

Study on Association between Socio-demographic Characteristics and Food Security of Rural Adolescent Population of Bangladesh

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Abstract

This was a descriptive type of cross-sectional study carried out to assess the relationship between food security and socio-demographic characteristics of adolescent of the rural areas with a sample size of 108. Data were collected purposively from two selected villages using a semi structured questionnaire. On the basis of the score calculated, household food security was leveled as four categories: Food Secured, Mild food insecure, Moderate food insecure and extremely food insecure. The result shows that about 40% of the adolescents are Moderate food insecure. 31.5% adolescents were from extremely food insecure families. 18.5% respondents were from mild food insecure families and only 10.2 % respondents were from food secured families. Maximum of the respondents were from the age group of 15-16 years (31.5%). Mean \pm SD = 14.54 \pm 2.12 years. 64 % were male and 36% were female. Most of them were (81.5%) Muslim; 48.1% respondents were from families having monthly income 5000 to 8000 taka and 28.7% of them have more than 8000 taka income per month with Mean(\pm SD) income of 7245(\pm 2126.27) taka. About 44.4 % of the respondents had 5 members in families and 39.8% had 4 or less. Sixty percent had nuclear families; 46.3% of the respondents having primary level of education, followed by secondary level (32.4%). About 13.9% were illiterate, 72.2% attained their education from formal system, 11.1% from madrasa and 2.8% had non-formal education. Respondents were mainly students (75.9%). About 11.1% were agricultural workers. Most of the respondents were children of daily labours/rikshaw pullers (36.1%) followed by Farmers (24.1%) and Business men (21.3%); while 18.5 % of the respondents' fathers were service holders. Regarding housing condition about 42.6% respondents live in kacha houses followed by semi-pacca(28.7%) and 25.9% of them had tin-shed houses. Three fourth (75.9%) of the respondents were non- smokers. About 97.2% used tube well water for drinking purpose. Two third of the respondents (66.7%) used sanitary latrine. There is a strong association between household food security level and monthly family income ($p < 0.01$), house type where the respondents live ($p < 0.01$) and fathers' occupation ($p < 0.05$). There is no association between respondents' age and their food security level, family size and household food security level, education level of respondents, occupation of respondents. The present study shows that economic condition of the respondents is the main factor for adolescent food security which should be address in the formulation of programs relating to food security.

Key words: Adolescents, Socio-demographic characteristics, Food security.

Introduction

Adolescence is the only time following infancy when the rate of physical growth actually increases. Adolescence is characterized by the onset of puberty and increased cognitive development, Middle adolescence increased independence, experimentation and it is a time for making important personal and occupational decisions.¹ Poor nutrition during any of these stages can have lasting consequences on an adolescent's cognitive development, resulting in decreased learning ability, poor concentration, and impaired school performance. Young people aged 10-24 years constitute about 32% of the Bangladesh population.² USAID defines food security as “When all people at all times have both physical and economic access

to sufficient food to meet their dietary needs for a productive and healthy life”. Achieving food security requires that the aggregate availability of physical supplies of food is sufficient, that households have adequate access to those food supplies through their own production, through the market or through other sources, and that the utilization of those food supplies is appropriate to meet the specific dietary needs of individuals.³

“Food Insecurity” refers to limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire food in socially acceptable ways. It affects health and well-being throughout the life cycle, particularly in adolescent period as this time body and mind are building up rapidly for further survival.⁴ Food security situation in Bangladesh has improved, yet the hungry population of over 60 million people-the third largest poor population in any country after China and India.⁵

Material and methods

This descriptive type of cross-sectional study was carried out to explore the association between socio-demographic characteristics and food security status of rural adolescents. The study was conducted in two villages namely Kuinchtara

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and Rupashi, under Delduar Upazilla of Tangail district from January to May, 2016 by using purposive sampling with a sample size of 108. A semi structured questionnaire was used to collect the socio-demographic data and a food security scaling table was used to calculate food security level. The instrument for calculating food security status was developed following Frongilloet et al.⁶ Data were collected through face to face interview. Data editing and cleaning was done for any omission and commission. Data were processed and analyzed using SPSS version 19.

Results

Socio-demographic and economic variables such as, age of respondents, sex of respondents, religion of respondents, family monthly income, number of family members, family type, education level and type of education, occupation of respondents, father's occupation, type of house, marital status, and some other variables relating to health like smoking habit, supply of drinking water and sanitation status are analyzed and present here.

Table 1: Distribution of the respondents according to age group (n=108)

Age group (in years)	Number of respondents	Percentage
10-12	21	19.4
13-14	32	29.6
15-16	34	31.5
17-18	21	19.4
Total	108	100
Mean ±SD = 14.54 ± 2.12 years		

Table 1 shows that maximum respondents were from the age group of 15-16 years (31.5%).

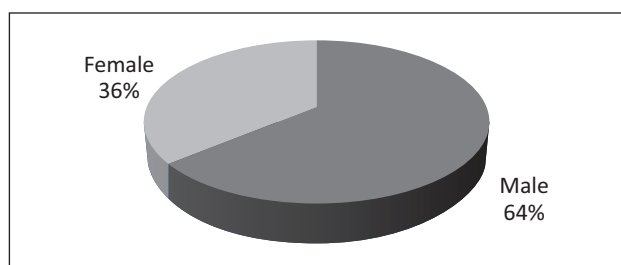


Figure 1: Distribution of the respondents according to sex (n= 108)

Figure 1 shows that among the respondents, 64 % are male and 36% are female.

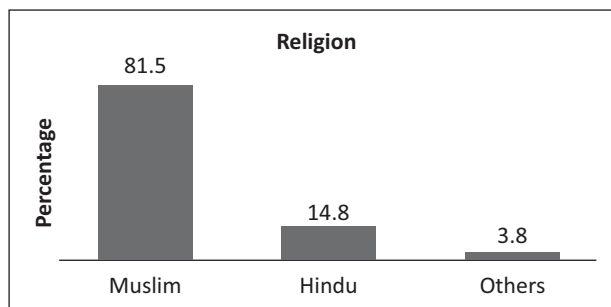


Figure 2: Distribution of the respondents according to religion (n= 108)

Figure 2 shows that majority of the respondents are Muslim (81.5%).

Table 2: Distribution of the respondents by monthly family income (n= 108)

Monthly family income (in taka)	Number of respondents	Percentage
< 5000	25	23.1
5000-8000	52	48.1
>8000	31	28.7
Total	108	100
Mean ± SD of monthly income is 7245±2126.27 taka		

Table 2 shows that near about half of the respondents (48.1%) are from families having monthly income 5000 to 8000 taka and 28.7% of them have more than 8000 taka income per month.

Table 3: Distribution of the respondents according to their number of family members (n=108)

Number of family members	Number of respondents	Percentage
≤ 4	43	39.8
5	48	44.4
≥ 6	17	15.7
Total	108	100
Mean ± SD = 4.73±0.92 persons		

Table 3 shows that about 44.4% of the respondents' have 5 members in their families and 39.8% of them have 4 or less members.

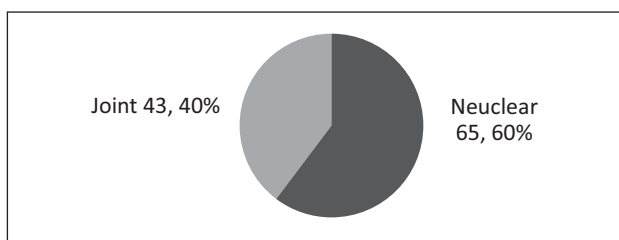


Figure 3: Distribution of the respondents according to family type (n=108)

Figure 3 shows that 60% of the families are nuclear in nature and rest 40% are joint families.

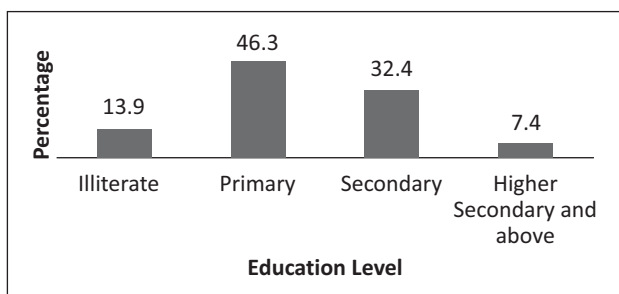


Figure 4: Distribution of the respondents according to level of education (n=108)

Figure 4 shows that 46.3% of the respondents having primary level of education, followed by secondary level of education (32.4%). About 14% of the respondents were illiterate.

Table 4: Distribution of the respondents according to type of education (n=108)

Type of education	Number of respondents	Percentage
Formal	78	72.2
Madrassa	12	11.1
Non-formal	3	2.8
Illiterate	15	13.9
Total	108	100

Table 4 shows that majority of the respondents attained their education from formal system of education like government or non-government schools (72.2%). About 11% had madrasa education and 2.8 % had non-formal education; while 13.9% were illiterate.

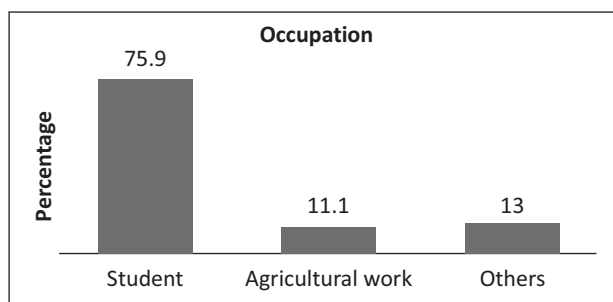


Figure 5: Distribution of the respondents according to their occupation (n=108)

Figure 5 shows that more than three fourth of the respondents are students (75.9%). About 11.1% of them are agricultural workers.

Table 5: Distribution of the respondents according to their fathers' occupation (n=108)

Fathers' Occupation	Number of respondents	Percentage
Service	20	18.5
Business	23	21.3
Dailylabour/ Rikshawpuller	39	36.1
Farmer	26	24.1
Total	108	100

Table 5 shows that most of the respondents are children of dailylabours/rikshawpullers (36.1%), followed by Farmers (24.1%) and Business men (21.3%); while 18.5 % of the respondents' fathers were service holders.

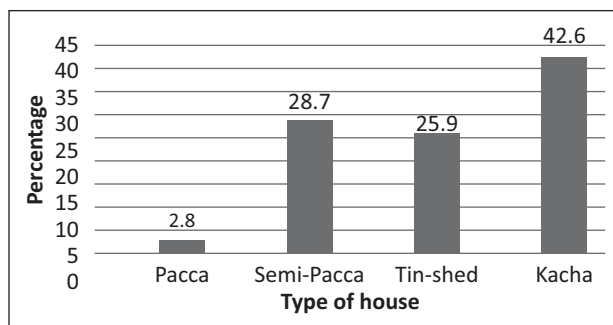


Figure 6: Distribution of respondents according to type of housing condition (n=108)

Figure 6 shows that 42.6% respondents live in kacha houses followed by semi-pacca houses (28.7%); 25.9% of them have tin-shed houses. Only 2.8% of the respondents have pacca houses.

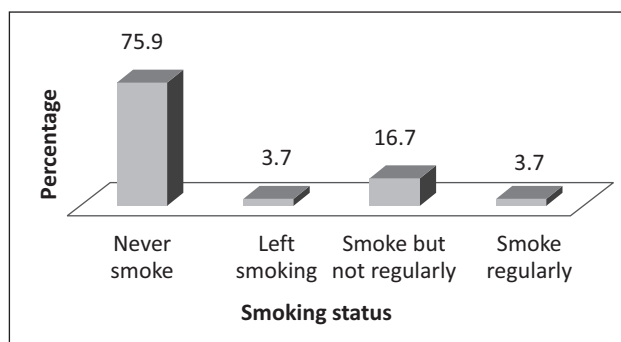


Figure 7: Distribution of the respondents by smoking habit (n=108)

More than three fourth (75.9%) of the respondents were non- smokers, and 16.7% respondents smoked but not regularly and 3.7 percent of them quitted smoking. Only 3.7% respondents smoked regularly.

Table 6: Distribution of the respondents according to consumption of drinking water from tube well (n=108)

Consumption of drinking tube well water	Number of respondents	Percentage
No	3	2.8
Yes	105	97.2
Total	108	100

Table 6 shows that about 97.2 % of the respondents used tube well water for drinking purpose.

Table 7: Distribution of the respondents according to use of sanitary latrine (n=108)

Use sanitary latrine	Number of respondents	Percentage
No	36	33.3
Yes	72	66.7
Total	108	100

Table 7 shows that approximately two third of the respondents (66.7%) used sanitary latrine and one third (33.3%) of them do not use sanitary latrine .

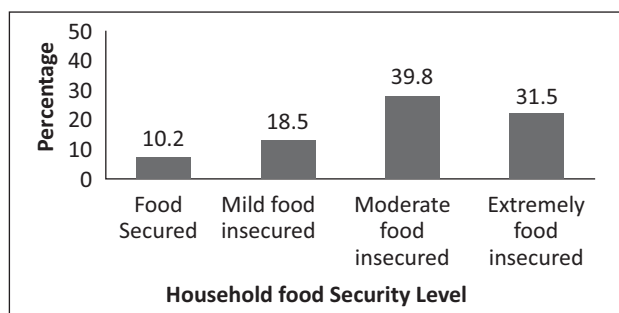
In this study the household food security was measured by 14 questions and these questions are as follows-

- Frequency of taking snacks in between meal in last 30 days?
- At what interval have you purchased rice during the last 30 days?
- Frequency of kanchabazar purchase in last 30 days?
- How often cooking usually take place in your house during the last 30 days?
- Frequency of taking complete meal per day in last 30 days?
- Frequency of taking fish/meat in last 30 days?
- Frequency of taking salt and chilly with rice only?
- Helping situation in last 30 days?
- Have you sold something to buy food during last 30 days?
- Frequency of taking borrow in last 30 days?
- When did you take festival food (like Polao, meat, shemai etc)?
- Did you ever go to sleep at night hungry in last 30 days?
- Frequency of being worried about availability of food in last 30days?
- Are you satisfied about your meal?

The results out of these questions are shown in the following table:

Table 8: Distribution of the respondents according to categories of food security measuring questions (n=108)

Questions for measuring food security	Category	Frequency	Percentage
Frequency of taking snacks in between meal in last 30 days?	Never	81	75
	1-2 times in day	27	25
At what interval have you purchased rice during the last 30 days?	Never	3	2.8
	1-3 times in 30 days	30	27.8
	Once in a week	26	24.1
	2-3 times in 7days	45	41.7
	4-5 times in 7days	4	3.7
Frequency of kanchabazar purchase in last 30 days?	1-3 times in 30 days	9	8.3
	Once in a week	26	24.1
	2-3 times in 7days	68	63.0
	4-5times in 7days	5	4.6
How often cooking usually take place in your house during the last 30 days?	Once a day	27	25.0
	Twice a day	70	64.8
	Three times a day	11	10.2
Frequency of taking complete meal per day in last 30 days?	One time	21	19.4
	Two times	72	66.7
	Three times	15	13.9
Frequency of taking fish/meat in last 30 days?	Never	1	0.9
	1-3 times in 30 days	39	36.1
	Once in a week	40	37.0
	2-3 times in 7days	28	25.9
Frequency of taking salt and chilly with rice only?	Never	21	19.4
	1-3 times in 30 days	44	40.7
	Once in a week	7	6.5
	2-3 times in 7days	24	22.2
	4-5times in 7days	12	11.1
Helping situation in last 30 days?	Help taken from other	20	18.5
	No help taken or given	80	74.1
	Helped others	8	7.4
Have you sold something to buy food during last 30 days?	Yes	2	1.8
	No	106	98.1
Frequency of taking borrow in last 30 days?	2-3 times in 7 days	13	12.0
	Once in a week	33	30.6
	1-3 times in 30 days	9	8.3
	Never	53	49.1
When did you take festival food (like Polao, meat, shemai etc)?	Never	54	50
	Once in month	52	48.1
	Weekly	2	1.9
Did you ever go to sleep at night hungry in last 30 days?	Yes	22	20.4
	No	86	79.6
Frequency of being worried about availability of food in last 30days?	Once in a week	38	35.2
	Only once ever	33	30.6
	Never	37	34.3
Are you satisfied about your meal?	No	61	56.5
	Yes	47	43.5



On the basis of the score calculated from the answers of the above 14 questions, household food security was level as four categories: Food Secured, Mild food insecure, Moderate food insecure and extremely food insecure. The result shows that about 40% of the adolescents are Moderate food insecure. 31.5% adolescents are from extremely food insecure families. 18.5% respondents are from mild food insecure families and only 10.2 % respondents are from food secured families.

Figure 8: Distribution of respondents according to household food security level (n=108)

Table 9: Association between household food security level and age of the respondents (n=108)

Age of respondent (in year)	Food security level				Total	χ^2 & p-value
	Food Secured	Mild food insecure	Moderate food insecure	Extremely food insecure		
10-12	4 19.0%	1 4.8%	9 42.9%	7 33.3%	21 100%	$\chi^2=10.191$, p=0.335
13-14	2 6.2%	4 12.5%	13 40.6%	13 40.6%	32 100%	
15-16	2 5.9%	9 26.5%	13 38.2%	10 29.4%	34 100%	
17-18	3 14.3%	6 28.6%	8 38.1%	4 19.0%	21 100%	
Total	11 10.2%	20 18.5%	43 39.8%	34 31.5%	108 100%	

Table- 9 shows that there was no association between respondents' age and their food security level.

Table 10: Association between household food security level and monthly family income (n=108)

Family monthly income (Tk)	Food security level				Total	χ^2 & p-value
	Food Secured	Mild food insecure	Moderate food insecure	Extremely food insecure		
<5000	0 0%	2 8.0%	14 56.0%	9 36.0%	25 100	$\chi^2=34.029$, p=0.00
5000-8000	2 3.8%	7 13.5%	20 38.5%	23 44.2%	52 100%	
>8000	9 29.0%	11 35.5%	9 29.0%	2 6.5%	31 100%	
Total	11 10.2%	20 18.5%	43 39.8%	34 31.5%	108 100%	

Table-10 shows that there was strong association between household food security level and family monthly income.

Table 11: Association between household food security level and family size (n=108)

Number of family members	Food security level				Total	χ^2 & p-value
	Food Secured	Mild food insecure	Moderate food insecure	Extremely food insecure		
≤ 4	5 11.6%	7 16.3%	18 41.9%	13 30.2%	43 100%	$\chi^2=7.315$, p=0.293
5	1 5.9%	7 41.2%	5 29.4%	4 23.5%	17 100%	
≥ 6	5 10.4%	6 12.5%	20 41.7%	17 35.4%	48 100%	
Total	11 10.2%	20 18.5%	43 39.8%	34 31.5%	108 100%	

Table 11 shows that there was no association between family size and household food security level.

Table 12: Association between food security level and education level of respondents (n=108)

Education level	Food security level				Total	χ^2 & p-value
	Food Secured	Mild food insecure	Moderate food insecure	Extremely food insecure		
Illiterate	0 0%	1 6.7%	6 40.0%	8 53.3%	15 100%	$\chi^2=10.89$, p=0.283
Primary	5 10%	8 16.0%	19 38.0%	18 36.0%	50 100%	
Secondary	4 11.4%	9 25.7%	15 42.9%	7 20.0%	35 100%	
Higher Secondary and above	2 25.0%	2 25.0%	3 37.5%	1 12.5%	8 100%	
Total	11 10.2%	20 18.5%	43 39.8%	34 31.5%	108 100%	

Table 12 shows that level of education of the respondents was not associated with household food security level.

Table 13: Association between occupation of respondents and food security level (n=108)

Occupation of respondents	Food security level				Total	χ^2 & p-value
	Food Secured	Mild food insecure	Moderate food insecure	Extremely food insecure		
Student	10 12.2%	18 22.0%	31 37.8%	23 28.0%	82 100%	$\chi^2=9.907$, p=0.129
Agricultural work	1 8.3%	1 8.3%	3 25.0%	7 58.3%	12 100%	
Others	0 0.0%	1 7.1%	9 64.3%	4 28.6.0%	14 100%	
Total	11 10.2%	20 18.5%	43 39.8%	34 31.5%	108 100%	

Table 13 shows that there was no association between occupation of respondents and their family food security.

Table 14: Association between fathers' occupation and food security level (n=108)

Fathers' Occupation	Food security level				Total	χ^2 & p-value
	Food Secured	Mild food insecure	Moderate food insecure	Extremely food insecure		
Service	3 15.0%	5 25.0%	8 40.0%	4 20.0%	20 100%	$\chi^2=27.762,$ $p=0.023$
Business	4 17.4%	7 30.4%	9 39.1%	3 13.0%	23 100%	
Dailylabour	1 2.6%	3 7.7%	17 43.6%	18 46.2%	39 100%	
Farmer	3 11.5%	5 19.2%	9 34.6%	9 34.6%	26 100%	
Total	11 10.2%	20 18.5%	43 39.8%	34 31.5%	108 100%	

Table 14 shows that association between father's occupation and food security level. The cross table shows that fathers who were service holders or businessmen had more food security than those of daily laborers or farmers.

Table 15: Association between type of house and food security level (n=108)

Type of house	Food security level				Total	χ^2 & p-value
	Food Secured	Mild food insecure	Moderate food insecure	Extremely food insecure		
Pacca	0 0.0%	1 33.3%	1 33.3%	1 33.3%	3 100%	$\chi^2=44.777,$ $p=0.000$
Semi-pacca	9 29.0%	8 25.8%	10 32.3%	4 12.9%	31 100%	
Tin-shed	2 7.1%	8 28.6%	16 57.1%	2 7.1%	28 100%	
Kacha	0 0.0%	3 6.5%	16 34.8%	27 58.7%	46 100%	
Total	11 10.2%	20 18.5%	43 39.8%	34 31.5%	108 100%	

Table-15 shows that there was strong association between house type where the respondents live and household food insecurity

Discussion

On the basis of the score calculated from answers of the 14 questions, household food security was level as four categories: Food Secured, Mild food insecure, Moderate food insecure and extremely food insecure. The result showed that about 40% of the adolescents are Moderate food insecure, 31.5% adolescents were from extremely food insecure families, 18.5% respondents were from mild food insecure families and only 10.2 % respondents were from food secured families. However, according to a study, conducted in Nepal in 2010 showed that 69% of households were food secured.⁷

Maximum of the respondents were from the age group of 15-16 years (31.4%) which was followed by the age group 13-14 years (29.6%). Household food security level and age of the respondents were independent ($p=0.335$). Similarly, there was no association between respondents'

age and their food security level.

There was a strong association between household food security level and family monthly income ($p=0.00$). It is evident that as family monthly income increases, food security level increases. In other orders, families with more monthly income were more food secured. Similar findings were observed in a study in Malaysia in 2014.⁸

In the current study, education level of respondents was not associated with household food security level. But In a study in Ethiopia, it was observed that food insecurity had negative consequences on school attendance.⁹

There was no association between occupation of respondents and their family food security ($p=0.129$). However, another study conducted in Bangladesh had found some association between occupation type and household food security.¹⁰

There was an association between father's occupation and food security level ($p=0.023$). There was a strong association between house type where the respondents live and household food insecurity ($p=0.000$). Similar findings were observed in a study in Northern India.¹¹

Conclusion and recommendations

The present study showed that economic condition of the respondents was the main factor for adolescent food security which should be address in the formulation of programs relating to food security. To ensure future work force, problems behind food insecurity and malnutrition of rural adolescents should be addressed from government and non-government sectors.

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