Impact of Dietary and Socioeconomic condition on Nutritional Status of Government school going children (6-12 years) in Bangladesh.

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Abstract

Healthy children lead to wealth nation. Now a day nutritional status of school going children is burning issue especially developing country. The study was done to find out the nutritional status of primary school going children. The study was conducted among 100 children (62 boys and 38 girls) out of 300 boys and girls student in the government primary school at Santosh under Tangail district in Bangladesh, with a view to assessing their nutritional status, socio demographic condition, dietary intake pattern as well as clinical condition. The results revealed that there was prevalence of underweight (boys 40.32% and girls 55.26%), wasting (boys 40.32% and girls 55.26%), and stunting (boys 41.93% girls 65.55 %.) among the subjects .The prevalence of nutritional deficiency was also investigated by clinical signs. About 22% have gastro intestinal problem, 6% Inflammation on lips, 3% Inflammation on tong and 14% lesion in the angel of mouth. The study showed that only 27% , 40%, 53% respondent take, egg, milk , fish ,respectively daily and there is no respondent who take meat daily which may be an alarming situation as they are in growing stage . This study also showed that most of the students come from the same socio-economic conditions (72% from middle to upper class family).Therefore; high prevalence of malnutrition may be due to the illiteracy of family members especially mother about nutritional knowledge.

Key -Words: School going, Nutritional status, Socioeconomic, Dietary intake pattern.

1. Introduction

Nutritional status is a sensitive indicator of community health and nutrition among school children [1] especially the prevalence of under nutrition that affects all dimensions of human development[2] and leads to growth faltering in early life[3]. Therefore, the assessment of the nutritional status of a community is one of the first steps for the formulation of any public health strategy to combat malnutrition. Over the years Bangladesh has expressed concern for the health and nutritional status for primary school, children, due to the fact that there is relationship between nutritional status and academic performance. Evidence in Bangladesh shows that high absenteeism, lack of concentration in class and early dropouts are a result of short-term hunger. About 50% - 75% of pupils go to school without breakfast and they do not get any meal during school hours.The outcome of short-term hunger in the long run are the following major nutritional problems namely stunting, low body weight and micronutrients malnutrition including deficiencies of Iron, Iodine and Vitamin A. Children who consume inadequate amount of food necessary to meet the body's energy and nutrients requirement have diminished cognitive abilities, reduced school performance, growth retardation, reduced physical activities, impaired resistance to infections and increased morbidity and mortality rate and hence adverse effects on productivity, incomes and national development. In developing countries factors associated with under nutrition of children are: poor household economic condition, periodic food-shortage, child-labor (marker of household income-poverty), burden of disease, poor knowledge about long-term consequences of under nutrition of adolescents, quantity and quality of food, and access to health and nutrition services[4]. In Bangladesh, low family income, education, and periodic food-shortage were associated with inadequate dietary intake [5], which might have led malnutrition. A sum of 52% school going kids in under developed countries is normal, while 48% of them are malnourished and 10% of them are severely malnourished [6, 7]. There are more than 200 million school kids are stunned and if action delayed, nearly 1 billion stunned school kids would be growing up by 2020 with impaired physical and mental wellbeing [8]. In Bangladesh, various survey show that approximately 85% of the people intake insufficient food, 76% of rural households are deficient in protein intake and 93%, 88% and 87% of households had deficient intake of calcium, Vitamin A and Vitamin C respectively, About 54% of the children aged 0-11 years

are stunted, 5% of the children are wasted, 10% of the children are simultaneously stunted and wasted.

Moreover, 75% of the children suffer from iron deficiency anemia (INFS, 1983).Studies on the nutritional condition of urban areas are highly limited. A very few studies were carried out regarding nutritional situation of children in urban areas. Among the total population of Bangladesh the children (age 0-9 years) consists of 33.3%. The report of Bangladesh Bureau of Statistics shows that prevalence of underweight (W/A below -2SD Score) children (6-71 month) is 51.1% wasted (W/H below-2SD score) is 11.7% and stunted (H/A. below - 2SD Score) is 48.8% (BBS, 2001).

The aims of the study were to assess the complete nutritional status of the Government Primary school going children in santosh, Tangail district and also to explore the associate factors of the nutritional status. The study provides a baseline data on the prevalence of childhood nutritional status as well as their associated risk factors. Therefore, the result of this study might be able to create primary awareness in general population, to cope with the future challenges to prevent childhood malnutrition.

2. METHODS & METHODOLOGY

2.1. Study Nature and Area

The study was a descriptive cross-sectional study, which was focused on nutritional status in government primary school children of Santosh at Tangail district on Dhaka division in Bangladesh. This epidemiological survey was conducted to find out the prevalence of childhood under nutrition and over nutrition.

2.2. Study Population

Two government primary school selected randomly to collect data who were very cordial to conduct our present study. Following a random procedure 100 children aged 6 to12 years were identified to participate in this study.

2.3. Data collecting procedure

A planned questionnaire was developed containing both the closed and open ended query to collect data through face to- face interview with the respondents. The questionnaire was formed to obtain the relevant information considering personal, household, social and economic details, dietary patterns, general behaviors, leisure period activities, hygienic, anthropometric assessments and interrelation between different variables.

2.4Anthropometric Data Collection

The anthropometric data were collected using the procedures listed below:

2.4.1. Body Weight (Kg) Measurement

The standard weighing machine was placed on a hard flat surface and checked and adjusted for zero balance before each measurement. The subjects were stood in the center of the platform, look straight ahead and wearing light cloths without shoes. Weight was recorded to the nearest 0.1 kg.

2.4.2. Body Height (cm) Measurement

The height was recorded using modified tape keeping the respondent stranded on a platform, bare footed with their head upright, looking straight forward. Height was recorded to the nearest cm.

2.5. Nutritional Status Assessment

The nutritional statuses of the respondents were assessed According to WHO / NCHS classification of Weight-for-age-[7], WHO / NCHS classification of Height-for-age-[9], WHO / NCHS classification of Weight-for-Height[10] and Body Mass Index(BMI) of the respondent by means of the following formula:

Body Mass Index (BMI) = Body weight in kg / (Body height in m)^2

2.6 Data Verification

The questionnaire was checked per day taking the interview and again these were carefully rechecked after collecting all the data and coded prior the entering into computer technology. The data was edited in case of sighting any discrepancy (doubt entry, wrong entry etc.).

3. Data analysis

Data management included documentation, storage, data editing, and entry and data cleaning prior to data analysis. All the steps were done carefully .All of the statistical analysis and all other data processing were done by using SPSS 14.0 windows program. For tabular and charts presentation Microsoft Word and Microsoft Excel were used.

4.Result and Discussion

Table-1: Demographic information of the respondents

Variable		Frequency (n)	Percent (%)
Age	6-8 years old	28	28.0
	9-10 years old	31	31.0
	11-12 years old	41	41.0
Sex	Boy	62	62.0
	Girl	38	38.0
Religion	Muslim	79	79.0
	Hindu	21	21.0
Respondents parent Education level	**Father**		
	Graduation	10	10.0
	Higher secondary	10	10.0
	Secondary	26	26.0
	Primary	42	42.0
	Illiterate	12	12.0
	Mother		
	Graduation	2	2.0
	Higher secondary	5	5.0
	Secondary	11	11.0
	Primary	53	53.0
	Illiterate	29	29.0
Family size	< 5	47	47.0
	5-8	51	51.0
	>8	2	2.0

Above mentioned table showed that most of the children are 11-12 years old. Mother is more illiterate than father. Most of the family consist of more than 5 members.

Table-2: Economic condition of the respondents

Occupation	**Father**	Frequency (n)	Percent (%)
	Service holder	18	18.0
	Business	30	30.0
	Farmer	11	11.0
	Rickshaw puller	17	17.0
	Others	24	24.0
	Mother		
	Service holder	8	8.0
	House wife	92	92.0
Income	Lower class (<15000 taka)	28	28.0
	Middle class (15000-25000 taka)	69	69.0
	Upper class (>25000 taka)	3	3.0
	Total	100	100
Expenditure	Lower class (<15000 taka)	46	46.0
	Middle class (15000-25000 taka)	52	52.0
	Upper class (>25000 taka)	2	2.0
	Total	100	100.0

Most of the respondent (52%), belong to the middle class family, another 46% belong to the lower class family, only 2% belong to the upper class family on the basis of their family expenditure.

Table-3: Food frequency distribution table

Food item	Food consumption frequency			
	Daily (5-7 days)	Weekly (4-5 days)	Fortnightly	Monthly
Rice	100			
Bread	13	49	27	5
Dhal	54	42	14	
Green leafy vegetable	61	26	5	4
Non leafy vegetable	32	39	4	
Egg	27	45	22	4
Milk	40	29	22	6
Fruits	27	30	18	22
Fish	53	26	8	5
Meat		37	48	13

It is observed that nutritional status of the children greatly influenced by dietary intake pattern. All of the respondents (100%) take rice daily .The study showed that only 27%, 40%, 53% respondent take, egg, milk, fish, respectively daily and there is no respondent who take meat daily. Lower intake of protein and Fat rich food make most of the children malnourish. This study found that there are some nutrient deficiency disorder due to low consumption of vitamin and mineral rich fruits and vegetable. Study demonstrated that only 61%,32%,27% respondent take Green leafy vegetable, Non leafy vegetable, fruits respectively daily .These are not sufficient to prevent nutrient deficiency disorder for this reason some disorder are present among the respondents in this study.

Table -4: Respondents clinical information

Clinical condition	Present		Absent		Total
	N	p (%)	N	p (%)	
Inflammation on lips	6	6.0	94	94.0	100
Inflammation on tong	3	3.0	97	97.0	100
Lesion in the angel of mouth	14	14.0	86	86.0	100
Gastrointestinal problem	22	22.0	78	78.0	100

This study showed that the respondents clinical information. Among them, 6% Inflammation on lips, 3% Inflammation on tong, 14% lesion in the angel of mouth, 22% have gastro intestinal problem, and rest of the respondent well.

Table -5: Nutritional status of the respondents

Sex / Nutritional status	Boy		Girl	
	Frequency	Percentage	Frequency	Percentage
Underweight	25	40.32	21	55.26
Wasting	25	40.32	21	55.26
Stunting	26	41.93	25	65.55

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It is observed that Out of 100 studied school children of scheduled there were 46 %(Boy and Girl), underweight, 46 %(Boy and Girl), stunted, 51 %(Boy and Girl), wasted and 64% below normal range of Body Mass Index (BMI)(Table 5,6). The prevalence of underweight, stunting, wasting was found to be higher in girls than boys. This finding was a contrast to the health bulletin, 2008 which showed that only 4.64% of the total number of school children of Bangladesh was malnourished[11].

Table -6: Distribution of the respondent's nutritional status by using Body Mass Index (BMI) as an indicator

Category of BMI	Frequency	Percentage
Normal	36	36
Mildly malnourished	14	14
Moderately malnourished	28	28
Severely malnourished	22	22
Total	100	100

This table showed that 36% respondent were normal and 64% are malnourish.

Table-7: Relationship between Mother Education level and nutritional status of children.

Nutritional status / Mother education Level	Normal		Malnourished		Total
	Frequency	Percentage	Frequency	percentage	
Graduate	1	50.0	1	50.00	2
Higher secondary	3	60.0	2	40.00	5
Secondary	3	27.3	8	72.72	11
Primary	22	41.5	31	58.49	53
Illiterate	8	27.6	21	72.41	29

This study demonstrated that mother education level greatly influenced on the nutritional status of the studied children. Poor educated mother do not have adequate knowledge about balance diet which in turn influence on the nutritional status of the children

Table-8: Relationship between family income and nutritional status of children.

Nutritional status / Family income	Normal (%)	Malnourished (%)
Lower class	28.57	71.42
Middle class	37.68	62.31
Upper class	66.66	33.33

It is said that children comes from lower class family are become more malnourish then middle class and upper class family due to their insufficient food intake that's are required to maintain normal body growth .This study demonstrated that mother education level greatly influenced on the nutritional status of the studied children. As a result children become malnourish.

6. CONCLUSION

This study demonstrated that Girls are more vulnerable than boys. In rural areas and semi urban areas, under nutrition is a more important problem than over nutrition, which may reflect high prevalence of under nutrition among primary school children. There may be several socio economic, demographic and dietary factors associated with this phenomenon. Since children at primary school going age are in active growth period, deficiency of protein and energy would lead to failure of growth in terms of weight and height. So, the efforts for reducing malnutrition should be directed towards educating parents about formulating a balance diet for their children. Also improvement of socio-economic condition of the mass can help significantly.

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