



## **Food Security and Food Consumption Pattern among Poor People of Sylhet Division**

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### **Abstract**

Food is a necessity to have a healthy life thereby food security is one of the key development priorities in Bangladesh. This study attempts to investigate the household food security condition and consumption pattern in poor people of Sylhet division. The study conducted among the poor people of Sylhet division using secondary data from NHDSBD-2011 which is the fifth national survey addressing nutrition, health and demographic issue of the mass people of Bangladesh. Microsoft Excel and SPSS version 21 were used to undertake the data analysis. From the available data food security condition, different food group intake, nutrient intake, physical activity level and energy balance were studied. Almost 80% of the households were found to be food secure. Food security condition improved with increased household income. Except for fish consumption all major food group intake was low compared to the desirable dietary guideline. Females were more active than males. Both genders were found to be in negative energy balance (male: -203 kcal and females -207kcal): Though most of the households were food secure, they were in negative energy balance. Appropriate intervention program should be launched to improve the nutrition situation. Policy-makers should emphasize on policies that would promote behavioral change in making healthier food choices.

**Keywords:** Food Security, Consumption pattern, Physical activity, Sylhet, Energy balance

### **1. Introduction**

Food is a necessity to have a healthy life thereby food security is one of the key development priorities in Bangladesh (Parvin, 2013). According to FAO, food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (Rahman et al., 2020). In Bangladesh food insecurity situation is alarming. Population expansion along with declining land-to-human ratio has made food security an utmost need (Islam and Science, 2012). Similarly, improving the nutritional status of the country people is not only a concern but also a constitutional duty of the Government (Chowdhury et

al., 2013). Food availability and food consumption pattern are known to have positive elasticity with income. It is perplexing that food insecurity in Bangladesh perpetuates in spite of the country's stable economic growth of more than 6% (Raihan et al., 2017). It might be due to inappropriate distribution of the produced food.

Sylhet is a deluge-prone area where crop production is hampered almost every year. So shortage in crop production, leads the households to food insecurity, which can lower productivity and thus, push poor families into poverty (Chowdhury, Islam and Sathi, 2019). It has been reported that 30-50% children born

in Sylhet are being stunted (Das and Gulshan, 2017). The people of Haor adapt extreme coping up mechanisms to survive food insecurity, which affects the young children, especially in terms of nutritional aspects (Mozdalifa, no date). Moreover, Cereals are the major source of energy in Bangladeshi diet. People tend to meet all their dietary needs with cereals, thus, the regular diet considerably lacks in variation (Hossain, Naher and Shahabuddin, 2005). Balanced diet is a necessity for people of all ages. Adequate quantity and quality nutrients in the diet should be given for ensuring a healthy and disease-free life. Therefore, Food security policy should focus on ensuring a balanced diet for all (Begum, Hossain and Haese, 2013). Lack in dietary diversity can be the underlying reason of under nutrition even having food security. Therefore, investigation of the food consumption pattern is of utmost importance.

There is a lack of data on division-wise information about food security, consumption pattern. This study attempts to investigate the household food security condition and food consumption pattern among poor people of Sylhet division. The findings of this study may help in shaping strategy of different Government and Non Government Organizations which are working to improve the health, nutrition and food security.

## 2. Methods

**2.1 Study design:** The study was conducted using secondary data collected from the Nutrition, health and demographic survey of Bangladesh – 2011. It is the fifth national survey addressing nutrition, health and demographic issues of the mass people of Bangladesh. The study was conducted focusing on Sylhet division including Habiganj, Shunamganj, Maulavibazar and Sylhet district. Poor people who consumed less than 2100 kcal were included. A multistage stratified random sampling technique was used for sampling in the NHDSBD-2011. From the 1000 Primary Sampling Unit for whole Bangladesh, 14 PSUs comprising 350 households were included in this study. Socioeconomic condition, household food security situation, intake of different food groups, and physical activity level were also identified.



Figure 1.1: Map of Bangladesh (Indicated Sylhet Division)

**2.2 Data Analysis:** Microsoft Excel and SPSS (version 21) were used for data entry and analysis. Descriptive study and chi square test were conducted. Food security was calculated by the information of food shortage which was provided by interviewed population. In this study, physical activity level (PAL) was estimated.

Calorie consumption and macro and micro nutrient consumption difference were analyzed in comparison

to income and sex. Energy gap was calculated from the difference of energy intake and expenditure.

### 3. Results

Socio demographic profiles of all the selected households were studied. Table 1.1 presents the percent distribution of households by district. Highest study households are from Sylhet district, it is 125 out of 350 households. From the rest district the number of household is same.

**Table 1.1: Percent Distribution of Households by District**

District	N	%
Hobigonj	75	21.4
Moulavibazar	75	21.4
Shunamgonj	75	21.4
Sylhet	125	35.7
Total	350	100.0

Data source: NHDSBD 2011

Table 1.2 presents the socio-economic profile of respondents. Results show that, about half of the respondents were below age 30. Almost all respondent were married (99.3%). The vast majority of the respondents (97.7%) were Muslims. About half of the respondents didn't have any education. Total result shows that women were more educated than men. Monthly income of 50% respondent was in the lower range.

Food security status of Sylhet was analyzed. About 80.3% of the households were food secure, 18.2% were mild to moderately food insecure and 1.4% were severely food insecure. (Data not shown).

**Table 1: Socio-demographic characteristics of the households (n=350)**

Socio-demographic characteristics		Total N (%)
Age	30 or below	371(53.1)
	31-50	304(43.5)
	>50	24(3.4)
Marital status	Unmarried	2(0.3)
	Ever Married	697(99.7)
Religion	Muslim	683(97.7)
	Hindu	16(2.3)
Education	No education	338(48.4)
	Upto Primary	196(28)
	Upto Secondary	165(23.6)
Income BDT	Low Income ( 7000)	350(50.1)
	Middle to high income (>7001)	349(49.9)

Table 2 presents the percent distribution of the status of food security of household by income. Prevalence

of food insecurity is higher in low income population than lower middle to high income population.

**Table 2: Percent Distribution of Food Security Status of Household by Income**

Food security status	Income level	
	Low income	High income
Food secure	124(70.5)	157(90.2)
Mild to moderate food insecurity	49(27.9)	15(8.6)
Severe food insecurity	3(1.7)	2(1.1)

**Table 3: Food Consumption (gm/person/day) by Food Groups and Income Level**

Income levels	Food group consumed (gm/person/day)						Total
	Cereal	Vegetable	Pulse	Meat	Fish	Sugar	
Low income	349.7	192.5	12.0	8.2	89.5	10.7	662.6
Middle to high income	351.7	221.6	10.6	22.2	129.5	16.3	751.9
Overall	350.7	206.9	11.3	15.2	109.4	13.5	707.0

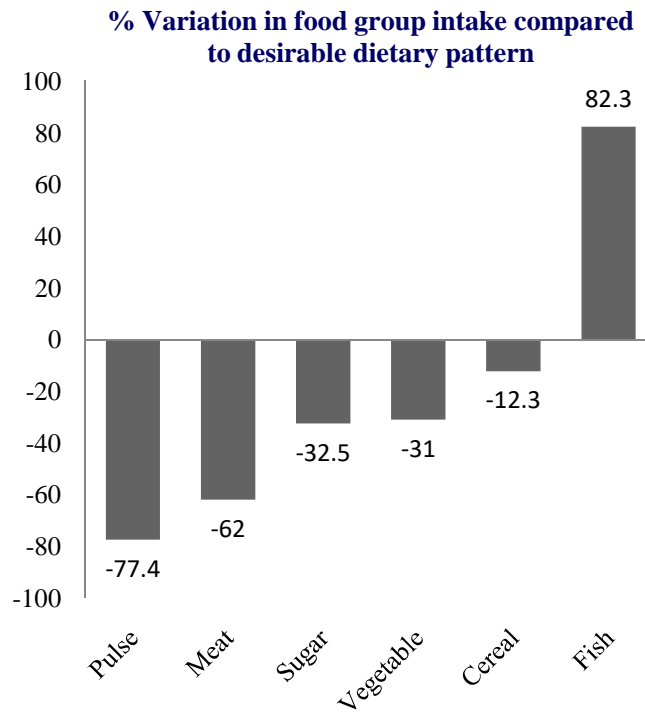
The food consumption (gm/person/day) by food groups and income level is exhibited in table 3. The consumption of every food group except pulse is increased with rising income level. Meat consumption increased by almost three times (from 8g to 22g) with income rise.

Figure 1 exhibits percent variation in mean food consumption to desirable dietary guideline. It can be seen from the figure that, the study population tend to consume all the food groups lower than their recommended amount except for fish.

Table 4 and 5 show the calorie, macro and micro nutrient intake (per capita per day) by sex and income

level (per capita per month). Calorie and all nutrient intakes were lower in low-income people than lower middle to high income people. As follows, intake of calorie and all nutrients in women is lower than male.

Figure 2 presents the percent distribution of adult male and female according to PAL value. Almost 30% of the males were engaged in light activity whereas only 9.4% in females were in that group. About 20% of the males were vigorously active and the percentage was two times higher in females. Almost one quarter of both genders were engaged in high physical activity (PAL >2.4). The overall result shows that female were more active than males.



**Figure 1: Percent variation of food consumption pattern from desirable dietary pattern [12]**

Figure 3 represents data on mean energy consumption, energy expenditure and energy balance of adult population. Energy consumption and energy expenditure both were high in males on average

almost 400 kcal compared to females. It indicates that both genders were in negative energy balance (male - 203kcal ; female -207kcal ). Females were facing more energy gaps than males.

**Table 4: Calorie and Macro Nutrient Intake (per capita per day) by Sex and Income Level**

Income	Sex	Energy (Kcal)	Protein(gm)	Fat (gm)
Low income	Male	2088	58	20
	Female	1746	52	18
	Total	1907	55	19
Lower middle to high income	Male	2053	61	25
	Female	2010	59	27

#### 4. Discussion

The aim of this study was to evaluate food security status and food consumption pattern of poor people in Sylhet division. Sylhet is a poverty stricken region. Almost half of the total study population belonged to the lower income group. Two out of every ten households were food insecure in Sylhet division. Even though majority was food secure, they had limited food diversity. All food group intakes were considerably lower (except fish) in Sylhet compared to the desirable dietary guideline (Nahar *et al.*, 2013). It implies that more than half of total available food

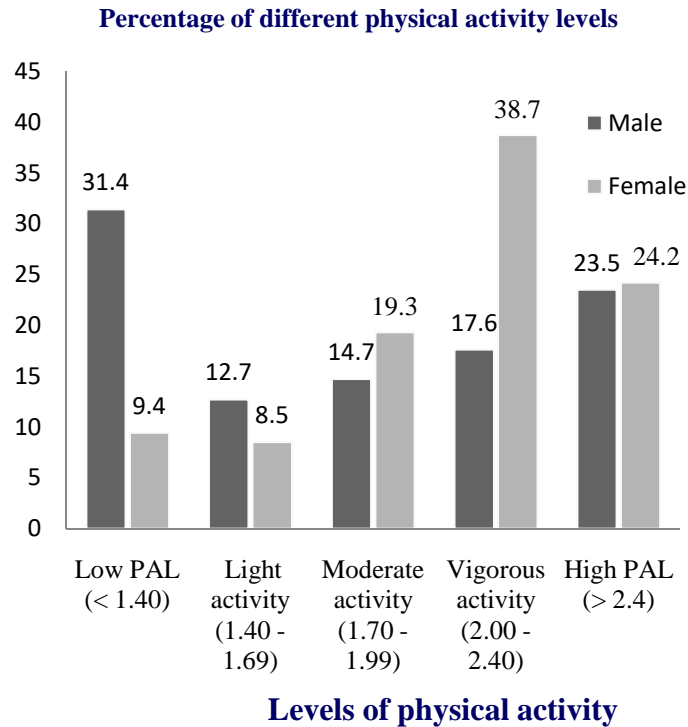
comprises cereals in rural households' diet. As cereal (Rice) is the staple food of the country, people tend to over consume it (Chowdhury, Islam and Sathi, 2019). From HIES report, mean per capita cereal intake is about 486 gm in rural communities (Bangladesh Bureau of Statistics (BBS), 2010). Other studies also indicate that people tend to fulfill their requirement of energy and protein both from cereal rich diet (Begum, Hossain and Haese, 2013). Low income level or depending on cereal based foods for daily energy requirement might be the reason for limited dietary diversity among the study population.

**Table 5: Micro Nutrient Intake (per capita per day) by Sex and Income Level (per capita per month)**

Income	Sex	Calcium (mg)	Iron (mg)	Vitamin-C (mg)	Carotenes (µg)	Retinol (µg)
Low income	Male	459	28	59	3788	709
	Female	434	24	58	3782	728
	Total	446	26	58	3785	719
Middle to high income	Male	591	30	74	4152	819
	Female	570	26	73	4188	813
	Total	580	28	74	4171	816

Moreover, a considerable portion of the study population is illiterate. Lack of knowledge can also influence their diet pattern. With an increase in income there was an increase in animal source protein consumption and plant protein consumption lowered with income rise. Food insecurity was higher in low income population than lower middle to high income population. Hence, calorie and all nutrient intakes were lower in low income people than to high income people. From existing literature, it has been found that, calorie consumption in whole Bangladesh excluding Sylhet is 2148 kcal among the lower income group and 2300 kcal among the lower middle to higher income groups (Akhtaruzzaman *et al.*, 2013). But according to the recent study, it was almost 250 kcal lower irrespective of the income groups in Sylhet.

With increasing income all kinds of macro and micro nutrient intake improved. Due to change in preference with income, the consumption pattern changes and people tend to substitute low nutritious food with nutrient-rich foods (Chowdhury, Islam and Sathi, 2019). Intake of calorie and all nutrients in women was lower than male. Males were found to have high intakes of almost all nutrients irrespective of the income group. Males being the earning members of the house get more care towards their diet by family members and again traditional practice dictate better diet for the earning members of the family (Food and Agriculture Organization (FAO), 2007). This might be the underlying reason for their good quality of diet even in the households with lower income.



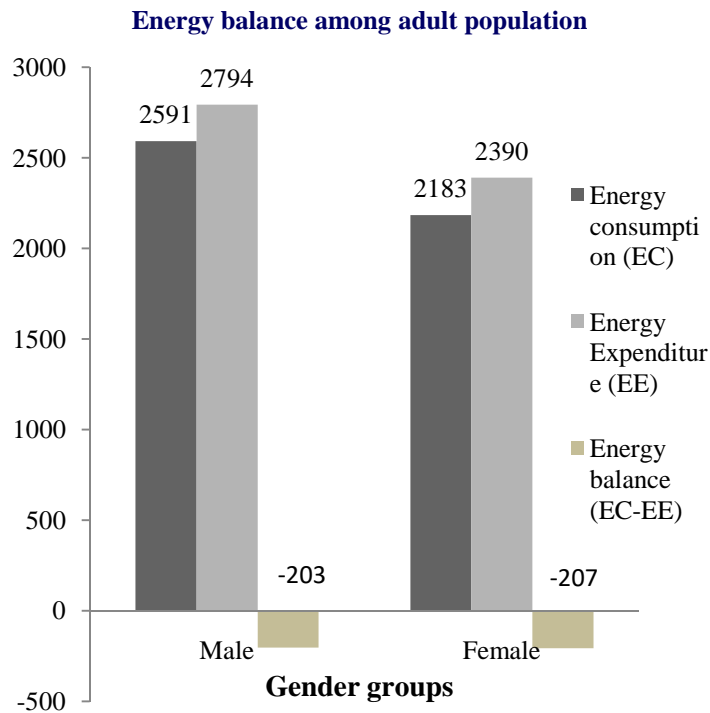
**Figure 2: Percentage of different physical activity levels**

Females were found to be more active than males according to the study findings. This might be because along with the household chores they had to assist the males and the children with their works. So their average activity level was higher. As they were more active and found to consume less they were facing more energy gaps compared to males of the same households. All these issues should be addressed for having a better health status in Sylhet division.

**Strength and Limitations**

The study was done by using nationally representative data. To identify the condition of Sylhet it included the

major districts of the entire division. A large number of samples were studied. It presents an overview of the Sylhet division. All these were the strengths of the study. There were several limitations of the study. Respondents were hesitant to give information about their family income and what they ate the previous day. The researchers could not apply updated procedure for calculating food security. The quantity of food measurement was not absolutely accurate. A long time follow up study is needed to know proper picture. Nutrition education and behavioral change programs need to be conducted to teach this population. Appropriate intervention program should be launched to improve the nutrition situation.



**Figure 3 Energy Balance (in kcal) of Adult Population**

## 5. Conclusion

The study evaluated the food security status and consumption pattern of the population of Sylhet division. Majority of the households were food secure. Energy consumption was lower among the study population, which indicates the absolute poverty. Cereals dominate as energy sources among the rural diets. The foods consumed were less diversified. Entire study population was found to be in negative energy balance. Appropriate intervention program should be launched to improve the nutrition situation. Less income inequality in the economy may also be conducive to improve national food security. For ensuring food security and diversity, policymakers should emphasize on policies that would promote behavioral change in making healthier food choices.

## Statement of Competing Interests

The authors have no competing interests.

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How to cite this article:

Suraiya Perveen, Sneha Sarwar, Md. Nazrul Islam Khan, Sheikh Nazrul Islam. (2021). Food Security and Food Consumption Pattern among Poor People of Sylhet Division. *Int. J. Adv. Res. Biol. Sci.* 8(4): 19-27. DOI: <http://dx.doi.org/10.22192/ijarbs.2021.08.04.003>