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Research Paper

Attaining Sustainable Food Security In Bangladesh: An Analytical Approach To The Different Economic Situations

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ABSTRACT
Achieving food security remains as a major concern in the development endeavor of Bangladesh. The country has been successful in avoiding hunger through its policies of feeding the people with cereals for which the consumption pattern is heavily dependent on carbohydrate. On the other hand other food elements get less emphasis in the food basket. This kind of imbalanced diet pattern is found in the people of different economic status. Although acute hunger is no longer a problem for the country the study found only 24.8% people able to receive the recommended amount of calorie. Again Only 5.9%, 42.7% and 23.2% people able to receive the recommended amount of protein, vitamin and fat respectively. As a result persistent undernutrition problem existent among the population. Being a resource constraint country, Bangladesh is not in a position to bear the burden of productivity loss and the reduced potentiality of its future generation. Therefore, to attain food security the policy makers should give emphasis on the consumption pattern of people of different economic status as well as the availability and accessibility of food for all.

KEY WORDS
Consumption pattern, food security, different economic status and nutrient.

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I. INTRODUCTION

Food consumption pattern is an important determinant of attaining food security. The components, the quantity and quality of food constitute the food consumption pattern. With available household-level information on individual food items consumed, their shares in total consumption, frequency of intake and nutrient composition, it is possible to make general assessments of their consumption pattern. An imbalanced consumption pattern with inadequate quantity and poor quality make the attainment of food security difficult. A country's consumption pattern depends on biological, social, economic and psychological factors and these factors differ from country to country. A consumption pattern with diversity in the food consumption basket and right quantity can satisfy the nutritional need of the people. Consequently a country can have an active and healthy population who can give their full potential in their country's development endeavour and can provide their effort to achieve food security.

Consumption pattern changes over time, being influenced by many factors and their complex interactions. Income, prices, individual preferences and beliefs, cultural traditions, as well as geographical, environmental, social and economic factors all interact in a complex manner to shape consumption patterns. Changes in these factors bring a palpable change in consumption pattern of any country or community in the passage of time. A person's economic position is defined in various ways and defining in terms of calorie intake is one of them. According to Household Income Expenditure Surveys (HIES) conducted by Bangladesh Bureau of Statistics (BBS) there are three categories of people based on how much calorie they receive per capita per day. People who received 2122 kcal and 1805 kcal per capita per day are considered as people living under absolute/upper poverty line and hard core/lower poverty line respectively. People who received more than 2122

kcal per capita per day are considered as non poor. Therefore people who are economically remains in the better position are assumed to have high valued foods compared to those who are in backward position.

Food consumption basket of people consists of crop/plant based and non-crop/animal based foods containing different nutritive values. Although all food items contain most of the nutrients the nutritive value of animal based food products is higher than crop-based foods. They are rich in energy and make an excellent source of high-quality and readily digested protein (Allen, 2003; Bender, 1992). Animal source food products provide high quality protein and essential micronutrients such as zinc, iron, vitamin A and calcium, which are either deficient or not available in many developing country diets that are predominantly comprised of cereals (Catelo, 2006). Staple foods like rice and maize provide calories but are not so dense in providing micronutrients or protein (Delgado, 1999). Even quite small amounts of animal source foods work for the improvement in the nutritional status of low-income households. Animal source food products provide proteins with a wide range of amino acids that match human needs as well as bio-available micro-nutrients, which many malnourished people lack. Therefore, food composition can influence the nutrition of people of a country.

II. LITERATURE REVIEW

The term food security has a very old history as the notion is found in ancient civilization. In '*Arthashastra*', Kautilya termed food security as the responsibility of the king. Agricultural stocks "were kept in the Royal granaries to ward off public distress, and the king directed the retention of half the annual produce for the relief of distress; and provided poor persons with food and seed corn to enable them to start farming" (Rao, 1958). The concept of food security is a multi-dimensional concept that can be elucidated in terms of five different approaches. These are (a) food availability approach (b) income-based approach (c) basic needs approach (d) entitlement approach and (e) sustainable livelihoods approach.

Italian philosopher Giovanni Botero (1544–1617) and English scholar Thomas R. Malthus (1766 – 1834) are the proponents of food availability approach. Later their approach was well-reflected in the definition of food security given at the World Food Conference of 1974: *'*Availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices*'* (UN, 1974). The most important shift was from food availability at the macro-level to income at the micro-level (Griffin and Khan, 1977; Haq, 1976; Reutlinger and Selowsky, 1976 ; Reutlinger, 1986). In particular, income approach is more related to poverty. Calorie intake comes here. Through household surveys providing information on income, it is theoretically possible to estimate the amount of food consumed, given the assumption that poorer households use a larger proportion of their income to buy food. Food is, then, converted into calories: if household calorie availability is lower than the "required" minimum, some or all the members of that household are food insecure.

In the second half of the 1970s, the International Labour Organization (ILO) proposed a new model of development; the basic needs approach, with the intention of incorporating non-economic dimensions of development (ILO, 1976). In 1980s Amartya Sen's entitlement approach contributed to challenging the Malthusian view of famine and hunger, and shifted the focus from national food availability to people's access to food. 'The entitlement approach' concentrates on each person's entitlements to commodity bundles including food, and views starvation as resulting from a failure to be entitled to any bundle with enough food' (Sen, 1981).The sustainability approach is first introduced by Chamber during 1980s. The main focus of this approach is rural development and poverty. It emphasizes household's strategies to cope with shocks and vulnerability. It analyses food security during emergency, crisis, famines, period of extreme food poverty rather than general food security. After several modification the concept of food security take the present shape which is "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".

Walters (1974) defines consumer behaviour as: " ... the process whereby individuals decide whether, what, when, where, how, and from whom to purchase goods and services." Mowen (1993) provides a different definition by explaining consumer behaviour as: "... the study of the buying units and the exchange processes involved in acquiring, consuming, and disposing of goods, services, experiences, and ideas". This definition focuses on buying units in an attempt to include not only the individual but also groups that purchase products or services.

Schiffman and Kanuk (1997) define consumer behaviour as: "The behaviour that consumers display in searching for, purchasing, using, evaluating, and disposing of products, services, and ideas." Schiffman and Kanuk (1997) elabourate on the definition by explaining that consumer behaviour is, therefore, the study of how individuals make decisions to spend their available resources (time, money, effort) on consumption-related items. It includes the study of what, why, when, where and how often they purchase and how they use the purchased product. In addition, it encompasses all the behaviours that consumers display in searching for, purchasing, using, evaluating and disposing of products and services that they expect will satisfy their needs.

Engel, Blackwell and Miniard (1990) states that: "those actions directly involved in obtaining, consuming, and disposing of products and services, including the decision processes that precede and follow these actions".

Gupta (2018) has found macronutrient intake changes due to change in consumption pattern and observed that the source of macronutrient also change because of change in consumption pattern change in India. Hoddinott and Yohannes (2002) examined the magnitude of the association between dietary diversity and food security. Study revealed that a 1 per cent increase in dietary diversity was associated with a 1 per cent increase in per capita consumption, a 0.7 per cent increase in total per capita caloric availability, a 0.5 per cent increase in household per capita daily caloric availability from staples, and a 1.4 per cent increase in household per capita daily caloric availability from non-staples.

Kumar and Day (2007) examined long term changes in Indian food basket and nutrition. The study investigated that the food consumption pattern in India was diversifying towards high value commodities. The decline in per capita consumption of cereal in particular coarse cereals had worsened the nutritional status of the rural poor.

III. METHODOLOGY

The consumption data of Household Income Expenditure Survey of 95-96, 2000, 2005 and 2010 are used in the paper. The data set included daily data on food consumption for consecutive 15 days for 12,240 households. Nutrition data are taken from Bangladesh Health and Demographic Survey of 2007 and 2011. To analyze the data tables and different diagrams are used in the paper. Data on desirable diet for Bangladeshi people are taken from the research paper conducted under Food Planning and Monitoring Unit, Ministry of Food and Disaster Management and National Food Policy Capacity Strengthening Program, Government of Bangladesh.

IV. RESULTS AND DISCUSSION

A person's economic position is defined in various ways and defining in terms of calorie intake is one of them. According to Household Income Expenditure Surveys (HIES) conducted by Bangladesh Bureau of Statistics (BBS) there are three categories of people based on how much calorie they receive per capita per day. People who received 2122 kcal and 1805 kcal per capita per day are considered as people living under absolute/upper poverty line and hard core/lower poverty line respectively. Although the percentages of population living under these two lines are improving in Bangladesh but significant numbers of people are still living below the poverty line. People who received more than 2122 kcal per capita per day are considered as non poor people. Table 1 shows the incidence of poverty from 1995-96 to 2010 period, as measured by the Cost of Basic Need (CBN) method.

Table 1: Head count rate of incidence of poverty, 1995-96 to 2010 (CBN method)

Level	Upper poverty line				Lower poverty line			
	2010	2005	2000	95-96	2010	2005	2000	95-96
National	31.5	40.0	48.9	50.1	17.6	25.1	34.3	35.1

Source: HIES Report 1995-96, 2000, 2005 and 2010

Though considerable improvement is observed in reducing poverty, still in 2010 31.5% and 17.6% of the population are living below the upper poverty line and lower poverty line respectively which is very high. Compared to 1995-96, poverty in 2010 has declined by 18.6% and 17.5% in upper and lower poverty line respectively.

Comparative Analysis of Calorie Intake by People of Different Economic Status

The sample households of Household Income and Expenditure Survey of 2010 are classified into three groups according to their calorie intake in the paper. These groups are hard core poor, poor and non-poor. Table 2 shows actual intake of calorie per capita per day by three groups according to HIES 2010 respondent households compared with national average calorie intake and required intake recommended by Food and Agriculture Organization (FAO).

Table 2: Comparison between Calorie Intake by People of Different Economic Status and National Average and Recommended Calorie Intake by FAO

Calorie Requirement by FAO	National Average of Calorie Intake	Calorie Intake by Non-poor Group	Calorie Intake by Poor Group	Calorie intake by Hardcore Poor Group
2430	2318	2486	1810	1397

Source Author's calculation from Household Income and Expenditure Survey 2010, BBS.

As per the Table 2 the non-poor group are taking 56 kcal and 168 kcal more calorie compared to FAO requirement and national average respectively. The poor group are taking 620 kcal and 508 kcal less calorie compared to FAO requirement and national average respectively. On the other hand the hardcore poor are taking 1033 kcal and 921 kcal less calorie compared to FAO requirement and national average respectively. The sample poor and hardcore poor of HIES-2010 are receiving much less energy compared to their minimum requirement level. Although the non- poor group are receiving more calorie than the FAO recommended level and national average, the difference is marginal. This entails that not only the calorie deficiency of poor people are very high the condition of the non poor are not satisfactory.

Food Element Wise Consumption Pattern in Bangladesh

Major food elements from which people generate calorie fall into six food elements. The food elements are; carbohydrate, protein, fat, vitamin, minerals and water. In Bangladesh people derive carbohydrate from cereals like rice and wheat, protein from animal originated food i.e. meat, fish, egg, and plant originated food like pulses, fats from edible oils and vitamins from basically different vegetables. People of the country also eat lots of potatoes because of its availability. Although as a macronutrient contents it falls into carbohydrate category but the people of the country considered it as vegetable. Here potato is considered as a food of carbohydrate category. Milk/milk products is another important food item of the country and it is considered as a balanced food by the nutrition scientist since it is rich in terms of both macronutrient and micronutrient contents. Therefore, milk is considered as a separate food group by not keeping it under any one food category.

Food Elements Wise Calorie Intake in Bangladesh

According to HIES 2010 total calorie derived from carbohydrate, protein, fat, vitamin and milk/milk products consist of only the food items mentioned in previous section is 2043.9 kcal at national level. On the other hand total calorie derived from all food items consumed in Bangladesh according to HIES 2010 is 2318.3 kcal. Therefore, calorie derived from other foods is 274.4 kcal. Table-3 shows how much calorie derived from food elements (carbohydrate, vitamin, protein and fat) and rest of the food items in Bangladesh.

Table 3: Food Element-wise Calorie Intake (per capita per day)

Level	Food Element					
	Carbohydrate	**Protein**	**Fat**	**Vitamin**	**Milk/Milk Products**	**Others**
National	1593.2	150.1	184.1	89.1	27.4	274.4

Source: Authors calculation from Household Income Expenditure Survey 2010: Note: *Others include condiments & spices, fruits, sugar/gur and miscellaneous items.

Total calorie intake at national level is 2318.3 kcal. Percentages of calorie intake from carbohydrate, protein, fat and vitamin to total calorie intake at national level are 68.72%, 6.47%, 7.94% and 3.84% respectively. Calorie derived from carbohydrate is more than the recommended maximum percentage of 60 (Quamrunnahar *et al* 2013) at national level. On the other hand calorie derived from protein and fat is much lower compared to the recommended percentage (11 per cent from fats and 13.5 per cent of calorie from proteins as per Quamrunnahar *et al* 2013) at all areas. In case of vitamin it is near the recommended level (4 per cent from vitamin). This indicates that nationally people of Bangladesh are not taking a balanced diet and the diet is biased towards carbohydrate oriented foods. People generated most of their energy from carbohydrate.

Food Element wise Calorie Intake by People of Different Economic Status

The poor and hard core poor groups are taking much less calorie compared to the FAO recommended minimum calorie requirement. Although the non-poor are receiving more calorie compared to the FAO recommended minimum calorie requirement but the margin is very low. This signifies poor food consumption pattern existent in both poor and non-poor group of Bangladesh.

Table 4: Food Elements Wise Calorie Intake by People of Different Economic Status (per capita per day)

Food Elements	Hard core Poor	Poor	Non-Poor
Carbohydrate	1097.65	1437.42	1947.93
Protein	93.64	119.70	180.04
Fat	139.80	170.01	243.40
Vitamin	65.84	83.40	115.50
Total	1396.93	1810.53	2486.88

Source: Author's Calculationfrom Household Income Expenditure Survey 2010.

According to the Table 4 given above the poor and the hard core poor group of the survey households are taking calorie much less than their minimum calorie that determined as hard core poor (1805 kcal) and poor (2122 kcal) by BBS.

Calorie intake from carbohydrate, protein, fat and vitamin by the hard core poor are less than 495.55 kcal, 56.46 kcal, 44.3 kcal and 23.26 kcal respectively than the national average. The actual intake of carbohydrate, protein, fat and vitamin of the hard core poor are 31.10%, 37.61%, 24.06% and 26.11% less than the national average respectively. The actual intakes of all the food elements of the hard core poor are low from the national average and the rate is highest in case of protein. Percentages contribution of carbohydrate, protein, fat and vitamin sources to total calorie are 78.58%, 6.70%, 10.00% and 4.71%.

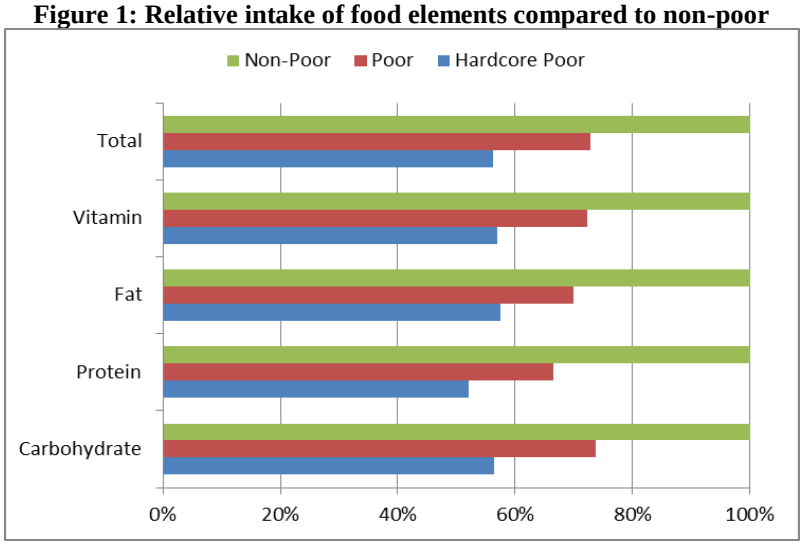
Calorie intake from carbohydrate, protein, fat and vitamin by the poor are less than 155.78 kcal, 30.40 kcal, 14.09 kcal and 5.7 kcal respectively than the national average. The corresponding rates of the difference between national average and actual intake of carbohydrate, protein, fat and vitamin of the hard core poor are 9.78%, 20.25%, 7.65% and 6.40%. Unlike the hard core poor the poor group managed to reduce the gap between national average and actual intake of energy from different food group but this group has the similarity with hard core poor in terms of highest difference in calorie received from protein source. Percentages contribution of carbohydrate, protein, fat and vitamin sources to total calorie are 79.39%, 6.61%, 9.39% and 4.61%.

The non-poor group is getting 354.73 kcal, 29.94 kcal, 59.3 kcal and 26.4 kcal additional energy from carbohydrate, protein, fat and vitamin sources compared to national average. Percentages contribution of carbohydrate, protein, fat and vitamin sources to total calorie are 78.33%, 7.24%, 9.79% and 4.64%.

From the above analysis it is evident that although there is significant difference in total calorie intake between these three people from different economic status but all of them follow the same consumption pattern. In Bangladesh irrespective of economic condition cereals remains the single largest contributor for their energy supply. The role of other food groups especially protein remains far behind the requirement. As a result the people are lack in having diversified food which is the precondition for an active and healthy life and resultant food security.

A comparative expression of food element intake of hard core poor and poor with that of non-poor is given in Figure 1.

Figure 1: Relative intake of food elements compared to non-poor



Source: Author's Derivation from Household Income Expenditure Survey 2010.

Figure 1 shows that calorie intake by poor and hard core poor is much lower than the non-poor group irrespective of different food elements. The difference of poor and hard core poor with that of non-poor in protein intake is highest followed by fat.

It is noticeable from the above discussion that the contribution of carbohydrate is much higher compared to other food elements in all people of different economic status. People's consumption behaviour is biased towards the consumption of carbohydrate in Bangladesh and also they are not having a balanced diet.

Comparison between Percentage of Required and Actual Calorie Intake by People of Different Economic Status

A comparative analysis between desired percentage and actual percentage of calorie intake by hard core poor, poor and non-poor from carbohydrate, protein, fat and vitamin is given in Table 5.

Table 5: Food Element-wise Comparison between Desired and Actual Food Intake and Calorie Intake by People of Different Economic Status

Food Item	Percentage of Desired Calorie Intake (DDP)	% of Actual Calorie Intake (HIES 2010)		
		Hard core Poor	Poor	Non-Poor
Carbohydrate	60%	78.58%	79.39%	78.33%
Protein	13.5%	6.70%	6.61%	7.24%
Fat	11%	10.00%	9.39%	9.79%
Vitamin	4%	4.71%	4.61%	4.64%

Source: Author's calculation from HIES 2010 and Desirable Diet Pattern, BIRDEM 2013

According to the percentages provided in the Table 5 all the people of different economic status are deriving much higher percentage of calories from carbohydrate compared to the desired percentage to their total calorie intake. Again percentage of calorie intake from vitamin is slightly higher than the desired level by all people. Percentage of calorie intake from fat is slightly lower than the desired level by all people. On the other hand percentage of calorie intake from protein is considerably lower than the desired level by all people of different economic status. This implies irrespective of economic status all the people are showing similar consumption pattern.

Distribution of Population as per Nutrient Intake

In a study on rural Bangladeshi population, it was found that 17% of the studied population was overweight and 26% were obese (Bhowmik *et al.*, 2013) which may be a reflection of higher carbohydrate intake by the people. Forty per cent of the population takes less than 10% of total energy from protein sources and 53% of the population take less than 15% of total energy from fat (Quamrunnahar *et al* 2013). Low protein and fat intake are the plausible factors implicated in the low birth weight prevalence which is 22% (WHO, 2012), 41% of stunting, 16% of wasting, 36% of under-weight (BDHS, 2011) and thinness i.e. 30% of the women have BMI less than 18.5 (BDHS, 2007). These findings reflect the presence of under-nutrition in Bangladesh attributed to disproportionate consumption of carbohydrate, protein and fat intake. Table-6 given below shows the percentages distribution of population as per nutrient intake.

Table 6: Percentages Distribution of Population as per Nutrient Intake

Macronutrients	Carbohydrate			Protein			Fat		
Range of intake (%)	<55	55-75	>75	<10	10-15	>15	<15	15-30	>30
% Population	16.3	43.3	40.3	40	50	10	53	44	3

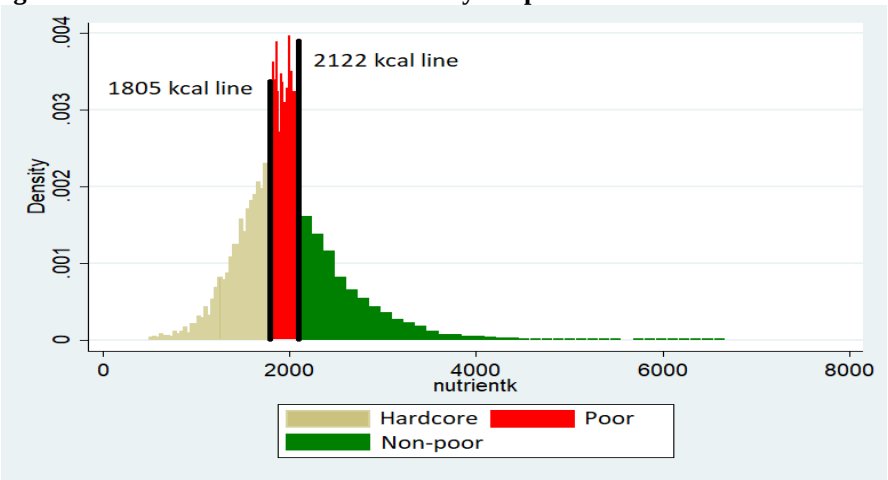
Source: Quamrunnahar *et al*, Desirable Dietary Guideline, BIRDEM, 2013.

According to the Table 6 significant percentage of people depends on carbohydrate for their calorie need and the percentage contribution of carbohydrate is higher than the required. On the other hand significant percentage of people receives less protein compared to the required percentage. Same observation is also found in case of fat intake.

Distribution Pattern of Calorie Intake People of Different Economic Status

Distribution of calorie intake pattern by the three types of people of different economic status can be analyzed more clearly using histogram. Figure 2 shows the distribution of calorie intake by the three groups.

Figure 2: Distribution of Calorie Intake by People of Different Economic Status



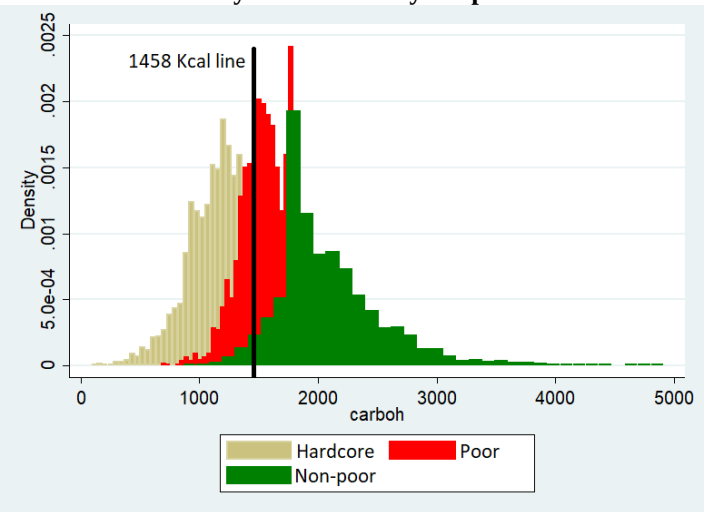
Source: Authors Derivation from HIES 2010

Figure 2 shows that there are significant number of non-poor households who consume more than 2122 kcal per day while there are quite a large number of hard core poor households that consume less than 1805 kcal per day (as shown by the tails of the histogram) and the rest in the middle are poor households in the study population.

Distribution Pattern of Carbohydrate Intake by People of Different Economic Status

As mentioned earlier recommended calorie intake per capita per day by FAO and Desired Dietary Pattern (DDP) is 2430 kcal. Again according to DDP recommended carbohydrate intake is 60% of 2430 kcal. Therefore recommended carbohydrate intake is 1458 kcal per capita per day. Figure 3 shows distribution pattern of carbohydrate intake by people of different economic status.

Figure 3: Distribution of Carbohydrate Intake by People of Different Economic Status



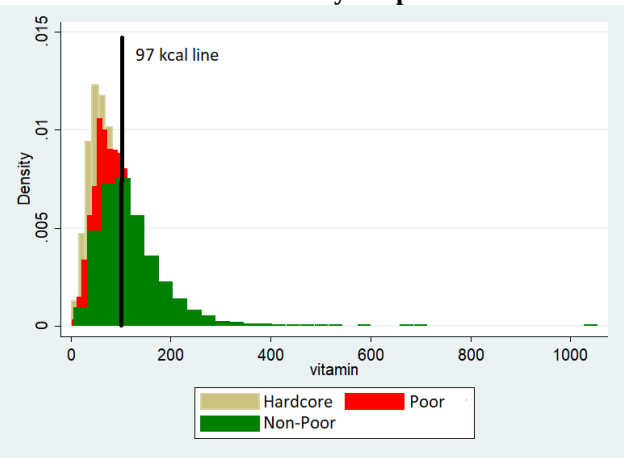
Source: Authors Derivation from HIES 2010

Figure 3 shows almost all the households of non-poor group and significant number of poor household also receive take more carbohydrate than the recommended amount. All the hard core poor households take less than the recommended amount. According to the histogram some people of non poor group receive carbohydrate less than the recommended amount.

Distribution Pattern of Vitamin Intake by People of Different Economic Status

According to DDP recommended vitamin intake is 4% of 2430 kcal. Therefore, recommended vitamin intake is 97 kcal per capita per day. Figure 4 shows distribution pattern of vitamin intake by people of different economic status.

Figure 4: Distribution of Vitamin Intake by People of Different Economic Status



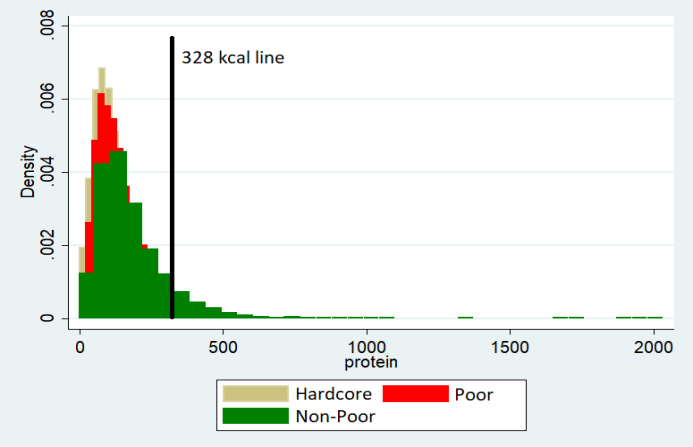
Source: Authors Derivation from HIES 2010

Figure 4 shows almost all the poor households and all hard core poor household take vitamins less than the recommended amount. On the other hand a significant number of non-poor households take vitamins less than the recommended amount.

Distribution Pattern of Protein Intake by People of Different Economic Status

According to DDP recommended protein intake is 13.5% of 2430 kcal. Therefore, recommended protein intake is 328 kcal per capita per day. Figure 5 shows distribution pattern of protein intake by people of different economic status

Figure 5: Distribution of Protein Intake by People of Different Economic Status



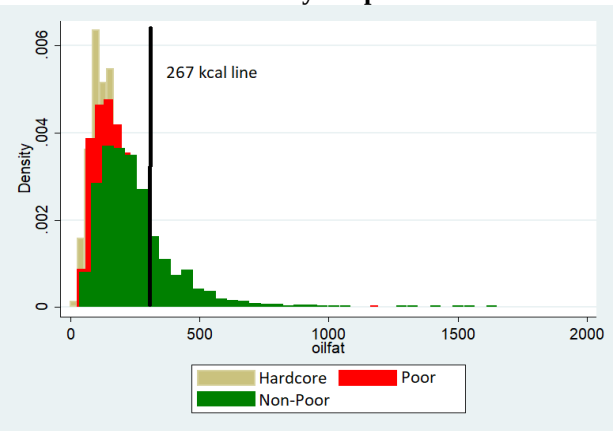
Source: Authors Derivation from HIES 2010

All the poor and hard core poor households take protein much less than recommended amount. Again it is important to note that a significant number of non-poor households also take protein less than recommended amount.

Distribution Pattern of Fat Intake by People of Different Economic Status

According to DDP recommended fat intake is 11% of 2430 kcal. Therefore, recommended fat intake is 267 kcal per capita per day. Figure 6 shows distribution pattern of fat intake by people of different economic status.

Figure 6: Distribution of Fat Intake by People of Different Economic Status



Source: Authors Derivation from HIES 2010

All the poor and hard core poor households take fat much less than recommended amount. Again it is important to note that a significant number of non-poor households also take fat less than recommended amount.

Percentage of Household Receiving Desired Nutrient Intake

Table 7 shows percentage of households receiving desired nutrients by people of different economic status

Table 7: Percentage of Household Group above the Desired Level of kcal Intake (per capita per day)

Household Group	Total Calorie Intake	Carbohydrate Intake	Protein Intake	Vitamin Intake	Fat Intake
Hard core Poor	0.0%	8.5%	1.4%	22.7%	10.9%
Poor	0.0%	69.5%	3.0%	40.3%	19.1%
Non-poor	55.4%	96.7%	10.8%	58.3%	34.2%
Total	24.8%	62.1%	5.9%	42.7%	23.2%

Source: Authors Calculation from HIES 2010

According to Table-7 none of the households from poor and hard core poor able to intake the recommended calorie and only 55.4% of non-poor households are receiving the desired calorie. It means 44.6% non poor people still unable to get recommended calorie. Huge difference exists in carbohydrate intake more than the required amount between hard core poor; and poor and non-poor households. In case of percentage of population receiving less than the recommended amount for vitamin, fat, and protein intake is also very high. Although people of Bangladesh intake more carbohydrate but 37.9% people receive carbohydrate less than the desired amount. On the other hand 94.1%, 57.3% and 76.8% people receive protein, vitamin and fat less than the desired amount respectively. Table-7 illustrates the analogous scenario in case of people of different economic status.

Achievement of Food Security of People of Different Economic Status

According to the definition food security can be achieved if people take sufficient and nutritious food. It is only possible if they take a balanced diet. All the three economic group take carbohydrate more than 78% of total food (recommended percentage is 60%), protein between 6.61% to 7.24% of total food (recommended percentage is 13.5%), Fat between 9.39% to 10% of total food (recommended percentage is 11%) and vitamin between 4.61% to 4.71% of total food (recommended percentage is 4%). According to this data except vitamin the economic groups do not receive the balanced percentage of nutrient which means attaining food security though eating nutritious food is still far to achieve.

If we look into the situation among the overall population the picture is not good enough. Percentage of people receiving carbohydrate more than the desired amount is 62.1% (hard core poor 8.5%, poor 69.5% and non poor 96.7%). Heavy dependency on carbohydrate create obesity problem among non poor people. Percentage of people receiving protein more than the desired amount is 5.9% (hard core poor 1.4%, poor 3.0% and non poor 10.8%) which is very low. Percentage of people receiving fat more than the desired amount is 23.2% (hard core poor 10.9%, poor 19.1% and non poor 34.2%). Percentage of people receiving vitamin more than the desired amount is 42.7% (hard core poor 22.7%, poor 40.3% and non poor 58.3%). This signifies that getting desired healthy people for attaining food security will not be easy to achieve. As per nutrition scenario

given in the previous section a good number of people are suffering from undernutrition. Therefore bringing a change in the present consumption patterns is a crying need for the country. It is the high time to reduce carbohydrate and increase protein, vitamin and fat in the food basket of people of three economic statuses.

V. CONCLUSION

The analytical discussions in the previous sections explain that a momentous contribution of cereals (carbohydrate) in calorie intake of people of different economic status which indicate a cereal based consumption pattern of the people of Bangladesh. As per the study only 24.8% people able to receive the recommended amount of calorie. On the other hand if the average recommended calories are being achieved through consumption of excessive cereals or carbohydrate, it is obvious that there is failure to attain essential nutrients. The persistence of this kind of consumption pattern will produce a population with ill health and less productive. For a country like Bangladesh where poor performance in productivity is a concern for economic development, the country is not in a position to compromise it. Again this kind of consumption pattern does not match with the precondition of attaining food security. Therefore, changes in the food-consumption pattern are pervasive and will definitely move towards high-quality food commodities in the long-run with the increase in income, urbanization, and perceptions of consumers regarding food quality, safety and health.

Irrespective of economic condition all people are showing similar consumption pattern. They depend on carbohydrate for providing the major part of their calorie need and rely on protein for very insignificant amount for the same. Only 5.9% people able to receive the recommended amount of protein. On the other hand 42.7% and 23.2% people able to receive the recommended amount of vitamin and fat respectively. Consumption pattern is the outcome of the food consumption behaviour or food habit. It is however, multidimensional and shaped by various factors, including physiological, agricultural, historical, religious, socio-economic and psychological ones (Gedrich, 2003). The socio-cultural reasons mainly work as a factor for the non poor people to have similar consumption pattern as the rest of two economic groups although they can afford all the food elements. Therefore, to attain food security the policy makers should give emphasis on the consumption pattern of people of different economic status as well as the availability and accessibility of food for all.

REFFERENCE

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