



## Food Habit and Nutritional Status of the Medical Students of Rajshahi and its Relationship with their Socioeconomic Background

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**Abstract:** *Background:* Under or over consumption of calories tend to result in malnutrition and now it is a problem in both developed and developing countries. Health education, health awareness and knowledge about food habit could minimize this issue. *Methods:* This cross-sectional type of descriptive study was carried out in the Department of Community Medicine, Rajshahi Medical College, Rajshahi over a period of 12 months from January to December 2019 on 300 medical students in Rajshahi city. Pre-designed, validated, semi-structured questionnaire was used to gather information from the medical students. *Results:* Seventy percent medical students took breakfast regularly and 57.3% consumed meal three times in a day. Around 89.0% and 78.0% students took fruits and plenty of vegetables each day, respectively. Only 13.3% consumed fast food regularly. Around 9.0% students were underweighted, 29.0% overweighted and 23.0% stunted. *Conclusions:* By improvement of socioeconomic status, mother's education, health awareness and health education, stunting of the students might be reduced.

**Keywords:** Food habit, nutritional status and Socioeconomic condition.

### Original Researcher Article

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### Article at a glance:

**Study Purpose:** The purpose of this study was to assess the pattern of eating habits and nutritional status and its relationship with socioeconomic factors among medical students in Rajshahi city.

**Key findings:** A large portion of the medical students in Rajshahi City were stunted and overweighted.

**Newer findings:** The nutritional status of medical student was significantly associated with mother's education, monthly family income and father's occupation.

**Abbreviations:** BMI: Body mass index and ERC: Ethical Review Committee.



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## INTRODUCTION

Adequate nutrition is the fundamental right of every human being. Nutrition in the early years of life plays a major role in physical, mental and emotional development. Poor and inadequate nutrition may lead to malnutrition, morbidity and mortality among young adults. In Bangladesh people are not aware about nutrition and food

value which is a leading cause of malnutrition in our society.<sup>1</sup> As a result, the young students including medical students are suffering from various nutritional problems and it directly affects the health sector of the country. Nutritional disorders are developed from inadequate or excess intake of food both in quality and quantity. Obesity is becoming a growing public health problem in

Bangladesh.<sup>2</sup> Intervention programs in schools, colleges and universities have shown variable results in many studies.

Better impacts are found when multiple aspects are taken and covered the entire community people. Another big problem is sedentary life style and physical inactivity which has become a pandemic now-a-days.<sup>3</sup> Lack of knowledge of healthy food guidelines and negativity towards physical activity of young generation potentially hinder us from healthy living. Nutritional inadequacy or unhealthy food behavior during young adult life may be associated with adverse health outcomes in old age. Healthy dietary habits during childhood promote optimal physical, mental, social and cognitive development of the child and may contribute to the prevention of chronic diseases later in life. Eating habit is also a major concern among undergraduate medical students and a determinant of health status.

Globally, overweight and obesity have become a major public health concern as their prevalence has been substantially increased at an alarming rate<sup>4</sup> and a leading cause of morbidity and mortality than underweight. Obesity is a complex effect of genetic, metabolic, behavioral and environmental factors which contribute to its development.<sup>5</sup> More intake of fast food and soft drinks, low intake of fruits and vegetables with lack of exercise and family history of obesity are the risk factors of non-communicable diseases in the medical students. In the past few decades, the prevalence of obesity among students has increased dramatically due to significant changes in lifestyle. A study was conducted on adolescent girls in Dhaka City and revealed that large number of the girls did not drink milk or dark green leafy vegetables but prefer to consume meat and fish at least four times in a week.<sup>6</sup> Nutrition can have an effect on health either by improving it or making it deteriorate.<sup>7</sup> Socioeconomic status is also a great determinant of health and nutritional status. Family income is the single most important factor in determining the nutritional and health status of both children and adolescents.<sup>8</sup>

Different studies conducted in several developed and developing countries highlighted the presence of unhealthy eating behaviors, lifestyle practices and inadequate nutrition intake among medical students. But three studies have been conducted on medical college students in Bangladesh that only emphasized on fast food consumption and body mass index. So, the study was conducted to establish the pattern of overweight and obesity among undergraduate medical students and find out its association with socioeconomic background.

## METHODS

This was a cross sectional type of descriptive study at the Department of Community Medicine, Rajshahi Medical College, Rajshahi from January 2019 to December 2019 to assess food habit and nutritional status of under-graduate medical students of Rajshahi Medical College and Barind Medical College, Rajshahi. A purposive sampling technique was used and the total sample size was 300. Consulting with the supervisor and reviewing the previous published literature, researcher developed the questionnaire for the study. Then to finalize the procedure and to evaluate the effectiveness of the questionnaire pretest was carried out among 15 under-graduate students. Approval from the Ethical Review Committee (ERC) was obtained before the commencement of the study and prior to data collection informed written consent was taken from the students by briefing the purpose of the study. Data were collected from the students by face to face interview through a semi-structured questionnaire. Data were analyzed by using the 'Statistical Package for Social Sciences' software, version-24 and a p-value < 0.05 was considered statistically significant.

## RESULTS

Majority of the students (60.3%) were within the age group of 21-22 years with mean age 21.24±1.15 years. 58.7% were male students. Considering residence, 77.7% were living in hostel and 83.7% students were Muslim (Table-01).

**Table 1: Sociodemographic characteristics of the students (n=300)**

Variables	Frequency	Percentage
<b>Age (Years)</b>		
≤ 20 years	78	26.0
21-22 years	181	60.3
≥ 23 years	41	13.7
Mean age (years)	21.24±1.15	
<b>Sex of students</b>		
Male	176	58.7
Female	124	41.3
<b>Religion of students</b>		
Muslim	251	83.7
Hindu	41	15.3
Christian	2	0.7
Buddhist	1	0.3
<b>Residential area</b>		
Hostel	233	77.7
Metropolitan	57	19.0
Rural	10	3.3

Majority (77.7%) medical student's father were either graduate or above whereas more than 66.7%

student's mother also completed their graduation or more (Table-02).

**Table 2: Sociodemographic characteristics of parents of the students (n=300)**

Variables	Frequency	Percentage
<b>Father's education</b>		
Illiterate	5	1.4
Class I-V	12	4.0
Class VI-XII	50	16.7
≥ Graduate	233	77.7
<b>Mother's education</b>		
Illiterate	7	2.3
Class I-V	18	6.0
Class VI-XII	75	6.0
≥ Graduate	200	66.7

Considering parental occupation, the highest numbers (70.0%) of fathers were doing services and least numbers (8.3%) were farmer. Similarly, 47.3% mothers involved in service and

second highest numbers (44.3%) of mothers were housewife. Students' households' monthly income was 42290±15452 taka (Table-03).

**Table 3: Socioeconomic characteristics of parents of the students (n=300)**

Variables	Frequency	Percentage
<b>Monthly family income (taka)</b>		
≤ 20000	33	11.0
20001 to 30000	67	22.3
30001 to 40000	68	22.7
40001 to 50000	66	22.0
>50000	66	22.0
<b>Households mean income (taka)</b>	42290 (±15452)	

<b>Father's occupation</b>		
Farmer	25	8.3
Business	65	21.7
Service	210	70.0
<b>Mother's occupation</b>		
Housewife	133	44.3
Farmer	3	1.0
Business	22	7.3
Service	142	47.3

Majority (70.3%) students regularly took breakfast and interestingly half of total study

participants skip their breakfast 3 to 4 times in a week (Table-04).

**Table 4: Distribution of the students by taking breakfast (n=300)**

Variables	Frequency	Percentage
<b>Taking breakfast</b>		
Never	3	1.0
Irregular	86	28.7
Always regular	211	70.3
<b>Skip breakfast 3 or 4 times/week</b>		
Yes	144	48.0
No	156	52.0

Only 20.0% medical students had milk in their regular breakfast menu and students' average egg consumption was 5.3 per week (Table-05).

**Table 5: Frequency of taking egg and milk per week (n=300)**

Variables	Frequency	Percentage
<b>Have milk in every week</b>		
Yes	60	20.0
No	240	80.0
<b>Mean Egg Consumption/week</b>	5.3±3.1	

More than half (57.3%) of the students regularly took three times meal per day (Table-06).

**Table 6: Frequency of taking major meal (n=300)**

Variables	Frequency	Percentage
<b>Taking major meal</b>		
One time	18	6.0
Two times	101	33.7
Three times	172	57.3
Four times	9	3.0
Total	300	100.0

Most (89.3%) medical students consumed fruits, however 76.3% students consumed any one

type of fruits each day. Besides, 77.8% had plenty of vegetables in their lunch item (Table-07).

**Table 7: Frequency of taking fruits and vegetables per day (n=300)**

Variables	Frequency	Percentage
<b>Students have fruits everyday</b>		
Yes	268	89.3
No	32	10.7
<b>Numbers of fruits each day</b>		
No fruits	32	10.7
One fruit	229	76.3
Two fruits	36	12.0
Three fruits	3	1.0
<b>Have plenty of vegetables each day</b>		
Yes	220	77.8
No	80	22.2

Near about half of our total participants consumed biscuits, cracker bread or chips of snacks

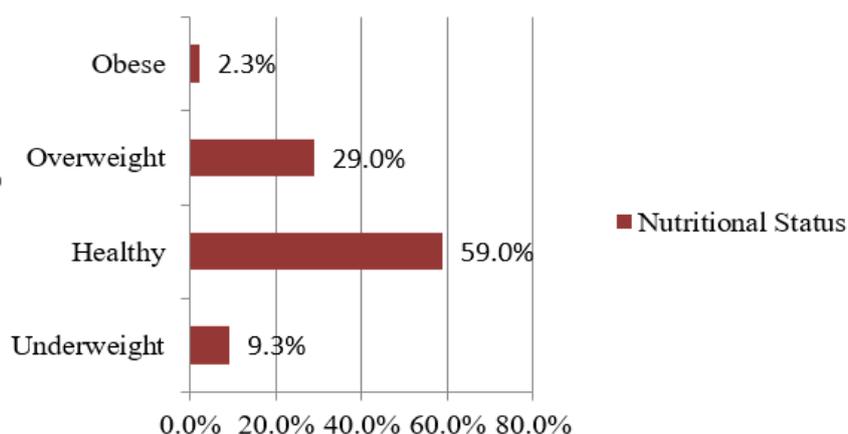
items. But sweet or ice-cream was the least popular food items among medical students (Table-08).

**Table 8: Frequency of snacks and others fast food items (n=300)**

Variables	Frequency	Percentage
<b>Your Snacks have mainly based on</b>		
Fruits/milk/juice/yogurt	106	35.3
Biscuits/crackers/bread/chips	136	45.3
Fried chicken/burger/grill/pizza/soft drink	40	13.3
sweet/ice-cream/chocolate	18	6.0
Total	300	100.0

Majority (59.0%) of the medical students had normal BMI, whereas rest of the participants either overweight or underweight (Fig-1).

## Nutritional Status

**Figure 1: Nutritional status of medical students (n=300)**

Compare with WHO height chart, 59.3% medical students were healthy height and 23.0% were stunt (Table-09).

**Table 9: Distribution of the students' height related information (n=300)**

Variables	Frequency	Percentage
<b>Category wise BMI frequency</b>		
Stunt	69	23.0%
Healthy height	178	59.3%
Tall	53	17.7%
Total	300	100.0%

Mother's education, family monthly income and father's occupation were associated

with the nutritional status of medical student (Table-10).

**Table 10: Relationship between nutritional status and socioeconomic characteristics of the students (n=300)**

Variables	Nutritional Status		p value
	Healthy Height Frequency (%)	Stunting Frequency (%)	
<b>Residential Area</b>			0.18
Rural	184(75.7%)	59(24.3%)	
Urban	47(82.5%)	10(17.5%)	
<b>Fathers' Education</b>			0.16
Illiterate	2(40.0%)	3(60.0%)	
Class I-V	10(83.3%)	(16.7%)	
Class VI-XII	41(82.0%)	9(18%)	
Graduate and above	178(76.4%)	55(23.6%)	
<b>Mothers' Education</b>			< 0.05
Illiterate	3(42.9%)	4(57.1%)	
Class I-V	12(66.7%)	6(33.3%)	
Class VI-XII	56(74.7%)	19(25.3%)	
Graduate and above	160(80.0%)	40(20.0%)	
<b>Family Monthly Income</b>			< 0.05
Poor Income	69 (69.0%)	31(31.0%)	
Middle Income	107(79.9%)	27(21.1%)	
Rich	55(83.3%)	11(16.7%)	
<b>Major meal item</b>			0.6
Two times or less	95(79.8%)	24(20.2%)	
Three times	129(75.0%)	43(25.0%)	
Four times	7(77.8%)	2(22.2%)	
<b>Fathers' Occupation</b>			< 0.001
Farmer	17(68.0%)	8(32.0%)	
Business	42(64.6%)	23(35.4%)	
Service	172(81.9%)	38(18.1%)	
<b>Mothers' Occupation</b>			0.18
Housewife	95(71.4%)	38(28.6%)	
Farmer	3(100.0%)	0 (0%)	
Business	18(81.8%)	4(18.2%)	
Service	115(81.0%)	27(19.0%)	

## DISCUSSION AND CONCLUSION

Stunting and short stature are a serious social problem in our society and it reflects a long-term impact on human life and related with nutritional, physiological, social and personal awareness factors. In this study, we tried to seek some associations of stunting and socioeconomic and demographic factors. In this study, seeking an association between students' residence and their normal growth but did not find any association between these two factors ( $p > 0.05$ ). Similar findings were found in a study where there is no difference in nutrition with urban and rural areas of Bangladesh and Nepal.<sup>9</sup> However, some studies showed that the urban children were more likely to be undernourished than those from rural areas.<sup>8</sup> The fact is supported by another study where concluded that rapid urbanization may increase urban poverty which leads to extremely poor quality of life in urban slums resulting in increased child under-nutrition in urban areas.<sup>10</sup>

In the current study, fathers' education does not have any impact on child growth but mothers' education is positively associated with their children growth. Educated parents contribute positively in receiving better health care for maintaining better nutrition to their children. This result mirrors other research showing that children from parents with no or little education were significantly more undernourished than the children whose parents have secondary or higher level of education.<sup>11</sup> Parents with low level of education are being better informed and lead to increase of their awareness about nutritional issues affecting their children. However, children with parents having primary level of education did not experience any reduction in nutritional level.<sup>12</sup> Parental socioeconomic status is a major component for children physical and mental growth. Children from highly socio-economic status are less stunt compared to children from economically lower- or middle-class family. In the present study, 31% medical students were stunt and most of them from poor family. These findings have a similarity with the results of Wakefield *et al*.<sup>13</sup> It has been seen from our study, 20% medical students took two times meal in a day, 25% three times and 22% medical students took four times major meal in a day.

Taking meal is positively associated with children growth. But in our study, we did not find any association with students' height and meal intake among the students of Rajshahi Medical College. Poor feeding practices, specifically a lack of dietary diversity is one of the immediate cause leading to such high prevalence of childhood under-nutrition among children in Bangladesh.<sup>14</sup> In our study, fathers' occupation is positively associated with medical students' height. Farmer and businessmen fathers' children are more stunts compare to children of service holder. It might be service person are more nutritionally aware than others group. Besides, in our country most fathers are involved in decision making, earnings, managing food and cloths etc. So, it might have a roll-on children growth as well as others nutritional parameters in our society. Mother occupation is not significant on child nutritional status. Those mothers are housewife, 28% of their children studying at RMC are stunt and 18% stunt from businesswomen and rest of 19% were stunt from service mothers. This study has a little bit similarity with some others study like Leslie *et al*.<sup>15</sup> It is showed that maternal employment may not be the most important factor for malnutrition. Leslie *et al*.<sup>15</sup> reviewed and analyzed 50 published papers on the relationship between women's work and nutritional status of young child in developing countries and concluded that there was little evidence that maternal employment had a negative impact on child nutrition.

The lack of adult childcare support was linked to an increased risk of malnutrition in children from working and non-working mothers. However, the risk of malnutrition was higher in young children with working mothers. Yeleswarapu *et al*.<sup>16</sup> investigated the nutritional status of young children with employed and unemployed mothers in urban slums in Andhra Pradesh, India and found that weights and heights were significantly higher in children younger than five years of age from families with employed versus unemployed mothers. Mass awareness program, fortified food supplementation and some government, private and institutional initiative might be helpful to overcome the situation of malnutrition in our society.

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### Declarations

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**Conflict of interest:** Authors declared no conflict of interest.

**Ethical approval:** Ethical approval of the study was obtained from the Ethical Review Committee, Rajshahi Medical College, Rajshahi. Informed consent was taken from all medical students before data collection.

**Consent for publication:** Taken.

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