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# Cross-Sectional Study on Overweight and Obesity Associated with Fast-Food Consumption in Bangladesh

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**Abstract**

**Background**: This study aimed to investigate the risk factors and status of fast-food consumption among students in Bangladesh.
**Methods**: This cross-sectional study was conducted from March to November 2020. A total of 654 samples were collected from several schools, colleges, and universities during this study period.
**Results**: About 60.1% and 39.9% of the students were male and female, respectively. Of the students, 53.1% considered fast food as unhealthy ($p < 0.001$), but only 47.7% were leading a sedentary lifestyle. A significant outcome of overweight and pre-obesity was observed for student institutions, consumption frequency, daily fast-food consumption, and sedentary lifestyle ($p < 0.001$). In addition, positive association was observed for fast-food consumption more than three times and less than three times per week (OR and 95% CI: 11.13 [7.52–16.47], $p < 0.001$), higher social class and lower class (OR and 95% CI: 2.18 [1.31–3.62], $p = 0.003$), fast food preference and other foods (OR and 95% CI: 1.55 [1.11–2.15], $p = 0.009$), and sedentary and heavily active lifestyle (OR and 95% CI: 5.71 [2.02–16.10], $p = 0.001$) using logistic regression.
**Conclusions**: Overweight and obesity are serious public health concerns, which are highly associated with fast-food consumption along with lifestyle, economy, and fast-food preference among students in Dhaka City, Bangladesh.

**Keywords**: cross-sectional study, fast food, obesity, overweight

## INTRODUCTION

For the last several decades, lifestyle has remarkably changed, which caused us to change our food consumption[1–3] and consume food outside our home environment.[4] Fast food is the food dispensed fast at an inexpensive restaurant, usually offering a limited menu of cheap items, many of which may not be nutritious; the food can be eaten on-premises, taken out, or sometimes delivered.[5] Mostly consumed fast foods include pizza, burger, fried chicken, chips, and French fries. Students and teens are the primary consumers of fast food, and the scenario is all the same around the globe because fast food is partially inexpensive, convenient, and fast. Dietary behavior is severely affected by the regular consumption of fast food. In addition, lower dietary attitude scores, nutrition knowledge, dietary practices, and picky eating habits are observed in children and adolescents who frequently consume fast food.[6–8]

Bangladesh is the least developed country with 7 million people suffering from diabetes, and the prevalence is still increasing.[9] A high incidence of cardiovascular diseases and diabetes is observed in the South Asian population because of low economic level,[9] as decreased income and low socioeconomic status are positively associated with fast food exposure.[10] Recently, Bangladesh has faced a modulation in nutrition transition, and this transition has cost them a 68% increase in mortality caused by non-communicable diseases (NCD) between 1986 and 2006.[11] Lifestyle changes have occurred in Bangladesh over the last few decades, which led to a variation in food habits and food consumption patterns. Taking meals prepared other

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than at home is frequent, and at present, it is a peaking trend.[3,12] In general, urban people usually consume a meal purchased from the catering house or online food delivery services.[3] For being a low-income country, the pattern in nutrition transition in Bangladesh has rapidly changed, reaching a prevalence of undernutrition. Furthermore, the management of obesity becomes a severe health burden.

Nutrition transition is causing a profound shift to obesity worldwide.[13] Fast food and other ready-to-go foods are replacing regular homemade diets. Based on a study between 13,200 US citizens, 92% of men and 32% of women do not spend time on food preparation daily.[14] Of the United Kingdom population residents, 22% are found to have foods at least once a week from takeaway outlets.[15] An increasing tendency of fast-food consumption has been observed in America, Australia, and Europe.[16–19] For two consecutive days, every Australians eat fast food at least once.[20] Fast food is prevalent among young adolescent boys and girls.[21,22] Among the teenagers in the United States aged between 11 and 18 years, 75% consume fast food once a week.[19]

Fast food, which is energy-dense and high in fat, sugar content, and calories though having a shallow content of micronutrients,[17,23] are becoming popular among Bangladeshi School, College, and university students. Children in Dhaka City, Bangladesh, aged between 6 and 13, who are studying have an overall prevalence rate of 17.8% based on a study stratified from upper class, middle class, and lower class children.[24] However, little data have been found on fast-food consumption behavior and the underlying reasons among Bangladeshi students to evaluate their obesity patterns. College and university students are another social class in Bangladesh who are found to be addicted to fast food because of peer pressure and social media influence. Thus, our study aimed to identify the consumption pattern, choice behavior of fast food, and its association with overweight, obesity, and other related complications among Bangladeshi School, College, and university students.

## METHODS

### Design and participants of the study

This cross-sectional study was performed among students of different age groups in school, college, and university level from Dhaka, which is the capital city of Bangladesh. The study was conducted from March to November 2020. A total of 654 samples from Nawab Habibullah Model School and College, Tongi Govt. College, Milestone School and College, Cambrian School and College, Uttara University, Atish Dipankar University of Science and Technology, and Shanto-Mariam University of Creative Technology were randomly selected during this study period. A written consent was taken from the participant (in accordance with the Declaration of Helsinki). The study was approved and coordinated by the Pharmacy Department of Atish Dipankar University of Science and Technology under the reference number ADUST-EC/2019/15.

### Anthropometric measurements

Bodyweight was measured using a calibrated and easily transported scale with 0.1 kg numerical value. The weight was measured from the study subjects without shoes and minimal clothing. Height was measured from the subjects without shoes and in a full standing position using a stadiometer. The body mass index (BMI) of the study participants was calculated by weight (kg) and divided by the square value of height ($m^2$).

### Data collection, questionnaire design, and ethical clearance

Data were collected using a detailed and well-designed questionnaire to study the trends and consumption rate of fast food among students. A pilot-tested group consisting of 20 respondents of the whole study population was used to ensure that questions are understandable. The respondents filled up the questionnaire after explaining to them about fast food and providing clear information and a description of the whole study. Respondents' socio-demographic variables were collected, including family size, age group, education status, and family income level. The questionnaire was designed to primarily investigate the consumption pattern, fast food restaurant use, and their attitude to fast-food consumption. The study was approved by the Department of Pharmacy, Atish Dipankar University of Science and Technology. Permission for the study was also obtained from the responsible authorities of the school, college, and university. In addition, an informed and written consent was taken from students who wished to participate before distributing the questionnaire to them. Confidentiality of the study was ensured to all participants, and their results would be presented anonymously.

### Statistical analysis

Statistical data analysis and calculation were performed by Statistical Package for Social Sciences (SPSS, Inc., Chicago, USA) 21.0 version. Categorical variables were calculated and represented as percentages and numerical values. The correlation between fast food intake and different BMI categories was tested with 95% confidence intervals using the Chi-square test and a two-tailed t-test. By contrast, a $p$ of less than 0.05 indicates that the findings are statistically significant.

## RESULTS

The prevalence of overweight and obesity risk was determined by the BMI among the students in Dhaka

City, Bangladesh (Table 1). A total of 654 respondents attending different schools, colleges, and universities were interviewed and examined. Among the respondents, 60.1% were male (N = 393) and 39.9% were female (N = 261), comprising 27% from schools, 28.4% from colleges, and 44.6% from universities. The distribution of economic classes of respondents was as follows: 23.7% were higher class, 26.5% were higher middle class, 33.5% were middle class, 12.5% were lower middle class, and 3.8% were lower class. Approximately 41.3% of the respondents preferred homemade foods; 44.8% preferred fast food, and 13.9% preferred street foods. Surprisingly, only 47.7% of the respondents are at a sedentary level in physical activity; 45% are moderately active, and a few respondents (7.3%) are heavily active.

Table 1 shows that 53.1% of the respondents thought that fast foods were unhealthy, but 23.1% had fast food every day, and 21.1% had fast food 4–5 times/week. The number of participants with overweight and obesity, and those who were non-obese/overweight were 698 and 201 respectively. Further, 654 from the overweight and obesity participants completed the questionnaire, and 44 participants did not complete the questionnaire. Hence, overweight is about 17%, where approximately 14.40% of students were pre-obese.

**TABLE 1.** Socio-demographic status of respondents

| Variables | N (%) |
|---|---|
| **Gender** | |
| Male | 393 (60.1) |
| Female | 261 (39.9) |
| **Institution** | |
| School | 176 (26.9) |
| College | 186 (28.4) |
| University | 292 (44.6) |
| **Economic status** | |
| Higher Class | 155 (23.7) |
| Higher Middle Class | 173 (26.5) |
| Middle Class | 219 (33.5) |
| Lower Middle Class | 82 (12.5) |
| Lower Class | 25 (3.8) |
| **Frequency of fast-food consumption** | |
| Everyday | 151 (23.1) |
| 4–5 times/ week | 138 (21.1) |
| 2–3 times/ week | 162 (24.8) |
| 1–2 times/ month | 80 (12.2) |
| Occasionally | 123 (18.8) |
| **Physical activity level** | |
| Sedentary | 312 (47.7) |
| Moderate | 294 (45.0) |
| Heavy | 48 (7.3) |
| **Opinion about fast food** | |
| Appealing | 146 (22.3) |
| Tasty | 97 (14.8) |
| Healthy | 49 (7.5) |
| Unhealthy | 347 (53.1) |
| Nutritious | 15 (2.3) |
| **Most preferred foods** | |
| Homemade | 270 (41.3) |
| Fast Food | 293 (44.8) |
| Street Food | 91 (13.9) |

Among the 654 respondents, 10.7% of the respondents who consumed fast food every day considered fast food to be unhealthy and 8.6% of those who consumed fast food 4–5 times per week. In addition, only 13.1% of those who consumed fast food occasionally considered such food unhealthy, and no responder considered fast food as nutritious, who reported to consumed fast food sometimes and 1–2 times a week (Table 2).

The prevalence of overweight and obesity was higher in male than in female respondents. The percentages of overweight and pre-obesity in male respondents were approximately 11.5% and 8.9%, respectively. By contrast, the portion of male and female respondents was 5.50%, which was lower than male pre-obese students. In the case of obese subjects, the prevalence was equal to 0.2%.

The study revealed a statistically significant relationship between fast-food consumption frequency and prevalence of overweight and obesity. Students who consumed fast food daily or 4–5 times/week had a high number of overweight and pre-obesity. Of the students who consumed fast food every day, 5.0% and 7.2% were overweight and pre-obese, respectively, and 7.0% and 6.0% in students who consumed fast food 4–5 times/week (Table 3). Compared with students who consumed fast food less frequently, they had a low percentage of overweight and obesity.

Fast-food consumption and BMI varied depending on the economic status. The analyzed results have shown a relationship between fast-food consumption and economic status. The number of overweight and pre-obese respondents is high in the higher class (N = 31 and N = 42) and higher middle class (N = 33 and N = 29) families and low in lower class (N = 3 and N = 0) and lower middle class (N = 10 and N = 6) families (Table 3). Students from upper class and upper middle-class families are more prone to consume fast food and become pre-obese and overweight. For the lower middle class or lower-class family, the number of such respondents is inferior. Considering the frequent fast-food consumption, the percentage of overweight and obesity from higher class families is alarming.

Students who consumed fast food less frequently are in a low percentage of overweight and obesity. The prevalence of overweight and pre-obesity is 2.1% and 0.6% in respondents who consumed fast food 2–3 times

**TABLE 2.** Opinion about fast food and consumption frequency

| Opinion about Fast Food | Fast Food Consumption Frequency | | | | | *p* |
|---|---|---|---|---|---|---|
| | Every day N (%) | 4–5times/week N (%) | 2–3 times/week N (%) | 1–2 times/month N (%) | Occasionally N (%) | |
| Appealing | 28 (4.3) | 33 (5.0) | 51 (7.8) | 12 (1.8) | 22 (3.4) | |
| Tasty | 31 (4.7) | 27 (4.1) | 15 (2.3) | 12 (1.8) | 12 (1.8) | |
| Healthy | 12 (1.8) | 19 (2.9) | 12 (1.8) | 3 (0.5) | 3 (0.5) | < 0.001 |
| Unhealthy | 70 (10.7) | 56 (8.6) | 82 (12.5) | 53 (8.1) | 86 (13.1) | |
| Nutritious | 10 (1.5) | 3 (0.5) | 2 (0.3) | 0 (0.0) | 0 (0.0) | |

**TABLE 3.** BMI status and the relation among the variables

| Variables | BMI Categories | | | | | *p* |
|---|---|---|---|---|---|---|
| | Underweight N (%) | Normal Weight N (%) | Overweight N (%) | Pre-obese N (%) | Obese N (%) | |
| **Gender** | | | | | | |
| Male | 38 (5.8) | 221 (33.8) | 75 (11.5) | 58 (8.9) | 1 (0.2) | |
| Female | 41 (6.3) | 147 (22.5) | 36 (5.5) | 36 (5.5) | 1 (0.2) | |
| **Institution** | | | | | | |
| School | 55 (8.4) | 88 (13.5) | 21 (3.2) | 11 (1.7) | 1 (0.2) | |
| College | 20 (3.1) | 126 (19.3) | 25 (3.8) | 15 (2.3) | 0 (0.0) | <0.001 |
| University | 4 (0.6) | 154 (23.5) | 65 (9.9) | 68 (10.4) | 1 (0.2) | |
| **Economic status** | | | | | | |
| Higher class | 4 (0.6) | 77 (11.8) | 31 (4.7) | 42 (6.4) | 1 (0.2) | |
| Higher middle class | 13 (2.0) | 97 (14.8) | 33 (5.0) | 29 (4.4) | 1 (0.2) | <0.001 |
| Middle class | 39 (6.0) | 129 (19.7) | 34 (5.2) | 17 (2.6) | 0 (0.0) | |
| **Fast-food consumption frequency** | | | | | | |
| Everyday | 7 (1.1) | 63 (9.6) | 33 (5.0) | 47 (7.2) | 1 (0.2) | |
| 4–5 times/week | 1 (0.2) | 51 (7.8) | 46 (7.0) | 39 (6.0) | 1 (0.2) | <0.001 |
| 2–3 times/week | 28 (4.3) | 116 (17.7) | 14 (2.1) | 4 (0.6) | 0 (0.0) | |

per week and 0.9% and 0.2% in students who consumed fast food 1–2 times per month, respectively (Table 3).

Here five categories of fast-food consumption have been segregated into two categories: more than three times/week and less than three times/week. Five categories of economic status are also segregated into two categories: higher class and lower class. In addition, physical activity level and food preference have been divided into two groups to calculate binary logistic regression (Table 4) and Chi-square *p* (Table 5). The correlational aspect was established to understand the relationship between BMI categories and students' fast-food consumption frequency. However, the BMI score was higher in students who had eaten fast food frequently. Therefore, student's BMI score is greatly influenced by fast-food consumption frequency. Moreover, a strong association between the number of times they eat fast food and BMI scores of students and a significant difference between the categories of fast-food consumption frequency and BMI were observed. Table 5 provides the result of binary logistic regression analysis on student's BMI, showing how fast-food consumption frequency affects student's BMI in the study area. Furthermore, consuming fast food more than three times a week (OR = 11.13; 95% CI: 7.516–16.470; $p < 0.01$) was positively associated with high BMI score and/or obesity among students. Therefore, students consuming fast food more than three times a week likely become obese (above 11 times) compared with other students who consumed fast food less than three times a week (Table 4).

Chi-square test and binary logistic regression model were used to detect associated significant factors and measure their effects on overweight and obesity, respectively, among the students in Dhaka City, Bangladesh. A correlational aspect to understand the relationship between BMI categories and students' fast-food consumption was established (Table 5). The fast-food consumption frequency score describes the BMI of the study sample because of the Pearson Chi-square (*p*) significance level <0.001 for each of the BMI indicators. The accessed information is summarized in Table 5. The table shows that the number of underweight students who had eaten fast food every

day was 2, and 31 students ate fast food occasionally. On the contrary, 117 students achieved an average weight by consuming fast food 2–3 times per week, and 47 students who were taking fast food regularly were in pre-obese condition (Table 5).

This study reveals a statistically significant relationship between fast-food consumption frequency and acidity problem among the respondents ($p$ < 0.001). The association shows that 18.8% of respondents who consume fast food every day suffer from acidity. This percentage is gradually decreased when the consumption frequency is lower. However, this study found an insignificant relationship between food preference and acidity problem. The percentage of cases without acidity problem is higher (14.1%) in respondents who preferred fast food compared with those who preferred homemade food (12.5%, Table 6).

**TABLE 4.** Effect of socioeconomic status, dietary habits, and physiological factors on overweight and obesity risk among students in Dhaka City, Bangladesh

| Variables | *p* | OR | 95% CI of OR | |
|---|---|---|---|---|
| | | | Lower | Upper |
| Fast Food Consumption Frequency (More than 3 times/week vs. less than 3 times/week*R) | < 0.001 | 11.13 | 7.51 | 16.47 |
| Economic Status (Higher class vs. lower class*R) | 0.003 | 2.18 | 1.31 | 3.62 |
| Food Preference (fast food vs. others*R) | 0.009 | 1.55 | 1.11 | 2.15 |
| Activity Level (Sedentary or moderate vs. heavy*R) | 0.001 | 5.71 | 2.02 | 16.10 |

R = reference factor, OR = odds ratio, and CI = confidence interval

**TABLE 5.** Chi-square test between BMI categories and the occurrence of fast-food consumption

| Number of Times Students Consume Fast Food | BMI Category of the Students | | | | |
|---|---|---|---|---|---|
| | Underweight N (%) | Normal N (%) | Overweight N (%) | Pre-obese N (%) | Obese N (%) |
| Everyday | 2 (0.3) | 52 (8.0) | 30 (4.6) | 47 (7.2) | 1 (0.2) |
| 4-5 times per week | 1 (0.2) | 53 (8.1) | 47 (7.2) | 39 (6.0) | 1 (0.2) |
| 2-3 times per week | 28 (4.3) | 117 (17.9) | 15 (2.3) | 4 (0.6) | 0 (0.0) |
| 1-2 times per week | 15 (2.3) | 61 (9.3) | 6 (0.9) | 1 (0.2) | 0 (0.0) |
| Occasionally | 31 (4.7) | 85 (13.0) | 13 (2.0) | 3 (0.5) | 2 (0.3) |

Chi-Square Value ($p$) <0.001

**TABLE 6.** Food habit and acidity problem

| Variables | Acidity Problem | | *p* |
|---|---|---|---|
| | Yes N (%) | No N (%) | |
| **Preferred food** | | | |
| Homemade | 188 (28.7) | 82 (12.5) | |
| Fast food | 201 (30.7) | 92 (14.1) | 0.269 |
| Street food | 54 (8.3) | 37 (5.7) | |
| **Fast-food consumption frequency** | | | |
| Everyday | 123 (18.8) | 28 (4.3) | |
| 4–5 times / week | 108 (16.5) | 30 (4.6) | |
| 2–3 times / week | 104 (15.9) | 58 (8.9) | < 0.001 |
| 1–2 times / month | 43 (6.6) | 37 (5.7) | |
| Occasionally | 65 (9.9) | 58 (8.9) | |

## DISCUSSION

This study aimed to determine the association of fast-food consumption frequency and physical activity levels with the prevalence of overweight and obesity among students in Dhaka City, Bangladesh. The study results show an epidemic of overweight and obesity in students who consumed fast food and lack of physical activities. Of the students who consumed fast food almost every day, about 7.2% were pre-obese, and 7% were overweight.

In our study, students who consumed fast food more than three times a week are 11.13 times ($p < 0.001$) more at risk of overweight, obesity, and other metabolic diseases compared with those who consumed fast food less than three times per week. This finding indicates that school, college, and university students from Bangladesh are prone to obesity because of their fast-food consumption. In addition, 23.1% of the respondents consume fast food daily, and 21.1% consume fast food 4–5 times a week. About 21% of the youth who consumed fast food regularly were obese with different stages of obesity, and a rapid shift in nutrition transition was observed among Bangladeshi youth.[25] Another study found that 39% of the Bangladeshi youth who consumed fast food were overweight.[26] A study among the children of Bosnia and Herzegovina found that about 25.5% of students were overweight and obese based on the physical activity level,[27] but obesity prevalence was about 20.1% in students who had a sedentary level of physical activity. Furthermore, age or education level increases the rate of overweight and obesity from 3.2% to 9.9% and from 1.7% to 10.4%, respectively. The lack of playground and time for participating in games and sports and addiction to mobile-based refreshments are the underlying reason for this finding. Students consuming energy-dense food and having sedentary lifestyle with inactive travel of going and returning to school likely become overweight and/or obese.[28] In addition, a statistically significant relationship was found in-between childhood obesity and junk food consumption among urban students.[28] During the preparation of fast food, animal protein was fried with fat and/or trans-fatty acid-rich hydrogenated vegetable oil.[29] An evidence-based empirical study showed that hydrogenated vegetable oils and/or trans-fatty acid consumption is highly associated with obesity and cardiovascular diseases.[30] Close and critical evidence of the association between insulin resistance and fast-food consumption is found, causing the subjects to be obese and prone to other metabolic diseases.[31] Another prospective study suggested that individuals who consumed fast food more than two times a week in 15 years gained 4.5 kg and increased the tendency of resistance to insulin.[32] Other epidemiological correlation with fast food and obesity indicated that sugary beverage consumption could be a critical factor. Soft drinks oftentimes are consumed with fast foods, which might increase the risk of obesity in pre-school children and type 2 diabetes mellitus in adults.[33] On the contrary, a study with school-aged children successfully reduced obesity preponderance by diminishing sugary drink consumption.[34]

In this cross-sectional study, 47.7% of students maintained a sedentary lifestyle, and among them, 9.9% and 10.2% were overweight and pre-obese, respectively (Table 1). As sedentary behavior and/or lifestyle such as watching television and videos and playing video games can serve as a critical factor of obesity for children and youth, tackling this problem can prevent obesity.[35] 23.7%, 26.5%, and 3.8% of the students from the higher, higher middle, and lower classes, respectively, indicated their affordability to select fast-food over low energy-dense, healthy food (Table 1). In the USA that 12% of children from affluent families and 20% children from low-income families are suffering from obesity.[36] This finding clearly describes that economic category and physical activity levels can play a critical role, which have an association with fast-food consumption and obesity. The prevalence of pre-obesity is also high in students belonging to the higher-class family (6.4%, Table 3). In general, students belonging to the higher-class family likely to have fast foods in their tiffin and have more hangouts in fast-food corners. Therefore, maintaining a normal weight is found to be significant in the low-class family as they are less exposed to fast foods and mostly rely on homemade foods. When attending school, students are directly monitored by their parents directly. After graduating from colleges or university, they are becoming exposed to fast food with the influence of friends and others, which triggers out the prevalence rate.

This study also found a relationship between fast-food consumption frequency and acidity problem. As we know, fast foods are cooked in oil, which causes acidity problem. Around 18.8% of students who consume fast food every day are suffering from acidity (Table 6) and only 6.6% for those who consume fast food once or two times a month. However, 8.9% of students who consume fast food 2–3 times/week or occasionally did not suffer from acidity. The respondents who consume fast food sometimes may lack of water intake, which triggers out acidity problem. Therefore, fast-food consumption might increase the risk of functional gastrointestinal disorders (FGID). Furthermore, an elevated risk of FGID is observed in adolescent and children because of fast-food consumption.[37]

This pioneering cross-sectional study provides new insights into eating habits, and we disclosed relevant underlying risk factors that can induce obesity among students. Analysis of our study is not devoid of limitations. Given the cross-sectional design of this study, causal links for fast-food consumption and other consequences were not established. Moreover, obesity indices such as waist circumference, waist-to-height ratio, abdominal volume index, conicity index, and weight-to-hip ratio were not measured, which might clearly represent the risk of other metabolic syndromes and obesity with fast-food uptake behavior. Another limiting point of the study might be the sample size. The sample was drawn through random sampling, and statistical analysis staged significant association.

Furthermore, correlation was established among the variables to solve this limitation. However, data will be more statistically credible when the size of the sample is large. Some strong points are identified in this pioneering study. First, considering a massive shift in nutrition transition, fast-food consumption habit among school, college, and university students is studied. Second, few epidemiological studies have been conducted in students of urban Dhaka City to determine the association of the frequency of fast-food consumption, economic condition, and physical activity level with overweight and/or obesity risk. Third, students' age ranging from 10 to 23 is completely covered in this study, which may lead to an overall view over a large population of Dhaka City, Bangladesh.

At present, Bangladesh is experiencing a massive nutrition transition of pattern IV because of its growing economy, and a huge population (158.5 million) of this country is composed of youth.[25] Energy-dense fast food is becoming popular, which is an alarming situation of the western world, thereby contributing to a surge in overweight, obesity, and other NCD. Therefore, Bangladesh is at a high risk of overweight and obesity for the upcoming decades. If proper measures are not taken to this public health issue, then a growing number of obesity and related comorbid diseases may arise.

This study provides insight into the underlying factors related to the association of fast-food consumption with overweight and obesity. Other socioeconomic conditions, food preference, and awareness about fast-food and fast-food consumption rate among educational institutions were measured in Dhaka City as it is the capital city of Bangladesh. Thus, almost people from all districts and/or regions live here, and our study population might be an excellent representation of the overall country. In addition, childhood obesity is increasing in Bangladesh; hence, this study helped us to determine the underlying reason related to obesity increase in children along with the young population.

This frontier study also helped us to determine the factors causing overweight and obesity and predict perception toward fast food among students in Dhaka City. As students are the backbone of a nation, their perception and knowledge could help them and the future generation to avoid the deadly pandemic of obesity, which is already a problem in many developed countries. No research evidence on the correlation between fast-food consumption and obesity among students in Dhaka City or even in Bangladesh; thus, this study has generated new research insight and attracted the attention of public health experts for further stratified and population-specific study.

## CONCLUSIONS

Fast-food consumption, consumption frequency, economic status, food preference, and activity level were associated with overweight and obesity among students in Dhaka City. Thus, this paper reported that overweight and obesity prevalence associated with fast-food consumption frequency increases among the students in Dhaka City, Bangladesh. Overweight and obesity are serious public health consequences, which can be prevented by changing lifestyle. A close monitoring from teachers is needed for students to prevent childhood obesity and promote homemade-food consumption. In addition, youths must be motivated about the negative effect of overweight and obesity. Mass media can play a vital role in catalyzing a good lifestyle. Therefore, proper diet and increasing physical activity are necessary to maintain a good weight.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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