0.9	1.0	1.0
Total	100.0	100.0	100.0
<i>Main material of the house wall</i>			
Bamboo fencing/palm leaves/bamboo	15.1	20.1	18.6
Tin	36.1	43.9	41.6
Concrete	38.3	18.4	24.5
Mud wall	9.1	15.0	13.2
Others	1.5	2.5	2.2
Total	100.0	100.0	100.0
<i>Main material of the house floor</i>			
Wood	0.4	0.4	0.4
Bamboo	0.7	0.9	0.9
Concrete	40.2	15.3	22.8
Ceramic tiles	0.6	0.4	0.4
Clay	58.2	83.0	75.5
Total	100.0	100.0	100.0
<i>Separate Kitchen in the house</i>			
Yes	82.4	80.7	81.2
No	17.6	19.3	18.8
Total	100.0	100.0	100.0
<i>If no Separate Kitchen then alternatives</i>			
Open space	56.9	70.3	66.5
Share with others	23.4	13.4	16.2
In the living room	16.8	13.4	14.3
Others	3.0	3.0	3.0
Total	100.0	100.0	100.0
<i>Type of fuel used for cook</i>			
LPG	2.7	0.8	1.3
Natural gas	13.4	2.7	6.0
Kerosene	1.2	1.2	1.2
Wood	61.8	66.0	64.8
Kharkuta	20.8	29.3	26.7
Total	100.0	100.0	100.0
<i>Type of burner use for cook</i>			
Natural gas burner	14.8	3.0	6.6
Kerosene burner	0.9	0.6	0.7
Wood burner	80.6	93.9	89.9
LPG	2.2	1.8	1.9
Friend burner	0.7	0.4	0.5
Electric burner	0.1	0.0	0.1
Others	0.6	0.2	0.4
Total	100.0	100.0	100.0

The supply or availability of food at national level is important but not enough for food security as there is high inequality in the distribution of income. Availability of food at the national or community level does not ensure its equitable access to all. At the household level, an individual can obtain

food from different sources. Acquisition of food from the market is mainly determined by the household economic status. Utilization of the nutrients available from the consumed food depends on infection-free health situation which ensure the nutritional security as well.

Food insecurity is a complex and multidimensional phenomenon on which vary through a continuum of successive stages as the condition becomes more severe. Each stage consists of characteristic conditions and experiences of food insufficiency to fully meet the basic needs of household members and of the behavioral responses of household members to these conditions. A variety of indicators is needed to capture the various combinations of food conditions, experiences and behaviors that, as a group, characterize each such stage. The full range of food insecurity and hunger cannot be captured by any single indicator.

Instead, a household level of food insecurity or hunger must be determined by obtaining information on a variety of specific conditions, experiences and behaviors that serve as indicators of the varying degrees of severity of the condition. Household surveys are usually used to get this qualitative measure of food insecurity.

In order to get a measure of a household food security, all respondents were asked whether they ever face any type of food shortage at any time of the year. It is revealed that 74.4% of all household responded never ever face any kind of food shortage indicating these households seems to be apparently food secured at least in term of quantity of food.

At national level, 14.4% household sometimes and 11.2% household often face food shortage (table 3.2.1). Rural households are more likely to face food deficit sometimes in the year than urban households (15.4% versus 11.9%).

Table 3.2.1: Ever face food shortage at household level

	Urban		Rural		Total	
	Number	%	Number	%	Number	%
Never ever	1480	77.9	3190	72.9	4670	74.4
Sometimes	227	11.9	674	15.4	901	14.4
Often	193	10.2	510	11.7	703	11.2
Total	1900	100.0	4374	100.0	6274	100.0

Households pass through different experiential and behavioral stages as food insecurity becomes more severe. Household food security measurement scales cover one or more of three main themes: (1) experiencing anxiety and uncertainty about the food supply, (2) altering quality of the diet and (3) reducing quantity of food consumption. A set of questions that describe behaviors in situations of increasing food insecurity are used in this survey.

In order to assess the degrees of severity of food insecurity condition among the households experiencing food shortage (total no 1604 or 25.6% of all he surveyed household) following questions are asked. Since this 'direct measure' of food insecurity is based on self-reporting behavior, it is often assumed that respondents' perceptions of the experience of food insecurity are fully reflected in their answers.

Among the households experiencing at least some sort of food shortage, 81% households sometimes and 14% household often remain anxious about the next meal (table 3.2.2). About 77%t of the households face the food shortage or deficit in a specific time of the year which indicates transitory or current food insecurity. Transitory or current food insecurity exists when a population suffers a temporary decline in food consumption. It can be due to seasonal factors or unexpected external events such as natural disasters. Transitory food insecurity may lead to chronic food insecurity.

Table 3.2.2: Food security situation in households experiencing food shortage (percent distribution)

	Urban	Rural	Total
<i>Remain anxious about what will eat in the next meal</i>			
Often	12.9	14.4	14.0
Sometimes	81.7	80.7	81.0
Never ever	4.5	4.4	4.4
Not applicable	1.0	0.4	0.6
Total	100.0	100.0	100.0
<i>Face this food shortage in any specific time of the year</i>			
Yes	69.0	79.2	76.6
No	31.0	20.8	23.4
Total	100.0	100.0	100.0
<i>Feel that all member of the family is not getting balanced food</i>			
Often	9.3	11.7	11.1
Sometimes	74.8	73.0	73.4
Never ever	12.1	11.4	11.6
Others	3.8	3.9	3.9
Total	100.0	100.0	100.0
<i>Borrow food from neighbor</i>			
Often	7.9	10.1	9.5
Sometimes	82.9	82.3	82.4
Never ever	9.3	7.7	8.1
Total	100.0	100.0	100.0
<i>Eat food less than 3 times a day due to shortage of food</i>			
Often	6.0	6.1	6.0
Sometimes	73.8	76.5	75.8
Never ever	19.8	17.4	18.0
Others	0.5	0.0	0.1
Total	100.0	100.0	100.0
<i>Child have/had to eat less food (Less than three times a day)</i>			
Often	2.1	3.1	2.9
Sometimes	15.5	19.4	18.4
Never ever	81.9	77.3	78.5
Others	0.5	0.2	0.2
Total	100.0	100.0	100.0
<i>Duration of children getting less food to eat (Less than three times a day)</i>			
1 day	3.8	3.8	3.8
2 days	2.1	4.0	3.5
3 to 10 days	3.8	3.6	3.7
11 to 15 days	0.2	0.3	0.2
Not applicable	90.0	88.3	88.8
Total	100.0	100.0	100.0

Respondents were asked whether all household members getting balanced food or not (after giving basic concept about balance food). Eleven percent said that all member of the family often and 73% sometimes not getting balanced food. About 10% household often and 82% household sometimes borrow food from neighbor as a coping strategy in food shortage situation.

In severe food shortage condition food intake for adults in the household has been found reduce. Adult of 6% household often and 76% household sometimes eat food less than 3 times a day due to shortage of food. In most but not all food-insecured households with children such reductions are not observed at this stage for children. In most severe level of food insecurity, children intake reduced food in all the households indicating children experience hunger. Children of 3% household often and 15% household sometimes had to eat food less than 3 times a day and duration of this condition sometimes remain three to ten days (about 4%). In all level food shortage or deficit in rural households is more severe than that in the urban households.

Per capita (per day) calorie intake is one of the most commonly used indicators for assessment of food insecurity and vulnerability at individual as well as household level. In this NHDSBD-2011 detail information on dietary intake was collected to investigate intake of energy, protein and other important nutrients at individual and household level. Result shows that overall per capita per day calorie intake is 2190 kcal which was 1868 kcal/capita/day in last Bangladesh national nutrition survey of 1995/96 by INFS of Dhaka University (Jahan k. 1998). In HIES 2010 the average calorie

intake was estimated 2318.3 kcal per capita per day which is 5.5 percent higher than the NHDSBD-2011 estimated calorie intake. In NHDSBD-2011, only “Edible portion” is converted into calorie and other nutrients rather than the “As purchase” portion. This may be the reason of difference or it may be due to sample fluctuation. Calorie intake differ according to residence in urban and rural settings (2207 kcal/capita/day in rural areas compared with 2151 kcal/capita/day in urban areas) and sex (male calorie intake is 2269.2 kcal/capita/day while female calorie intake is 2118.2 kcal/capita/day).

Table 3.2.3: Calorie intake (kcal per capita per day) by sex and residence

	Male	Female	Total
Urban	2221.4	2087.6	2150.6
Rural	2289.2	2131.4	2207.0
Total	2269.2	2118.2	2190.2

A recent study (Murshid et. al 2008) shows that energy requirement on the basis of observed body weight is 2076 kcal/capita/day and energy requirement on the basis of desired body weight is 2187kcal/capita/day for Bangladeshi population. About 53.3 percent household cannot fulfill per capita energy requirement based on observed body weight (i.e. 2076 kcal/capita/day) for all household members and when considering desired body weight basis requirement (i.e. 2187 kcal/capita/day), 60.1% household cannot fulfill the energy requirement for all household members. This result offers clearer scenario of energy deficiency at household level.

Table 3.2.4: Percent of household cannot fulfill per capita dietary energy requirement for all household members

Ages and sex	Observed body weight basis requirement ≤ 2076 Kcal [*]	Desired body weight basis requirement ≤ 2187 Kcal [*]
For all ages and sexes	53.3	60.1

*Murshid et. al ,2008

Poverty is the major cause of food insecurity. Different measures (e. g. income, expenditure and calorie intake) provide different figures regarding its incidence. There are three available approaches to measure poverty-(i) a direct method using information on calorie consumption, (ii) an indirect method using data on income/expenditure and (iii) a qualitative method using the perception of the respondents. None of these methods are comparable to each other across time and space (Ravallion and Sen, 1996).

The direct calorie intake (DCI) method used in poverty measurement emphasizes only on average calorie intake. In the present survey, according to the DCI method 35.9% household remain below hard core poverty line (per capita Kcal intake ≤1805kcal) and considering absolute poverty (per capita kcal intake ≤2122kcal) the figure is 56.1 percent.

Table 3.2.5: Percent of household below poverty line

Percent of households per capita Kcal intake ≤ 1805 kcal (Hard core poverty)	Percent of households per capita Kcal intake ≤2122 Kcal (Absolute poverty)
35.9	56.1

Inadequate household food security is one of the major underlying causes of malnutrition in Bangladesh. In order to improve the nutritional status, food security should be ensured at household level as well as individual level.

3.3 Sanitation and hygiene

Safe water and proper sanitation or hygienic disposal of human waste can significantly reduce morbidity such as diarrhoeal disease, upper respiratory infections, blindness, skin disease and

parasite infections. Like developing countries, people in Bangladesh are constantly battling a range of diseases related to lack of clean drinking water and sanitation and unhygienic practices.

Tube wells/tap water are the most common source of drinking water in both urban and rural areas. Nationally 94.4% household use tap or tube well water as drinking water. In rural areas, the rate was 95%, which is marginally higher than in urban areas (93.2%). However, these figures do not reflect arsenic free or contamination.

Taking arsenic contamination into consideration and the proportion of households using tubewell water as drinking water source, it is noted that overall 75.1%households' tubewell is free from arsenic contamination, 10.1% households' tubewell is contaminated with arsenic and arsenic status of 14.8% households' tubewell is not yet detected.

About 85% respondents knew that tubewell water is the source of arsenic contamination and 80% respondents have knowledge about the common signs and symptom (like injury in hands/ feet/ body) of arsenicosis. Most of the households do not feel to treat water as they use tubewell water. Where applicable, 4% households know that boiling is the most common method of drinking water treatment.

Table 3.3.1: Percent distribution of households by source of water, treatment of drinking water and arsenic situation, by residence

	Urban	Rural	Total
<i>Main sources of drinking water</i>			
Tap/Tube well	93.2	95.0	94.4
Well	1.6	2.0	1.8
Pond/Ditch	3.4	1.9	2.4
River/Canal	0.9	0.3	0.5
Fountain	0.1	0.7	0.5
Bottle water	0.7	0.1	0.3
Total	100.0	100.0	100.0
<i>Source water for cooking and utensils washing</i>			
Tap/Tube well	80.6	73.8	75.9
Well	0.8	1.3	1.2
Pond/Ditch	16.3	22.2	20.4
River/Canal	2.4	2.7	2.6
Total	100.0	100.0	100.0
<i>Treatment of water before drinking</i>			
Boiling	4.6	3.6	3.9
Use water purifying tablet	0.1	0.0	0.0
Use Fiteri	0.3	0.2	0.2
By filter	0.8	0.3	0.4
Don't purify	1.0	1.0	1.0
Tap/Tube well water so don't boil	93.2	95.0	94.4
Total	100.0	100.0	100.0
<i>Arsenic status in household drinking water</i>			
Arsenic free	75.5	75.0	75.1
Arsenic contaminated	11.7	9.4	10.1
Not detected yet	12.8	15.6	14.8
Total	100.0	100.0	100.0

Nationally 76% households use tap/tubewell water for cooking and washing utensils (like plate, pan etc) and second most common source of this water is pond or ditch (20%). Regarding the use of pond or ditch water for cooking and washing utensils the proportion of rural households is higher than proportion of urban households (22% versus 16%).

About 98.5% of the respondent thinks that the hand should be properly washed before cooking. However, 93.8%respondents practice it. About 97.8% of the respondent thinks that the hand should always washed before having food. It is noted that every member of 91.4% household wash hand before having food. Overall 36.8 percent households have separate bathing facility. However, this facility differs significantly according to the residence -rural 31.2% and urban 49.8%.

An improved sanitation facility is defined as one that hygienically separates human excreta from human contact. As Bangladesh is one of the world's highest population density, sanitation is a crucial issue here. According to the governments' National Sanitation Strategy of 2005, hygienic sanitation coverage is defined as individual or shared by maximum two households of the following types:

- Flushed and pour-flushed toilet/latrines to piped sewer system or septic tank*
- Pit latrines with slab and water seal or lid or flap*
- Ventilated Improved Pit Latrines*
- Composting latrines*

Thus, the Government considers a "hygienic" latrine to be one which confines faeces, has an intact water-seal or other tight pit closure and is shared by not more than two households. In the present survey, this national definition is adopted and termed as hygienic latrine. Though questions were asked about the sanitation facilities of the households to the respondents, it was ensured by observation when possible by the type of latrines.

Table 3.3.2 shows that overall 62.3% households have hygienic latrine facility. The proportion of urban households having the facilities is much higher than the proportion of rural households (urban 70.9% versus rural 58.6%). The remainder use either 'specific ditch/chari/well' (27.9%) or 'hanging/open latrine' (6.9%). About 3% of households in Bangladesh do not have a toilet facility.

Table 3.3.2: Percent distribution of the sanitation facilities of the surveyed households

	Urban	Rural	Total
<i>Type of latrine of the household</i>			
No Latrine	1.8	3.2	2.8
Open/Hanging latrine	4.1	8.1	6.9
Specific ditch/Well/Chari	23.1	30.0	27.9
Hygienic (Sanitary/Slab) Latrine*	70.9	58.6	62.3
Others	0.2	0.2	0.2
Total	100.0	100.0	100.0
<i>Ownership of latrine</i>			
Personal/Own	66.1	66.9	66.7
Govt. / NGO	0.7	1.0	0.9
Share with others	31.1	28.3	29.2
Others	2.1	3.8	3.3
Total	100.0	100.0	100.0
<i>Place of defecation of children less than 5 years old</i>			
In latrine (Pot)	19.8	19.1	19.3
In open/hanging latrine	2.5	4.9	4.2
Definite whole, well / Chari	3.4	4.0	3.8
Hygienic latrine (sanitary/Slab)	24.2	17.0	19.2
Open space	39.4	48.8	45.9
Beside the drain	0.1	0.1	0.1
Not applicable	2.3	2.1	2.2
Others	8.3	4.0	5.3
Total	100.0	100.0	100.0
<i>Way of cleaning when the children defecate in open space</i>			
Remove the stool and put it in latrine	54.0	61.2	59.0
Kept as it is	1.6	1.9	1.8
Don't defecates in open space	41.2	35.1	36.9
Others	3.2	1.8	2.2
Total	100.0	100.0	100.0
<i>All members use shoe/sandle while going to latrine/dirty place</i>			
Yes	89.4	83.6	85.4
No	10.6	16.4	14.6
Total	100.0	100.0	100.0

*This category includes flushed and pour-flushed toilet/latrines to piped sewer system or septic tank, pit latrines with slab and water seal or lid or flap, ventilated improved pit latrines, composting latrines.

It is seen that overall 66.7% of surveyed households have their own latrine and 29.2% share latrine with others irrespective of type of latrine. All members of 85.4% household use shoe/sandle while going to latrine/dirty place.

Disposal of infant/child excreta in latrine is an important indicator of household sanitation status. Regarding disposal of feces of children (under 5), 19.3% households use latrine (pot), 19.2% households use hygienic latrine and children of 45.9% household defecates in open place. Defecation of children in open places is more common in rural areas (48.8%), compared with 39.4% in urban areas. When the children defecate in open places, 59% respondents remove the feces and dispose it into the latrine.

Table 3.3.3 shows that 57.7% household dispose household garbage in specific ditch/places and the remainders dispose either in open space beside house (40.6%) or in any place (1.4%). The practice of disposing household garbage in specific ditch/place is significantly higher in urban areas (64.3%) than in rural areas (54.8%).

Table 3.3.3: Disposal of household garbage

	Urban	Rural	Total
Specific ditch/Place	64.3	54.8	57.7
Open space beside house	34.2	43.4	40.6
Here & there	1.2	1.5	1.4
Others	0.3	0.2	0.3
Total	100.0	100.0	100.0

3.4 Child Health and Nutrition

Bangladesh has made strong progress in the area of child health and now is on track to achieve Millennium Development Goal 4, that is, reducing child mortality. Factors contributing to rapid decline in under-5 and infant mortality include *impressive gains in the EPI (Expanded Program on Immunization), vitamin A supplementation, breastfeeding practice, use of ORS (Oral Rehydration Solution), diarrheal disease control, control of acute respiratory tract infections and accelerated by an improvement in the knowledge, attitude and practice regarding health issues.*

In order to find out the status of vaccination coverage of the children, the NHDSBD-2011 has collected information from mothers of U5 children whether they have completed the course of vaccination of their children or not (according to age) and it was found that about 92.2% of under five children has been immunized. Then mothers were asked whether they have vaccination card for their child and to show it to the interviewer. From the vaccination card, the completion of all doses of each vaccine was documented to the questionnaire. The vaccination coverage is almost similar in both urban and rural areas. The level of coverage for BCG, all three doses of DPT and polio vaccine is above 95%. Coverage is slightly lower (about 84%) for the measles vaccine. In case of Hepatitis B vaccine, coverage ranges from 72.8% for the first dose to 70% for the third dose. Only 1.7% of children age ≤ 5 years have not received any childhood vaccinations.

Table 3.4.1: Percent distribution Vaccination coverage of children (age ≤ 5 years) by residence

Vaccine	Has Immunized but incomplete according to age			Completed all doses according to age		
	Urban	Rural	Total	Urban	Rural	Total
BCG	97.8	98.3	98.1	97.3	98.0	97.8
Polio	96.7	97.2	97.0	96.2	96.8	96.6
DPT	95.0	96.1	95.8	94.3	95.7	95.3
Measles	82.0	85.1	84.1	81.8	84.7	83.9
Hepatitis-1	73.3	72.9	73.0	72.7	72.9	72.8
Hepatitis-2	71.2	71.3	71.3	70.7	71.1	71.0
Hepatitis-3	70.4	70.4	70.4	69.8	70.1	70.0

Diarrhea is one of the most common childhood illnesses in Bangladesh and contributes to malnutrition and death especially for children of U5 years of age. Most of the diarrhea related deaths in children is due to dehydration (loss of water and electrolytes from the body in liquid stools).

According to the result, nearly 4.5% of children had episodes of diarrhea in the two weeks preceding the survey. Among the children with diarrhea, for 36.1% children received advice or treatment from a healthcare provider and certified doctor. About 87.3% of children with diarrhea were given any form of increased fluids. Of the children with diarrhea 67% were given oral rehydration solution (ORS) or packet saline, only 4.1% homemade saline. Among the other diarrheal treatment, 16.3% were given antibiotic.

In order to regain the normal health and nutritional status, mother should give increased amount of fluids and foods along with normal feeding to children with diarrhea. In the NHDSBD-2011 mothers who had a U5 child with a recent episode of diarrhea were asked about the change of feeding practices during the diarrheal episode compared with usual practice. Only 13.4% of children with diarrhea were given more foods than normal during diarrhea, 43.8% given less, 35.7% was as before and about 4% given no food at all.

Table 3.4.2: Percent distribution of children (age ≤ 5 year who had diarrhea in the two weeks preceding the survey) by feeding practice during diarrhea

	Urban	Rural	Total
As before	29.5	38.0	35.7
Gave less than regular	50.0	41.5	43.8
Gave more than regular	12.8	13.7	13.4
Did not give any food	5.1	3.4	3.9
Can't remember	0.0	0.5	0.4
Others	2.6	2.9	2.8
Total	100.0	100.0	100.0

Acute respiratory infection (ARI) is another leading cause of childhood morbidity and mortality worldwide. Fever, cough, difficult or rapid breathing, or chests indrawing are the most common signs and symptom associated with severe respiratory infection. Early diagnosis and treatment can prevent a large proportion of mortality from the ARI.

In the NHDSBD-2011, symptoms like cough with rapid or difficult breathing, or chest indrawing are used as a proxy indicator for ARI. Mothers with U5 children were asked whether their children had symptoms of cough, rapid/difficult breathing and chest indrawing) of acute respiratory illness during the two weeks preceding the survey. Result shows that 2.5% of U5 children was reported to have had symptoms of respiratory illness. About 64.1% of U5 children with suspected ARI or pneumonia had taken advice and treatment mostly from qualified physician (29%), NGO worker (27.5%) or traditional doctors (25.3%).

The nutritional status of children is a reflection of their overall health status. Good nutrition is the cornerstone for their survival, health and development. Well-nourished children perform better in school, grow into healthier adults and are able to give their own children a better start in life. Malnourished children are at high risk of morbidity and mortality. Malnutrition during early childhood impacts on mental development and learning ability later in life.

In the NHDSBD-2011, data was collected on anthropometric measurements (height and weight mainly) from all age people to assess the nutritional status. In this section nutritional status of children aged ≤ 5 years are presented. Evaluation of nutritional status is based on the rationale that in a well-nourished population, there is a statistically predictable distribution of children of a given age with respect to height and weight. The US National Center for Health Statistics (NCHS) standard is one of the most commonly used reference populations recommended for use by the World Health Organization (WHO) and in this report it is used.

Three standard indices of physical growth that describe the nutritional status of children are *height-for-age (stunting)*, *weight-for-height (wasting)* and *weight-for-age (underweight)*. Indicators for

nutritional status can be expressed in Z-scores, or Standard Deviation Unit (SD), which show how the children differ from the mean.

Height-for-age is a measure of linear growth. A child who is below -2SD from the median of the NCHS reference population in terms of height-for-age is considered short for his/her age, or “stunted”. It is a condition reflecting the cumulative effect of chronic malnutrition. If the child is below -3SD from the reference median, then the child is considered to be severely stunted. A child between -2SD and -3SD is considered to be moderately stunted. Stunting reflects failure to receive adequate nutrition over a long period of time and may also be caused by recurrent and chronic illness. Height-for-age, therefore, represents a measure of the long-term effects of malnutrition in a population and does not vary appreciably according to the season of data collection.

Table 3.4.3 shows the nutritional status of U5 children as measured by stunting (height for age) indicators and residence. At national level the prevalence of stunting is about 40.2 percent in both girls and boys and the prevalence is higher (42%) in rural area than urban area (37%) in case of both sexes. Overall 17% children are severely stunted and in rural areas prevalence is higher than urban areas (about 18% versus 14%) in both sexes.

Table 3.4.3: Percent distribution of malnourished children age ≤5 years according to anthropometric indicator: height for age (stunting) by residence and sex

Cut off points (Z-scores)	Urban		Rural		Total	
	Male	Female	Male	Female	Male	Female
Severe (≤ -3SD)	14.5	14.4	17.6	17.8	16.7	16.8
Mild & Moderate (≤ -2SD)	22.2	21.8	24	24.1	23.5	23.4
Normal (> -2SD)	63.3	63.8	58.4	58.1	59.8	59.8
Mean (Z-scores)	-1.4	-1.5	-1.6	-1.6	-1.5	-1.5
Total	100	100	100	100	100	100
Total stunting (≤ -2SD & ≤ -3SD)	36.7	36.2	41.6	41.9	40.2	40.2

Weight-for-height measures body mass in relation to body length and describes current nutritional status. Children with weight for height more than -2SD unit and below the mean weight for height of the reference population are classified as wasted, while those with weight for height more than -3SD unit and below the average of the reference standard are considered severely wasted. As wasting or thinness is usually the result of a recent illness or acute nutritional deficiency, prevalence of wasting may vary considerably by season.

The prevalence of wasting at national level is 25.3% in girls and 22.3% in boys. There was no significant difference between the prevalence of wasting in urban and rural area but it is higher in girls than boys (25 % versus 22%) in both rural and urban residence. The proportion of severely wasted children is 6.5% in girls and 7.2% in boys. Severe wasting condition increases the risk of mortality.

Table 3.4.4: Percent distribution of malnourished children age ≤5 years according to anthropometric indicator : weight for height (wasting) by residence and sex

Cut off points (Z scores)	Urban		Rural		Total	
	Male	Female	Male	Female	Male	Female
Severe (≤ -3sd)	7.3	5.9	7.2	6.8	7.2	6.5
Mild & Moderate (≤ -2sd)	15.2	19	15	18.7	15.1	18.8
Normal (> -2sd)	77.5	75.2	77.8	74.5	77.7	74.7
Mean (Z scores)	-0.9	-0.8	-0.9	-1	-0.9	-0.9
Total	100	100	100	100	100	100
Total wasting (≤ -2sd & ≤ -3sd)	22.5	24.9	22.2	25.5	22.3	25.3

Weight for age is a measurement of both acute and chronic malnutrition. Children with weight for age more than -2SD unit and below the average weight of children of the same age in the reference population are considered moderately or severely underweight, while those with weight for age more than -3SD unit and below the standard mean are classified as severely underweight.

The prevalence of underweight (weight for Age) at national level is about 45% in both girls and boys. In rural area the prevalence is higher (45%) than the prevalence in urban area (43%) in both sexes. The proportion of severely underweight children is 17.3% in girls and 15.3 % in boys.

Table 3.4.5: Percent distribution of malnourished children age ≤ 5 years according to anthropometric indicator of nutritional status: weight for age (underweight) by residence and sex

Cut off points (Z scores)	Urban		Rural		Total	
	Male	Female	Male	Female	Male	Female
Severe ($\leq -3sd$)	15.8	15	15.1	18.4	15.3	17.3
Mild & Moderate ($\leq -2sd$)	27	27.6	29.9	27.4	29.1	27.5
Normal ($> -2sd$)	57.1	57.4	55	54.2	55.6	55.2
Mean (Z scores)	-1.6	-1.7	-1.6	-1.8	-1.6	-1.7
Total	100	100	100	100	100	100
Total underweight ($\leq -2sd$ & $\leq -3sd$)	42.8	42.6	45.0	45.8	44.4	44.8

In this survey, the prevalence of both wasting and underweight are significantly higher than other recent surveys like BDHS 2011. The main reason may be seasonal variation in the survey time and/or may be due to sample fluctuation. The NHDSBD-2011 was conducted throughout the whole year from March 2011 to March 2012 that included two lean seasons (March to April and mid-September to November). In lean seasons, food intake decreases significantly especially in rural areas. On the other hand, wasting represents inadequate intake of nutrition in the period immediately preceding the survey and may be the result of inadequate food intake or recent episodes of illness causing loss of weight and the onset of malnutrition whereas underweight reflects both recent and chronic malnutrition.

Breastfeeding is a unique source of nutrition and plays a crucial role in the growth, development and survival of infants. Essential care methods for newborns include initiation of breastfeeding within one hour of birth, given no prelacteal feeds, exclusive breastfeeding for the first six months of life; and given complementary foods from six months of age with continued breastfeeding up to 2 years of life.

The respondent consisted of women who have at least one child of age ≤ 5 years during the survey for the breastfeeding section. The present survey shows that 97.8% of women fed colostrum to their baby just after birth and 85.3% of women started breastfeeding within one hour of birth whereas 8.3% of women started breastfeeding within 24 hours.

Table 3.4.6: Percent distribution of children (age ≤ 5 years during the survey) who receive various liquid food other than breast milk (prelacteal liquid) after 3 days of birth by residence

	Urban	Rural	Total
Milk other than breast milk	24.9	27.4	26.6
Plain water	5.8	7.2	6.8
Sugar/Glucose water	27.5	34.3	32.2
Fruit juice	4.7	1.2	2.2
Water mixed with sugar & salt	3.5	3.1	3.2
Tin food	13.7	6.7	8.9
Honey	18.4	17.5	17.8
Others	1.5	2.6	2.2
Total	100	100	100

About 78.7% of respondent women did not give any liquid food other than breast milk after three days of birth. Among the children of age ≤ 5 years during the survey who received various liquid food other than breast milk after 3 days of birth, most common item was sugar/glucose water (32.2%) followed by milk other than breast milk (26.6%), honey (17.8%) and some other prelacteal liquids.

Exclusive breastfeeding for the first six months of life can help protect newborns and infants from different diseases, reduce the risk of mortality and promote healthy development. In this survey, overall rate of exclusive breastfeeding to six months of age is 63.4 percent and about 80.5 percent of children were given complementary food (mostly home-made: 66.4%) beside breastfeeding.

Vitamin A deficiency impairs the immune system of infants and young children increasing their chances of dying from common childhood infectious diseases. Bangladesh has made very good progress in reducing vitamin A deficiency among U5 children through vitamin A supplementation.

In the present survey, mothers who have U5 children were asked whether their child (≤ 5 years) had taken a vitamin A capsule within the six months preceding the survey. According to the survey result, about 92.3% of children age 0-59 months had received a vitamin A supplement in the last six months.

3.5 Maternal Health

The Government of Bangladesh is committed to achieving its targets for Millennium Development Goal 5: reducing the maternal mortality ratio (MMR) to 143 deaths per 100,000 live births by 2015 and increasing skilled attendance at birth to 50%. 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 care includes prophylaxis, early screening and treatment of diseases for the mother and the fetus. Antenatal care from a medically trained provider is important to monitor the pregnancy and reduce the risks for the mother and child during pregnancy and at delivery. In order to determine the quality of antenatal care, women who gave birth to children during the two preceding years of survey were interviewed. The result shows that 73.5% of women who had a live birth in two years preceding the survey received antenatal care from any healthcare provider (trained or untrained) at least once for the most recent birth.

WHO recommends a minimum of four antenatal visits based on a review of the effectiveness of different models of antenatal cares. WHO guidelines are specific on the content on antenatal care visits, which includes: blood pressure measurement, urine testing for bacteriuria and proteinuria, blood testing to detect syphilis and severe anemia and weight/height measurement (optional).

The result shows that 23.5% of the respondent women do not go for antenatal care visit, 17% go for one visit, 18.2% go for two visits, 14.5% go for three visits and 26.8% go for 4+ visits. In urban areas, the ideal no of visit (i.e. 4+) is higher (35%) than in the rural areas (23.1%).

Table 3.5.1: Percent% distribution of women who gave birth to children in the two years preceding the survey by number of antenatal care (ANC) visits, according to residence

No of ANC visit	Urban	Rural	Total
0	18.9	25.6	23.5
1	13.6	18.6	17.0
2	18.0	18.2	18.2
3	14.5	14.6	14.5
4+	35.0	23.1	26.8
Total	100	100	100

Knowledge about pregnancy related complications is important to avoid its life threatening consequences for both mother and fetus. About 67% of respondent women know about the five danger signs of pregnancy and 86% women have knowledge that it is essential to eat more than normal diet during pregnancy period.

Overall 61.6% of the respondent women received iron supplementation and 23.4% of women receive folic acid during their most recent pregnancy. During the ANC visits, blood pressure (39.3%) and weight (49%) were reported to be measured; collection of blood (26.3%) and urine (31.3%) samples and testing of ultrasonogram (28.2%) of the pregnant respondent women were performed during their last recent pregnancy.

Table 3.5.2: Percent distribution of women who gave birth to children in the two years preceding the survey by at least one check up of the listed parameter according to residence

	Urban	Rural	Total
Body weight	56.7	45.6	49.0
Blood pressure	47.7	35.6	39.3
Urine	38.9	27.9	31.3
Blood	34.9	22.5	26.3
Ultra sonogram	36.8	24.4	28.2

Neonatal tetanus is one of the principal causes of death among infants in many developing countries. It can be prevented by giving tetanus toxoid injections to mother during pregnancy. Usually a pregnant woman should receive at least two doses of tetanus toxoid to achieve protection for herself and for her newborn baby.

The NHDSBD-2011 collected data for the last birth in last two years preceding the survey to know whether the mother received any tetanus toxoid vaccinations during that pregnancy. It estimates the extent of tetanus coverage during pregnancy. Result shows that 63.8% of respondent women has taken at least two doses of tetanus toxoid during last pregnancy period.

The provision of taking assistance of skilled attendants during delivery can greatly improve birth outcomes and benefit neonate and mother health. It can be achieved by facilitating technically appropriate delivery procedures and accurate and quick diagnosis and treatment of complications arised. Having a skilled attendant at delivery is defined as assistance provided by a doctor, nurse, midwife or auxiliary midwife. In this survey, women who gave birth within the past two years were asked whether their first delivery was normal or not, 91.5% women said that it was normal. When same respondent women were asked about the delivery method of their last child, 85.2% delivery was with normal method (per virginal) (urban 78.3% and rural 88.2%) and overall 13.9% delivery was caesarean (20.5% in urban and 11% in rural areas) while 0.9% were others.

Postnatal care is an important component of maternal and reproductive health and is essential for safe motherhood and neonatal health. A large proportion of maternal and neonatal deaths occur during the 24 hours following delivery. In addition, the first two days following delivery are critical period for monitoring complications for both mothers and the newborns.

The NHDSBD-2011 result shows that 24.9% of respondent mothers had received postnatal care from a medically trained healthcare provider within 42 days after delivery and postnatal checkup for children is more common and better (37.5%) than for the mothers (24.9%).

According to the present survey, blade of delivery kits (24.9%) and blade from other sources (61%) is the most common instrument used to cut the umbilical cord. About 1.4% use bamboo strips to cut the cord. In case of 72% births, the instrument used to cut the cord was boiled before use and in 47.2% birth; no medication or other was applied to the cord after cutting and knotting it. In the present survey respondent women were asked whether they had received vitamin A capsule during the first two months after the birth of their last child or not. Result shows that overall 23.5% (urban 27.4%) and rural (21.8%) of women had received a vitamin A dose during this time period.

3.6 Nutritional status of the household members

In most of the national and international health and/or nutrition survey, young children and mothers are commonly addressed. This is because they are most vulnerable groups regarding these issues. Malnourished children are much more vulnerable than malnourished adult due to their inability to cope with morbidity. Good health and nutritional status of mothers is crucial for the children as well as for herself. Besides good nutritional status of all age people also important for their healthy and productive life.

The NHDSBD-2011 measured the height and weight of all age people to determine nutritional status. The Body Mass Index (BMI) is used to measure thinness or obesity and is calculated by dividing weight in kilograms by the square of height in meter (kg/m^2). A cutoff point of BMI <18.5 is used to define thinness or chronic energy deficiency and BMI ≥ 25 usually indicates overweight and BMI ≥ 30 indicates obesity.

Age range 15 to 49 years is commonly considered as reproductive age. Table 3.6.1 shows the nutritional status of household members of both sexes and age 15 to <49 years by residence. Overall nutritional status of 60.4% women and 62.9% men of age 15 to <49 years is normal, that is, they have normal BMI (18.5-24.99) while 24.8% women and 25.3% men are suffering from chronic energy deficiency or thinness (BMI <18.5) and 14.9% women and 11.8% men are overweight or obese (BMI ≥ 25).

Nutritional status of this age group significantly varies according to both sex and residence. Rural men and women are more likely to be undernourished or thin than the urban men and women but in case of overweight or obesity the scenario is totally reverse. The proportion of overweight and/or obese in both sexes is significantly higher in urban areas compared to the rural areas. Women of both rural and urban areas are more likely to be overweight or obese (12.6% and 20%, respectively) than men of both rural and urban areas (10.2% and 16% respectively).

Table 3.6.1: Nutritional status (BMI criteria) of household members (age 15 to < 49 years) by sex according to residence

BMI categories	BMI (kg/m^2) cut off point	Urban		Rural		Total	
		Male	Female	Male	Female	Male	Female
Moderate & severe thin	<17	8.2	10.2	8.8	9.9	8.6	10.0
Mild thin	17-18.499	13.9	13.1	17.7	15.6	16.7	14.8
Total thin	<18.5	22.1	23.3	26.5	25.5	25.3	24.8
Normal	18.5-24.99	62.0	56.8	63.3	62.0	62.9	60.4
Overweight	25-29.99	14.3	16.7	9.6	10.9	10.9	12.7
Obese	≥ 30	1.6	3.3	0.6	1.7	0.9	2.2
Total Overweight obese	≥ 25	15.9	20.0	10.2	12.6	11.8	14.9

Nutritional status of household members of age 49 to < 60 years by sex and residence are shown in the table 3.6.2. About 56% women and 63.4% men of this age group have normal BMI (18.5-24.99%) while 25% women and 26.2% men are undernourished or thin (BMI <18.5), and 19.4% women and 10.4% men are overweight or obese (BMI ≥ 25).

In urban areas men are more likely to be undernourished or thin than the women (27.6% and 20.3%) but in rural areas women are more likely to be undernourished or thin than men (27% versus 25.7%). The proportion of overweight and/or obese in both sexes is significantly higher in urban areas compared to the rural areas. Women of both rural and urban areas are about two times more likely to be overweight or obese (16.5% and 27% respectively) than the men of both rural and urban areas (9.7% and 12.4% respectively). Considering the obesity only, women are about 4 times more obese than the men (3.1% and 0.7% respectively).

Considering the nutritional status of adults (age ≥ 15 years), rural people are suffering from chronic energy deficiency or thinness more compared to the urban people. In contrast, urban people are

more likely to be overweight and obese than rural people. The proportion of overweight or obese women is higher than men in both rural and urban residence.

Table 3.6.2: Nutritional status BMI criteria) of household members (age 49 to <60 years) by sex and residence

BMI categories	BMI (kg/m ²) cut off point	Urban		Rural		Total	
		Male	Female	Male	Female	Male	Female
Moderate & severe thin	<17	12.4	12.1	12.0	12.6	12.1	12.4
Mild thin	17-18.499	15.2	8.2	13.7	14.3	14.1	12.6
Total thin	<18.5	27.6	20.3	25.7	26.9	26.2	25.0
Normal	18.5-24.99	60.0	52.7	64.5	56.7	63.4	55.6
Overweight	25-29.99	12.4	22.7	8.7	13.9	9.7	16.3
Obese	≥30	---	4.3	1.0	2.6	0.7	3.1
Total Overweight & obese	≥25	12.4	27.0	9.7	16.5	10.4	19.4

The ageing of population is an indicator of improving global health. In almost every country, the proportion of people aged over 60 years is growing faster than any other age group. This indicates both longer life expectancy and declining fertility rate. At the same time the specific need of older populations is increasing which draw attention to address their requirements separately and comprehensively. For a developing country like Bangladesh, this large population puts a lot of socioeconomic and health challenges. However, the existing information regarding this issue is not sufficient. Hence to explore the exact health and nutritional status of elderly people and their wants, the present survey collect information about the lifestyle, dietary pattern, disease prevalence and nutritional status of this older population.

Nutritional status of the older people (age ≥60years) by sex and residence are shown in the table 3.6.3. About 47.5% women and 52.3% men of this age group have normal BMI (18.5-24.99) while 38.4% women and 38.5% men are undernourished or thin (BMI <18.5) and 14.2% women and 9.1% men are overweight or obese (BMI ≥25).

Nutritional status of old age people significantly varies according to both sex and residence. Rural men and women are more likely to be undernourished or thin (40.3%and 41.7% respectively) than the urban men and women (33.6%and 31% respectively).The proportion of overweight and/or obese in women is significantly higher (about 2times) in urban areas compared to rural areas (22.3% versus10.6%).Urban men are more likely to be overweight and/or obese than the rural men. In case of obesity (BMI≥30), urban women are about 3times more obese than the rural women (5.8% and 1.6% respectively) and surprisingly there was no men found to be obsessed in both rural and urban area.

Table 3.6.3: Nutritional status (BMI criteria) of old age (age ≥60 years household members by sex and residence

BMI categories	BMI (kg/m ²) cut off point	Urban		Rural		Total	
		Male	Female	Male	Female	Male	Female
Moderate & severe thin	<17	19.6	17.3	21.8	27.6	21.2	24.4
Mild thin	17-18.49	14.0	13.7	18.5	14.1	17.3	14.0
Total thin	<18.5	33.6	31.0	40.3	41.7	38.5	38.4
Normal	18.5-24.99	55.1	46.8	51.3	47.8	52.3	47.5
Overweight	25-29.999	11.2	16.5	8.4	9.0	9.1	11.3
Obese	≥30	--	5.8	--	1.6	--	2.9
Total Overweight & obese	≥25	11.2	22.3	8.4	10.6	9.1	14.2

In order to assess the prevalence of common diseases, 1066 old age persons were asked whether they have any disease. Result shows that 32.4% of the old age people have gastric problem, 12.1% have hazy vision, 11.2% have knee pain, 7.5% have diabetes, 3.6% have digestive complication, 3.5% have dental problem, 3% have urinary difficulties, 2.8% have heart disease and 2.4% have hearing difficulty. In case of diabetes, prevalence is higher in urban old age people than the rural old age people (9.2% versus 6.8%).

Table 3.6.4: Percent distribution of common diseases of old age people (self -reported)

	Urban	Rural	Total
Diabetes	9.2	6.8	7.5
Heart disease	2.5	2.9	2.8
Kidney disease	0.3	0.7	0.6
Urine problem	4.4	2.4	3.0
Bone decay problem	0.6	0.8	0.8
Pain in knee	8.3	12.4	11.2
Bronchial Asthma	1.6	1.5	1.5
Teeth problem	2.5	3.9	3.5
Peptic ulcer	0.3	0.1	0.2
Digestion problem	2.5	4.0	3.6
Hazy vision	15.2	10.8	12.1
Hearing problem	1.9	2.7	2.4
Gastric	33.3	32.0	32.4
Diabetes+Heart problem	0.0	0.3	0.2
Diabetes+Kidney problem	0.0	0.1	0.1
Diabetes+Heartproblem+Kidney problem	0.3	0.0	0.1
Others	16.8	18.8	18.2
Total	100.0	100.0	100.0

3.7 Family planning

In the NHDSBD-2011, all of the respondents were asked whether they have adapted any kind of family planning method or not. If the answer is yes, then which method have they adapted currently for family planning and which one do they prefer most? Result indicates that about 83.7% of total respondent have adapted any of the devices during their life time and the percentage of using the family planning is slightly higher in urban areas (85.4%) than in rural areas (83%). About 52% of respondent women prefer taking pill as family planning method than the other methods.

The survey result shows that 76% respondents currently use any one kind of family planning method (urban 76.6% and rural 75.6%) and most of them use modern methods of family planning. Taking pill is the most widely used method (45.9% in both urban and rural) followed by injection for female (15.6%), male condom (5%), ligation (4.5%), vasectomy (1.3%) and IUD (1.1%). Use of male condom is higher in urban area compared to the rural area (8.4% versus 3.6%).

Table 3.7.1: Currently adapted method for family planning by residence

	Urban	Rural	Total
Taking pill	45.9	45.9	45.9
IUD	1.4	1.0	1.1
Injection for female	14.0	16.3	15.6
Male condom	8.4	3.6	5.0
Ligation	4.1	4.6	4.5
Vasectomy	1.2	1.4	1.3
Natural	0.3	0.9	0.7
Others	1.3	2.0	1.8
Don't use any method	23.4	24.4	24.0
Total	100	100	100

When respondents use more than one method then only most effective method was counted in this table.

In order to investigate the sources of family planning method, the respondents were asked from where they got the methods the last time. Result shows that pharmacy/shop (38.7%) is the most common source followed by health center (14.6%) and from health worker (12.8%). In rural area health center and health worker are more common source of family planning method compared to urban area.

Table 3.7.2: Sources of last contraception method adapted

	Urban	Rural	Total
Hospital/Medical college	6.6	6.1	6.2
Family Welfare Centre	0.5	0.8	0.7
Health center	13.7	15.0	14.6
Satellite clinic	1.6	1.3	1.4
Maternal & Child Welfare Centre	3.4	1.6	2.2
EPI centre	1.2	1.6	1.5
Health worker supplied	9.7	14.2	12.8
Bought from Pharmacy/shop	42.9	36.8	38.7
Others	2.1	2.3	2.2
Did not adapt any methods	18.3	20.2	19.6
Total	100.0	100.0	100.0

To collect the information on the knowledge and use of Menstrual Regulation (MR), women were asked if they have ever heard or ever use MR. About 72.2% women heard about menstrual regulation (MR) whether 7.3% women ever used MR.

Table 3.7.3: Percent distribution of women who have discussed family planning with their husband in the past three months by residence

Number of times discussed	Urban	Rural	Total
Never	28.8	28.3	28.5
Once or twice	39.8	41.7	41.1
Often	31.4	30.0	30.4
Total	100.0	100.0	100.0

Discussion with spouses facilitates the adoption of family planning method and its sustainability. In the NHDSBD-2011, the information was collected from respondent women about the conversation of family planning method with their husband in the previous three months. It is seen that about 30.4% women had discussed with their husband often about using contraceptive and 41.1% women discussed once or twice within three months.

3.8 Women empowerment

Empowerment is a complex concept. It may vary in cultures, persons, sexes, occupations and position in life. It may also differ with time and geographic location. Furthermore, men and women may have a different view on empowerment in general and in particular women's empowerment.

Women's empowerment is even more complicated and difficult to define and conceptualize than general empowerment. Women empowerment may specifically refer to economic uplift but also to increase wellbeing and transformation of power relations. It depends on social status and view. Empowerment may reflect itself women participation in social and political activities, thus ideally empowering other women as well (Majoor et al, 2009).

The economic definition of empowerment includes financial autonomy, access to opportunities and resources and financial decision-making while the psychological definition includes issues like self-esteem, self-worth, fulfillment and power to control and judge. Socio-cultural and legal issues, empowerment in relations like decision-making in the household and political empowerment are the other important components of women empowerment.

Even though the overall situation of women in Bangladesh has consistently improved over the last two decades, their status still remains in inferior position. There have been rapid gain in a number of social and economic domains; yet by most objective standards, the current condition and status of women and girls within Bangladeshi society remain low.

As women constitute approximately 50% of total population of Bangladesh, sustainable development is not possible without incorporating them in mainstream of national development activities. Economic empowerment of women upholds when they involve in any income generating activities other than household works. Respondent women were asked about their employment during the 12 months preceding the survey. Only 10% women had been employed in the previous 12 months and most of them worked in agriculture sector (about 27%) or were service holders (19%). Among the women reported being employed in the last 12 months, 80% women had been working for whole the year and about 14% worked seasonally.

Table 3.8.1 shows the percent distribution of employed women by the type of earnings they received (cash, in-kind, both and not paid). The result shows that 3.4% of all women being employed did not receive any kind of payment and situation is severe in rural areas than urban areas (4.6% versus 1.0%). Among employed women, 85% women earn only cash, 9% receive both cash and in-kind and 2.4% women receive payment only in-kind for their work. Women in urban areas are more likely to be employed for cash only (91%) than the women in rural areas (82%).

Table 3.8.1: Form of earnings of women who employed in the last 12 months according to residence

	Urban	Rural	Total
Cash only	91.4	82.2	85.3
Cash and in-kind	6.2	10.2	8.9
In-kind	1.4	2.9	2.4
Don't get any payment	1.0	4.6	3.4
Total	100.0	100.0	100.0

Having access to income does not indicate women empowerment. Women need to have control over their earnings in order to be empowered. In order to assess control over earnings, the survey asked women being employed in the past 12 months who are the main decision maker with regard to use of their earnings.

Table 3.8.2 shows that about 81% women being employed report that they decide jointly with their husband how their earnings are to be used while only 4.4% said that they decide alone and about 8% of women report that their husband alone decides how to use their earnings. There is no difference in the proportion of women in both rural and urban areas regarding using of earnings by herself or jointly with husband or by husband only.

Table 3.8.2: Percent distribution of women being employed in the past 12 months by control over their earnings

	Urban	Rural	Total
Women herself only	3.8	4.6	4.4
Jointly with husband	81.3	81.0	81.1
Husband only	8.1	7.9	7.9
Other members	1.0	1.0	1.0
Women and other person	5.7	5.6	5.7
Total	100	100	100

One of the fundamental components of women's empowerment is freedom of movement outside the home. In order to analysis the freedom of movement of the empowered women, NHDBD_2011 asked whether the women can move alone or with their young children to a health center or hospital to seek care for themselves or their children or with whom. The result shows that about 70% women could go alone or with children to the health center and hospital. The proportion of women restricted from going to the hospital or health center alone or accompanied only by their children is higher in rural areas (30%) compared with the urban areas (27.8%). Only 23% women used usually go to health center or hospital alone. The rest women usually go with husband (60%) or with other family members (10%) or with younger children (6%).

Table 3.8.3: Percent distribution of women by freedom of movement according to residence.

	Urban	Rural	Total
<i>Can go to healthcares alone or with the children</i>			
Can	72.2	69.6	70.4
Can not	27.8	30.4	29.6
Total	100.0	100.0	100.0
<i>Usually go to health center or hospitals</i>			
Women herself alone	23.3	23.0	23.1
With husband	57.3	61.0	59.9
With other members	10.5	10.0	10.2
With younger children	7.8	5.6	6.3
Others	1.1	0.3	0.5
Total	100.0	100.0	100.0

Economic empowerment alone does not give insight into the social context and the decision making process. Information about women's participation in household decision provides insight into women's control over their daily life activities. It is an important parameter/measure of women's autonomy and status. To assess the women decision making autonomy, the present survey collect information on women's participation in taking decisions regarding her own health care, her child's health care, major household purchases and procurement of daily household needs.

Table 3.8.4 shows the% distribution of women by her participation in household decision making activities according residence. Women are considered to participate in decision making if they make decisions alone or jointly with their husband.

Table 3.8.4: Percent distribution of women by women's participation in decision making by residence

Decision	Urban	Rural	Total
<i>Women's own health care</i>			
Women herself	10.2	8.7	9.2
Jointly with husband	70.6	72.8	72.1
Husband only	15.9	15.7	15.8
Other members	1.6	1.6	1.6
Women with other person	1.7	1.2	1.4
Total	100.0	100.0	100.0
<i>Major household purchase</i>			
Women herself	4.3	2.3	2.9
Jointly with husband	62.5	64.9	64.2
Husband only	26.8	27.4	27.2
Other members	2.2	2.8	2.6
Women with other person	4.3	2.7	3.2
Total	100.0	100.0	100.0
<i>Purchases of daily household needs</i>			
Women herself	1.4	0.8	1.0
Jointly with husband	60.7	61.3	61.1
Husband only	29.6	30.5	30.2
Other members	4.0	4.0	4.0
Women with other person	4.3	3.4	3.6
Total	100.0	100.0	100.0
<i>Child's health care</i>			
Women herself	17.9	16.5	16.9
Jointly with husband	65.4	68.8	67.8
Husband only	12.5	11.3	11.7
Other members	2.3	1.9	2.0
Women with other person	1.8	1.5	1.6
Total	100.0	100.0	100.0

The proportion of women play role in decision making in household varies with the type of decision. Only 9% women take decision independently about their own health care and 72% do it jointly with

their husband. In case of child's health care about 17% women decide independently and 68% do it jointly with their husband. Women with their husbands are most likely to make joint decisions regarding major household purchases (64%) and purchases of daily household needs (61%).

3.9 Domestic violence

"Violence against women is a deeply entrenched problem in most societies because attitudes and practices that support violence are institutionalized in custom and law at all levels of society – marriage and the family, home, community and state" (Johnson et al., 2008). Violence against women is amongst the most serious threats to overall development and progress in Bangladesh. In Bangladesh it is common that husbands exert their authority and physically assault wives for even minor mistakes such as an unsatisfactory meal, an untidy room, a conversation with another man, or any act of disagreement or disobedience. The Bangladesh government commits itself to respect, protect and fulfill the rights of women and to work towards the elimination of violence against women through international conventions, covenants and treaties.

Domestic violence, or violence perpetuated in the home or family environment, is a major social problem in Bangladesh. Domestic violence incidences are fairly common and widespread across the country. Women of all economic strata are vulnerable to maltreatment and abuse by husbands, in-laws and other family members. This universal crisis affects women's health as well as affects their social and economic lives.

Wife beating is the most common form of violence against women in Bangladesh and to collect information on women's attitudes towards wife beating, women were asked whether her husband has any specific justification such as go out without telling her husband, neglects the children, argue with her husband, do not obey elders, and refuse to have sex with her husband to hit or beat her.

To understand the perception of a women's own self-esteem or status, her attitude toward wife beating can be used as a good proxy indicator. A woman when believe that a husband is not justified in hitting or beating his wife for the reasons, then it reflects positively on her sense of empowerment and status. On the other hand, when a woman believes that a husband is justified in hitting or beating his wife for all of these reasons then it indicate that she may consider herself to be of low status absolutely and/ or relative to men.

Table 3.9.1 describes the percentage of women who agree with some specific reasons for wife beating by residence. Argument with husband (16%), used go outside out without telling her husband (15%) and neglects the children (15%) are common reasons for wife beating among women in Bangladesh. About 13% of women believe that a husband is justified in beating his wife if she disobeys the elders in the family and only 11% of women agree that refuse to have sex with husband is an acceptable reason for wife beating. Approvals of wife beating vary according to residence. Urban women are less likely to accept wife beating for any reason than the rural women.

During the survey, respondent women were asked about experiencing spousal violence. Though domestic violence is not an uncommon in Bangladesh, the exact prevalence of domestic violence is difficult to assess. It is due to cultural understanding, silence and sensitivity of the issues existing in the society. About 13% women had been beaten by their husband in the previous 12 months and 34% women have experienced violence at sometimes but not in the past 12 months.

Table 3.9.1: Attitude towards wife beating:% distribution of all women who agree that a husband is justified in hitting or beating his wife for specific reasons, by residence

	Urban	Rural	Total
Reasons			
Goes out without telling her husband	13.7	16.1	15.4
Neglects the children	13.4	15.2	14.7
Argues with husband	13.7	16.3	15.5
Refuse to have sex with husband	10.2	11.7	11.2
Does not obey elders in the family	11.2	13.8	13.0

As domestic violence encompasses a range of issues, the magnitudes of the problem are observed in various forms and facts. To identify the actual measurement of violence by removing the effect of variations in understanding and interpretation of what constitutes violence; in the present survey the respondent women were asked about specific acts of violence, instead of asking about the experience of violence in general.

According to the women's report, the result shows that slapping (34%) is the most common form of physical violence and the second most common act of violence is being pushed, shaken, or having something thrown at them (17%). About 16% women reported that their husbands have twisted their arms or pulled their hair and 13% women reported that their husbands have punched them with their fist or with something that could hurt them. The other forms of spousal violence are being kicked, dragged, or beaten (10%), tried to choke them or burn them on purpose (4%) and threatened or attacked with a weapon by their husbands (3.4%). In Bangladesh, incidences of all forms of violence are higher in rural areas compared to the urban areas.

Table 3.9.2: Different types of spousal violence (physical)

	Urban	Rural	Total
Push, shake or throw something	15.4	17.3	16.7
Slap	29.8	36.3	34.3
Twist arm/pulling hair	13.5	17.0	15.9
Punch with fist or with something that could hurt	11.3	13.3	12.7
Kick/ drag/ beat	8.6	10.0	9.6
Try to choke/burn on purpose	3.9	3.8	3.8
Threat/ attack with a knife or any other weapon	3.6	3.3	3.4

Table 3.9.3 briefs the responses given by women who report experiencing physical violence in the past 12 months when they were asked about the reasons of violence. About 28% women claimed experience of physical violence without any reason. Around 26% of women noted jealousy and 20% women reported financial crisis as the reason of violence. Other reported reasons include not taking care of the children (9%), husband drunk or drug addict (2.4%), food crisis (2.2%) and going out without asking her husband (2%).

Table 3.9.3: Reasons for spousal violence

Reasons	Urban	Rural	Total
Without any reason	23.4	30.38	28.36
Due to financial problem	23.4	19.10	20.35
Due to food crisis	0.43	2.95	2.22
Due to jealousy	28.51	24.31	25.52
Due to refuse of having sex	1.70	1.39	1.48
Due to not obeying the elders in the family	2.55	0.87	1.36
Due to ignoring the servant	0.85	2.43	1.97
Going out without asking husband	2.98	1.74	2.10
Mistrusted by husband	0.85	1.22	1.11
Due to mistrusted by wife	0.85	0.87	0.86
For Dowry	1.28	1.91	1.73
For not bringing money from wife's family	1.28	1.91	1.73
Not taking care of the children	8.94	8.85	8.88
As the husband is drunker or takes medicine	2.98	2.08	2.34
Total	100	100	100

Among the women who experienced any form of physical violence, only 14% discussed it with others indicating most women (85.6%) do not share it with other and 17% get assistance.

Table 3.9.4: Percent distribution of women discussing experience of physical violence with others and get assistance

	Urban	Rural	Total
<i>Discussed experience with</i>			
Friends	1.3	1.0	1.1
Parents	4.3	4.0	4.1
Uncle and aunt	0.0	0.2	0.1
Children	0.0	0.2	0.1
Mother in law	0.9	0.7	0.7
Father in law	0.0	0.7	0.5
Both father & mother in laws	0.9	2.1	1.7
Other relatives	1.7	1.2	1.4
Neighbors	1.3	1.2	1.2
No one	85.5	85.6	85.6
Chairman and member	1.7	1.7	1.7
Others	2.6	1.4	1.7
Total	100.0	100.0	100.0
<i>Type of help and cooperation received</i>			
Neighbor take away the husband	62.5	53.5	56.0
Advised to report to the Police	5.0	8.9	7.8
Advised to file a case against husband	12.5	8.9	9.9
Others	20.0	28.7	26.2
Total	100.0	100.0	100.0

It is interesting that the percent of women who received assistance (17%) is higher than the percent who shared the incidence of violence (14%). The explanation obtains from the% distribution of type of help and cooperation they received. About 56% women received help from neighbor (took away the husband). It means that the neighbor may have awareness of the violence without the women directly telling them or asking for any help. The most common person to whom women shared the experience is their own parents (4%).

3.10 AIDS/STDs/STIs/TB/NCDs related knowledge, attitude and prevalence (KAP)

HIV/AIDS is a manmade global societal and health problem. It is fueled by poverty, the inequality of certain sectors of society and the presence of Sexually Transmitted Infections (STIs). As a result the socio-cultural and economic as well as the health determinants for transmission of HIV/AIDS/STIs should be addressed.

Although Bangladesh reported its first HIV case in 1989, it is still confined to populations with high-risk behaviors. According to UNAIDS, the overall HIV prevalence in Bangladesh is 0.01%. Despite the low HIV prevalence, Bangladesh is considered to be at high risk for a wider epidemic due to several vulnerability factors such as IDUs, risky sexual activity, high prevalence of STIs, migration across borders from neighboring high HIV-burden countries; poverty; low awareness, gender inequity and HIV stigma.

The most effective preventive method is to increase current levels of knowledge and appropriate attitudes regarding HIV/AIDS prevention and transmission in the general population, especially among young and reproductive population.

To address HIV/AIDS challenge, respondents were asked about their knowledge on the modes of transmission, prevention and misconceptions. Result presents that around half of the respondent women are aware of each of the three major modes to reduce the risk of getting infection with HIV virus using condoms (49%), limiting sex to uninfected partner who has no other partners (54%) and

being refraining from sexual intercourse(50%) with others. Overall, urban women have greater knowledge on HIV prevention methods than the rural women.

Table 3.10.1: Knowledge about HIV/AIDS prevention methods: percent of women who said that people can reduce the risk of getting the HIV/AIDS by following ways

	Urban	Rural	Total
Condom use	55.6	46.1	49.0
Limiting sex to uninfected partner s	61.8	51.1	54.4
Being refrain from sexual intercourse	57.1	47.3	50.3

Among the non-sexual modes of HIV transmission, the most common ways are multiple use of non-sterilized syringe and unsafe blood transfusion. To assess the knowledge about transmission of HIV, the respondents were asked whether it is possible to get the HIV virus by using unsterilized needle or syringe and unsafe blood transfusion. The result indicates that 54% women know that the HIV/AIDS can be transmitted by unsterile needle or syringe use and 55% women know it can be transmitted via unsafe blood transfusion. The level of knowledge on HIV transmission is higher in urban women compared to the rural women.

Table 3.10.2: Knowledge of HIV Transmission (non-sexual route): % of women who said that people can get the HIV/AIDS by following two ways

	Urban	Rural	Total
Use of unsterilized syringe	61.8	50.9	54.2
Unsafe blood transfusion	62.9	51.6	55.1

As the prevalence of HIV/AIDS is low in Bangladesh, people have various misconceptions about the transmission, prevention and overall management of this disease. The most common conceptions about AIDS in Bangladesh include- good looking healthy person cannot have HIV/AIDS or HIV-infected people always appear to be sick and belief of HIV transmission through mosquito bite or by sharing food with HIV/AIDS patients.

Only 39%women know that the AIDS virus cannot be transmitted by mosquito bite, 37% women have knowledge that HIV cannot be transmitted or a person cannot be HIV infected by sharing food with a AIDS patient and 40% women believe that a healthy-looking person can have AIDS virus.

Table 3.10.3: Misconceptions about HIV/AIDS transmission among women: percent distribution

	Urban	Rural	Total
AIDS transmission by mosquito bites	46.4	35.5	38.8
AIDS not transmitted by sharing food with HIV/AIDS patients	44.4	34.4	37.4
Healthy person can have HIV/AIDS	45.6	37.6	40.0

The risk behaviors such as mainly unprotected sexual contact with HIV partner are responsible for transmission of both STIs and HIV. Sexually transmitted infections may cause ulcers that may lead easier and more efficient transmission of HIV from infected sex partner to other.

Only knowledge on HIV transmission and prevention measure cannot ensure the prevention of HIV. It needs conversion of the knowledge into attitude or behavior and finally to practice it. Women's attitude toward negotiating safe sex with husbands is an important determinant of practicing safe sex. In the present survey, women were asked whether a woman is justified in refusing sex with her husband when her husband is suffering STIs that can be transmitted through sexual contact. It results in that 64% respondent think that if a woman knows her husband has STIs, she is justified to refuse to sex with him.

The NHDSBD-2011 collects information about knowledge of STIs. It results in that about 34% of all respondent women know about diseases that can be transmitted through intercourse other than HIV/AIDS, nearly 9% of all women had ever heard about syphilis and about 10% of all women had ever heard about gonorrhoea. Knowledge in all three aspects is higher in urban women compared with rural women.

Table 3.10.4: Women's knowledge of Sexually Transmitted Infection (STIs) by residence

	Urban	Rural	Total
Knowledge about transmission of HIV/AIDS by sex other than HIV/AIDS	38.1	32.0	33.9
Ever heard about Syphilis	12.2	7.7	9.1
Ever heard about Gonorrhoea	12.8	8.2	9.6

The prevalence of STIs and/or STI symptoms is a useful proxy indicator for HIV transmission. In the present survey respondents who ever had sex in the past 12 months were asked, whether they had a disease contracted through sexual intercourse and result shows that only 2.4% women reported having had an STI in the 12 months prior to the survey.

Some of the common symptoms of STIs include discolored, foul smelling discharge from genitals, painful or painless ulcers, warts and rashes on genital organs and pain during urination. It is important to note that many STIs remain asymptomatic particularly in women and the infected person can continue infecting others without realizing that s/he is suffering from a STI.

The respondent women were also asked whether they had any bad smelling/abnormal genital discharge or had experienced a genital sore or ulcer discharge in the past 12 months. The result shows that 4.4% of all respondent women had bad smelling/abnormal genital discharge and in case of genital sore or ulcer is 2% only.

The actual incidence and prevalence of STIs are difficult to measure because many of the patients suffering from STIs conceal their diseases. However, the prevalence of the STIs is relatively low in the general population.

Table 3.10.5: Prevalence (self -report) of STIs and STIs symptoms during the last 12 months

	Urban	Rural	Total
Get infected by any disease through intercourse	3.1	2.0	2.4
Bad smelling/abnormal genital discharge	4.6	4.3	4.4
Genital sore/ulcer	2.2	1.9	2.0

Tuberculosis (TB) is one of the most ancient diseases of mankind. In spite of newer modalities for diagnosis and treatment of TB, unfortunately people are still suffering from this infectious disease. According to World Health Organization (WHO), tuberculosis is a worldwide pandemic disease. It is one of the leading cause of death among HIV infected people. The principal causative agent of human tuberculosis is *Mycobacterium tuberculosis* which mainly transmitted from an infectious source to susceptible persons primarily through the air (that is, through coughing, sneezing).

Improving knowledge about tuberculosis will increase treatment seeking tendency, case diagnosis and successful treatment. Thus, TB related morbidity and mortality will be reduced. However tuberculosis is a poverty-related disease. Therefore, improving overall lifestyle, household income, nutrition etc. will have an impact on reduction of TB burden.

In order to collect the information about level of TB awareness, women respondents were asked whether they have ever hear of the illness and whether it can be cured. It is shown that 95% women have heard of TB and, 88% respondent women believe that it is curable. Knowledge on TB cure is higher in urban (92%) than rural areas (86%).

Table 3.10.6: Knowledge about Tuberculosis, by residence

	Urban	Rural	Total
Ever heard of tuberculosis	96.6	93.9	94.7
Knows tuberculosis can be cured	91.6	86.0	87.7

The burden of chronic non-communicable diseases (NCDs) is rising in low and middle-income countries like Bangladesh, especially heart disease, stroke, hypertension, diabetes, cancer, chronic respiratory disease and kidney disease. NCDs deaths account for 60% of all deaths in the world and one in two deaths in the Asian region. Prevention programs and policies are in their early phase in Bangladesh and struggle to achieve priority because of the more established and pressing needs of infectious disease control. Reduction of morbidity and premature mortality due to the 'conventional' non-communicable diseases (NCDs) will require appropriate actions at all levels from primary prevention to treatment and rehabilitation in an integrated manner (HPNSDP, PIP: 2011).

To collect information about the prevalence of NCDs, the respondent women were asked whether any member of her family has high or low blood pressure/diabetes/heart disease/asthma/kidney disease/gastric/mental disease or not. The result is shown in the following table.

Table 3.10.7: NCDs prevalence among the respondent households: Distribution of household having at least one person with high or low blood pressure/diabetes/heart disease/asthma/kidney disease/gastric/mental disease

	Urban	Rural	Total
High/low blood pressure	36.6	33.1	34.1
Diabetic	8.2	4.2	5.4
Heart disease	8.1	7.3	7.6
Asthma	8.2	7.5	7.7
Kidney disease	7.4	5.1	5.8
Gastric disease	74.4	75.4	75.1
Mental disease	5.7	3.8	4.4

It is observed that 75% of the households have at least one person suffering from gastric complication. In case of other NCDs, high/low blood pressure is in 34%, asthma in 8%, heart disease in 8%, diabetes in 5.4% and mental disease in 4.4% of the surveyed households. However, this result reflects the prevalence of NCDs only among the household. Within the household it may be in more patients than one patient of the listed NCDs.. The prevalence of NCDs (except gastric) is higher in urban households compared to rural household.

To investigate the actual prevalence of diabetes in the NHDSBD 2011, blood sample was collected from men and women of ≥ 40 years of age to determine the blood glucose (mmol/L). Fasting blood glucose level (mmol/L) indicates that 10% men and 13% women (age ≥ 40 years) are diabetic. The prevalence of diabetes significantly differs according to sex and residence. The prevalence is higher in women than men and urban people are more likely to have diabetes than the rural people.

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Annexes

Technical Advisory Committee (TAC)

Dr. Sagarmay Barua, Professor and Ex-Director, Institute of Nutrition and Food Science, University of Dhaka
Dr. Md. Aminul Haque Bhuyian, Professor and Director, Institute of Nutrition and Food Science, University of Dhaka
Dr. Rezaul Karim, Professor (Rtd), Institute of Nutrition and Food Science, University of Dhaka
Dr. Shah Mohammad Keramat Ali, Professor (Rtd), Institute of Nutrition and Food Science, University of Dhaka
Quamrul Ahsan Chowdhury, Professor, Department of Sociology, University of Dhaka
Dr. Nitai Chakraborty, Professor, Department of Statistics, Biostatistics and Informatics, University of Dhaka
Dr. Tahmeed Ahmed, Head of Nutrition Program and a Scientist in the Clinical Science Division, ICDDR'B
Dr. Kaosar Afsana, Associate Director, Health Program, Brac
Dr. Mohammad Shuaib, Professor and Director, ISRT, University of Dhaka
Dr. M. Amir Hossain, Professor, ISRT, University of Dhaka
Dr. Lalita Bhattacharjee, Nutritionist, NFPCSP-FAO Bangladesh
Sayeda Sajia Mehjabeen, WFP
Mr. Shamim Ahmed, Jibita, Rangpur, Dinajpur

Technical Working Group (TWG)

Dr. Md. Nazrul Islam Khan, Professor, Institute of Nutrition & Food Science, University of Dhaka
Dr. Sheikh Nazrul Islam, Professor, Institute of Nutrition & Food Science, University of Dhaka
Dr. M. Akhtaruzzaman, Professor, Institute of Nutrition & Food Science, University of Dhaka

Research Team

Planning, design and implementation of the NHDSBD-2011 have been completed by active supervision of

Dr. Md. Nazrul Islam Khan
Dr. Sheikh Nazrul Islam
Dr. M. Akhtaruzzaman

Field survey team

Enumerators

Shima Khatoon	Mili Baral
Arpana Mallick	Salina Khatoon
Jesmin Akter	Sorna Akhter
Salma Akter	Taslima Akhter
Golenoor Akter	Tahsana Azima Azim
Kakuli Gharmi	Nasin Akhter
Rubina Akter	Lubna Zaman
Tanvir Hoque Aly	Shajada Khatoon

Field Supervisors

Md. Jahangir Alam Molla
Md. Moniruzzaman
Md. Abdur Rahman

Quality Control Officer

Noor Mohammad Siddiki
Md. Kabir Ahmed

Medical team

Paramedics of the respective survey areas
Dr. Sheikh Khalid Saifullah Sadi

Laboratory team

Parveen Begum, MS, M. Phil., PhD student
Mahbuba Kawser, MS, M. Phil., PhD student
Sadia Sartaz, M. Phil student
Tania Rahman, M. Phil student
Samia, Sams, M. Phil student
Shah Md. Anayet Ullah Siddiqu, MS

Data coding team

Nilufar Begum
Shabina Yesmin
Fahmida Jerin
Maksuda Akhtar
Shahela Akhtar Nasrin

Data entry and cleaning by

Touch IT Solutions Ltd.
Road# 35, House # 13 (4th floor), Gulshan 2, Dhaka-1212

Data editing and analysis by

Mahfuzul Kabir Data Analyst, Data Analysis and Technical Assistance (DATA),
Lalmatia, Dhaka

Dr. Md. Nazrul Islam Khan

Result compilation, interpretation and report writing by

Dr. Md. Nazrul Islam Khan
Dr. Sheikh Nazrul Islam
Dr. M. Akhtaruzzaman
Fahmida Akter, Research Associate, NHDSBD-2011