



Association Between Fast-food and Obesity: A Study on The Corporate Employees of Bangladesh

BY

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Abstract

Objective:

The study's general objective is to investigate the association between fast food and obesity among the corporate employees of Bangladesh.

Methods:

This descriptive cross-sectional study was carried out in different corporate organizations located in 101 respondents, the capital of Bangladesh, from September 2021 to September 2022 both in offline and online. The random sampling technique was used for the high-representative study.

Result:

Among 101 participants, 42 (41.6%) were male, and 59 (58.4%) were female. It was found that among 101 of the participants in the survey, 70 had a higher BMI than 25, indicating obesity. In case of Correlation analysis between different fast foods and obesity, six types of fast foods were significantly and positively correlated with obesity.

Conclusion:

This study examined the relationship between fast food intake and obesity among corporate employees in Dhaka, Bangladesh.

Keywords: Corporate employees; Co-morbidities; Fast-food; Lifestyle; Obesity

Introduction

Consuming fast food has risen worldwide in the mean of urbanization, hectic lifestyles, and easy access to fast food outlets⁽¹⁾. Nowadays, fast food gets more attention and more priority over healthy homemade cuisine because it is more affordable, readily available, and simple to prepare for every one⁽²⁾. However, due to carrying of heavy calories, lipids, and salts, frequent and increase intake of fast-food causes to obesity and high blood pressure⁽³⁾.

According to WHO (2013), consumption of fast food can significantly increase the risk of non-communicable diseases (NCDs) and serves as the primary cause of obesity⁽⁴⁾. As a modifiable factor associated with an elevated risk of type 2 diabetes, cardiovascular disease, some cancers, and all-cause mortality, obesity is a global public health priority. In 2016, the WHO projected that overweight and obesity were responsible for 4.5 million deaths worldwide⁽⁵⁾. Obese people

are more likely to develop chronic conditions like cardiovascular disease, hypertension, and diabetes, which increase illness and death. The rate of obesity has also significantly risen in developing nations, with prevalence rising from 857 million in 1980 to 2.1 trillion in 2013, around 60 percent of the global population⁽²⁾.

South Asian countries, including Bangladesh, have shown remarkable economic advancement⁽⁶⁾. Improvements in household economic status, local production of packaged food, improved transportation, and extensive food marketing have brought changes in dietary patterns even in rural populations⁽⁷⁾. In recent years consumption of fast food has expanded substantially in Bangladesh, wreaking havoc on the country's public health and economy⁽⁸⁾. Several studies reported that the younger generation and corporate employees consume fast food regularly, especially during lunch periods⁽⁹⁾. Many prior studies reported that corporate employees are predisposed to have sedentary lifestyles⁽¹⁰⁾. A sedentary

lifestyle is characterized by sitting at the office or at home most of the day. Sitting or spending most work hours in an office is a risk factor for obesity and other disorders ⁽¹¹⁾. Researchers found that workers who spend less than 2000 calories per week without exercise may have a higher risk of heart disease than active employees. In addition, these habits lead to cardiovascular risk factors of obesity⁽¹²⁾.

Material And Methods

This descriptive cross-sectional study was carried out in different corporate organizations located in Dhaka, the capital of Bangladesh, from September 2021 to September 2022 both in offline and online. The random sampling technique was used for the high-representative study. One hundred twenty informed consent survey questionnaires were distributed to randomly selected participants from different corporate organizations for this study. Out of them, one hundred and one people completed and returned the survey. Therefore, the total sample size of the study is one hundred and one. Data were collected using survey questionnaires.

The data analysis aimed to determine whether a significant relationship existed between fast food consumption frequency and portion size of fast food with obesity. After the data was collected, data were scored using Microsoft Excel. Finally, to fulfill the research objectives, different descriptive analyses, inferential analyses, and reliability analyses were conducted using SPSS version 22. This study showed frequency analysis as a descriptive analysis to understand the socio-demographic variables of the study. After that, the study conducted a reliability analysis to test the reliability of the data model. For this study, the internal consistency (reliability) was chosen to test the reliability of the data model. After that, as inferential analysis, the study conducted a chi-square test inferential analysis to investigate the relationship between different socio-demographic variables with obesity and Spearman's correlation matrix to examine the relationship between fast-food consumption frequency and fast-food portion size with obesity.

INCLUSION AND EXCLUSION CRITERIA OF RESPONDENTS

Inclusion criteria of the study respondents include;

- Employees of various corporations
 - Respondents that are willing to engage in the study
 - Respondents are capable of communicating.
- Exclusion criteria of the study respondents include;
- Individuals under the age of 18 years
 - Other Respondents who are not physically or mentally capable of participating.

BMI Classification⁽¹³⁾

- **Underweight:** BMI is less than 18.5
- **Normal weight:** BMI is 18.5 to 24.9
- **Overweight:** BMI is 25 to 29.9
- **Obese:** BMI is 30 or more

Result

Table 1: Socio-demographic Characteristics of respondents (N=101)

Variables	Frequency (N)	Percentage (%)
Gender		
Male	42	41.6%
Female	59	58.4%
Age (year)		
18 - 30	59	58.4%
31 - 40	25	24.8%
41 - 50	14	13.9%
>50	3	3.0%
Marital Status		
Unmarried	48	47.5%
Married	43	42.6%
Divorced	10	9.9%
Type of family		
Nuclear family	68	67.3%
Joint family	33	32.7%
Monthly Income BDT		
< 15000	16	15.8%
15000 – 50000	48	47.5%
>50000	37	36.6%
Medical history of NCDs		
No	75	74.3%
Yes	26	25.7%
BMI (kg/m²)		
< 25	31	30.7%
25 to 29.9	46	45.5%
≥ 30	24	23.8%
Blood Pressure (mm.Hg)		
< 120	40	39.6%
120 to 139	41	40.6%
140 to 159	20	19.8%

*NCD: Non-communicable disease

*BMI: Body Mass Index

*BDT: Bangladeshi Taka

Table 1 shows the demographic factors of the selected participants of the study, among 101 participants, 42 (41.6%) were male, and 59 (58.4%) were female. Regarding the age of the participants, it is found that participants 59 (58.4%) respondents were 18 to 30 years old, 25 (24.8%) of the respondents are 31 to 40 years old, 14 (13.9%) of the respondents are 41 to 50 years old, and only 3 (3%) of the participants were aged more than 50 years old. Hence it can be stated that most of the participants was female and represents the younger generation. Concerning the marital status of the respondents, it was found that 48 (47.5%) respondents were unmarried, 43 (42.6%) were married, and 10 (9.9%) respondents were divorced. In addition, 68 (67.3%) respondents stated that they lived in a joint family, and 33 (32.7%) respondents said they lived in a nuclear family. Regarding the monthly income of the respondents, it was found that most of the respondents, 48 (47.5%) earn between 15000 to 50000 BDT, 37 (36.6%) of the respondents reported earnings above 50,000/- and the rest (15.8%) of participants reported to make less than 15,000 BDT. The socio-

demographic factors further investigated whether the participants had any medical history of non-communicable diseases (NCDs). The findings showed that 75 (74.3%) of the respondents don't have NCDs, and 26 (25.7%) respondents reported having NCDs. The findings revealed that 46 (45.5) reported having BMI between 25 to 29.9, 24 (23.8%) said having a BMI equal to or over 30, and 31 of the participants reported having BMI below 25. Furthermore, regarding the Blood pressure of the participants, it was found that 41 (40.6%) reported having Blood pressure between 120 to 139 mm/Hg, 40 (39.6%) said to have blood pressure below 120 mm/Hg, and 20 (19.8%) reported having blood pressure above 140 mm/Hg.

Table 2: Psychometric Characteristics of the variables

Trait	Population (N)	Minimum	Maximum	Mean	SD
Frequency fast food consumption	101	0.67	9.00	3.3911	1.68332
Average portion size	101	1.00	3.00	1.7327	.47380

*SD: Standard Deviation

Table 2 shows the psychometric characteristics of the variables for Summated Scale Scores. The minimum frequency of fast-food consumption was 0.67, and the maximum was 9.00, with a SD of 1.68. Similarly, for average portion size, the minimum was 1, and the maximum was 3 with an SD of 0.47.

Table 3: Cronbach alpha value of respondents (N= 101)

VARIABLES	Cronbach's Alpha (α)	N of Items
Frequency of	0.874	6

Table 5: Correlation analysis between different fast foods and obesity

Correlations							
		Soft drinks, soda, or pop	French fries, home fries, hash browned potatoes, or tater tots	Doughnuts, sweet rolls, Danish, or pop-tarts	Pizza	Beef hamburgers or cheeseburgers	Sausage (including low-fat)
Obesity	Correlation Coefficient	0.367**	0.378**	0.400**	0.265**	0.348**	0.289**
	Sig. (2-tailed)	.000	.000	.000	.007	.000	.003
	N	101	101	101	101	101	101

Table 5 indicates the brief correlation analysis between different fast food and obesity. It was found that, soft drinks,

Fast Food		
Average portion size	0.828	6

Table 3 illustrates, the Cronbach's Alpha (α) of frequency of fast food shows 0.874 and for average portion size 0.824. Cronbach's Alpha (α) of more than 0.70 represents that data has good internal consistency. Hence, we can state that the collected data were internally reliable for investigating the association between fast food and obesity.

Table 4: The Pearson's chi-squared test of the study variables

Characteristics	Value	Degree of Freedom	Asymptotic significance (2-sided)
Gender	3.024 ^a	2	0.220
Age	8.562 ^a	6	0.200
Marital status	3.888 ^a	4	0.421
Type of family	7.645 ^a	2	0.022
Monthly Income	3.318 ^a	4	0.506
Medical history of NCDs	17.687 ^a	2	.000

Table 4 indicates, that there were no significant differences on obesity based on the gender (0.220 >0.05), age (0.200 >0.05), Marital status (0.421 >0.05), and monthly income (0.506 >0.05) of the participants. However, significant differences were found based on Type of family (0.022 < .05) and medical history of non-communicable diseases (.000 <0.05).

soda, or pop (2-tailed value 0 < .05), which indicated that soft drinks, soda, or pop have a significant correlation with obesity. They also found that sweetened soda and soft drinks

were strongly associated with obesity, diabetes, hypertension, atherosclerosis, coronary artery disease, heart disease, and vascular resistance. French fries, home fries, hash browned potatoes, or tater tots (2-tailed value $0 < .05$) also significantly correlated with obesity. In addition, Doughnuts, sweet rolls, Danish, or pop-tarts (2-tailed value $0 < .05$), pizza (2-tailed value $0.007 < .05$), beef hamburgers or cheeseburgers (2-tailed value $0 < .05$), and sausage (including low fat) (2-tailed value $0 < .05$) all were significantly and positively correlated with obesity.

Discussion

The study attempts to investigate the association between fast-food consumption and obesity. The study focus was explicitly on corporate employees in Dhaka, Bangladesh. A total of 101 patients were included in this cross-sectional study.

Obesity has been declared an epidemic that does not discriminate based on age, gender, or ethnicity and thus needs urgent containment and management⁽¹⁴⁾. The rise of obesity in the last 40 years has also been attributed to changing lifestyles, such as declining physical activity levels and diets increasingly composed of processed, energy-dense foods, promoting weight gain⁽¹⁵⁾.

Fast food is cheap, low in micronutrients, and high in calories; it also tastes good⁽¹⁶⁾. However, people, especially corporate employees, buy fast food without paying much attention to its nutritional value⁽¹⁷⁾.

Approximately 300,000 deaths per year in United States occurs due to obesity⁽¹⁸⁾. Weight gain or high BMI has a position relationship with taking frequent fast foods⁽¹⁹⁾. In spite of having demerits, people nowadays takes fast food item at least one time in a day due to its convenience⁽²⁰⁾.

Information collected from the anthropometric measurement and sphygmomanometer screenings indicated that 46 (45.5) reported having BMI between 25 to 29.9, 24 (23.8%) reported having a BMI equal to or over 30, and 31 of the participants reported having BMI below 25. Hence it was found that among 101 of the participants in the survey, 70 had a higher BMI than 25, indicating obesity, which shows the alarming rate of obesity among the corporate employees in Dhaka, Bangladesh. In addition, the findings revealed that even though several earlier studies found that obesity among the employees varies based on gender in their study found that males showed a higher level of overweight and obesity (79%) than females (56%), the present study found significant differences of employees' association with obesity based on gender, marital status, and monthly income⁽¹⁹⁾. In addition, however, significant differences were found based on the type of family and medical history of NCDs. Hence for the Pearson's chi-squared test, we can conclude that obesity among the corporate employees in Bangladesh significantly impacts their family type and previous medical history of NCDs.

In addition, all the selected six categories of fast food; Soft drinks, soda, or pop; French fries, home fries, hash browned potatoes or tater tots; Doughnuts, sweet rolls, Danish, or pop-

tarts; pizza; beef hamburgers or cheeseburgers and sausage (including low fat) are significantly and positively correlated with obesity. Previous studies also support these findings⁽²¹⁾.

Conclusion

This study examined the relationship between fast food intake and obesity among corporate employees in Dhaka, Bangladesh. Obesity among the corporate employees in Bangladesh were found to be significantly impacted based on participants' family type and previous medical history of NCDs. In addition, all six categories of fast food used in this study were found significantly and positively correlated with obesity.

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