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Effect of food habit on the nutritional status of the female university students

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Abstract
Nutrition and food intake are closely related to nutritional status and health of an individual. The university students are generally occupied with academic work, games and are under emotional stress which coupled with unbalanced diets, results in poor health and nutrition. Different researches indicate that there are several factors which affects the nutritional status of the students. Among those factors, food habit is a major one. The food habits are formed by attitudes, prejudices and taboos practiced in early days or the life. Thus, this study was conducted to assess the effect of food habit on the nutritional status of the female university students.

A non-interventional descriptive cross-sectional study was conducted with 201 selected female university students. The students were selected randomly for the study.

Respondent's food behavior shows that more than one-third of the respondents like fast food. The nutritional status of the respondents shows that nearly 20% of total respondents were either overweight or obese. Significant association was found among food type and frequency of meal with nutritional status.

The findings show that there is significant association among food type and frequency of meal with nutritional status of the female university students. Thus, this study recommends conducting similar type of study with larger sample size to generalize the findings.

Keywords: Nutritional status, university, food habit, female students

Introduction

Good nutrition is important to maintain and improve health status the body's protection against infection and therefore helps girls to stay healthy. Nutrition and food intake are closely related to nutritional status and health of an individual. Adequate amount of nutrients in the form of daily diet are essential for the maintenance of health and good nutrition. Due to economical gap, there are huge differences in diet pattern of the people of different socio-economic status. The family's habit, environment, the physical, the psychological and the social setting which are related to the culture of a group determine food pattern. It also depends on the financial status of the family. In developing countries, lack of variation in their food intake particularly protein, calorie and protective foods, results in deficiency diseases from malnutrition. Nutrition is one of the most important factors influencing the quality of human life. Nutritional status is an important health indicator to assess a country's health status and morbidity pattern.

The prevalence of obesity is increasing in Bangladesh. It is higher among Bangladeshi women than among men. Health risks such as cardiovascular disease, cancer, type-II diabetes, osteoarthritis, and chronic kidney disease increase when a person's Body Mass Index (BMI) exceeds 23. Research indicates that if left unchecked, the rise in obesity could lead to future declines in life expectancy. During the transition from adolescent to adulthood, adolescents eat away from home more often and with their families less often (Neumark-Sztainer *et al*., 2000) [7], and it has also been seen that they consume a larger percent of energy intake at fast-food and other restaurants (Nielsen *et al*., 2002) [8]. The university students pass a long time in campus for regular class, group study and other academic activities. Fast-food restaurant use is particularly common among the students and has a detrimental impact on their nutrient intake (French *et al*., 2001) [5]. Thus, the effect of home availability on the students' food choices may be attenuated by their food choices away from home. In addition to restaurant use, television viewing and family meals impact the dietary intakes of them. Television viewing time is associated with greater total energy intake, greater fat intake, and less consumption of fruits and vegetables

(Boynton *et al*., 2003) [3], as well as a higher prevalence of overweight (Robinson, 2001) [10]. The association between television viewing and food intake has been linked to the effect that food advertisements have on subsequent food choices (Coon and Tucker, 2002) [4]. However, it may be that eating while watching television, a behavior which is very common among the many people, also influences dietary patterns. At the same time, many university students infrequently eat meals with their families, an alarming finding given that family meals are associated with more healthful eating, including greater fruit and vegetable consumption and lower consumption of fried foods and carbonated beverages (Videon and Manning, 2003) [11]. Though several studies have been conducted on the nutritional status and the impact of different factors on the nutritional status of university students, but a very few studies have been conducted so far in Bangladesh only on female university students. The aim of this study is to assess the effect of food habit on the nutritional status of the female university students.

Research methodology

This study was a non-interventional descriptive cross-sectional study. The study was conducted in two renowned universities of Dhaka city. Those are - University of Dhaka (DU) and University of Liberal Arts (ULAB). The total study period was 4 months. The study population was all female students of both the universities. The sample size was 201 which was calculated by using the standard statistical formula ($n = z^2pq/d^2$). The sample size was calculated in 95% confidence interval and with 5% level of significance. A total of 201 students were randomly selected for the study. They were aged in between 18 to 23 years. Data collection was done by using a semi-structured pre-tested questionnaire. Data quality was ensured through multiple procedures of review and cross-checking. Data entry was done concurrently with data collection. Any discrepancies identified were checked visually by comparing the electronic entry to the entry on the original questionnaire and if required, necessary corrections were made. Before collecting the data, verbal informed consent was taken from each participant. Administrative approval was also taken from the university authority. Data analysis was done by using SPSS 2016 version.

Results

Respondents' food habit related information

Table 1: Food habit of the respondents

Food habit	Frequency (n)	Percentage (%)
Dietary behavior of the respondents		
Vegetarian	14	7.0
Non-vegetarian	187	93.0
Total	201	100.0
Favorite food of the respondents		
Fast food	68	34.0
Homemade food	133	66.0
Total	201	100.0
Frequency of meal of the respondents		
2 times	4	2.0
3 times	16	8.0
4 times	78	39.0
More than 4 times	103	51.0
Total	201	100.0

The study findings show that 93% (187) of the total respondents were non-vegetarian. More than one third (34%) of the total respondents' favorite food was fast food. 51% respondents' frequency of meal was more than 4 times (Table 01). The distribution of the respondents according to their preference towards fruits, chocolates and cold drinks shows that 59% respondents were very fond of fruits and 38% respondents responded that they like chocolates and cold drinks very much (Table 02).

Table 2: Respondents' preference towards fruits, chocolates and cold drinks

Items	Preference	Frequency (n)	Percentage (%)
Fruits	Like	119	59
	Dislike	82	41
Chocolate/cold drink	Like	76	38
	Dislike	125	62

The anthropometric information of the respondents show that the average height of the respondents was 159.20 cm with the standard deviation 11.47. The average weight of the respondents was 66.93 kg with the standard deviation 9.25. among all the respondents, 6% (12) were obese, 12% (24) were overweight, 65% (131) were normal and 17% (34) were underweight according to their BMI (Table 03).

Table 3: Respondents' anthropometric information

Average height of the respondents (cm) - Mean± SD		**159.20 ± 11.47**	
Average weight of the respondents (kg) - Mean± SD		66.93 ± 9.25	
Nutritional status	BMI	Frequency (n)	Percentage (%)
Obese	30.00-40.00	12	6.0
Overweight	25.00-29.99	24	12.0
Normal	18.50-24.99	131	65.0
Under weight	<18.50	34	17.0
Total		201	100.0

Discussion

This cross-sectional study was conducted with the female students of two selected renowned universities of Dhaka city. To our knowledge, this is the first time, an investigation was done to assess the impact of food habits on the nutritional status of the female students. Healthy food habit is the key to achieve better nutritional status. It is also important to gain stability of health. Sensitivity towards culture along with affordability of diversified food items should also be ensured for the female students to consume for a healthy and well-nourished future generation. (Perera *et al*, 2017) [9] the present study indicates that more than one third of the respondents are fond of fast food. The association of the respondents' nutritional status with their fast-food consumption shows significant relationship (Table 04). This may be attributed to fast food and snacks are strongly correlated with consumption of total fat, saturated fat, carbohydrates and added sugars. (Arcan *et al*, 2009) [2] The types and frequency of foods consumed is likely to influence individuals' health-related outcomes, including weight and nutritional status (Albertson *et al*., 2008) [1]. This study findings are also showing significant relationship among the nutritional status and frequency of meal. According to the report, it was also found that, the respondents who have access of more fat, salt and sugar rich foods are more likely

to develop obesity which is very much similar to the findings of FSNSP report of 2015. (JPGSPH, 2016)

Table 4: Association of the respondent's food habit with their nutritional status

Food habit	Obese (12)	Overweight (24)	Normal (131)	Underweight (34)	P value
Diet type					
Vegetarian (14)	2	1	8	3	0.127
Non-vegetarian (187)	10	23	123	31	
Food type					
Fast food (68)	9	19	38	2	0.0017
Homemade food (133)	3	5	93	32	
Frequency of meal					
2 times (4)	0	0	1	3	0.0039
3 times (16)	1	1	11	3	
4 times (78)	3	6	43	26	
More than 4 times (103)	8	17	76	2	
Other foods					
Fruits (119)	4	7	82	26	0.453
Chocolates/Cold drinks (76)	8	17	49	2	

Conclusion

In this study, it was attempted to assess the impact of food habits on the nutritional status of the female university students. The findings of the study indicated the nutritional status of the respondents was greatly influenced by the food intake of them. Thus, it can be concluded by saying that implementing awareness and disseminating food and nutrition education to the university students should be mandatory. It would be highly effective if basic food and nutrition education can be included in the curriculum or text book for all.

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Conflict of interest

The authors declared no conflict of interest for this study.

Consent for publication

All authors have given their consent to publish this article

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