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Research Article

Effect of Dietary Habit of Nutritional Status of College Girls

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Abstract

The nutritional status of college girls is a sensitive indicator of health, economy and the sustainable development of Bangladesh. The research highlights the consequence of anthropometric measurements and nutritional status related other issues are taken of 90 college girls. The survey with a semi structured questionnaire was conducted by the researcher during June 13, 2013 to July 27, 2013 aged between 20 to 25 years from Hazrat Shah Ali Girl's College, Dhaka (N = 90). The research presents a number of results, according to the BMI results, 21.11% of the college girls have undernourished problem. The families mean monthly household incomes are affecting their health and nutritional status. The study reveals that the study girls are suffering from any kind of diseases and their morbidity rate are very high for last three months because of their malnutrition, food habits as well as socioeconomic situations. Undernourished along with high morbidity rates are the great problem for them. Nutritional education programs need to be implemented to improve the nutritional status. The present study generates information which indicates that the nutritional status of the college girls should not be overlooked and suitable approaches designed to improve their nutrition should be considered and studies elaborately in the future.

Keywords: *Socioeconomic status, Nutritional status, Food habits, Nutritional education program*

Introduction

Nutrition is a basic human need. Foods supply nutrients, which is a prerequisite for healthy life and living [1]. A proper diet is essential for growth development and to maintain of healthy and active life [2]. Food consumption depends upon availability of food items either through production and or import according to demand and availability of resources and needs [3]. A part from supplying nutrients foods provide a host of other components which have a positive impact on health and a delineation may bring forth many diseases either short term or long term [4]. The balance between nutrient intake and nutrient requirements is influenced many factors like food intake, economics condition, eating behavior, emotional environment, disease, culture pattern, absorption, infection, fever or physiologic stress, growth, body maintenance and well-being psychological stress etc. [5].

Research aim and objectives

The research carried out to assess the effect of dietary habit on nutritional status of college girls under the age of 20 to 25 years in Hazrat Shah Ali Girl's College of Dhaka city.

The associated major objectives include:

1. To find out the nutritional status of the college girls through anthropometric measurements and dietary assessment.
2. To find out the demographics and socio-economical characteristic of the study girls. 3) To determine the health and morbidity situation of the college girls.

Materials and Methods

Research site

In this research, Hazrat Shah Ali Girl's College, Dhaka district have been chosen for the survey. It is situated in the Dhaka North City Corporation.

Research design

A survey was carried out among 90 college girls of Hazrat Shah Ali Girl's College, Dhaka age between 20 to 25 years during June to July, 2013 with format permission from the local authority and by taking informal consent. It was a cross-sectional survey. Dietary data, socioeconomic, demographic, disease variables and anthropometric data height, weight and BMI was collected by using a semi structural questionnaire and nutritional status will be assessed. The World Health Organization classification will be used to here. Each respondent will be asked to give a sample of food frequency. The research has been conducted in two steps.

1. Firstly, the necessary data has been extracted from anthropometric cross-sectional health survey and each child gave a sample of food frequency.

2. Secondly, the extracted data has been assessed and compared with certain standards by analyzing specific contents.

Data collection

Data collection is the process of gathering information. The data collection process of this study was a primary research (field research). Total 90 girls (respondents) have been selected of different divisions at Hazrat Shah Ali Girl's College, Dhaka city by using the questionnaire and made the interviews. Random sampling technique was used for data collection. Random Sampling is a probability sampling method, starting point is determined randomly and from then on the systematically each n^{th} element is drawn. Own mother language (Bengali) had been used during data collection.

Data analysis

For data analysis an important first step is summarize and display of the data. In the current research, data were edited. Editing involves carefully checking survey data for completeness, legibility, consistency, and accuracy. The collected data were evaluated, categorized, grouped and interpreted aiming at the objectives of the study. Then, the relevant data processed and analyzed by using statistical software QtiPlot and Microsoft excel. In quantitative research, tables and graphs are used to display data and convey meaning in the analysis.

Results

Table 1 shows that 62.12% of the 20-22 age group girl's BMI are normal. On the other hand, 70.83% of the 23-25 age group girl's BMI are normal and 20.83% are obesity.

Age Group (years)	N (%)	BMI		
		Under nourished (< 18.5) n (%)	Normal (18.5 - 24.9) n (%)	Obesity (25.0^{+}) n (%)
20 - 22	66 (72.7)	17 (25.75)	41 (62.12)	8 (12.12)
23 - 25	24 (27.3)	2 (8.33)	17 (70.83)	5 (20.83)

Table1: *Distribution of the respondents by age group with related to BMI (N = 90).*

Source: (author's own construction and calculation according to own data source with compare to WHO BMI charts).

Table 2 shows that the relation between the respondent's family's monthly household expenditure with related to BMI. According to the Table 2, 34% of the respondents' family's monthly household expenditure had below BDT 15,000 and under nourished (< 18.5)

53.3%. On the other hand, 24.4% had BDT 15,000 to 19999 and under nourished (< 18.5) 9.1%. Furthermore, the rest 14.4% had BDT 25000 to 29999 and under nourished (< 18.5) 12.5%. In addition, the respondent's family's monthly household expenditure had below BDT 20,000 to 24,999 and BMI had normal (18.5 - 24.9) 100% which was very effective and BDT 35,000 & above girls had Obesity (25.0+) 84.62%.

Expenditure Level (Taka)	N (%)	n (%)	BMI
<15000	30(34.0)	16 (53.33)	Under nourished (< 18.5)
		14 (46.67)	Normal (18.5-24.9)
15000-19999	22(24.4)	2 (9.1)	Under nourished (< 18.5)
		20 (90.9)	Normal (18.5-24.9)
20000-24999	10(11.1)	10 (100)	Normal (18.5-24.9)
25000-29999	8(8.3)	1 (12.5)	Under nourished (< 18.5)
		7 (87.5)	Normal (18.5 - 24.9)
30000-34999	7(7.8)	5 (71.42)	Normal (18.5 - 24.9)
		2 (28.58)	Obesity (25.0+)
35000 & Above	13(14.4)	2 (15.38)	Normal (18.5 - 24.9)
		11 (84.62)	Obesity (25.0+)
Total	90(100)	90	BMI (18.5 to 25+)

Table 2: *Distribution of the respondents by monthly household expenditure with related to BMI (N=90).*

Source: (author's own construction and calculation according to the own data source).

Table 3 reveals that all of the respondents had suffered from any kind of diseases for last three months. 50.5% respondents suffered from fever, 8.8% from diarrhea and 4.4% had Gastric ulcer and 33% suffered from other unspecified diseases.

Disease	Number	Percentage (%)
Fever	46	50.5
Diarrhea	8	8.8
Dysentery	1	1.1
Jaundice	2	2.2
Gastric Ulcer	4	4.4
Others	32	33.0
Total	90	100

Table 3: *Distribution of the respondents by disease (N=90).*

Source: (author's own construction and calculation according to own data source).

In response to treatment received by respondent facing health problems 73.6% received allopathic, while only 2.2% received homeopathic treatment. But 20.9% did not receive any sort of treatment.

Treatment	Number	Percentage (%)
Allopathic	66	73.6
Homoeopathic	2	2.2
Others	3	3.3
No treatment	19	20.9
Total	90	100

Table 4: *Distribution by type of treatment received by those who faced health problems (N=90).*

Source: (author's own construction and calculation according to own data source).

Table 5 indicates that total 54% respondents were avoiding any food which was 41.24% protein, 24.74% fat and 34.02% fruits and vegetables.

N (%)	Avoid food items	n (%)
49 (54)	Protein	20 (41.24)
	Fats	12 (24.74)
	Fruits and vegetables	17 (34.02)

Table 5: *Distribution of the respondents by avoid food items (N=49).*

Source: (author's own construction and calculation according to own data source).

Table 6 shows that food frequency by food groups, cereal was eaten daily by 97.2% of the respondents. From pulse 50% sugar 71.1%, non-leafy vegetables 63.3 % and fruits 36.1% daily per head. Only 2.8%, 14.4% and 30.6% found to eat meat, egg and fish origin respectively. Only 17.8% respondent have drunk milk daily. On the other hand, 43.9%, 13.3%, 12.8% and 8.9% respondents were never consumed milk, egg, sugar and green leafy vegetable, respectively.

Foods	Daily		4-6 days		1 - 3 days		Never	
	No.	%	No.	%	No.	%	No.	%
Rice	88	97.2	2	2.2	0	0.0	1	0.6
Bread	42	45.0	18	20.0	18	19.4	14	15.6
Sugar	64	71.1	9	10.0	5	6.1	12	12.8
Potato	58	64.4	20	217	8	8.3	5	5.6
fats	75	82.6	0	0.00	1	0.6	15	16.7
Fish	27	30.6	30	33.3	28	31.7	4	4.4
Meat	3	2.8	24	26.7	61	67.8	3	2.8
Egg	13	14.4	14	15.6	51	56.7	12	13.3
Milk	16	17.8	11	12.2	29	26.1	39	43.9
Pulse	45	50.0	24	26.7	11	12.2	10	11.1
Green leafy vegetable	23	25.6	17	19.4	42	46.1	8	8.9
Non leafy Vegetable	57	63.3	42	29.9	9	10.6	2	2.2
Fruits	33	36.1	3	28.3	27	29.4	6	6.1

Table 6: *Percent Distribution of respondents by food frequency and by food groups (N=90).*

Source: (author's own construction and calculation according to own data source).

Food frequency per week for food groups indicates that foods from cereal products were eaten 21 times/week. Some 48.3%, 8.3%, 6.1%, 2.8% and 0.6% respectively consumed oil, non-leafy vegetables, potato, sugar and fish weekly for 21 times. Rice, cereal products, non-leafy vegetables, potato, pulse, oil, sugar were consumed for 14 - 20 times in a week by 86.7%, 44.5%, 38.3%, 36.7%, 33.3%, 29.4% and 19.4% respondents respectively. On the other hand, 43.3%, 39.4% and 18.3% respondents were never consumed milk, and oil.

Foods	21 times/week		14-20 times/week		7-13 times/week		1-6 times/week		Never	
	No	%	No	%	No	%	No	%	No	%
Rice	7	7.2	80	86.7	5	5.6	0	0.0	1	0.6
Bread	1	1.1	39	43.9	36	40.4	0	0.0	14	15.0
Potato	5	6.1	33	36.7	35	38.9	11	12.2	6	6.1
Oil	43	48.3	27	29.4	3	2.8	1	1.1	17	18.3
Fish	1	0.6	8	9.4	38	42.2	40	43.9	4	3.9
Meat	0	0.0	2	1.7	17	18.3	70	79.8	2	2.2
Egg	0	0.0	0	0.0	14	16.1	64	71.7	11	12.2
Milk	0	0.0	3	2.8	14	16.1	34	37.8	39	43.3
Pulse	0	0.0	30	33.3	30	33.3	21	22.8	9	10.6
Green leafy veg.	1	0.6	2	1.7	25	27.8	56	61.7	8	8.3
Non leafy veg.	8	8.3	34	38.3	32	35.6	14	15.6	2	2.2
Fruits	0	0.0	3	2.8	34	37.8	48	53.3	6	6.1

Table 7: *Percent distribution of respondents by food frequency of times per week and by food groups (N=90).*

Source: (author's own construction and calculation according to own data source).

Table 8 reveals that mean intakes energy were 1579 K. cal, protein 57.2 gm, fat 13.8 gm and carbohydrate 507.6gm respectively. Calcium, Iron and Zinc consumption was 457.2 mg, 15.9 mg and 7.6 gm respectively. Vitamin A, Thiamine, Riboflavin, Niacin and Vitamin C, intakes were 1475.8 RE, 1.2 mg, 0.7 mg, 18.0 mg and 60.9 mg respectively.

Nutrients	Mean	± SD
Energy (Kcal)	1579	370.6
Protein (g)	57.2	18.3
Fat (g)	13.8	8.5
CHO (g)	507.6	77.3
Calcium (mg)	457.2	357.4
Iron (mg)	15.9	8.2
Vitamin. A (RE)	1475.8	2334.2
Thiamine (mg)	1.2	0.40
Riboflavin (mg)	0.7	0.50
Niacin (mg)	18.7	5.7
Vitamin C (mg)	60.9	38.2
Zinc (gm)	7.6	2.6

Table 8: *Mean nutrient intake per day (N=90).*

Source: (author's own construction; data was calculation on the basis of FAO-adolescent's energy, protein and micronutrients requirement data).

Table 9 illustrates that mean food intake of - cereals, roots & Tubers, potato, sugars, pulses, vegetables, fruits, meat, eggs, fish, milk & milk products, fats & oil intakes were 298.8 gm, 123.1 gm, 93.4 gm, 9.0 gm, 21.2 gm 122.1 gm, 51.1 gm, 49.5 gm, 22.5 gm, 35.5 gm, 39.6 gm and 18.3 gm respectively.

Food Group	Mean	± SD
Cereal	298.8	83.5
Rice	243.1	87.9
Wheat	26.2	36.3
Roots & Tubers	123.1	80.1
Potato	93.4	74.7
Sugar	9.00	11.3
Pulses	21.2	25.5
Green Vegetables	19.1	40.2
Non-leafy Vegetables	30.5	48.3
Fruits	51.1	75.0
Meats	49.5	56.4
Eggs	22.5	42.2
Fish	35.5	42.7
Milk & Milk Products	39.6	83.3
Fats & Oil	18.3	8.20

Table 9: *Mean Nutrient intake by food group of per capita per day (N=90).*

Source: (author's own construction and calculation; according to own data).

Nutritional status of the respondents by BMI is shown in Table 10. It illustrates that 64.4% were normal and 14.4% were obese and rest 21.1% were undernourished.

BMI	Frequency	Percent (%)
Under nourished (< 18.5)	19	21.1
Normal (18.5 - 24.9)	58	64.4
Obesity (25.0+)	13	14.4
Total	90	100.0

Table 10: *Distribution of respondent body Mass Index (N=90).*

Source: (author's own construction and calculation according to the own data source).

Table 11 reveals that mean height (cm) was 153.7 ± 5.6, weight (kg) was 50.6 ± 9.4 and MUAC (cm) was 25.6 ± 3.3. Mean BMI (kg/m^2) was 21.4 ± 3.5.

	Minimum	Maximum	Mean	Std Deviation
Height (cm)	140.0	170.0	153.7	± 5.6
Weight (kg)	35.0	98.9	50.6	± 9.4
MUAC in cm	18.5	39.8	25.6	± 3.3
Body Mass index (kg/m$^{2)}$	14.4	34.2	21.4	± 3.5

Table 11: *Distribution of the respondents by anthropometry (N=90).*

Source: (author's own construction and calculation according to the own data source).

Table 12 indicates that 13 respondents were obese and their food intake were energy 1659 ± 373, Protein 62 ± 22, fat 14 ± 8 and CHO 325 ± 73 respectively. On the other hand, 58 respondents had normal BMI and they consumed 1589 ± 359 Kcal energy, 58 ± 18gm Protein, 13 ± 8gm fat and 311 ± 76gm CHO.

BMI	Number of Residents	Energy (kcal)	Protein (gm)	Fat (gm)	CHO (gm)
> 18.5	19	1485 ± 365	53 ± 15	15 ± 9	285 ± 82
18.5-24.9	58	1589 ± 359	58 ± 18	13 ± 8	311 ± 76
< 25.0 ±	13	1659 ± 373	62 ± 22	14 ± 8	325 ± 73

Table 12: *Distribution of subject by BMI and Nutrient intake (N=90).*

Source: (author's own construction and calculation according to the own data source).

Discussions

Bangladesh is the eighth populous countries in the world [6]. Which is 1/3000 of the total area of the world. It is one of the least developed countries in the world [7]. In developing countries, malnutrition in adolescence is a persistent major health problem. Alike other developing countries malnutrition in adolescence period is a serious problem in Bangladesh [8]. and beset with many pressing health problems. More than half of the total population of Bangladesh comprises of women, children and these groups are liable to many disease [2].

Now day's adult's girls are conscious about their food [9]. This study showed that the study girls avoided oily food but the intake carbohydrate more, resulting high triglyceride and as a result heart and kidney diseases. Current study found that more than 4% of girls had blood pressure (author's own construction and calculation; according to own data). The findings of food habit revealed that energy giving foods were more consumed than body building and repairing i.e. protein rich food & animal foods and protective foods like vegetables and fruits may lead them vulnerable to micronutrients deficiency. Frequency of food intake for times per week also indicates similar habit of food intake by respondents, which in dominated by rice, fats & oils and potato as well (Table 6 and Table 7). The current study found the respondents age, socio economic status, disease history, food intake is very important for their nutritional and health status. In last three months, more and less 100% respondents had suffered from some form of diseases (Table 3). Majority showed their BMI to be normal but 35.5% had malnourished problem (Table 10).

Overall, in this study found that one-third of the college girls were suffering from malnutrition because of their negative with over nutrients consumption and food habits, BMI was poor than the standard references and their pitiable socio-economical as well as demographical condition affected nutritional status of the college girls in Dhaka, Bangladesh.

Recommendations

The study girl's food habit and less nutrient intake along with high morbidity rate; as a result, may be hampered their future unexpected problem. High socioeconomic situation as well as good demographic condition are the most important factors associated with lower prevalence of malnutrition and morbidity rate. The Government and the associated stockholders should be taken the proper steps for im-

proving their socio-economical and demographical status. Gender discriminations should be eliminated from the society through awareness rising to ensure intra-household food security. Nutrition education programs need to be implemented to improve their nutritional status. The present study has generated information which indicates that the nutritional status of this group should not be overlooked and suitable approaches designed to improve their nutrition should be considered. It should study elaborately in future.

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