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NUTRITIONAL STATUS OF ADOLESCENT SCHOOL CHILDREN IN SELECTIVE URBAN AND RURAL AREA

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ABSTRACT

A cross-sectional descriptive study was conducted among the school children of two secondary schools located in rural area at Golgonda High School, Mymensingh and in selected school in urban area at Government Laboratory High School, Mymensingh during April'2016 to June'2016 aiming to assess nutritional status among secondary school children in selected urban and rural area. By using convenient sampling technique, among 261 respondents data were collected by face to face interview with pretested semi structured questionnaire. Among the respondents, (35.8%) were in the age of 15 years in urban area followed by (25.2%) were in the age of 15 years in rural area. Majority (63.9%) were female and (36.1%) were male and (56.6%) were female and (43.4%) were male in urban and rural area respectively. Majority (94.8%) were Muslims, only (3.9%) were Hindus and (1.3%) were Christians in urban area and (94.3%) were Muslims, only (5.7%) were Hindus in rural area. Majority (86.4%) of the respondent's father were illiterate and (66.1%) fathers were Service holder in urban area and in rural area (13.6%) fathers were illiterate and (84.0%) fathers were Farmer.(67.9%) mothers were illiterate, in urban area and in rural area (32.1%) mothers were illiterate. Majority (79.4%) were housewife in urban area and in rural area (96.2%) were housewife. This study reveals that in urban area, (51.0%) of the respondents were in the income group of TK. 10001 to 20000 per month per family. In contrast to urban area, (46.2%) of the respondents were in the income group of TK. 1000 to 10000 per month per family in rural area. Frequencies of consumption of meat, vegetables, cereals, milk products and junk food were significantly higher in urban than in rural adolescents. There was no significant correlation between BMI and area of residence. There is substantial difference of weights between male and female. The study points out different food habit and nutritional intakes among urban and rural area which enables to find specific action point in improving nutritional status of the studied age group among the mentioned areas. From this study it also reveal sthat the urgent need for initiation of schoolhealth programme with specific emphasis on, improvement of nutritional status, personal hygiene and prevention of diseases with the collaboration of governmental and non-governmental institutions.

Introduction

Nutritional status is defined as the nutritional state of an individual, or a population or a community (Osibogun, 1998). Attention to nutritional status is especially important in school children as they are undergoing the complex processes of growth and development, which are influenced by the genetic makeup of the individual and coexisting medical illness in addition to nutritional status (Maqbool et al.,2008). Nutritional status is the balance between the intake and utilization of food nutrients by man in the process of growth and development (Adegunet al., 2013) and according to Goon et al. is an integral component of the overall health of an individual and provides an indicator of the well-being of children living in a particular region (Goon et al., 2011).The national researches done in recent years by The Egyptian National Nutrition Institute and other research centers showed that malnutrition is still a major health problem in different community among different age groups and socio-economic classes (WHO, 2010; Emam et al., 2005). School age is the active growing phase of childhood (UNICEF, 2004) it represents a dynamic period of physical growth as well as of mental development of the child. Researches indicates that health problems due to miserable nutritional status in school-age children are among the most common causes of low school enrolment, high absenteeism, early dropout and unsatisfactory classroom performance (Khan et al., 1990) Assessing the nutritional status of groups of children is an essential part of monitoring the health of a community (Rabasa et al., 1998).

Malnutrition is one of the principle public health problems, affects large numbers of children in developing countries. Despite the economic growth observed in developing countries, malnutrition and particularly under nutrition is still highly prevalent (Muller et al.,2005) School age is a dynamic period of physical growth as well as of mental development of the child. The nutritional status of school-aged children impacts their health, cognition, and subsequently their educational achievement. Nutritional needs during this period are increased because of the increased growth rate and changes in body composition associated with puberty. The dramatic increase in energy and nutrient requirements coincides with other factors that may affect their food choices and nutrient intake and thus nutrition status. There are many body changes which results due to the influence of hormones. Greatest nutrients need for boys is between 12-15 years

and for girls is 10-13 years (Srilakshmi et al., 1987) The school is an opportune setting to provide health and nutrition services to disadvantaged children.

Children in the age group of 5-14 years are often considered as school-age. Since 1972, the United Nations Educational Scientific and Cultural Organization (UNESCO) consider 6-11 years as primary school age and 12-17 years as secondary school age for statistical purposes (Waterlow et al., 2004).Secondary school children are mostly in adolescent group. The term adolescence is derived from the Latin word 'adolescere'; meaning "to grow, to mature." It has been defined by the World Health Organization (WHO) as the periodof life from 10 to 19 years and characterized by rapid physical growth, significant emotional, psychological and spiritual changes; and evolving personal relationships. The nutritional status of adolescents, the future parents, contributes significantly to the nutritional status of the community. In addition, this age group accounts for more than one-fifth of world's population. In India, this age group form 21.4% of the total population (Choudhuri et al., 2003).The foundation of good health and sound mind is laid during this period. Besides, it is basic milestone in the life of an individual and responsible for many changes that takes place during later life. This age is considered as dynamic period of growth and development because children undergo physical, mental, emotional and social changes. The United Nations Sub-Committee on Nutrition meeting held in Oslo in 1998 concluded that more data on health and nutrition of school age children are needed to assess their scale of problem. Under-nutrition among this age group is a serious public health problem internationally, especially in developing countries. Poor nutritional status during adolescence is an important determinant of health outcomes. Short stature in adolescents resulting from chronic under nutrition is associated with reduced lean body mass and deficiencies in muscular strength and working capacity. In adolescent girls, short stature that persists into adulthood is associated with increased risk of adverse reproductive outcomes. Adolescence is recognized as a phase rather than a fixed time period in an individual'slife (Ghaiet al.,2004). The foundations of good health and sound mind are laid during the school age period (Khan et al., 1990). It is a period of transition of physical, psychological and socialmaturation from childhood to adulthood. Achievement of optimum growth during this period is of utmost importance in maintaining good health thereafter. However, this age group is also called adolescent age group.

Adolescence is the future generation of any country. Their nutritional needs are critical for the wellbeing of a society; but for many years, their health has been neglected because they are considered to be less vulnerable to diseases compared to relatively young children or the old people (Raoet al.,2003). If the adolescents are well-nourished, they can make optimal use of their skills, talents and energies and would be healthy and responsible citizens. Adolescence, a second period of rapid growth may serve as an opportunity for compensating faltered early childhood growth though the potential for significant catch-up is limited. Poor nutrition starts before birth and goes into adolescence and adult life and can span into generations. Investing in nutrition throughout the life-cycle will have both short-term as well as long-term benefits of economic and social significance.

Anthropometric measurements remain the most practically useful means for the assessment of the nutritional status of a population (Laditan et al., 1999). It is imperative to know the baseline nutritional status of adolescents in a community for planning appropriate interventions. The presentation and use of height and weight data for comparing the nutritional status of groups of children between the age of 12-17 years.

The students attending urban schools are with a good socioeconomic status and their nutritional status had always been better than the students attending rural schools. In urban area the food habit, life style, physical activity ofchildren is different from rural area. The nutritional status of children does not only directly reflect the socioeconomic status of the family and social wellbeing of the community, but also the efficiency of the health care system, and the influence of the surrounding environment. Hence, this study was carried out with the aim to determine the nutritional status of secondary school children in rural and urban areas of Bangladesh.

MATERIALS AND METHODS

Study Design

A cross sectional study was conducted to determine nutritional status among secondary school children in selected urban and rural area.

Study Period

The study was conducted from April- June, 2016.

Study place

Study was conducted in selected school in rural area named Golgonda High School, Mymensingh and in selected school in urban area named Government Laboratory High School, Mymensingh. This study area were selected purposively for availability of secondary school children, easy communication and well cooperation from the authority.

Study population

Secondary school children of class six to ten were the study population during the period of study in urban and rural areas of Bangladesh. The respondents (Secondary school children) expressed their interest to participate voluntarily in this study.

Selection criteria

A) Inclusion Criteria**:**

Secondary school children of class six to ten both male and female

B) Exclusion criteria**:**

1. Ill
2. Not interested

Sample size

Statistically the following formula can be used to calculate sample size (Daniel, 1991; Kothair, 1985).

$$n = \frac{z^2 pq}{d^2}$$

Where, n = The desired sample size

z = at 95% confidence level usual value is 1.96

p = estimated prevalence p=87.4% (0.87) [IOSR-JDMS, 2014,p-42].

q = 1-p =1-0.814 =0.13

d =Absolute precision, 5 % (0.05).

So $$n = \frac{(1.96)^2 \times (0.874) \times (0.13)}{(0.05)^2} = 174$$

174×2×1.2= 417

Calculated sample size was 417. Considering the time and resource constraints this study included 261 respondents. So, the sample size of the study was 261

.Sampling technique

Convenience type of non-probability sampling technique was used for this study as we required reaching the study participants within the shortest possible time while proportionality was not of primary concern.

Data collection tools

A semi structured questionnaire was developed both in English and in Bengali using variables and specific objectives of the study. After necessary correction and thorough checking the English questionnaire was translated into Bengali. Measuring tape and weight machine were also needed for data collection.

Data Collection Techniques

Data was collected by face to face interview techniques. The interview was conducted privately as far as possible and before preceding the data collection, the detail of the study was explained

to each eligible respondent and informed written consents were obtained from the respondents. Interview was taken in a quiet place; no other person was allowed to influence the replying of the respondent. It took on average 30 minutes to complete the interview of a single respondent. Data were collected from 10 am to 4 pm. On an average, 10 respondents were interviewed daily.

Data processing

Data processing involves

- Categorization of the data
- Coding
- Summarizing the data
- Categorizing to detect the errors and to maintain consistency and validity
- Then these were entered into SPSS software in a computer for analysis

Data Analysis

The data was collected, verified and checked to exclude any error. Further validation checks for accuracy and consistency were carried out afterwards. Finally data was analyzed by computer through Statistical Package for Social Science (SPSS) program (version 23) according to the variables to fulfill the objectives of this study. Described statistics were computed for socio-demographic variables. Distribution of data was checked. Data were presented in tables and graphs. Qualitative and quantitative were analyzed through proper methods.

Data presentation

Data was presented by tables, charts, figures, statistical inferences.

RESULTS

Socio-Demographic Characteristics of the Respondents

Age of the Respondents:

Table – 1: Distribution of the respondents by age

Age of the respondents (In Years)	Area of Living		Total (n=261)
	Urban (n=155)	Rural (n=106)	
10	0 (0.0%)	1 (0.9%)	1 (0.4%)
11	4 (2.6%)	7 (6.6%)	11 (4.2%)
12	23 (14.8%)	15 (14.2%)	38 (14.6%)
13	27 (17.4%)	21 (19.8%)	48 (18.4%)
14	26 (16.8%)	10 (9.4%)	36 (13.8%)
15	39 (25.2%)	38 (35.8%)	77 (29.5%)
16	35 (22.6%)	13 (12.3%)	48 (18.4%)
17	1 (0.6%)	1 (0.9%)	2 (0.8%)
Mean	14.17	13.92	14.07
SD	1.482	1.568	1.520

Table – 1 demonstrates that among total 261 respondents, more than one third (35.8%) were in the age of 15years in urban area followed by one fourth (25.2%) were in the age of 15 years in rural area. A good amount of respondents were in the age of 16 years in urban area and. 13 years of rural area.The mean age of the urban respondents was 14.17±1.482years and rural respondents was 13.92±1.568 yearsand total mean was 14.07±1.520 years with minimum age 10 years and maximum age 17 years.

Sex of the Respondents

Figure – 1: Distribution of the respondents by sex

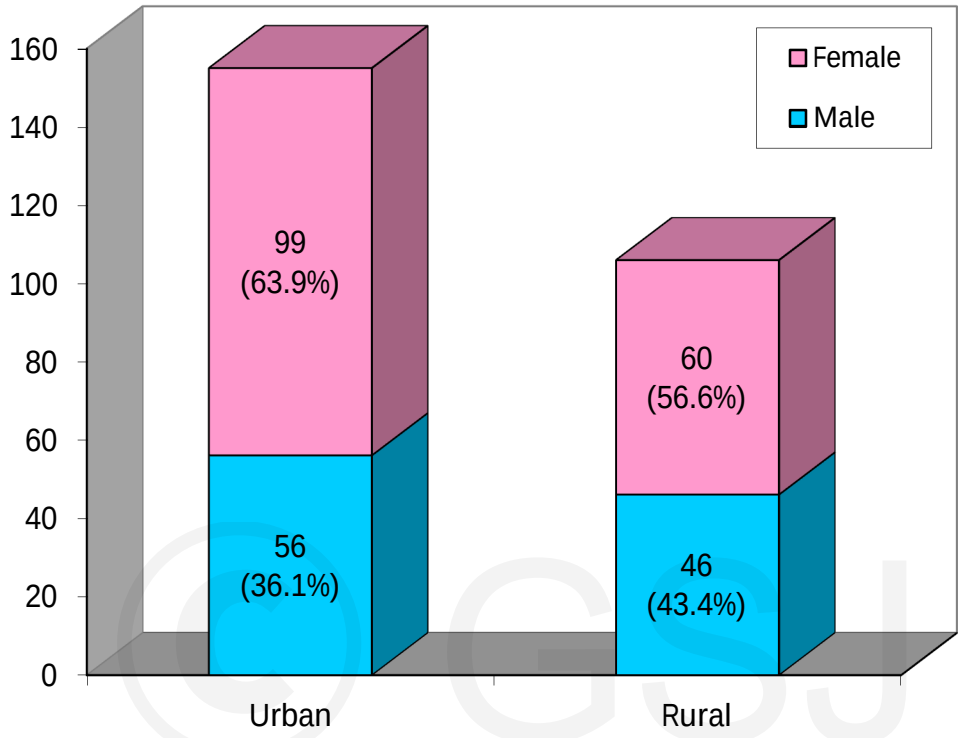

Figure – 1 illustrations the sex of the respondents. Among 261 respondents, most 99 (63.9%) were female and 56 (36.1%) were male in urban area and 60 (56.6%) were female and 46 (43.4%) were male in rural area.

Religion of the Respondents

Figure – 2: Distribution of the respondents by religion

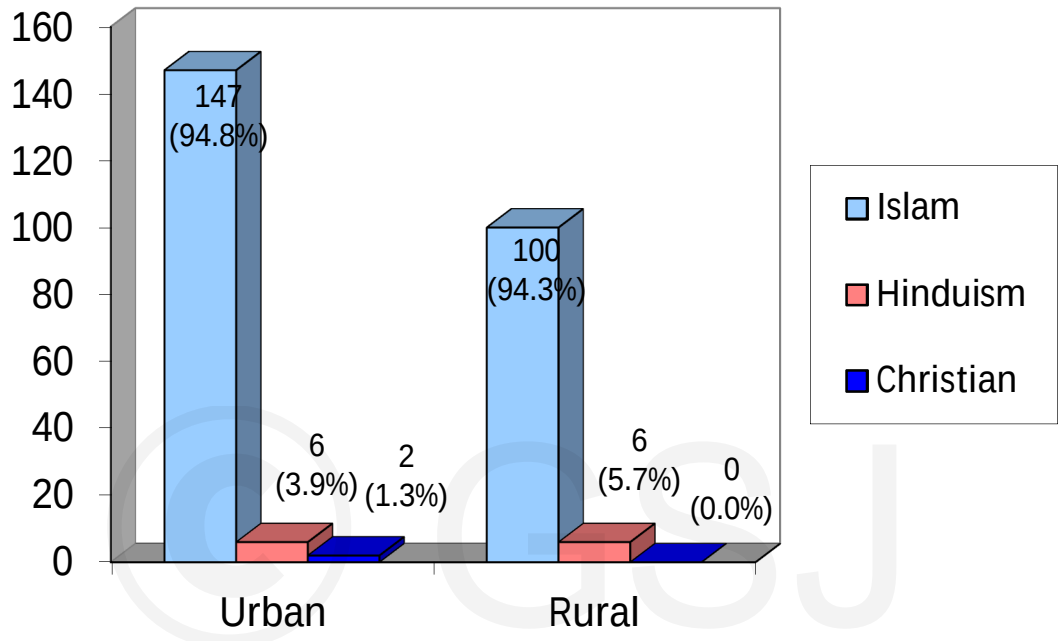

Figure –2 illustrations the religion of the respondents. Among 261 respondents, most 147 (94.8%) were Muslims, only 6 (3.9%) were Hindus and 2 (1.3%) were Christians in urban area and 100 (94.3%) were Muslims, only 6 (5.7%) were Hindus in rural area.

Father's Education of the Respondents

Table – 2: Distribution of the respondents by father's education

Father's educational background	Area of living		Total
	Urban	Rural	
Illiterate	19 (86.4%)	3 (13.6%)	22 (100.0%)
Class 1-5	31 (72.1%)	12 (27.9%)	43 (100.0%)
Class 6-10	27 (60.0%)	18 (40.0%)	45 (100.0%)
SSC/Equivalent	14 (36.8%)	24 (63.2%)	38 (100.0%)
HSC/Equivalent	15 (48.4%)	16 (51.6%)	31 (100.0%)
Bachelor/Equivalent	9 (60.0%)	6 (40.0%)	15 (100.0%)
Masters/Equivalent	11 (91.7%)	1 (8.3%)	12 (100.0%)
Not known	29 (52.7%)	26 (47.3%)	55 (100.0%)
Total	155(59.4%)	106(40.6%)	261 (100.0%)

Table – 2 demonstrations that, among 261 respondents, 19 (86.4%) fathers were illiterate, 31 (72.1%)fathers did cross class 5 but 27 (60.0%) stopped before SSC examination, 14 (36.8%) fathers passed Secondary School Certificate, 15 (48.4%) fathers passed Higher Secondary School Certificate, 9 (60.0%) fathers completed graduation, among the rest 11 (91.7%) fathers completed post graduation in urban area and in rural area 3 (13.6%) fathers were illiterate, 12 (27.9%) fathers did cross class 5 but 18 (40.0%) fathers stopped before SSC examination, 24 (63.2%)fathers passed Secondary School Certificate, 16 (51.6%) fathers passed Higher Secondary School Certificate, 6 (40.0%) fathers completed graduation, among the rest 1 (8.3%)fathers completed post graduation

Mother's Education of the Respondents

Table – 3: Distribution of the respondents by mother's education

Mother's educational background	Area of living		Total
	Urban	Rural	
Illiterate	19 (67.9%)	9 (32.1%)	28 (100.0%)
Class 1-5	45 (76.3%)	14 (23.7%)	59 (100.0%)
Class 6-10	29 (51.8%)	27 (48.2%)	56 (100.0%)
SSC/Equivalent	14 (42.4%)	19 (57.6%)	33 (100.0%)
HSC/Equivalent	13 (48.1%)	14 (51.9%)	27 (100.0%)
Bachelor/Equivalent	2 (50.0%)	2 (50.0%)	4 (100.0%)
Masters/Equivalent	3 (100.0%)	0 (0.0%)	3 (100.0%)
Not known	30 (58.8%)	21 (41.2%)	51 (100.0%)
Total	155 (59.4%)	106 (40.6%)	261 (100.0%)

Table – 3 demonstrations that, among 261 respondents, 19 (67.9%) mothers were illiterate, 45 (76.3%) mothers did cross class 5 but29 (51.8%) stopped before SSC examination, 14 (42.4%)mothers passed Secondary School Certificate,13(48.1%) mothers passed Higher Secondary School Certificate, 2 (50.0%) mothers completed graduation, among the rest 3 (100.0%)mothers completed post graduation in urban area and in rural area 9 (32.1%) mothers were illiterate,14 (23.7%) mothers others did cross class 5 but 27 (48.2%) mothers stopped before SSC examination, 19 (57.6%) mothers passed Secondary School Certificate, 14 (51.9%) mothers passed Higher Secondary School Certificate, 2 (50.0%) mothers completed graduation.

Father's Occupation of the Respondents

Table – 4: Distribution of the respondents by father's occupation

Father's occupation	Area of living		Total
	Urban	Rural	
Service	82 (66.1%)	42 (33.9%)	124 (100.0%)
Business	56 (62.9%)	33 (37.1%)	89 (100.0%)
Farmer	4 (16.0%)	21 (84.0%)	25 (100.0%)
Day labor	8 (61.5%)	5 (38.5%)	13 (100.0%)
Unemployed	1 (33.3%)	2 (66.7%)	3 (100.0%)
Retired	4 (57.1%)	3 (42.9%)	7 (100.0%)
Total	155 (59.4%)	106 (40.6%)	261 (100.0%)

Table – 4illustrates the occupation of the respondent's father .Out of 261respondents, majority 82 (66.1%) were Service holder, 56 (62.9%) were involved in business , 8 (61.5%) were Day laborer, 4 (16.0%) were Farmer and only 1 (33.3%) were Unemployed and 4 (57.1%) were Retired in urban area and in rural area majority 42 (33.9%) were Service holder, 33 (37.1%) were involved in business,21 (84.0%) were Farmer, 5 (38.5%) were Day laborer, 2 (66.7%) were Unemployed and 3 (42.9%) were Retired.

Mother's Occupation of the Respondents

Table – 5: Distribution of the respondents by mother's occupation

Mother's occupation	Area of living		Total
	Urban	Rural	
Housewife	123 (79.4%)	102 (96.2%)	225 (86.2%)
Service	31 (20.0%)	0 (0.0%)	31 (11.9%)
Business	1 (0.6%)	1 (0.9%)	2 (0.8%)
Farmer	0 (0.0%)	1 (0.9%)	1 (0.4%)
Day labor	0 (0.0%)	2 (1.9%)	2 (0.8%)
Total	155 (100.0%)	106 (100.0%)	261 (100.0%)

Table – 5 illustrates the occupation of the respondent's mother .Out of 261 respondents, majority 123 (79.4%) were housewife, 31 (20.0%) were service holder, only 1 (0.6%) were involved in business in urban area and in rural, majority 102 (96.2%)were housewife, 2 (1.9%) were Day laborer, only 1 (0.9%) were involved in Business and 1 (0.9%) were farmer.

Family Member of the Respondents

Table – 6: Distribution of the respondents by family member

Family Member	Area of Living		Total (n=261)
	Urban (n=155)	Rural (n=106)	
2 to 4	65 (61.9%)	40 (38.1%)	105 (100.0%)
5 to 7	80 (62.5%)	48 (37.5%)	128 (100.0%)
8 to 10	9 (37.5%)	15 (62.5%)	24 (100.0%)
>10	1 (25.0%)	3 (75.0%)	4 (100.0%)
Mean	5.14	5.49	5.28
SD	2.405	1.996	2.251

Table– 6 shows that out of 261 respondents, in urban area, majority of the respondents 65(61.9%) belonged to the family of 2 to 4 members, 80 (62.5%) respondents belonged to the family of 5 to 7 members, 9 (37.5%) belonged to the family of 8 to 10 members, 1 (25.0%)respondents belonged to the family of >10members and in rural area, majority of the respondents 40 (38.1%) belonged to the family of 2 to 4 members, 48 (37.5%) respondents belonged to the family of 5 to 7 members, 15(62.5%) respondents belonged to the family of 8 to 10 members, 3 (75.0%) respondents belonged to the family of >10 members. The mean family member of urban respondents was 5.14±2.405 and The mean family member of rural respondents was 5.4 ±1.996.

Family Type of the Respondents

Figure – 3: Distribution of the respondents by type of family

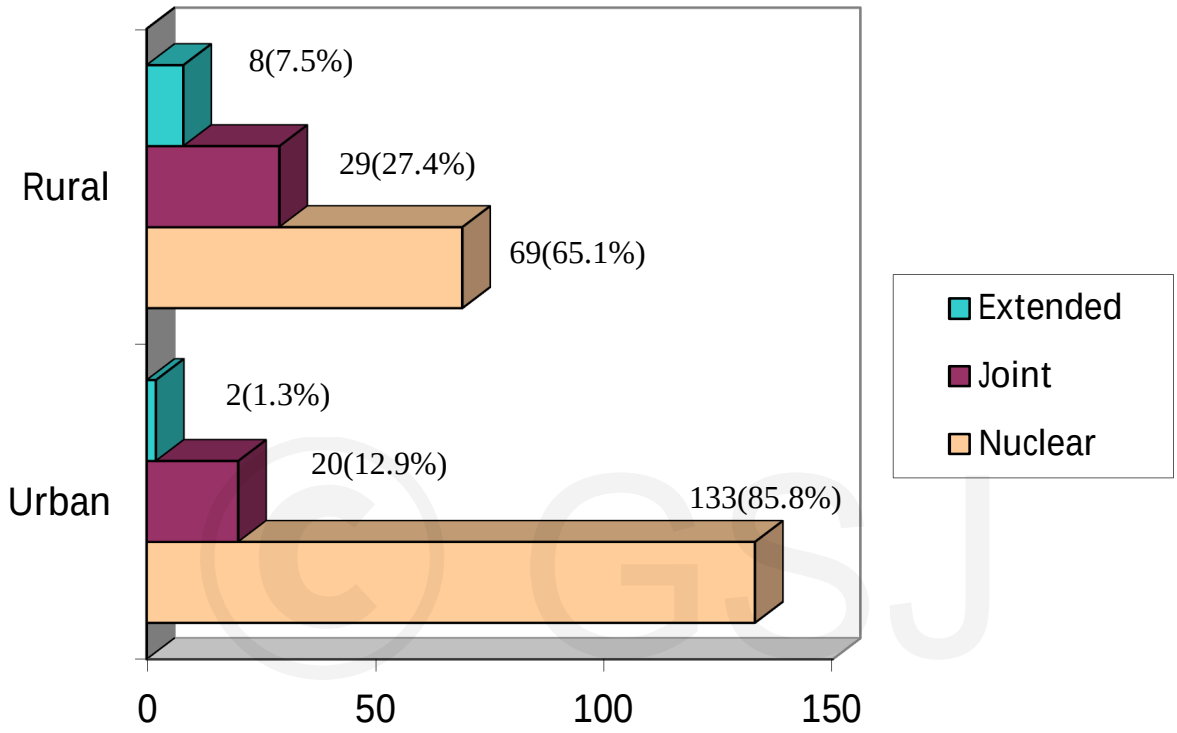

Figure – 3illustrates that among 261 respondents, 133 (85.8%)were from nuclear type of family and 20 (12.9%)were from joint family and the rest 2 (1.3%) were from extended family in urban area and in rural area, 69 (65.1%) were from nuclear type of family and 29 (27.4%) were from joint family and the rest 8 (7.5%) were from extended family.

Monthly Family Income of the Respondents

Table – 7: Distribution of the respondents by monthly family income

Monthly income (Tk)	Area of living		Total (n=261)
	Urban (n=155)	Rural (n=106)	
1000 to 10000	17 (11.0%)	49 (46.2%)	66 (25.3%)
10001 to 20000	79 (51.0%)	33 (31.1%)	112 (42.9%)
20001 to 30000	40 (25.8%)	17 (16.0%)	57 (21.8%)
30001 to 40000	9 (5.8%)	3 (2.8%)	12 (4.6%)
40001 to 50000	8 (5.2%)	3 (2.8%)	11 (4.2%)
50001 to 60000	1 (0.6%)	0 (0.0%)	1 (0.4%)
70001 to 80000	1 (0.6%)	1 (0.9%)	2 (0.8%)
Mean	22500.00	16028.30	2.25
SD	11551.831	12075.522	1.147

Table – 7reveals that in urban area, highest percentage of 79 (51.0%) of the respondents were in the income group of TK. 10001 to 20000 per month per family. 79 (51.0%) were in the income group of TK. 20001 to 30000. 17 (11.0%) were in the income group of TK. 1000 to 10000. 9 (5.8%) were in the income group of TK. 30001 to 40000.8 (5.2%) were in the income group of TK. 40001 to 50000.The lowest percentage of 1(0.6%) were in the category of earning TK. 50001 to 60000 per month per family and 1 (0.6%)were in the category of earning TK. 70001 to 80000. The average monthly family income was Tk22500.00 ±11551.831 with maximum income was Tk80000 and minimum income was Tk5000.In rural area, highest percentage of 49 (46.2%) of the respondents were in the income group of TK. 1000 to 10000 per month per family. 33 (31.1%) were in the income group of TK. 10001 to 20000. 17(16.0%) were in the

income group of TK. 20001 to 30000. 3 (2.8%)were in the income group of TK. 30001 to 40000. 3 (2.8%) were in the income group of TK. 40001 to 50000.The lowest percentage of 1 (0.9%) were in the category of earning TK. 70001 to 80000. The average monthly family income was Tk16028.30 ± 12075.522 with maximum income was Tk80000 and minimum income was Tk3000

House Type of the Respondents

Figure – 4: Distribution of the respondents by house type

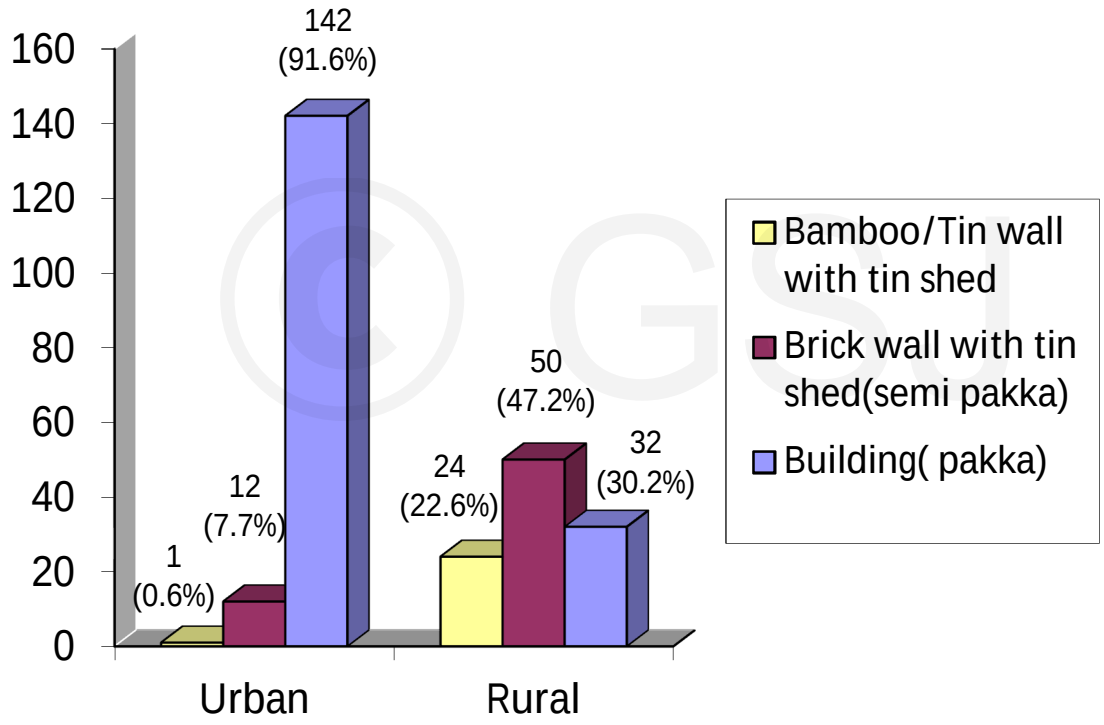

Figure – 4 shows that out of 261 respondents, in urban area, majority of the respondents 142 (91.6%) lived in house type of pakka, 12 (7.7%) respondents lived in house type of semipacca and the rest 1 (0.6%) respondents lived in house type of Bamboo/Tin wall with tin shed and in rural area, majority of the respondents 50 (47.2%) lived in house type of semi pakka, 32 (30.2%) respondents lived in house type of pacca and the rest 24 (22.6%) respondents lived in house type of Bamboo/Tin wall with tin shed.

Source of Water of the Respondents

Figure – 5: Distribution of the respondents by source of water

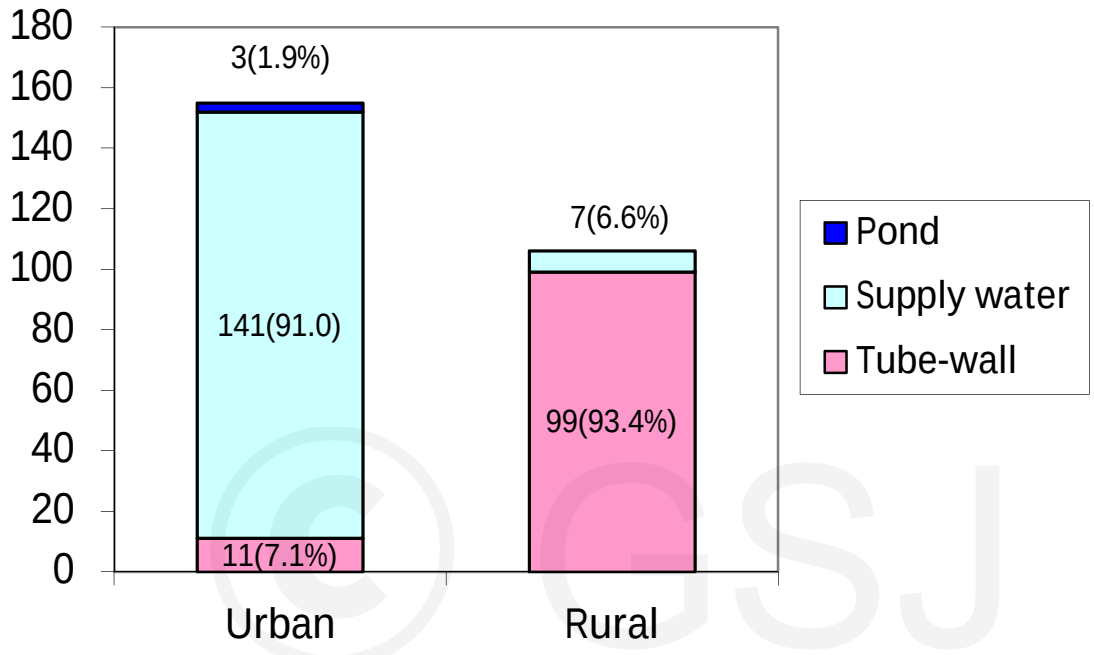

Figure – 5 shows that out of 261 respondents, majority of the respondents 141 (91.0%) drunk theSupply water , 11 (7.1%) drunk the Tube-well waterand only 3 (1.9%) respondent drunk the Pond water in urban area and in rural area, majority of the respondents 99 (93.4%) drunk the Tube-well water and 7(6.6%) drunk the Supply water.

Latrine Type of the Respondents

Figure – 6: Distribution of the respondents by latrine type

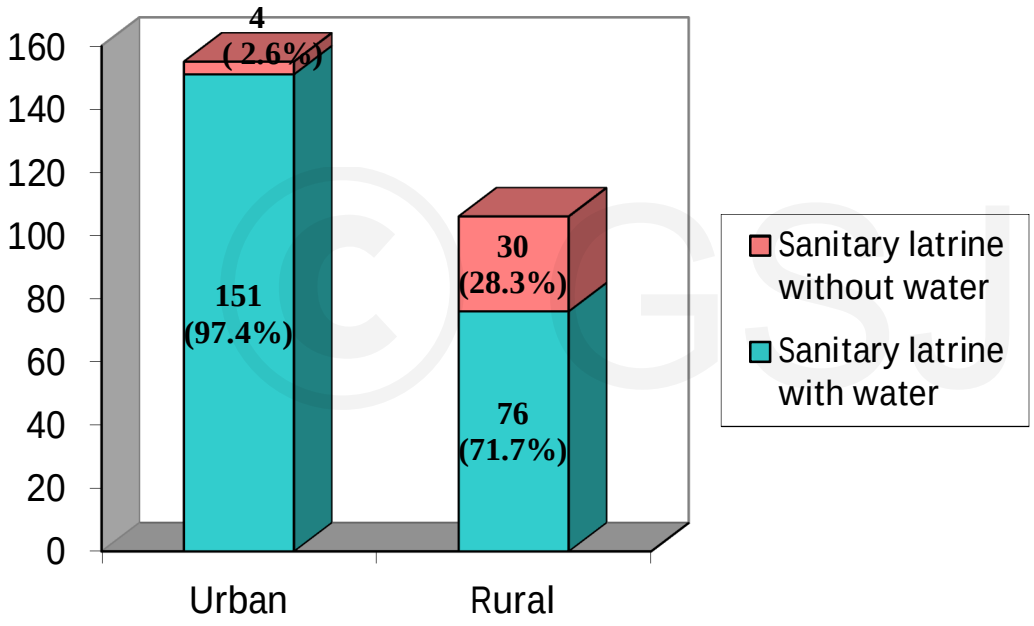

Figure – 6 illustrates thatout of 261 respondents, majority of the respondents 151 (97.4%) use sanitary latrine with water and only 4 (2.6%) respondents use Sanitary latrine without water and in rural area, majority of the respondents 76 (71.7%) use sanitary latrine with water and 30 (28.3%) respondents use Sanitary latrine without water

Hand Washing Before Taking Food of the Respondents

Table – 8: Distribution of the respondents by hand washing before taking food

Area of living	Hand washing before taking food		Total
	Yes	No	
Urban	148 (95.5%)	7 (4.5%)	155 (100.0%)
Rural	104 (98.1%)	29 (1.9%)	106 (100.0%)
Total	252 (96.6%)	9 (3.4%)	261 (100.0%)

Table – 8 shows, Out of 261 respondents in urban area, 148 (95.5%) respondents had habit of hand washing before taking food and 104 (98.1%) respondents had habit of hand washing before taking food.

Facilities of Getting Health Related Information of the Respondents

Table – 9: Distribution of the respondents by Facilities of getting health related information

Facilities of getting health related information from	Area of living		Total
	Urban	Rural	
Radio	4 (2.6%)	1 (0.9%)	5(1.9%)
Television	98 (63.2%)	103 (97.2%)	201 (77%)
Newspaper	12 (7.75%)	0 (0.0%)	12 (4.6%)
Internet	55 (35.5%)	2 (1.9%)	57 (21.8%)
* Total Population = 261, Urban = 155, Rural =106			

Table –9 shows that out of 261 respondents in urban area, majority of the respondents of 98 (63.2%) have Facilities of getting health related information from Television.55 (35.5) respondents have facilities of getting health related information from Internet. 12 (7.75%)) respondents have Facilities of getting health related information from Newspaper and only 4 (2.6%) respondents have facilities of getting health related information from Radio and in rural area, majority of the respondents of 103 (97.2%) have facilities of getting health related information from Television. 2(1.9%) respondents have Facilities of getting health related information from Internet and only 1 (0.9%) respondents have Facilities of getting health related information from Radio.

Determine Anthropometric Measurement of Secondary School Children

BMI of the Respondents

Table – 10: Distribution of the respondents by BMI

BMI (Kg/m^2)	Area of living		Total (n=261)
	Urban (n=155)	Rural (n=106)	
<18.5 (Underweight)	88 (58.3%)	63 (41.7%)	151 (100.0%)
18.5 to 24.99 (Normal weight)	61 (60.4%)	40 (39.6%)	101 (39.6%)
25 to 29.99 (Overweight)	5 (62.5%)	3 (37.5%)	8 (100.0%)
≥30 (Obese)	1 (100.0%)	0 (0.0%)	1 (100.0%)
Mean	18.6037	18.1816	18.4323
SD	3.66366	2.78130	3.33427

Table – 10 shows that, out of 261 respondents, in urban area, majority of the respondents 88 (58.3%) were underweight, 61 (60.4%) respondents were Normal weight, 5 (62.5%) respondents were overweight and rest 1 (100.0%) respondents were obese and in rural area majority of the respondents 63 (41.7%) were underweight, 40 (39.6%) respondents were Normal weight and only 3 (37.5%) were overweight. The mean BMI of urban area was 18.6037 ± 3.66366 and rural area was 18.1816 ± 2.78130.

Assess the Dietary Habit of Secondary School Children

Items taken in breakfast of the respondents

Table – 11: Distribution of the respondents by items taken in breakfast

Items taken in breakfast	Area of living		Total
	Urban	Rural	
Rice	30 (19.4%)	92 (86.8%)	122 (46.7%)
Ruti	101 (65.2%)	36 (34.0%)	137 (52.5%)
Paratha	43 (27.7%)	5 (4.7%)	48 (18.4%)
Bread	35 (22.6%)	8 (7.5%)	43 (46.7%)
Vegetables	50 (32.3%)	52 (49.1%)	102 (39.1%)
Dal	38 (24.5%)	24 (22.6%)	62 (23.8%)
Curry	53 (34.2%)	38 (35.8%)	91 (34.9%)
Egg	98 (63.2%)	78 (73.6%)	176 (67.4%)
Biscuit	15 (9.7%)	16 (15.1%)	31 (11.9%)
Puffed rice (muri)	7 (4.5%)	7 (6.6%)	14 (5.4%)
Pressed rice (chira)	2 (1.3%)	0 (0.0%)	2 (0.8%)
Khichuri	6 (3.9%)	4 (3.8%)	10 (3.8%)
Milk	16 (10.3%)	9 (8.5%)	25 (9.6%)
Fruits	9 (5.8%)	7 (6.6%)	16 (6.1%)
* Total Population = 261, Urban = 155, Rural =106			

Table – 11 shows, Out of 261 respondents, in urban area, majority of the respondents 101 (65.2%) were taken ruti in breakfast. 98 (63.2%) respondents were taken egg in breakfast. 53 (34.2%) respondents were taken curry in breakfast. 50 (32.3%) respondents were taken vegetables in breakfast. 43 (27.7%) respondents were taken Paratha in breakfast. 38 (24.5%) respondents were taken dal in breakfast. 35 (22.6%)

respondents were taken bread in breakfast. 30 (19.4%) respondents were taken rice in breakfast. Rest of the respondents were taken biscuit,muri, chira, khichuri, milk, fruits.In rural area, majority of the respondents 92 (86.8%) were taken ruti in breakfast. 78 (73.6%) respondents were taken egg in breakfast. 52 (49.1%) respondents were taken Vegetables in breakfast. 38 (35.8%) respondents were taken Curry in breakfast. 36 (34.0%) respondents were taken ruti in breakfast. 24 (22.6%) respondents were taken dal in breakfast. Rest of them were taken paratha, bread biscuit,muri, chira, khichuri, milk.

Items Taken in Lunch by the Respondents

Table – 12: Distribution of the respondents by items taken in lunch

Items taken in lunch	Area of living		Total
	Urban	Rural	
Rice	152 (98.1%)	104 (98.1%)	256 (98.1%)
Vegetables	80 (51.6%)	64 (60.4%)	144 (55.2%)
Fish	120 (77.4%)	85 (80.2%)	205 (78.5%)
Meat	87 (56.1%)	60 (56.6%)	147 (56.3%)
Dal	88 (56.8%)	58 (54.7%)	146 (55.9%)
Curry	49 (31.6%)	36 (34.0%)	85 (32.6%)
Egg	22 (14.2%)	26 (24.5%)	48 (18.4%)
Ruti	0 (0.0%)	3 (2.8%)	3 (1.1%)
Paratha	29 (1.3%)	1 (0.9%)	3 (1.1%)
Khichuri	13 (8.4%)	5 (4.7%)	18 (6.9%)
Biriyani	14 (9.0)	7 (6.6%)	21 (8.0%)
* Total Population = 261, Urban = 155, Rural =106			

Table –12shows, Out of 261 respondents, in urban area, majority of the respondents 152 (98.1%) were taken rice in lunch. 120 (77.4%) respondents were taken Fish in lunch.88 (56.8%) respondents were taken dal in lunch. 87 (56.1%) respondents were taken meat in lunch. 80 (51.6%) respondents were taken Vegetables in lunch. 49 (31.6%)respondents were taken curry in lunch. Rest of the respondents were taken egg, paratha, khichuri, biriyani. In rural area, majority of the respondents 104 (98.1%) were taken rice in lunch. 85 (80.2%) respondents were taken Fish in lunch. 64 (60.4%)respondents were taken Vegetables in lunch. 60 (56.6%) respondents

were taken meat in lunch. 58 (54.7%) respondents were taken dal in lunch. 36 (34.0%) respondents were taken curry in lunch. Rest of the respondents were taken egg, ruti, paratha, khichuri, biriyani.

Items Taken in dinner by the Respondents

Table – 13: Distribution of the respondents by items taken in dinner

Items taken in Dinner	Area of living		Total
	Urban	Rural	
Rice	148 ((95.5%)	102 (96.2%)	250 (95.8%)
Vegetables	83 (53.5%)	51 (48.1%)	134 (51.3%)
Fish	89 (57.4%)	70 (66.0%)	159 (60.9%)
Meat	71 (45.8%)	42 (39.6%)	113 (43.3%)
Dal	96 (61.9%)	53 (50.0%)	149 (57.1%)
Curry (vaji)	58 (37.4%)	16 (15.1%)	74 (28.4%)
Egg	48 (31.0%)	27 (25.5%)	75 (28.7%)
Bread(ruti)	9 (5.8%)	10 (9.4%)	19 (7.3%)
Bread (paratha)	4 (2.6%)	0 (0.0%)	4 (1.5%)
Khichuri	9 (5.8%)	0 (0.0%)	9 (3.4%)
Biriyani	12 (7.7%)	3 (2.8%)	15 (5.7%)
Milk	19 (12.3%)	28 (26.4%)	47 (18.0%)
* Total Population = 261, Urban = 155, Rural =106			

Table – 13shows, Out of 261 respondents, in urban area, majority of the respondents148 ((95.5%) were taken rice in dinner. 96 (61.9%) respondents were taken dal in dinner. 89 (57.4%) respondents were taken Fish in dinner. 83 (53.5%) respondents were taken vegetables in dinner. 71 (45.8%) respondents were taken meat in dinner. 58 (37.4%) respondents were taken Curry (vaji) in dinner. 48 (31.0%) respondents were taken Egg in dinner. Rest of the respondents were taken ruti, paratha, khichuri, biriyani, milk. In rural area, majority of the respondents 102 (96.2%) were taken rice in dinner. 70 (66.0%) respondents were taken Fish in dinner. 53 (50.0%) respondents were taken dal in dinner. 51 (48.1%) respondents were taken vegetables in dinner. 42 (39.6%) respondents were taken meat in dinner. 27 (25.5%) respondents were taken Egg in dinner. Rest of the respondents were taken ruti, paratha, khichuri, biriyani,milk.

Items Taken in Evening by the Respondents

Table – 14: Distribution of the respondents by items taken in evening

Taking food in afternoon/evening	Area of living		Total
	Urban	Rural	
Yes	130 (83.9%)	62 (58.5%)	192 (73.6%)
No	25 (16.1%)	44 (41.5%)	69 (26.4%)
Total	155 (100.0%)	106 (100.0%)	261 (100.0%)

Table – 14 shows that, Out of 261 respondents, 130 (83.9%) respondents were taken evening snacks in urban area, and 62 (58.5%) respondents were taken evening snacks in rural area.

Items Taken in Evening / Afternoon by the Respondents

Table – 15: Distribution of the respondents by Items taken in Evening/ Afternoon

Evening snacks	Area of living		Total
	Urban	Rural	
Fries	46 (29.7%)	10 (9.4%)	56 (21.5%)
Fastfood	37 (23.9%)	3 (2.8%)	40 (15.3%)
Noodles	54 (34.8%)	26 (24.5%)	80 (30.7%)
Biscuit	40 (25.8%)	31 (29.2%)	71 (27.2%)
Chanachur	26 (16.8%)	13 (12.3%)	39 (14.9%)
Puffed rice (Muri)	23 (14.8%)	19 (17.9%)	42 (16.1%)
Milk	13 (8.4%)	11 (10.4%)	24 (9.2%)
Fruit	6 (3.9%)	2 (1.9%)	8 (3.1%)
* Total Population = 261, Urban = 155, Rural =106			

Table – 15 shows that, Out of 261 respondents majority of the respondents54 (34.8%) were taken noodles in the evening. 46 (29.7%) respondents were taken fries in the evening. 40 (25.8%) respondents were taken Biscuit in the evening. 37 (23.9%) respondents were taken Fastfoodin the evening.Rest of the respondents were taken chanachur, muri, milk, fruit in urban area and majority of the respondents31 (29.2%) were taken biscuit in the evening. 26 (24.5%) respondents were taken noodles in the evening. 19 (17.9%) respondents were taken muri in the evening. 13 (12.3%) respondents were taken chanachur in the evening.Rest of the respodents were taken fries,fastfood, milk, fruit in rural area.

Finding out Personal Food Habit

Consumption of Soft Drinks by the Respondents

Table – 16: Distribution of the respondents by consumption of soft drinks

Consumption of soft drinks by the respondents	Area of living		Total
	Urban	Rural	
Cold drinks	116 (74.8%)	80 (75.5%)	196 (75.1%)
Fruit Juice	20 (12.9%)	17 (16.0%)	37 (14.2%)
None	19 (12.3%)	9 (8.5%)	28 (10.7%)
Total	155 (100.0%)	106 (100.0%)	261 (100.0%)
* Total Population = 261, Urban = 155, Rural =106			

Table – 16shows that, Out of 261 respondents majority of the respondents 116 (74.8%) were taken Cold drinks and Only 20 (12.9%) respondents were taken fruit Juice in urban area and in rural area majority of the respondents 80 (75.5%) were taken Cold drinks and only 17 (16.0%) respondents were taken fruit Juice.

Frequency of Consumption of Soft Drinks Intake by the Respondents

Table – 17:Distribution of the respondents by Frequency of consumption of soft drinks intake

Area of living	Frequency of consumption of soft Drinks intake		Total
	Daily	Sometimes	
Urban	43 (91.5%)	94 (50.3%)	137 (58.5%)
Rural	4 (8.5%)	93 (49.7%)	97 (41.5%)
Total	47 (100.0%)	187 (100.0%)	234 (100.0%)

Table – 17 shows that, Out of 261 respondents in urban area, majority of the respondents 94 (50.3%) were consumed soft drinks sometimes and 43 (91.5%) respondents consumed soft drinks daily. In rural area, majority of the respondents 93 (49.7%) were consumed soft drinks sometimes and only 4 (8.5%) respondents consumed soft drinks daily.

Consumption of Drinking Tea, Horlicks, Coffee by the Respondents

Table – 18: Distribution of the respondents by Consumption of drinking tea, horlicks, coffee

Consumption of drinking tea, horlicks, coffee	Area of living		Total
	Urban	Rural	
Tea	76 (49.0%)	43 (40.6%)	119 (45.6%)
Horlicks	26 (16.8%)	13 (12.3%)	39 (14.9%)
Coffee	25 (16.1%)	7 (6.6%)	32 (12.3%)
Milk	52 (33.5%)	47 (44.3%)	99 (37.9%)
* Total Population = 261, Urban = 155, Rural =106			

Table – 18 shows, Out of 261 respondents in urban area, majority of the respondents 76 (49.0%) were taken tea. 52 (33.5%)respondents were taken milk.26 (16.8%) respondents were taken horlicks. 25 (16.1%) respondents were taken coffee and in rural area, majority of the respondents 43 (40.6%) were taken tea. 47 (44.3%) respondents were taken milk.13 (12.3%) respondents were taken Horlicks and only 7 (6.6%) respondents were taken coffee.

Daily Intake of Fast Food by the Respondents

Table – 19: Distribution of the respondents by daily intake of fast food

Area of living	Daily intake of fast food		Total
	Yes	No	
Urban	122 (78.7%)	33 (21.3%)	155 (100.0%)
Rural	43 (40.6%)	63 (59.4%)	106 (100.0%)
Total	165 (63.2%)	96 (36.8%)	261 (100.0%)

Table – 19 shows that, Out of 261 respondents in urban area, majority of the respondents 122 (78.7%) taken fast food daily and only 43 (40.6%) respondentstaken fast food daily in rural area.

Time of fast food intake by the respondents

Table – 20: Distribution of the respondents by time of fast food intake

Area of living	Time of fast food intake		Total
	Daily	Sometimes	
Urban	22 (17.9%)	101 (82.1%)	123 (100.0%)
Rural	1 (2.3%)	42 (97.7%)	43 (100.0%)
Total	23 (13.9%)	143 (86.1%)	166 (100.0%)
* Total Population = 261, Urban = 155, Rural =106			

Table – 20 shows that, Out of 261 respondents in urban area, majority of the respondents 101 (82.1%) were takenfast foodsometimes and 22 (17.9%) respondents were takenfast food daily.In

rural area, majority of the respondents 42 (97.7%) were takenfast foodsometimes and only1 (2.3%) respondents were taken fast food daily.

Daily Fruit Intake by the Respondents

Table – 21: Distribution of the respondents byDaily fruit intake

Area of living	Daily fruit intake		Total
	Yes	No	
Urban	106 (68.4%)	49 (31.6%)	155 (100.0%)
Rural	79 (74.5%)	27 (25.5%)	106 (100.0%)
Total	185 (70.9%)	76 (29.1%)	261 (100.0%)
* Total Population = 261, Urban = 155, Rural =106			

Table – 21 shows that, Out of 261 respondents in urban area, majority of the respondents 106 (68.4%) taken fruit daily and 79 (74.5%) respondents taken fruit daily in rural area.

Type of Fruit Intake by the Respondents

Table – 22: Distribution of the Respondents by Type of Fruit Intake

Type of fruit intake	Area of living		Total
	Urban	Rural	
Banana	53 (34.2%)	54 (50.9%)	107 (41.0%)
Orange	20 (12.9%)	18 (17.0%)	38 (14.6%)
Apple	36 (23.2%)	29 (27.4%)	65 (24.9%)
Guava	31 (20.0%)	30 (28.3%)	61 (23.4%)
Seasonal fruit	31 (20.0%)	22 (20.8%)	53 (20.3%)
* Total Population = 261, Urban = 155, Rural =106			

Finding Out Physical Activity among Secondary School Children

Playing or Performing Physical Exercise by the Respondents

Table – 23: Distribution of respondents by playing or performing physical exercise

Area of living	Distribution of respondents by playing or performing physical exercise		Total
	Yes	No	
Urban	139 (89.7%)	16 (10.3%)	155 (100.0%)
Rural	93 (87.7%)	13 (12.3%)	106 (100.0%)
Total	232 (88.9%)	29 (11.1%)	261 (100.0%)
* Total Population = 261, Urban = 155, Rural =106			

Table – 23 shows that, Out of 261 respondents in urban area, majority of the respondents 139 (89.7%) performed physical exercise and 93 (87.7%) respondents performed physical exercise in rural area.

Type of Physical Exercise by the Respondents

Table – 24: Distribution of respondents by Type of physical exercise

Area of living	Type of physical exercise			Total
	Playing	Assembly at school	Physical exercise	
Urban	64 (45.4%)	73 (51.8%)	4 (2.8%)	141 (100.0%)
Rural	36 (38.7%)	55 (59.1%)	2 (2.2%)	93 (100.0%)
Total	100 (42.7%)	128 (54.7%)	6 (2.6%)	234 (100.0%)
* Total Population = 261, Urban = 155, Rural =106				

Table – 24 shows that, Out of 261 respondents in urban area, majority of the respondents 73 (51.8%) were performed assembly at school. 64 (45.4%) respondents were played and only 4 (2.8%) respondents were performed physical exercise. In rural area, majority of the respondents 55 (59.1%) were performed assembly at school. 36 (38.7%) respondents were played and only 2 (2.2%) respondents were performed physical exercise.

Daily Playing Computer Games by the Respondents

Table – 25: Distribution of respondents by daily playing computer games

Area of living	Daily playing computer games		Total
	Yes	No	
Urban	43 (27.7%)	112 (72.3%)	155 (100.0%)
Rural	9 (8.5%)	97 (91.5%)	106 (100.0%)
Total	52 (19.9%)	209 (80.1%)	261 (100.0%)
* Total Population = 261, Urban = 155, Rural =106			

Table – 25 shows that, Out of 261 respondents in urban area, 43 (27.7%)respondents wereplayed games in computer and 9 (8.5%) respondents played games in computer in rural area.

Duration of Playing Computer Games by the Respondents

Table – 26: Distribution of respondents by duration of playing computer games

Duration of playing computer games (Hours)	Area of living		Total (n=261)
	Urban (n=155)	Rural (n=106)	
1	21 (48.8%)	0 (0.0%)	21 (48.8%)
2	18 (41.9%)	0 (0.0%)	18 (41.9%)
3	1 (2.3%)	0 (0.0%)	1 (2.3%)
4	1 (2.3%)	0 (0.0%)	1 (2.3%)
5	1 (2.3%)	0 (0.0%)	1 (2.3%)
6	1 (2.3%)	0 (0.0%)	1 (2.3%)
Mean	1.63	0	1.63
SD	1.010	0	1.010

Table – 26 shows that, Out of 261 respondents in urban area, majority of the respondents 21 (48.8%) were played games in computer for 1 hr. 18 (41.9%) respondents were played games in computer for 2 hour. 1 (2.3%) respondents were played games in computer for 3- 6 hours. In rural no respondents were found to play games in computer. The mean duration of playing computer games was 1.63±1.010 in urban area.

Duration of Sleep by the Respondents

Table – 27: Distribution of respondents duration of sleep

Duration of sleep (Hours)	Area of living		Total (n=261)
	Urban (n=155)	Rural (n=106)	
Up to 6 hours	21 (48.8%)	22 (51.2%)	43 (100.0%)
7 to 10 hours	130 (60.7%)	84 (39.3%)	214 (100.0%)
>10 hours	4 (100.0%)	0 (0.0%)	4 (100.0%)
Mean	7.72	7.39	7.58
SD	1.528	1.092	1.375

Table – 27 shows that, Out of 261 respondents in urban area, majority of the respondents 130 (60.7%) were found to sleep daily for 7 to 10 hours. 21 (48.8%) respondents were found to sleep daily for up to 6 hours and 4 (100.0%) respondents were found to sleep daily for >10 hours. In rural area, majority of the respondents 84 (39.3%) were found to sleep 7 to 10 hours daily. 22 (51.2%) respondents were found to sleep up to 6 hours. The mean duration of sleep was 7.72±1.528 in urban and The mean duration of sleep was 7.39±1.092 in rural area

To Compare Nutritional Status of Secondary School Children in Selected Urban and Rural Area

Difference of BMI in between Urban and Rural Area

Table – 28: Difference of BMI in between urban and rural area

	Area of living	Frequency (N)	Mean	Significance
BMI (Kg/m^2)	Urban	155	18.6037	t=1.004 P=.316
	Rural	106	18.1816	

Table – 28 showing, mean BMI of urban area is 18.6037 kg/m^2 and mean BMI of rural area is 18.1816 $kg/m^{2.}$ There is no significant difference of BMI in between urban and rural area.

Difference of BMI in between Male and Female

Table – 29: Difference of BMI in between male and female

	Sex	Frequency (N)	Mean	Significance
BMI (Kg/m^2)	Male	102	18.7221	t=1.125 P =.262
	Female	159	18.2464	

Table – 29 showing, mean BMI of male is 18.7221kg/m^2 and mean BMI of female is 18.2464 $kg/m^{2.}$ There is no significant difference of BMI in between male and female

Difference of Height in between Male and Female

Table – 30: Difference of Height in between male and female

	Sex	Frequency (N)	Mean	Significance
Height (cm)	Male	102	158.2549	t=.049 P=.961
	Female	159	158.6478	

Table – 30showing, mean height of male is 158.2549 cm and mean height of female is 158.6478 cm. There is no significant difference of height between male and female.

Difference of Weight in between Male and Female

Table – 31: Difference of weight in between male and female

	Sex	Frequency (N)	Mean	Significance
Weight (kg)	Male	102	47.2941	t= 3.518 P value=.001
	Female	159	42.8239	

Table–31 showing, mean weight of male is 47.2941kg and mean weight of female is 42.8239 Kg. There is significant difference of weight between male and female.

Relationship of BMI and area of Residence

Table–32: Relationship of BMI and area of residence

Area of living	BMI				Significance
	Underweight	Normal	Overweight	Obese	Fisher exact test
Urban (n=155)	88(56.8%)	61(39.4%)	5(3.2%)	1(0.6%)	Test value= .824 P value=.966
Rural (n=106)	63(59.4%)	40(37.7%)	3(2.8%)	0(0.0%)	
Total (n=261)	151(57.9%)	101(38.7%)	8(3.1%)	1(0.4%)	

Table –32 showing, urban underweight 88(56.8%), normal 61(39.4%), overweight 5(3.2%), obese 1(0.6%) and rural underweight 63(59.4%), normal 40(37.7%), overweight 3(2.8%), obese 0(0.0%)There is no association of BMI and area of residence

Difference of Height in between Urban and Rural Area

Table–33: Difference of Height in between urban and rural area

Height (cm)	Area of living	Frequency (N)	Mean	Significance
	Urban	155	161.3226	t= .882 P=.379
	Rural	106	154.3585	

Table–33 showing, urban mean height 161.3226 and rural mean height 154.3585 and p=.379 .There is no significant differences of height between urban and rural area.

Difference of Weight in between Urban and Rural

Table–34: Difference of weight in between urban and rural

	Area of living	Frequency (N)	Mean	Significance
Weight (kg)	Urban	155	45.2065	t= 1.297 P=.196
	Rural	106	43.6415	

Table–34 showing, urban mean weight 45.2065 and rural mean weight 43.6415 and p=.196 .There is no significant differences of weight between urban and rural.

Discussion

School age is considered as a dynamic period of growth and development because children undergo physical, mental, emotional and social changes. In other words the foundations of good health and sound mind are laid during the school age period (Srivastava A et al., 2012). The present cross sectional study was conducted during April-June, 2016 conducted to determine the nutritional status among adolescent school children in selected urban and rural area. A total 261 sample were selected purposively and according to inclusion and exclusion criteria. They were interviewed with a specific pre-designed and pre tested questionnaire and some information were gathered by document review. Collected data were cleaned, edited and analyzed with the help of software SPSS windows version 23.

Some salient findings identified in the study are as follows:

In present study, among total 261 respondents, more than one third (35.8%) were in the age of 15 years in urban area followed by one fourth (25.2%) were in the age of 15 years in rural area. A good amount of respondents were in the age of 16 years in urban area and. 13 years of rural area. The mean age of the urban respondents was 14.17± 1.482 years and rural respondents was 13.92±1.568 years and total mean was 14.07±1.520 years with minimum age 10 years and maximum age 17 years (Table-1).

Some previous studies conducted in rural and urban part of Rohtak, Haryana by (B.M. Vashist et al., 2009) where adolescents in the 13–14 years age group were selected from secondary school in rural areas and urban areas were used. This is consistent with this present study. Another cross-sectional study was conducted in Cameroon, Africa (Le´onieNzefa Dapi.,2005) carried out in an urban and a rural area. The study comprised 52 boys and girls, 12-15 years old, selected from the second grade in public secondary schools. For the rural area all adolescents in the class who were present at the time of the study were included (n= 26, 12 boys and 14 girls); the same number of adolescents was randomly selected from the school in the urban area(n= 26, 13 boys and 13 girls). The mean age among the adolescents was 12.7 years in the urban and 13.7 years in the rural areas. This study is consistent with this present study.

Current study found that the sex of the respondents. Among 261 respondents, most (63.9%) were female and (36.1%) were male in urban area and 60 (56.6%) were female and 46 (43.4%) were male in rural area Some previous studies conducted in Rural and Urban Areas of Anambra State

by (Nwabueze Achunam Simeon et al.,2015) Out of 365 pupils, 50.4% were males and 49.6% were females. This study seems to be similar with this present study.

Another study was conducted in rural school children of Bangladesh by (Nowsin et al., 2014). In that study Out of 340 students, 181(53.23%) were boys and 159(46.76%) were girls that are also seems to be similar with this present study.

In current study, among 261 respondents, most (94.8%) were Muslims, only (3.9%) were Hindus and (1.3%) were Christians in urban area and 100 (94.3%) were Muslims, only (5.7%) were Hindus in rural area.

Some previous studies conducted in Tangail region by (Islam et al., 2014). 63.9% (n=46) of participants were Muslim and 5.6% (n=4) Hindu and 30.6% (n=22) Christian in rural area. On the other hand, most of the participant were Muslim 75% (n=54), while 25% (n=18) were Hindu but no Christian (n=0) in urban area. This finding is nearly consistent with this present study.

Another study was conducted in rural school children of Bangladesh by (Nowsin et al., 2014).In this study, among 340 students 90.6% were Muslim and rest were Hindu. This study is consistent with this present study.

In this present study, that, among 261 respondents, (86.4%) fathers were illiterate, (72.1%) fathers did cross class 5 but (60.0%) stopped before SSC examination, (36.8%) fathers passed Secondary School Certificate, (48.4%) fathers passed Higher Secondary School Certificate, (60.0%) fathers completed graduation, among the rest (91.7%) fathers completed post graduation in urban area and in rural area 3 (13.6%) fathers were illiterate, (27.9%) fathers did cross class 5 but (40.0%) fathers stopped before SSC examination, (63.2%)fathers passed Secondary School Certificate, (51.6%) fathers passed Higher Secondary School Certificate, (40.0%) fathers completed graduation, among the rest (8.3%)fathers completed post graduation which indicates respondents fathers are more educated in urban area than rural area.

Among 261 respondents, (67.9%) mothers were illiterate, (76.3%) mothers did cross class 5 but (51.8%) stopped before SSC examination, (42.4%) mothers passed Secondary School Certificate, (48.1%) mothers passed Higher Secondary School Certificate, (50.0%) mothers completed graduation, among the rest (100.0%) mothers completed post graduation in urban area and in rural area (32.1%) mothers were illiterate, (23.7%) mothers others did cross class 5 but (48.2%) mothers stopped before SSC examination, (57.6%) mothers passed Secondary School Certificate,

(51.9%) mothers passed Higher Secondary School Certificate, (50.0%) mothers completed graduation which specifies respondents mothers are more educated in urban area than rural area.

Some previous studies conducted in Nigeria in rural setting by (Boma et al.,2014).Most fathers (63.6%) have secondary level of education, while most mothers have primary level of education (46.6%),0nly 2.6% mothers and 4.7% fathers had tertiary education the proportion of mothers that had no formal education (28.8%) was higher than fathers (9.4%) who had no formal education. This study seems to be similar with this present study.

In existing study, majority of the occupation of respondents fathers were (66.1%) Service holder, (62.9%) were involved in business,(61.5%) were Day laborer, (16.0%) were Farmer and only (33.3%) were Unemployed and (57.1%) were Retired in urban area and in rural area majority (33.9%) were Service holder, (37.1%) were involved in business, (84.0%) were Farmer, (38.5%) were Day laborer, (66.7%) were Unemployed and (42.9%) were Retired.

The occupation of the respondent's mothers were (79.4%) housewife, (20.0%) were service holder, only (0.6%) were involved in business in urban area and in rural, majority (96.2%) were housewife, (1.9%) were Day laborer, only (0.9%) were involved in Business and (0.9%) were farmer. Some previous studies conducted in Nigeria in rural setting by (Bomaet al., 2014). A large proportion of fathers were Civil servants (12.6%) while most mothers were farmers (17.3%), the proportion of unemployed fathers 10.47% was higher than unemployed mothers. 4.7%. This study seems to be similar with this present study.

In current study, out of 261 respondents, in urban area, majority of the respondents (61.9%) belonged to the family of 2 to 4 members, (62.5%) respondents belonged to the family of 5 to 7 members, (37.5%) belonged to the family of 8 to 10 members, 1 (25.0%) respondents belonged to the family of >10 members and in rural area, majority of the respondents (38.1%) belonged to the family of 2 to 4 members, (37.5%) respondents belonged to the family of 5 to 7 members, (62.5%) respondents belonged to the family of 8 to 10 members, (75.0%) respondents belonged to the family of >10 members. The mean family member of urban respondents was 5.14±2.405 and The mean family member of rural respondents was 5.4 ±1.996. Among 261 respondents(85.8%) were from nuclear type of family and (12.9%) were from joint family and the rest (1.3%) were from extended family in urban area and in rural area, (65.1%) were from nuclear type of family and (27.4%) were from joint family and the rest (7.5%) were from

extended family which reveals that both in urban and rural area nuclear type of family are common.

Some preceding studies conducted in Tangail District, by (Islam et al., 2014*)*.Major participants in urban area (48.6 %, n=35) were contained less than 4 members in each family while major participants in rural area (44.5%, n= 32) were contained 6-7 family member. Thus it indicates that the nuclear family concept was more adopted in urban household compare to rural household in Tangail region. This study seems to be similar with this present study.

In current study, urban area, highest percentage of (51.0%) of the respondents were in the income group of TK. 10001 to 20000 per month per family.(51.0%) were in the income group of TK. 20001 to 30000. (11.0%) were in the income group of TK. 1000 to 10000. (5.8%) were in the income group of TK. 30001 to 40000.(5.2%) were in the income group of TK. 40001 to 50000.The lowest percentage of (0.6%) were in the category of earning TK. 50001 to 60000 per month per family and (0.6%) were in the category of earning TK. 70001 to 80000. The average monthly family income was Tk22500.00 ±11551.831 with maximum income was Tk80000 and minimum income was Tk5000.In rural area, highest percentage of (46.2%) of the respondents were in the income group of TK. 1000 to 10000 per month per family. (31.1%) were in the income group of TK. 10001 to 20000.(16.0%) were in the income group of TK. 20001 to 30000. (2.8%) were in the income group of TK. 30001 to 40000. (2.8%) were in the income group of TK. 40001 to 50000.The lowest percentage of (0.9%) were in the category of earning TK. 70001 to 80000. The average monthly family income was Tk16028.30 ± 12075.522 with maximum income was Tk 80000 and minimum income was Tk3000 which indicates that the monthly income of urban area are higher than the rural area.

Some previous studies conducted in Tangail District by (Islam et al.,2014*)*The total monthly income of nearly three fourth family in rural area were between BDT 4000-9000 where their average food expenditure between BDT 3000-6000 which are also affect nutritional status in children. Meanwhile the total monthly income of most urban family were more than BDT 24,000 where their average food expenditure more than BDT 15000. A tendency towards an increase nutritional status in under-five children with an increase in the family income. This may due to their ability to spend more money for food which is essential for good health of children. This study is consistent with this present study.

In present study,out of 261 respondents, in urban area, majority of the respondents (91.6%) lived in house type of pakka, (7.7%) respondents lived in house type of semi pacca and the rest (0.6%) respondents lived in house type of Bamboo/Tin wall with tin shed and in rural area, majority of the respondents (47.2%) lived in house type of semi pakka, (30.2%) respondents lived in house type of pacca and the rest (22.6%) respondents lived in house type of Bamboo/Tin wall with tin shed.

In current study, out of 261 respondents, majority of the respondents (91.0%) drunk the Supply water,(7.1%) drunk the Tube-well waterand only (1.9%) respondent drunk the Pond water in urban area and in rural area, majority of the respondents (93.4%) drunk the Tube-well water and (6.6%) drunk the Supply water.

Some previous studies conducted in rural school children of Bangladesh by (Nowsin et al., 2014). In this study, among 340 rural school children 41.5% use tubewell water for drinking purpose. This study seems to be similar with this present study.

In present study, out of 261 respondents, majority of the respondents (97.4%) use sanitary latrine with water and only (2.6%) respondents use Sanitary latrine without water and in rural area, majority of the respondents (71.7%) use sanitary latrine with water and (28.3%) respondents use Sanitary latrine without water.

Some previous studies conducted in rural school children of Bangladesh by (Nowsin et al., 2014). In that study, among 340 rural school children 46.2% children had sanitary latrine in their house. This study deems to be similar with this present study.

In current study, Out of 261 respondents in urban area, (95.5%) respondents had habit of hand washing before taking food and (98.1%) respondents had habit of hand washing before taking food which indicates respondents of both areas have habit of hand washing before taking food.

In current study, out of 261 respondents in urban area, majority of the respondents of (63.2%) have Facilities of getting health related information from Television.(35.5%) respondents have Facilities of getting health related information from Internet.(7.75%) respondents have Facilities of getting health related information from Newspaper and only (2.6%) respondents have Facilities of getting health related information from Radio and in rural area, majority of the respondents of (97.2%) have Facilities of getting health related information from Television. (1.9%) respondents had Facilities of getting health related information from Internet and only (0.9%) respondents had Facilities of getting health related information from Radio.

In current study, out of 261 respondents, in urban area, majority of the respondents 88 (58.3%) were underweight, 61 (60.4%) respondents were Normal weight, 5 (62.5%) respondents were overweight and rest 1 (100.0%) respondents were obese and in rural area majority of the respondents 63 (41.7%) were underweight, 40 (39.6%) respondents were Normal weight and only 3 (37.5%) were overweight. The mean BMI of urban area was 18.6037 ± 3.66366 and rural area was 18.1816 ± 2.78130this study reveals that the prevalence of underweight is slightly higher in urban area than

in rural area.

A finding is not consistent with some previous studies accompanied in rural school children of Bangladesh by (Nowsin et al., 2014). The school children in this study were found to be better nourished than the rural Punjab school children as reported in another recent study,14 where the prevalence of under nutrition was 87.4%. Our study shows 81.8% (278) students were underweight according to BMI, 16.1% (55) students were within normal range and 2.1% (7) students were overweight.

Out of 261 respondents, in urban area, majority of the respondents(65.2%) were taken ruti in breakfast.(63.2%) respondents were taken egg in breakfast.(34.2%) respondents were taken curry in breakfast.(32.3%) respondents were taken vegetables in breakfast.(27.7%) respondents were taken Paratha in breakfast.(24.5%) respondents were taken dal in breakfast.(22.6%)respondents were taken bread in breakfast. (19.4%) respondents were taken rice in breakfast. Rest of the respondents were taken biscuit,muri, chira, khichuri, milk, fruits .In rural area, majority of the respondents(86.8%) were taken rice in breakfast.(73.6%) respondents were taken egg in breakfast. (49.1%) respondents were taken Vegetables in breakfast.(35.8%) respondents were taken Curry in breakfast. (34.0%) respondents were taken ruti in breakfast.(22.6%) respondents were taken dal in breakfast. Rests of them were taken paratha, bread biscuit, muri, chira, khichuri, milk. This study indicates that food habit of urban and rural people are different. Rural people eats rice more but urban people eats ruti in the morning.

Out of 261 respondents, in urban area, majority of the respondents(98.1%) were taken rice in lunch. (77.4%) respondents were taken Fish in lunch.(56.8%) respondents were taken dal in lunch.(56.1%) respondents were taken meat in lunch.(51.6%) respondents were taken Vegetables in lunch.(31.6%) respondents were taken curry in lunch. Rest of the respondents was taken egg,

paratha, khichuri, biriyani. In rural area, majority of the respondents(98.1%)were taken rice in lunch. (80.2%) respondents were taken Fish in lunch. (60.4%) respondents were taken Vegetables in lunch. (56.6%) respondents were taken meat in lunch. (54.7%) respondents were taken dal in lunch.(34.0%) respondents were taken curry in lunch. Rest of the respondents were taken egg, ruti, paratha, khichuri, biriyani.

Out of 261 respondents, in urban area, majority of the respondents(95.5%) were taken rice in dinner.(61.9%) respondents were taken dal in dinner.(57.4%) respondents were taken Fish in dinner.(53.5%) respondents were taken vegetables in dinner. (45.8%) respondents were taken meat in dinner. (37.4%) respondents were taken Curry (vaji) in dinner.(31.0%) respondents were taken Egg in dinner. Rest of the respondents were taken ruti, paratha, khichuri, biriyani, milk. In rural area, majority of the respondents(96.2%) were taken rice in dinner.(66.0%) respondents were taken Fish in dinner.(50.0%) respondents were taken dal in dinner.(48.1%) respondents were taken vegetables in dinner.(39.6%) respondents were taken meat in dinner.(25.5%) respondents were taken Egg in dinner. Rest of the respondents were taken ruti, paratha, khichuri, biriyani,milk

Some previous study that was showed by peoples participation research centre(PPRC)non dietary habit of primary school children in Bangladesh published in Amader shomoy on 22 June 2008 page 8.This report exposed that only 3% of the primary school children were fed meat with rice, 80.8% feed potato, vegetable and dal.the report says that rice with fish was 29.9%, rice with milk 1.6% and 3.4% were fed rice with egg and vegetables. This is a precarious picture of malnutrition of primary school children in Bangladesh. This study may be reliable with the present study.

Some preceding studies was conducted in Khartoum State, Sudan by (Fatima Omer Nabag et al., 2011) There was significant difference between rural and urban school girl's children in dietary intake of legumes, carbohydrates, vegetables, fruit and fruit juices and beverages. This study is consistent with this present study.

Another study was conducted in conducted in Khartoum State, Sudan by (Fatima Omer Nabag et al., 2011). There were significant differences of dietary intake of school girl's children in legumes, carbohydrates, vegetables, fruits and fruit juices and beverages consumption between rural and urban school girls.. These views were in line with the results and indicate there was a

very strong association between family income and nutritional status of children. This study is consistent with the present study.

Another cross-sectional study is consistent with this study was conducted in Cameroon, Africa (Le´onieNzefa Dapi.,2005) carried out in an urban and a rural area. The frequency of in-between meals was significantly higher among urban than rural adolescents. Breakfast and lunch were slightly different between urban and rural adolescents, although this difference was not significant breakfast as a drink with sugar and bread, whereas in the rural area breakfast is composed of leftover traditional food. In contrast to the urban area, milk products are expensive, less available and not considered as a‘‘food’’in the rural area. Meat/fish/eggs are more available and affordable in the urban areas, while in the rural areas they are eaten on special occasions owing to high prices and low availability. Vegetables/green leaves are consumed in both areas, but are more processed in the urban area than in the rural area. The high frequency of cereals in urban adolescents may be due to the high consumption of wheat bread.

In current study, out of 261 respondents, (83.9%) respondents were taken evening snacks in urban area, and (58.5%) respondents were taken evening snacks in rural area Out of 261 respondents majority of the respondents(34.8%) were taken noodles in the evening. (29.7%) respondents were taken fries in the evening.(25.8%) respondents were taken Biscuit in the evening. (23.9%) respondents were taken fastfood in the evening.Rest of the respondents were taken chanachur, muri, milk, fruit in urban area and majority of the respondents(29.2%) were taken biscuit in the evening. (24.5%) respondents were taken noodles in the evening.(17.9%) respondents were taken muri in the evening. (12.3%) respondents were taken chanachur in the evening. Rest of the respondents were taken fries, fast food, milk, fruit in rural area

Out of 261 respondents majority of the respondents(74.8%) were taken Cold drinks and Only (12.9%) respondents were taken fruit Juice in urban area and in rural area majority of the respondents (75.5%) were taken Cold drinks and only (16.0%) respondents were taken fruit Juice. (50.3%) were consumed soft drinks sometimes and (91.5%) respondents consumed soft drinks daily. In rural area, majority of the respondents(49.7%) were consumed soft drinks sometimes and only (8.5%) respondents consumed soft drinks daily.

Out of 261 respondents in urban area, majority of the respondents (49.0%) were taken tea.(33.5%) respondents were taken milk.(16.8%) respondents were taken horlicks. (16.1%) respondents were taken coffee and in rural area, majority of the respondents(40.6%) were taken

tea.(44.3%) respondents were taken milk.(12.3%) respondents were taken Horlicks and only (6.6%) respondents were taken coffee

Another cross-sectional was conducted in Cameroon, Africa (Le´onieNzefa Dapi.,2005) carried out in an urban and a rural area.There was a difference between urban and rural adolescents in milk consumption. In the urban area, milk products are available and affordable,and are consumed. This study seems to be similar with the present study.

Out of 261 respondents in urban area, majority of the respondents(78.7%) taken fast food daily and only (40.6%) respondents taken fast food daily in rural area .In urban area, majority of the respondents (82.1%) were taken fast food sometimes and (17.9%) respondents were taken fast food daily. In rural area, majority of the respondents(97.7%) were taken fast food sometimes and only(2.3%) respondents were taken fast food daily. Due to availability, affordability and socioeconomic condition fastfood intake is higher in urban area than in rural area.

Some previous study was conducted in Cameroon, Africa (Le´onieNzefa Dapi.,2005) carried out in an urban and a rural area. The high frequencies of junk food and in between meals in urban adolescents could also be due to the fact that they had more pocket money than rural adolescents. This study seems to be similar with the present study.

Out of 261 respondents in urban area, majority of the respondents (68.4%) taken fruit daily and (74.5%) respondents taken fruit daily in rural area Out of 261 respondents in urban area, majority of the respondents(34.2%)were taken banana.(23.2%) respondents were taken apple.(20.0%) respondents were taken guava.(20.0%) respondents were taken seasonal fruit .(12.9%) respondents were taken orange and in rural area, majority of the respondents(50.9%)were taken banana.(28.3%) respondents were taken guava.(27.4%) respondents were taken apple.(20.8%)respondents were taken seasonal fruit.(17.0%) respondents were taken orange which exposes that fruit intake in rural area are slightly higher than urban area due to availability of fresh fruits.

Out of 261 respondents in urban area, majority of the respondents(89.7%) performed physical exercise and (87.7%) respondents performed physical exercise in rural area In urban area, majority of the respondents(51.8%) were performed assembly at school.(45.4%) respondents were played and only (2.8%) respondents were performed physical exercise. In rural area, majority of the respondents (59.1%) were performed assembly at school.(38.7%) respondents were played and only (2.2%) respondents were performed physical exercise. Out of 261

respondents in urban area,(27.7%) respondents were played games in computer and (8.5%) respondents played games in computer in rural area. Although respondents of both areas were performed physical exercise, due to good socioeconomic condition in urban area respondents have facilities for playing computer where rural respondents have less facilities of computer due to economic cause. They have played mostly outside due to availability of playground.

Some previous studies conducted in Khartoum State, Sudan by (Fatima Omer Nabag et al., 2011). In this study, physical activity which requires high energy expenditure, was observed among all rural school children who go to school on foot (100 %), while 71.4 % of urban school girl's children go to school on foot. Therefore, the higher energy expenditure of low socioeconomic status children and probably lower energy intake may lead to smaller size of these children. This study deems to be similar with the present study

.Out of 261 respondents in urban area, majority of the respondents (60.7%) were found to sleep daily for 7 to 10 hours. (48.8%) respondents were found to sleep daily for up to 6 hours and (100.0%) respondents were found to sleep daily for >10 hours. In rural area, majority of the respondents (39.3%) were found to sleep 7 to 10 hours daily. (51.2%) respondents were found to sleep up to 6 hours. The mean duration of sleep was 7.72±1.528 in urban area and the mean duration of sleep was 7.39±1.092 in rural area.

In current study, mean height of male is 158.2549 cm and mean height of female is.

158.6478cm.(Table 30)There is no significant difference of height between male and female.In existing study, mean height 161.3226 and rural mean height 154.3585(Table 33).There is no significant differences of height between urban and rural

Some previou sstudy was conducted in Rohtak, Haryana in rural and urban by (B.M. Vashist et al.,2009).The mean height of rural males in the 13–14 years age group was 1.5 m which was similar to the mean height of urban males in same age group. Urban males showed a higher increase in mean height as it was 1.6 m in comparison to the mean height of 1.53 m for the rural males. Males attained a height of 1.6 m in rural areas and 1.61m in urban areas in the 15–16 years age group. However, females in both urban and rural areas showed a similar increment in mean height at all ages. Height of females increased from 1.51 m to 1.54 m at 13–14 years of age in rural areas and from 1.51 m to 1.55 m in urban areas at 15–16 years of age. Except in the 13–14 years age group, males had a higher mean height than females in both the areas. This might be

due to delayed growth spurt in males than females. This study is consistent with the present study.

This variation was also observed in Rohtak, Haryana conducted by (ANAND K et al.,1999). in which mean height of males (143.86 cm) was less than females (145.44 cm) in the 13–14 years age group after which it increased to 152.61 cm and 160.37 cm at 14–15 and 15–16 years age groups respectively in males as compared to a relatively small gain in height from 149.09 cm at 14–15 years age group to 154.83 cm at 15–16 years age group among females(ANAND K et al., 1999). This study is consistent with the present study.

Another study was conducted by (Venkaiah et al., 2002) in Rohtak, Haryana.The mean height of males increased from 143 cm at 13–14 years age group to 153 cm at 15–16 years age group as compared to 144.1 cm at 13-14 years age group to 149.8 cm at 15–16 years age group respectively in females(VENKAIAH K et al.,2002) observed a mean height of urban males to be 133.7 cm at 10 years which increased to a maximum of 153.6 cm at 15 years. Similarly, in females, mean height increased from 132.8 cm at 10 years to 150 cm at 15 years of age. In all the studies, it was noted that males gained more height than females in all the age groups. This study is consistent with the present study.

In present study, urban underweight (56.8%), normal (39.4%), overweight (3.2%), obese (0.6%) and rural underweight (59.4%), normal (37.7%), overweight (2.8%), obese (0.0%)(Table 32)There is no association of BMI and area of residence

Some previous studies conducted in Tangail District,by (Md. Serajul Islam et al.,2014*)*.The higher percentage of children in rural area (69.44%, n=50) were normal (-0.99 to 1SD) compared to 61.11% (n=44) of children from urban when WHO chart was used. 2.78% (n=2), 4.17% (n=3) and 18.05% (n=13) children were in severely wasting (<-3SD), moderately wasting (-3 to -2 SD) and mild wasting (-1.99 to -1 SD) respectively in rural area. There are no children in urban area those be the belongings of wasting. For mild overweight (-1.99 to -1 SD), there were huge difference between both location while 5.56% (n=4) and 29.17% (n=21) from rural and urban respectively were in this category. Furthermore, 5.56% (n=4) and 4.17% (n=3) children in urban were moderate overweight (2.01 to 3SD) and obese (>3SD) respectively but there were no children found in rural area where children nutritional status is in moderate overweight and obese. This study seems to be similar with the present study.

In current study, urban mean weight 45.2065 and rural mean weight 43.6415 (Table 34).There is no significant differences of weight between urban and rural. Mean weight of male is 47.2941kg and mean weight of female is 42.8239 kg (Table 31).There is significant difference of weight between male and female

A similar study was conducted in Rohtak, Haryana in rural and urban area by (B.M. Vashist et al.,2009).The mean weights among the rural males in the 13-14, 14-15 and 15-16 years agegroups were 38.83 kg, 42.43 kg and 44.34 kg respectively while the same were 40.32 kg, 42.18 kg and 43.23 kg respectively among the rural females in the corresponding age groups. For the same age groups, the mean weights among urban males were 38.59 kg, 46.52 kg and 46.77 kg and among females, the mean weights were 41.7 kg, 44.06 kg and 45.79 kg for the respective age groups. The mean weight was more in urban subjects than rural subjects and more in males than females except in the 13–14 years age group. The values were much higher than those found in the study conducted by (Venkaiahet al., 2002)In the present study, the age-wise mean weights were 30.8 kg ± 5.8 kg, 34.8 kg ± 6.4 kg and 38.6 kg ± 6.4 kg in the three respective age groups among males. In females, the values were 32.6 kg ± 5.6 kg, 36.0 kg ± 5.5 kg and 38.9 kg ± 5.8 kg in the respective age groups (VENKAIAH K., 2002). In the study conducted by (Thakor et al.,2003) the mean weight of urban males increased from 30.2 kg at 13–14 years age to 36.2 kg at 15–16 years age group. It was lesser than females at all ages in which it ranged from 33.4 kg at 13–14 years to 38.0 kg at 15–16 years of age. This study is consistent with the present study.

In present study mean BMI urban area is 18.6037 kg/m^2 and mean BMI of rural area is 18.1816 $kg/m^{2.}$ There is no significant difference of BMI in between urban and rural area.mean BMI of male is 18.7221kg/m^2 and mean BMI of female is 18.2464 $kg/m^{2.}$ There is no significant difference of BMI in between male and female.

A study was conducted in Rohtak, Haryanain rural and urbanarea by (B.M. Vashist et al.,2009) where the mean BMI and the standard deviation among the rural males were 16.97 ±2.50,17.26 ± 1.99 and 17.19 ± 1.55 in the 13–14, 14–15 and 15–16 years age groups respectively while among the rural females, these were 17.56 ± 2.22, 17.89 ± 2.46 and 18.10 ± 1.86 respectively for the corresponding age groups. Similarly, the mean BMI were 16.95 ± 2.67, 17.99 ± 2.77 and 17.72 ± 2.40 among the urban males and18.03 ± 2.46, 18.8 ± 2.44 and 18.95 ± 2.95 among the urban females in the three respective age groups. It was found that the mean BMI was more in urban

subjects as compared to the rural subjects and more in females than males. .Mean BMI and standard deviation of 15.99 ± 1.67, 16.49 ± 1.18 and 16.83 ± 1.60 in males and 16.93 ± 2.29, 17.39 ± 1.73 and 19.19 ± 2.47 in females in the respective age groups (ANAND K.,1999). However, mean BMI in the urban subjects where it ranged from 14.8 at 13–14 years age group to 15.3 at 15–16 years age group in urban males and 15.9 to 17.2 in 13–14 and 15–16 years age groups respectively in urban females(THAKOR H.G et al.,2000). This seems to be similar with the present study.

Conclusion

Malnutrition is still common findings in developing countries. Most common is the under nutrition rather than over nutrition. The study found the prevalence of underweight were higher among the children lived in the rural area compared to the children that lived in the urban area. Several factors enable the poor nutritional status of children directly such as low socio-economical status and poor educational background of their parents as well as low protein diets in the rural area. The study found that there is significant difference of weight between male and female lived in the urban and rural area. The study also found that there were no significant difference of BMI in between urban and rural area and in between male and female. Besides that there were no significant differences between urban and rural area with the height and weight of the children. There is no association of BMI and area of residence. On the other hand the study revealed that the nutrition intake among the children from urban and rural area were different .The food habits in rural adolescents were characterized by traditional food, and despite a lower frequency of meat/fish/vegetables, cereals and milk products, were higher in rural than in urban adolescents. In the urban area adolescents ate more fast food that is difficult to obtain due to availability, affordability, distance, or number of supermarkets in rural area. However, frequent consumption of fast-food meals, infrequent breakfast meals, low fruit and vegetable intake, and household food insecurity especially among rural adults. Appropriate nutrition is fundamental, it is very imperative that it has to be safeguarded from the school age. That is why proper awareness has to pay in order to attain good nutritional status. The fight against malnutrition in developing nation by UNICEF therefore should be encourages and public enlightenment campaign should be stepped –up.

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