Association between Student's Food Habit, Physical Activity and BMI: A Study in Khulna University

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ABSTRACT

The research work was conducted on 150 undergraduate and postgraduate students who belonged under the Social Science School of Khulna University. Purposive sampling was followed to select the participants and a semi-structured questionnaire was used in the study to collect data in accordance with the survey research method. The present study shows the association between students' body mass index and its covariates via bivariate analysis (Fisher's exact tests). Study results indicate that respondents' physical exercise status (p>.02) and sleeping habit (p>.04) were significantly associated with their body mass index. On the other hand, personal attributes and food habits had no association with their body mass index. Moreover, the author suggested that nutritional education programs should be provided by the university for the students which inspire them to pursue a healthy lifestyle.

Keywords: Health status, Association, Overweight, BMI, Obesity, and Students.

INTRODUCTION:

At the present days, overweight and obesity is a public health concern throughout the world since they raise mortality rates. It has globally considered as the risk of rising reasons of various chronic diseases like diabetes, hypertension, and so on. World Health Organization (WHO) estimated in 2016 that more than 1.9 billion adults aged 18 years and older were overweight whereas over 650 million adults were obese. The most important reason for overweight and obesity is an energy imbalance between consumed calories and expended calories (WHO, 2018). In Bangladesh, urban people hold the higher level of obesity rather than in rural people and also the prevalence rate is higher in females than in males among adults and children (Banik & Rahman, 2018).

However, by choosing healthy meals and regular exercise, this physical condition can be avoided. Following a western lifestyle can also change people's eating habits. For instance, westerners often eat according to a calorie chart, which aids in their quest for physical fitness. However, fast food is more frequently chosen by individuals today than home-made cuisine, which contributes to the obesity epidemic we are currently experiencing. The Bangladeshi population is not an exception to this scenario, and young people like university students are more aware of it. In addition, low- and middle-income people now tend to be more common among those who are overweight & obese (Melton, 2005). Undergraduate students are more familiar with obesity as young age is more closely tied to economic change and globalization. Additionally, they are more adapted to changing nutritional needs and lifestyles. Globally, students' BMI is rising as a result of lifestyle changes, a bad diet, a tendency to eat outside the home, a high intake of soft drinks, lethargy, and also for skipping a nutritious breakfast. Increased access to food away from home could have a negative impact on nutrient intake (Zamsad *et al*., 2018).

Young adolescents in Bangladesh are increasingly eating fast food. University students have replaced traditional meals by the culture of fast-food consumption. Excessive fast-food consumption is responsible for high level of BMI which create obesity-related diseases such as diabetics, hypertension and so on. Younger generations' higher BMI is a major problem since they live fancier lives than older members of the community. University students don't respect native eating habits and live in western contexts in order to adhere to the global food culture. One of the reasons why fast food is so popular among students is changes in lifestyle and the disappearance of family dining traditions. A general study found that frequent consumption of fast food increases overweight and obesity, but these conditions might be decreased with targeted health education initiatives and increased public awareness (Bipasha and Goon, 2013; Chowdhury *et al*., 2021).

Clinically, it has been proved that fast food leads to many disorders. In recent years, cancer is a popular disease among people. Being overweight increases the risk of developing certain cancers such as- breast cancer, gallbladder cancer, and so on. Also, overweight and obesity are known to increase blood pressure (National Institute of Diabetes and Digestive and Kidney Disease, 2019). Obesity and overweight are some of the main health problems among young and children. This research, therefore, aimed to investigate the associate determinants of overweight and obesity among students of Khulna University, Bangladesh.

MATERIALS AND METHODS:

Both undergraduate and graduate students (150) from Social Science School of Khulna University have been surveyed for this explanatory study. Participants of this study were selected by purposive sampling from a purposeful survey. Due to all of the participants were educated data were gathered through questionnaire. And the questionnaire was formed with the hands of knowledge from earlier research, of Ahmed *et al*., 2015; Jeang *et al*., 2019; Karmakar *et al*., 2019; Peltzer *et al*., 2014; and Bipasha & Goon, 2013.

The collection period of data took places from January to February 2022. After collecting data author has been chosen, the Statistical Package for the Social Sciences (SPSS) version 22 software to process the acquired data and MS Word 16 was used for interpreting all of information that given by study participants. Moreover, the circumstance of ethical consideration, researchers ensured that participants name never exposed in anywhere as well as participants were free to exclude their participation from this study at any time study.

RESULTS:

Table 1 illustrates the personal information of the respondents, around 67 percent of respondents belonged to the age group of 21 to 23 years whereas 32.7 percent belonged to the age group of 24 to above. More than half of the respondents (52.7%) were male. Clarifying the religion of the respondents that 75.3 percent were Muslim and 24.7 percent were Non-Muslim. Nearly half of the respondents (48 %) stayed in university hall, 39.3 percent stayed in their own home and the rest 12.7 percent stayed in mess. Besides, the majority (60 %) of the respondents had normal weight as BMI; the rest of the respondents had underweighted 4 percent, overweight 31.3 percent, and obesity 4.7 percent.

However, **Table 2** reveals that in the type of eating food, the majority (80.7%) respondents took medium carbohydrate food, 11.0 percent took high carbohydrate food and the rest 8.0 percent took low carbohydrate food. Then, the majority (77.3%) took medium protein-based food. Also, the majority (56%) ate fast food occasionally, 22.0 percent ate fast food regularly. Moreover, information about respondents' physical activities whereas seen only 2.0 percent of respondents exercised regularly, 40 percent did rarely and the rest 22.7 percent never did exercise. Besides, 43.3 percent of respondents did not have sleeping habits after lunch, as well as most of the students, were abstained from all kinds of smoking. This research work analyzed the association of BMI among university students whereas students' BMI is considered as a dependent variable and other covariates were considered as independent variables. In **Table 3**, a bivariate analysis was conducted to know the connection. **Table 3** represents students' personal information (age, sex, religion, and residence) had no association with their body mass index. Like personal information, the food habits of participants also did not find any association with their body mass index. Amazingly, this research found an association in the condition of physical activities whereas shown that doing regular exercise has an association with the student's body

mass index (p>.02). Furthermore, sleeping habits after lunch (p>.04) found an association which figure out those were overweight and obese in this study, they slept after lunch.

Table 1: Information about personal information (Source: Authors' compilation, 2022).

Variables	Frequency *(n=150)*	Percent *(%)*
Age (in Year)		
21-23	101	67.3
24≥	49	32.7
Sex Composition		
Male	71	47.3
Female	79	52.7
Religion		
Muslim	113	75.3
Non-Muslim	37	24.7
Residence		
Own Home	59	39.3
University Hall	72	48.0
Mess	19	12.7
Body Mass Index (BMI)		
Underweight (≤18.5)	6	4.0
Normal (18.5-24.9)	90	60.0
Overweight (25.0-29.9)	47	31.3
Obesity (30.0≥)	7	4.7

Table 2: Information about food habits and physical activities (Source: Authors' compilation, 2022).

Variables	Frequency *(n=150)*	Percent *(%)*
Food Habits		
Carbohydrate Consumption		
Low	12	8.0
Moderate	121	80.7
High	17	11.3
Protein Consumption		
Low	17	11.3
Moderate	116	77.3
High	17	11.3
Fast food Consumption		
Regular	33	22.0
Sometimes	85	56.7
Rare	32	21.3
Physical Activities		
Exercise		
Regular	3	2.0
Sometimes	53	35.3
Rare	60	40.0
Never	34	22.7
Sleep after Lunch		
Yes	65	43.3
No	85	56.7
Having Smoking		
Yes	23	15.3
No	127	84.7

DISCUSSION:

The developing countries also continue to increase the prevalence of higher BMI like developed countries people. Rapid industrialization and urbanization contribute to improvement in the way food are processed, and the phenomenon is prevailing (Bulbul and Hoque, 2014). Overweight & obesity are public health problems that lead to many health diseases and also can increase the rate of morbidity and mortality. The study attempted to identify the influential factors that has direct link with students' BMI and their daily lifestyles such as food pattern and physical activities.

Table 3: Association among BMI of Students and its Covariates.

| Covariates | Body Mass Index (BMI) | | | | Test Score | *p* value |
	Under Weight (%)	Normal Weight (%)	Overweight (%)	Obese (%)		
Personal Attributes						
Age						
21-23	3 (3.0)	57 (56.4)	35(34.7)	6 (5.9)	3.505	0.303
24≥	3 (6.1)	33 (67.3)	12 (24.5)	1 (2.0)		
Sex						
Male	1 (1.4)	43 (60.6)	24 (33.8)	3 (4.2)	2.481	0.459
Female	5 (6.3)	47 (59.5)	23 (29.1)	4 (5.1)		
Religion						
Muslim	4 (3.5)	71 (62.8)	31 (27.4)	7 (6.2)	5.165	0.147
Non-Muslim	2 (5.4)	19 (51.4)	16 (43.2)	0 (0.0)		
Residence						
Own Home	2 (3.4)	32 (54.2)	21 (35.6)	4 (6.8)		
University Hall	2 (2.8)	44 (61.1)	24 (33.3)	2 (2.8)	7.985	0.280
Mess	2 (10.5)	14 (73.7)	2 (10.5)	1 (5.3)		
Food Habits						
Carbohydrate Consumption						
Low	0 (0.0)	8 (66.7)	3 (25.0)	1 (8.3)		
Moderate	6 (5.0)	71 (58.7)	38 (31.4)	6 (5.0)	1.905	0.806
High	0 (0.0)	11 (64.7)	6 (35.3)	0 (0.0)		
Protein Consumption						
Low	1 (5.9)	11 (64.7)	4 (23.5)	1 (5.9)		
Moderate	5 (4.3)	67 (57.8)	39 (33.6)	5 (4.3)	2.708	0.887
High	0 (0.0)	12 (70.6)	4 (23.5)	1 (5.9)		
Fast food Consumption						
Regular	1 (3.0)	21 (63.6)	9 (27.3)	2 (6.1)		
Sometimes	2 (2.4)	54 (63.5)	27 (31.8)	2 (2.4)	7.111	0.317
Rare	3 (9.4)	15 (46.9)	11 (34.4)	3 (9.4)		
Physical Activities						
Exercise						
Regular	1 (33.3)	2 (66.7)	0 (0.0)	0 (0.0)		
Sometimes	0 (0.0)	27 (50.9)	21 (39.6)	5 (9.4)	17.666	0.020**
Rare	4 (6.7)	41 (68.3)	15 (25.0)	0 (0.0)		
Never	1 (2.9)	20 (58.8)	11 (32.4)	2 (4.7)		
Sleep after Lunch						
Yes	5 (7.7)	43 (66.2)	14 (21.5)	3 (4.6)	8.002	0.043**
No	1 (1.2)	47 (55.3)	33 (38.8)	4 (4.7)		
Having Smoking						
Yes	0 (0.0)	13 (56.5)	9 (39.1)	1 (4.3)	1.226	0.643
No	6 (4.7)	77 (60.6)	38 (29.9)	6 (4.7)		

Note: **Significant level at 5

However, this study had some limitations; first of all, this study does not explore the total scenario of Bangladeshi students.

Besides, it was hard to complete this research without any funding. Furthermore, at the beginning of the investigation, researcher thought this study could be explored the association among personal attributes, food habits, and physical activities with their body mass index which found in previous research but it's not happened respectively. In this study, there was no association between students' personal details and body mass index. Age, sex, religion, and residence had no relationship with the being of overweight or obesity. Similarly, Ahmed *et al*. (2015) and D.B. Kumah *et al*. (2015) also identified the same result where it was proved there was no statistical significance between age and body mass index by which it is cleared that overweight and obesity never depend on age or personal attributes. Moreover, present research found no relationship between food habits and body mass index which is a contradiction statement of previous research of Yousif *et al*. (2019) who found a significant relationship between eating behavior and BMI status. Furthermore, the present study revealed the association between the

physical exercise status and BMI which also found in another research (Chaput *et al*., 2010). Alongside, the present study figures out that body mass index depends on an individual's sleeping habit after taking lunch which were similar to the study of (Panossian and Veasey, 2012). Indeed, physical activity lacking and sleep duration affect the risk of obesity and its complication. The health risk is associated with BMI as well. The prevention and reduction of overweight and obesity depend on individual lifestyle trans-formation. In our society, the combination of chan-ging eating habits and physical exercise influences to shape BMI.

CONCLUSION:

Currently, overweight and obesity have become a global health problem in both developed and deve-loping countries. However, from the response of this study overweight among the students was 31.3 percent and obesity was 4.0 percent that means 1 in 3 students was overweight and 1 in 21 students were obese. To mitigate the higher BMI among students' may be carried by following nutrition based edu-cational campaigns to encourage students for pur-suing a healthy lifestyle. Also, students themselves should concentrate more on a healthy lifestyle as it encourages people's good health and well-being.

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CONFLICTS OF INTEREST:

The author has no conflict of interest towards this manuscript.

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