



Short Communication

Fast-food and obesity: Status among the young adult population in Bangladesh

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Abstract

Increasing rate of fast-food consumption has been associated with different health related concerns (e.g., obesity, heart disease). This study aimed to determine the prevalence of fast-food consumption among young adult students in Chittagong, Bangladesh, and to assess the association of fast-food consumption with obesity. A total of 440 youth was included using a systemic random sampling from universities and colleges in Chittagong in order to perform a cross-sectional analysis. The students who reported frequent fast-food consumption (1–3 times per week) accounted for 30.5% (n=134) of the sample, while 32.5% (n=143) of participants reported consuming fast-food 8–15 times per month. There was a significant ($p=0.030$) difference between students who consumed and did not consume fast-food. Youth who reported consuming fast-food and soft drinks more than 4 times per week constituted 35.0% (n=154), followed by approximately 27.7% (n=122) who consumed these items 1–3 times per week. In addition, an obesity epidemic was observed among those who reported low levels of physical exercise or lack of sleep. The study illustrates that Bangladeshi youth face an increasing risk of becoming overweight and obese. Prevention is regarded as the most effective way to reduce the prevalence of obesity.

Keywords: Consumption habit, fast-food, obesity, overweight, youth

Introduction

The prevalence of obesity is increasing with the increase in fast-food consumption [1]. Based on the non-communicable diseases (NCD) risk factor survey in Bangladesh, the prevalence of obesity was 17.90% among adult people (body mass index (BMI) >25) in the year 2010 [2]. The World Health Organization (WHO) reported that 600 million young (18 years old or more) were having obesity, which may increase to 2.7 billion by 2025 [3]. In America, the rate of obesity is rising among adults (68.8%) due to an increase in sugar consumption [4, 5]. In England, 64% adults are obese or overweight [6].

Rapid globalization, urbanization, and industrialization are the main culprits for the rapidly increasing incidence of diet-related chronic diseases and obesity in developing countries, representing a significant health concern. Substantial changes in food habits have resulted in increased food consumption. Obesity-promoting diets, which include processed food



and a low intake of vegetables and fruits, are a significant factor in obesity-related mortality [7, 8]. Many researchers have identified the negative consequences of fast-food consumption, which can lead to chronic diseases like diabetes mellitus (DM) [9], cardiovascular diseases [9], hypertension [10], cancer, chronic kidney diseases, and a variety of disabilities [7, 8].

Fast-food is rich in saturated fat, making it a poor dietary choice [11]. In other words, fast-food is less nutritious than food prepared at home. Dietary changes include an increase in the consumption of saturated fat, sodium, cholesterol, and sugar and a decrease of unrefined cereal and vegetables [1, 12]. Studies have indicated that 26% of foods consumed outside the home contribute 32% of one's total daily energy. These foods are high in saturated fat, fiber, calcium, and sodium and low in iron compared to traditional home-cooked foods [13, 14]. In addition, fast-food is a concentrated source of saturated and trans-fatty acids. For these reasons, fast-food is regarded as a crucial factor that influences obesity [15]. More than 30–50% of college students and children consume fast-food daily [16, 17]. According to reports, consuming fast-food once a week increases the risk of heart-related diseases by 20% [18].

Bangladesh is a densely populated region in Asia with a population of 160 million, of which 20.5% are young adults. The prevalence of obesity in Bangladesh's urban areas is increasing due to fewer playgrounds and decreased levels of physical activity, along with a sedentary lifestyle and increased fast-food intake [15]. Therefore, this study aimed to determine the current situation regarding fast-food consumption and increase public knowledge regarding the risk factors of obesity due to fast-food among the young adults.

Methods

Study design

This study was conducted in public and private universities and colleges of Chittagong, Bangladesh, whereas the targeted group was youth (17–30 years old). A questionnaire, much of which had been derived from previous similar research, was established after preliminary observations and analysis of the literature [15, 19]. The data collection process was random and voluntary, whereas the youth age groups prevailed. Before the students conducted the questionnaires, the research purpose was clearly described, and all the details were kept confidential. From 1 June 2019 to 30 August 2019, data were collected. A total of 650 responses were received and after deleting incomplete responses, a dataset of 440 participants was maintained for final analysis.

Data collection procedures

The study was collected through online (Google form). The online data collection was followed by preparing a questionnaire in Google forms and forwarded to the potential participants via Facebook and WhatsApp. The questionnaire was prepared in English.

Study variables

The response variable in this study was the body weight. It was categorized into four classes based on BMI in kg/m²: normal (BMI 18.5–24.9), underweight (BMI <18.5), overweight (BMI 25–29.9), and obese (BMI ≥30) [20]. We assessed some plausible explanatory variables in this study, including gender, education, sleeping times, participation in physical activities and sports, and the frequency of fast-food consumption.

Ethical statement

The participants received detailed information on the project, which indicated the title of the research project, the name and contact details of the researchers, and the purpose of the research. The findings of this study illustrated the possible benefits for participants not explicitly but society in general or individuals with a similar condition. The consent form contained a declaration of confidentiality: "confidentiality is respected, and no information that exposes a participant's identity is made available." The consent was collected from all participants by clicking the agree button to participate.

Statistical analysis

SPSS 22.0 (IBM Corp., Armonk, NY, USA) was used for statistical analysis. Wherever applicable, the percentage, mean and standard deviations (SD). were calculated. The association between fast-food intake and different BMI categories was tested with Chi-square test and a *p*-value of less than 0.05 suggests that the findings are statistically significant.

Results

The present study demonstrated the relation between fast-food and obesity among the population residing in Chittagong, Bangladesh, whereas BMI was considered to classify the participants. A total of 440 respondents were included in this study whose education was at least high school level. The mean age of participants was 22.49 ± 2.98 years. In sleeping time, it was observed that only 2.7% participants sleep <6 h/day while 80.9% sleep 6–8 h/day and 16.4% sleep >8 h/day. There were also variations in respondents' participation in games and sports. Approximately 8.4% of the respondents participate in games and sports for 0–3 h/week, 30.5% participate for 3–4 h/week, and 15.9% for more than 4 h/week. On the other hand, 45.2% of participants did not participate in sports games weekly. The frequency of fast-food consumption was relatively high among the participants: 17.7% consumed fast-food more than 15 times/month, 30.5% consumed 1–3 times/week, 32.5% consume 8–15 times/month, and another 19.3% did not consume fast-food at all monthly. The prevalence of soft drink consumption was high (62.7% of participants consumed and 37.3% did not). In addition, over 90% of participants assumed that fast-food consumption is linked with obesity and heart diseases (**Table 1**).

Table 1. Characteristics of fast-food consumption of the respondents (n=440)

Characteristics/habits	n	Percentage
Gender		
Female	213	48.4
Male	227	51.6
Education		
Graduate	91	20.7
SSC/HSC	160	36.4
Undergraduate	189	43.0
Sleeping time		
<6 hours	12	2.7
>8 hours	72	16.4
6-8 hours	356	80.9
Frequency of participating in sports/physical exercise		
>4 h/week	70	15.9
0–3 h/week	37	8.4
3–4 h/week	134	30.5
Not exercise at all	199	45.2
Frequency of fast-food consumption		
>15 times/month	78	17.7
1–3 times/week	134	30.5
8–15 times/month	143	32.5
Not consume	85	19.3
Frequency of soft drinks consumption		
>4 times/week	154	35.0
1–3 times/week	122	27.7
Not consume	164	37.3
Do you think fast-food consumption makes a person overweight?		
No	36	8.2
Yes	404	91.8
Fast-food associated with heart diseases		
No	38	8.6
Yes	402	91.4

Out of 270 who had normal body weight, 8.1% engaged in the sports/physical exercise 0–3 h/week, 15.6% had >4 hours a week, 32.6% had 3–4 hours a week and 43.7% were not in sports/physical exercise (**Table 2**). In obese, overweight, and underweight individuals, the rate

of non-participation in sports/physical exercise was 7 (41.2%), 35 (42.7%), and 39 (54.9%), respectively. Our data suggested there was a significant association between fast-food consumption and obesity prevalence ($p=0.030$). Gender has been noticeably had associated with the prevalence of obesity and overweight ($p<0.001$) (**Table 2**).

Table 2. Variables associated with BMI category (n=440)

Variables	BMI status, n (%)				p-value
	Normal	Obese	Overweight	Underweight	
Gender					<0.001**
Female	135 (50.0)	3 (17.6)	27 (32.9)	48 (67.6)	
Male	135 (50.0)	14 (82.4)	55 (67.1)	23 (32.4)	
Education					0.276
Graduate	56 (20.7)	5 (29.4)	22 (26.8)	8 (11.3)	
SSC/HSC	102 (37.8)	6 (35.3)	25 (30.5)	27 (38.0)	
Undergraduate	112 (41.5)	6 (35.3)	35 (42.7)	36 (50.7)	
Sleeping duration					0.878
<6 h/day	9 (3.3)	0 (0.0)	1 (1.2)	2 (2.8)	
>8 h/day	45 (16.7)	3 (17.6)	11 (13.4)	13 (18.3)	
6–8 h/day	216 (80.0)	14 (82.4)	70 (85.4)	56 (78.9)	
Frequency of participating in sports/physical exercise					0.556
>4 h/week	42 (15.6)	2 (11.8)	15 (18.3)	11 (15.5)	
0–3 h/week	22 (8.1)	1 (5.9)	6 (7.3)	8 (11.3)	
3–4 h/week	88 (32.6)	7 (41.2)	26 (31.7)	13 (18.3)	
Do not participate	118 (43.7)	7 (41.2)	35 (42.7)	39 (54.9)	
Frequency of fast-food consumption					0.030*
>15 times/month	43 (15.9)	1 (5.9)	20 (24.4)	14 (19.7)	
1–3 times/week	87 (32.2)	4 (23.5)	16 (19.5)	27 (38.0)	
8–15 times/month	92 (34.1)	4 (23.5)	29 (35.4)	18 (25.4)	
Do not consume	48 (17.8)	8 (47.1)	17 (20.7)	12 (16.9)	
Frequency of soft drink consumption					0.392
>4 times/week	92 (34.1)	5 (29.4)	35 (42.7)	22 (31.0)	
1–3 times/week	78 (28.9)	3 (17.6)	17 (20.7)	24 (33.8)	
Do not consume	100 (37.0)	9 (52.9)	30 (36.6)	25 (35.2)	
Do you think fast-food consumption makes a person overweight?					0.663
No	22 (8.1)	1 (5.9)	9 (11.0)	4 (5.6)	
Yes	248 (91.9)	16 (94.1)	73 (89.0)	67 (94.4)	
Fast-food associated with heart diseases					0.455
No	25 (9.3)	1 (5.9)	9 (11.0)	3 (4.2)	
Yes	245 (90.7)	16 (94.1)	73 (89.0)	68 (95.8)	

HSC: Higher secondary certificate, SSC: secondary school certificate

*Statistically significant at $p<0.05$

**Statistically significant at $p<0.01$

Discussion

A high intake of fast-food significantly correlates with several diseases [21]. Fast-food consumption correlates with weight gain and insulin resistance, diabetes, high blood pressure, and hyperlipidemia [22–24]. Those who consume fast-foods once a week have a 20% higher risk of coronary heart disease [22]. A 2020 study found that 13% of young adults in Bangladesh were obese or overweight, while 30% were depressed and 16.4% of young people had anxiety issues [25].

In this study, the prevalence of fast-food consumption among students and its association with the risk of obesity was assessed. Significantly overweight (25–29.9 kg/m²) respondents were found to be at risk of becoming obese. According to this study, the prevalence of fast-food intake among students was 17.7%, 30.5%, and 32.5% for the following respective categories: >15 times/month, 1–3 times/week, and 8–15 times/month. The other characteristics the study analyzed included a lack of participation in sports/physical exercise, short sleeping time, and consumption of soft drinks. These factors associated with the prevalence of overweight and obesity in the youth of Bangladesh. According to two previous studies, 72.6% of male and 68.3% of female youth consume fast-food [15, 19]. Furthermore, males and those who consume fast-

food regularly face an increased risk of obesity relative to others. Men tend to spend more time outside the house than women and therefore consume fast-foods as snacks due to easy access, leading to weight gain [15, 26, 27].

Quick eating has a strong influence on weight gain. Fast food intake in youth tends to be frequent because of the lack of play and entertainment facilities in urban environments [15]. Fast-food intake is increasing daily in Saudi Arabia, the US, and China; girls consume fast-food at least once a week in Saudi Arabia [3, 28]. Similarly, the consumption of fast-food is increasing in Dhaka, as reported in a previous study [29]. The attractive appearance, comfort, and taste of fast-foods have been identified as key reasons people consume them without considering their nutritional value [30, 31].

The present study demonstrated that fast-food intake was significantly more prevalent in respondents who were obese and overweight. About 80% of participants consuming fast-food were identified in this study, while a moderate percentage was overweight and obese. Studies of students from universities in Bangladesh indicate that just over 30% of fast-food consumers are obese [32]. The prevalence of fast-food consumption among the overweight/obese population has increased. In this study, 91.8% of respondents supported the conclusion that the fast-food consumption makes a person overweight, while a new study has demonstrated that the fast-food intake correlates with the abdominal obesity [27]. Many physicians are aware that premature cardiac disease is associated with fast-food intake. However, recent evidence indicates that poor oral health and cardiovascular disease (CVD) are related.

Fast-foods contain high levels of saturated fat and sugar, which can significantly increase the risk of CVD [33]. Soft drinks also contain a high amount of sugar, which is linked to an increased risk of diabetes and CVD [34]. According to a previous study the intake of soft drinks was correlated with being overweight and obese globally, including in developing countries [35]. According to our study, the prevalence of soft drink consumption among students was 35.0% and 27.7% for the categories of >4 times/week and 1–3 times/week, respectively. The consumption of soft drinks greater than or equal to one (≥ 1) daily was associated with a 37% higher risk of obesity [36, 37]. Overweight and obesity are caused by a lack of physical activity and exercise [15]. In those subjects who reported not engaging in physical activity, obesity increased steadily. Several previous studies have produced similar findings [38]. In the present study, 45.2% of the respondents reported no engagement in physical or sports activity, whereas most of them belonged in the normal BMI category.

The key purpose of this study is to alert young adults to the harmful effects of fast-food, soft drinks, lack of exercise, and insufficient sleep. However, the percentage of people who consume fast-food continues to increase among adults who lack consideration for their health conditions. People also continued to increase their soft drink consumption and sleep for an insufficient amount of time. These behaviors may contribute to serious public health problems that require immediate action. Consuming foods that contain sufficient nutrients and vitamins, including fruits, meat, fish, eggs, and milk can help young people live a healthier life, and they should attempt to maintain at least 6 h of sleep per day. There are some limitations to our study. The study was conducted only in Chittagong City; as a result, its findings cannot be generalized. The study's other limitation was that it relied on self-reporting data, introducing the possibility of errors.

Conclusions

This study represents the frequency of fast-food and other habits linked to overweight prevalence and obesity in Bangladeshi young people. Prevention is regarded as the most effective way to reduce the prevalence of obesity. The combined effort of families, universities, public health professionals, and the government is crucial to handling the problem.

Ethics approval

The study approved by the Institutional Ethical Committee, Department of Pharmacy, International Islamic University Chittagong, Bangladesh according to governmental guidelines under the reference of Pharm/P&D/158/14-20.

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Not applicable.

Conflict of interest

The authors declare that they have no competing interests.

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Underlying data

Derived data supporting the findings of this study are available from the first author on request.

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