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A Study on Nutritional and Socio-Economic Level of the Rural Household in a Village Jugitola under Gazipur District

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Abstract: The present study was assigned to asses the nutritional status of individuals and household level, to measure food intake and to find out the socio-economic condition of rural household relating to nutritional status. The study was a cross sectional field survey, where samples were enrolled conveniently and random and which was conducted in a village Jugitola a less agri-based community of Gazipur District. With this view, the empirical data were collected by using pre-tested questionnaires. Socio-economic and dietary data were collected by recalling from 12 households with a total of 75 members. It was found that the average family size, land holding capacity, homestead gardening and monthly family income per household were 6 numbers, 68 decimal, 11 decimal and Tk. 6,194, respectively. The average food expenditure per household was Tk. 3387. The average non-food expenditure was Tk. 860 per family per month. Dependency ratio 1:3 was observed in about half of the families. No mal-nourished children aged under 5 years was found. It was observed that land holding, household size and income were not a factor to develop mal-nourished women. Most of the people of the survey area consumed more cereal compared to Anim. food and also consumed less amount of leafy vegetable. The per capita intake of protein, Vit.A and riboflavin is much lower than requirement. The largest part of the energy comes from cereals in rural areas. The mother consumed less amount of every type of food than other members of the family, but both the mother and children get less amount of energy than they need.

Key words: Nutritional status, food intake, socio-economic condition, rural household

Introduction

Balanced diets are not accessible to a large number of Bangladesh populations, particularly those who live in rural areas. Sufficient Nutr. is primarily needed for vitality, longevity and sound health. Malnutrition persists as a major problem and 60-65% people clinically and sub-clinically is affected in Bangladesh. A deficiency disproportionately affects children and women during their reproductive years. They hinder both the development of individual human potential and national social and economic development. Several studies conducted earlier in the country indicate prevalence of nutritional inadequacy syndromes in various section of farming community and other target groups with special reference under five years children, pregnant mother and lactating mother. Hence it is necessary to know the present nutritional status of the rural household.

Objectives

1. To assess the nutritional status of individuals and household level by use of anthropometry measurements (Height, weight, age and MUAC).
2. To measure food intake at individual and household level.
3. To find out the socio-economic condition of rural household relating to nutritional status.

Materials and Methods

This study was a cross sectional field survey, where samples were enrolled conveniently and at random. Sample size was pre-determined and allocated. Area of study, a village Jugitola, was situated near Bangladesh Rice Research Institute (BRRI) area, Gazipur district. This was a less agro based community with more involvement in other profession. Poultry and fisheries were not found. Under the present circumstances, this was the most feasible type of study to exercise.

A pre-tested questionnaire was the main instrument of the study, which was administered by interview. Anthropometry was done by standard scales and weight machines supplied by workshop committee. Weight and height was measured for all. MUAC (Mid upper arm circumference) was taken also of all level. Socio-economic and dietary data were collected by recalling. Twelve households with a total of 75 members were included in this study. For children, weight for height and height for age was calculated. For adults, MUAC and BMI were calculated. Results were presented in tabulated forms. All anthropometric measurements were compared with reference NCHS standard.

Table 1: Socio-economic condition of rural households

Household family members	Member no.	Family no.	%
	3 - 6	9	75
	7 - 10	2	17
	11 - 15	1	8
Land holding capacity	Land size (decimal)	Family no.	%
	0	2	17
	1-50	5	42
	51-100	2	17
	Above 100	3	24
Homestead land size	Land size (decimal)	Family no.	%
	0	4	33
	1-10	5	42
	25-50	3	25
Food expenditure	Food expenditure (Tk.)	Family no.	%
(Taka/month/ household)	1000-3000	8	67
	3001-5000	3	25
	Above 10,000	1	8
Non-food expenditure	Non food expenditure (Tk.)	Family no.	%
(Taka/month/ household)	300-500	5	42
	501-700	1	8
	701-900	3	25
	901-1100	1	8
	1101-3000	2	17
Household family income	Family income (Tk.)	Family no.	%
	2000-4000	5	42
	4001-6000	3	25
	6001-8000	2	17
	8001-10,000	1	8
	Above 10,000	1	8
Dependency Ratio	Dependency Ratio	Family no.	%
	1:3	5	42
	1:4	1	8
	1:5	3	25
	1:6	3	25

Table 2: Homestead size with child anthropometry, women BMI.

Homestead size		Mal-nourished child		Mal-nourished women	
Size (decimal)	Family No.	No.	%	No.	%
0	4	0	0	2	50
1-10	5	0	0	1	25
25- 50	3	0	0	1	25

Table 3: Land holding with child Anthropometry, women BMI.

Land holding		Mal-nourished women	
Size (decimal)	Family No.	No.	%
0	2	2	50
1-50	5	1	25
51-100	2	0	0
Above 100	3	1	25

Table 4: Family size with child Anthropometry, women BMI.

Family size		Mal-nourished women	
Member no.	Family No.	No.	%
3-6	9	2	50
7-10	2	2	50
11-15	1	0	0

Table 5: Income with child Anthropometry, women BMI.

Income Level		Mal-nourished women	
Income (Tk.)	Family No.	No.	%
2,000-4,000	5	1	25
4,001-6,000	3	0	0
6,001-8,000	2	2	50
8,001-10,000	1	1	25
Above 10,000	1	0	0

Table 6: Expenditure on food with child Anthropometry, women BMI.

Food expenditure (Tk.)		Mal-nourished woman	
Expenditure	Family No.	No.	%
1,000-3,000 Tk.	8	2	50
3,001-5,000 Tk.	3	2	50
Above 10,000 Tk.	1	0	0

Results and Discussion

Socio-economic condition: Socio-economic condition of rural households is presented in Table 1. It was found that the average family size, land holding capacity, homestead gardening and monthly family income per household were 6 members, 68 decimal, 11 decimal

Table 7: Per capita food intake by food group (gm/person/day)

Food Cereals	Household intake (gm)	%	Per capita intake (gm)	%
Rice	29,083	48.64	409.62	48.60
Leafy vegetable	2,783	4.70	39.19	4.65
Nonleafy vegetables	15,623	26.10	220.04	26.13
Potato	3,920	6.50	55.21	6.55
Fish	3,850	6.40	54.22	6.44
Meat	400	0.70	5.63	0.70
Edible Oil	518	0.90	7.30	0.90
Others	3,606	6.00	50.79	6.03
Total	59,783	100.00	842.00	100.00

Table 8: Per household nutrient intake (gm/household/day)

Nutrients	Total household intake	Per capita intake	Percentage of requirement
Energy (Kcal)	123604.50	1740.90	76.59
Protein (gm)	2996.20	42.20	20.33
Vitamin A (IU)	64820.60	912.90	39.69
Vitamin C (mg)	3374.00	47.52	158.00
Riboflavin (mg)	30.00	0.43	28.66
Iron (mg)	1483.50	20.28	277.00

Table 9: Contribution of cereal to different nutrient in total household

Nutrients	Amount intake	%
Energy (Kcal)	1,03,535.00	97.04
Protein (gm)	1861.00	1.74
Thiamin (mg	61.07	0.06
Iron (mg)	1163.32	1.09

and Tk. 6194, respectively.

The number of members in 75% family was same as national level and rest 25% family had members higher than national level. The average minimum family member per household was 3 and the maximum family member per household was 15. Forty two percent family was holding 1-50 decimal lands and 2 families had no any type of land. They live on another landowner. It was highly significant and percentage was 17. The maximum land holding per family was 268 decimal. Forty two percent family was holding 1-10 decimal homestead land and 25% family was holding 25-50 decimal homestead lands. Especially 33% family had no homestead land. It was highly significant that the average homestead land per family was 11 decimal and maximum was 50 decimal.

Most of the families would not spend more money to buy their daily food. The average food expenditure per household was Tk. 3387. A small number of family spent more money at food item. The average non-food expenditure was Tk. 860 per family per month. About half of the total families had less income, which was lower than national level. The average income per household per family was Tk. 6194. Minimum and maximum income were Tk. 2,250 and 21,720, respectively.

Dependency Ratio 1:3 were observed in 42% family. But still 25% family had Dependency Ratio 1:6, which was not a good sign. The average Dependency Ratio per household was 1:3 and maximum was 1:6.

Socio-economic condition in relation to nutritional status: Socio-economic condition in relation to nutritional status is presented in Table 2, 3, 4, 5 and 6.

Out of 17 children under 5-year age, any mal-nourished child was not found. But out of 17 women under 18 to 45 years age, 4 women were found mal-nourished. Two mal-nourished women household was holding "0" decimal homestead land. One mal-nourished woman household was holding 1-10 decimal homestead land and another one was holding 25-50 decimal homestead lands.

Two mal-nourished women household was holding "0" decimal land. One mal-nourished women household was holding 1- 50 decimal lands and another one was holding above one hundred decimal lands. So land holding was not a factor to create the mal-nourished women.

Two mal-nourished women households consist of 3-6 members each family. So household size was not a factor to develop the mal-nourished women.

Two households had income level Tk. 6,000 - 8,000, but their two women were mal-nourished. So income was not a factor to develop the mal-nourished women.

Information on food and nutrient intake: Table 7 has shown that most of the people at the survey area consumed more cereal (48.60%) compared to Anim. food. They consumed 410 gm rice, 39 gm leafy vegetables, 54.2 gm fish, 5.6 gm meat and 7.3 gm edible oil per person per day. Whereas Jahan and Hossain (1998) observed that in 1995-1996 rural people of Bangladesh consumed 427 gm rice, 113 gm leafy vegetables, 32 gm fish, 6 gm meat and 6 gm edible oil per person per day.

Hels *et al.* (2003) revealed that the daily consumption of rice, green leafy vegetables, meat, fish and fat and oils was 447.5 gm, 24.5 gm, 8 gm, 26 gm and 2.5 gm per

Table 10: Food intake by mother and children (gm/person/day)

Food	Intake			% of total intake		
	Mother	Children	Others	Mother	Children	Others
Rice	353.30	53.83	503.10	44.81	32.00	48.63
Leafy vegetable	63.00	9.79	61.01	7.99	5.83	5.89
Non Leafy vegetable	173.00	18.37	261.00	21.94	10.94	25.23
Potato	56.00	13.93	70.35	7.10	8.30	6.80
Fish	40.20	9.68	75.55	5.10	5.76	7.30
Meat	53.00	0	8.00	6.72	0	0.77
Edible oil	5.00	2.82	9.77	0.63	1.67	0.94
Other	45.00	59.50	45.76	5.70	35.43	4.23

Table 11: Nutrient intake by mother, children & others per capita per day

Nutrients	Intake			Percentage of requirement		
	Mother	Children	Others	Mother	Children	Others
Energy (Kcal)	1526.00	377.65	2284.00	67.13	23.00	100.50
Protein (gm)	56.57	71.88	151.00	94.28	159.00	251.70
Vit.A (IU)	836.60	305.37	1196.00	36.40	14.50	52.00
Riboflavin (mg)	0.40	0.11	1.00	26.70	9.20	66.00
Iron (mg)	16.30	13.73	22.30	217.00	228.00	297.00
Vit. C (mg)	34.16	11.90	53.60	114.00	50.00	178.00

person, respectively in 1981-1982 in Manikgong District, and in 1995-1996, the people of the same district consumed 426.5 gm rice, 38.5 gm leafy vegetables, 24 gm meat, 44.5 gm fish and 6 gm fats and oils per person per day. Hels *et al.* (2003) also revealed that in Mymensingh district, the daily per capita consumption of rice, green leafy vegetables, meat, fish and fat & oils were 479.5 gm, 30.5 gm, 15 gm, 20 gm and 3 gm, respectively in 1981-1982, and those were 474 gm, 41.5 gm, 37 gm, 33.5 gm and 9.5 gm, respectively in 1995-1996. The people of rural households with small seasonal ponds in Kishorgang District consumed 37 gm fish in July 1997, 82 gm fish in October 1997 and 55 gm fish in February 1998 per person per day (Roos *et al.*, 2002).

The per capita energy intake is 76.59% of the requirement, which is not sufficient for rural people (Table 8). The table also shows that percent of per capita Vit.C and Iron is 158 and 277, respectively. But the people cannot get these amounts of nutrients because most of the nutrients are lost by different ways such as processing, cooking, drying etc.

Hels *et al.* (2003) showed that in Manikgong District, the daily per capita intake of energy, protein, Vit-A and iron were 1828 kcal, 45.5 gm, 1836 IU and 23 mg, respectively in 1981-1982, and those were 1912 kcal, 46 gm, 1651.5 IU and 26.5 mg, respectively in 1995-1996.

In Mymensingh District, the daily intake of energy, protein, Vit A and Iron were 1972 kcal, 50 gm, 1683 IU and 24 mg per person, respectively in 1981-1982, and those were 2055 kcal, 50 gm, 1663 IU and 27 mg per person, respectively in 1995-1996 (Hels *et al.*, 2003).

From the study conducted in 1996-97 at three rural sites in Bangladesh, namely, Jessore, Mymensingh and Saturia, it was observed that the women consumed 2291 kcal energy and 52 gm protein daily (Bouis, 2002). Table 9 has shown that the largest part of the energy comes from cereals in rural areas.

The mother consumed less amount of every type of food than other members of the family (Table 10). The children also intake less amount of nutritious food.

Table 11 shows that mother and children get less amount of energy than they need. But other members get 100% energy. But the people cannot get Iron and Vit.C, because a large amount of the Iron & Vit.C are lost by different ways such as processing, cooking, drying etc.

Conclusions

i) Vulnerability of women is reflected in their anthropometry measurement result.
ii) Fewer intakes of leafy vegetable and Anim. protein.
iii) Intake of fruits and pulses was less.

Recommendations

1) Immediate need to increase the awareness builds up among the women.
2) A diversification in food pattern such as increase intake of leafy vegetable, fruits, fish and meat can be practiced.
3) Homestead gardening practice and diversification of crops can be applied, which can reduce the food gap.
4) Poultry and fish culture should be practiced, which can supply protein and meet up protein requirement.

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