

Original Article

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The ratio of Obesity and Associated Factors among Ramna Park Visitors of Dhaka City

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Abstract:

Background: Obesity has become one of the major problems of developing countries. Weight is now increasing during this life stage of transition at a higher rate. The purpose of the study was to know the ratio of obesity and associated factors among visitors of Ramna Park, Dhaka city.

Methodology: This descriptive type of cross-sectional study was carried out from January 2022 to December 2022 for a period of 1 year in Ramna Park, Dhaka City among 260 visitors. Pretested semi-structured questionnaires were used and BMI measurements were calculated as data collection instruments.

Results: Out of all respondents, most of the study population were in the age group of 20 to 40 years which was 197(75.8%) respondents. Regarding BMI majority of the respondents were obese which was 104(40.0%) respondents. Among 104 obese respondents, most of them had said that they had taken three times meals per day which was 52(50.0%) respondents. Statistically significant ($P < 0.05$) association was found among dietary habits, physical inactivity, and obesity.

Conclusion: In conclusion, the study revealed that obesity is increasing significantly, So, such a high prevalence of obesity is a health concern for Bangladeshi adults. Therefore, to address these diseases, appropriate health intervention measures and public awareness are required.

Key words: Obesity, Visitors, Associated factors.

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Introduction:

Obesity is a medical condition in which extra body fat accumulates in the body, resulting in complicated multifactorial chronic diseases and a reduction in life expectancy. Obesity has developed into a life-threatening and pervasive public health problem, gaining epidemic proportions in the world.¹

The body mass index (BMI) is a recommended method for identifying obesity, according to the World Health Organization (WHO); BMI values between 23 kg/m² and 24.9 kg/m² are regarded as overweight, while BMI values greater than 25 kg/m² are considered obese for Asian people. Obesity and overweight are modifiable risk factors for hypertension, cardiovascular disease (CVD), type II diabetes, and a variety of other morbidities.³ At least 2.8 million adult deaths are attributed to obesity or being overweight each year. Additionally, 44% of diabetes, 23% of ischemic heart disease, and up to 7 – 41% of certain cancers worldwide are attributable to overweight or obesity. Numerous research examined the connection between obesity and various lifestyle factors such as a balanced diet, physical activity, smoking, and alcohol intake.⁴ Previous studies showed that having appropriate eating habits, physical activity, and a healthy lifestyle in early age can reduce the chance of acquiring obesity later in life. Studies show that adult obesity and overweight are common in developing nations.

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Globally, obesity is the fifth most common cause of death., with obesity and overweight expected to affect nearly 573 million and 1.35 billion adults, respectively, by 2030.²

Bangladesh is a developing country and has seen growing numbers of obesity-related diseases;

such as cardiovascular disease, hypertension, strokes, diabetes etc. are few examples. Recently, it was perceived that middle-aged adults are mostly obese. However, a steadily increasing trend of obesity among young adults is becoming evident. Significant changes in an adult's lifestyle occur when they move out of the family home, enroll in college or university, begin employment, and form relationships⁶. Young adults are particularly susceptible to energy imbalances during these crucial life stages, which frequently result in weight gain. While this weight increase may not seem alarming at first, it eventually adds up. However, the health habits formed throughout this adult transition both positive and negative often endure into later life.⁷

Developed countries recognize 18–25 year olds as a 'vulnerable group' for unhealthy lifestyles leading to overweight and obesity. Conversely, obesity in developing nations did not even qualify as a public health issue until the early 1980s and 1990s, but it was seen as a problem in developed countries.⁸ Nonetheless, over the past 20 years, a number of dietary and socioeconomic changes have impacted the anthropometric measures and health trends of populations in developing nations. The prevalence of obesity and other NCDs is rising, and it is thought that these ailments will pose a challenge to developing countries' healthcare delivery systems and infrastructure, even while diseases like tuberculosis, diarrhea, and under nutrition are still very much present, especially in a few of them.⁹

Due to economic development, increased availability and consumption of food, lifestyle changes, and increased urbanization increase the burden of obesity in Bangladesh. A sedentary lifestyle and heavy consumption of fried and fatty foods along with beverages play a large role. In addition to the high consumption of sugary beverages, several other factors have produced the high obesity rates in this region. While previously being overweight and obesity was seen as a problem in developed countries, it is now a problem in many low-income countries, particularly for those who reside in urban areas.⁴

Methodology: This was a descriptive type of cross-sectional study. It was carried out from January 2022 to December 2022 for a period of 1 year in Ramna park, Dhaka city among 260 visitors. The sampling technique was a convenient sampling technique. Pretested semi-structured questionnaires were used and BMI measurements were calculated as data collection instruments. Data were analyzed by SPSS software. Ethical approval for the study was obtained from the Institutional Review Board of the Sir Salimullah Medical College, Mitford, Dhaka (Ref:59.14.1100.031.99.001.22.2999). The written informed consent was obtained from all study participants. All methods were performed according to the relevant guidelines and regulations.

Results:

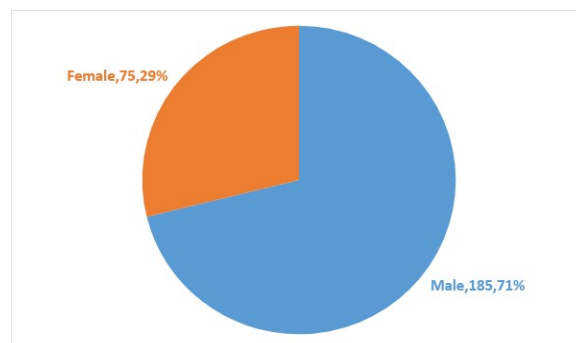


Figure 1: Distribution of respondents according to Gender (n=260)

Figure 1 shows the distribution of study population according to gender. Among 260 respondents' male was predominant than female which was 185(71.2%) respondents and the rest of 75(28.8%) respondents were female. The male and female ratio was 2.5:1.

Table I: Distribution of respondents according to Occupation (n=260)

Occupation	Frequency	Percent
Service Holder	161	61.9
Business	67	25.8
Homemaker	18	6.9
Student	14	5.4
Total	260	100.0

Table I shows the distribution of the study population according to occupation. Service holder was the most common occupation type among the study population which was 161(61.9%) respondents followed by business, homemaker and student which were 67(25.8%) respondents, 18(6.9%) respondents, and 14(5.4%) respondents respectively.

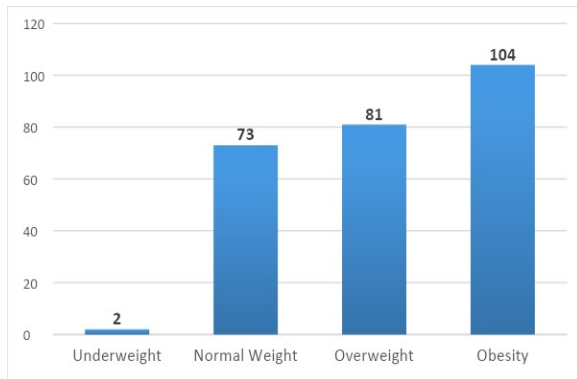


Figure 2: Showing the respondents according to BMI Group (n=260)

Figure 2 showed the study population according to BMI group. Most of the respondents were obese which was 104(40.0%) respondents followed by overweight and normal weight which were 81(31.2%) respondents and 73(28.1%) respondents respectively. However, only 2(0.8%) respondents were in underweight.

Table II: Relationship between Taking Meal and obesity among respondents

BMI Group	Times Take Meal/day			Total	Chi-square value	P value
	One	Two	Three			
Underweight	0(0.0%)	0(0.0%)	2(100.0%)	2(100.0%)	24.753	0.000
Normal Weight	0(0.0%)	42(57.5%)	31(42.5%)	73(100.0%)		
Overweight	0(0.0%)	56(69.1%)	25(30.9%)	81(100.0%)		
Obesity	8(7.7%)	44(42.3%)	52(50.0%)	104(100.0%)		
Total	8(3.1%)	142(54.6%)	110(42.3%)	260(100.0%)		

Pearson Chi-Square test was performed to see the level of significance

The study found that most obese respondents took three meals per day, followed by two and one. Of the 81 overweight participants, 69.1% consumed two meals daily, while 30.9% consumed three. The frequency of meals was significantly correlated with BMI, with 57.5% of normal-weight respondents taking two meals daily.

Table III: Relationship between Watching TV and obesity among respondents

BMI Group	Watch TV/ day				Total	Chi-Square Value (P value)
	<2 hours	2 to 5 Hours	>5 Hours	Never		
Underweight	0(0.0%)	2(100.0%)	0(0.0%)	0(0.0%)	2(100.0%)	14.659(0.101)
Normal Weight	43(58.9%)	21(28.8%)	1(1.4%)	8(11.0%)	73(100.0%)	
Overweight	45(55.6%)	31(38.3%)	2(2.5%)	3(3.7%)	81(100.0%)	
Obese	42(40.4%)	51(49.0%)	1(1.0%)	10(9.6%)	104(100.0%)	
Total	130(50.0%)	105(40.4%)	4(1.5%)	21(8.1%)	260(100.0%)	

Table III: shows the relationship between watching television and BMI Status among respondents. Among 104 obese participants, the majority had watching television 2 to 5 hours per day which was 51 (49.0%) respondents. Among 81 overweight participants, majority were watching less than 2 hours per day which was 45 (55.6%). Among 73 normal participants' majority were watching TV less than 2 hours per day which was 43 (58.9%) respondents. The difference between watching television and the status of BMI was not statistically significant (p=0.101).

Discussion:

This study recruited 260 respondents, with a majority aged 20-40 years. The average age was 36.47±9.17 years, with the majority coming to Ramna Park in Dhaka city. Young adults are the most common demographic, concerned about their health and obesity. This is similar with previous studies indicating high obesity rates among this age group in Bangladesh.⁷ The study highlights the importance of addressing health concerns among young adults.

The study found that males were predominant in the park, with a 2.5:1 male-to-female ratio. The majority of respondents were Muslims, with 94.6% of respondents being Muslims. The majority were in the monthly income group of 20000 to 30000 TK and 30000 to 40000 TK, with the majority in the middle-income group. The most common occupation was serviceholder, followed by business, homemaker, and student. Higher secondary level education was the most common, followed by graduate, SSC level, and post-graduate. The majority of respondents were married, with 235 being married and 25 unmarried. The study suggests that the socio-economic status of the population is middle-income, with 41.6% of developing world citizens being middle-class.

The study analyzed the BMI group of the population, with 104 respondents being obese and 81 overweight and 28.1% normal weight. An important public health concern is obesity, with 39% of adults aged ≥ 18 years being overweight and 13% obese in 2016.² The prevalence of obesity and overweight is rising quickly in low- and middle-income nations. Metabolic problems include hypertension, type 2 diabetes, and cardiovascular illnesses are linked to obesity.¹⁰ The relationship between taking meals and obesity was found to be statistically significant, with 52 obese respondents taking three meals per day, followed by 44 two-meal and one-meal respondents. The study also found a considerable association between fast food consumption and BMI, with 59 overweight respondents taking fast food two times per week and 12.3% taking 2 to 5 times per week. Young adults who eat fast food, snack, and skip breakfast have a higher chance of being overweight or obese in the future.^{11,12}

There search revealed that the frequency of snacking and the frequency of taking soft drinks significantly influenced the status of BMI among 104 obese respondents. Obesity rates have increased significantly among women and men over the past 14 years due to sedentary lifestyles and changing diets.¹³⁻¹⁵ The study also found a significant relationship between the frequency of taking soft drinks and BMI. Obese respondents consumed two to five times more soft drinks per week, while those with normal weight consumed two to five times a week. The

study also found a significant relationship between the frequency of sweets and BMI. According to the study, diets heavy in added sugar may have a role in the development of obesity.

The study analyzed the relationship between salt intake, exercise, and obesity among 104 participants. The majority of obese participants reported taking salt, while the majority of overweight participants did not. The research also revealed that the frequency of salt intake was statistically significant, as it stimulates thirst and appetite, increasing energy intake and extracellular volume.

Exercise was also found to be linked with obesity, with the majority of participants engaging in 2-5 hours of exercise per week. The study also found that the duration of exercise was significantly related to BMI. Female sex, increased age, and less physical activity were identified as important risk factors for obesity in the South Asian region.^{3,16}

It was also shown that playtime had a big role on obesity. With the majority of participants spending 2 hours per week. Workers with 60 hours or more had 1.4 times higher obesity than those with less than 40 hours. The study found that the difference between working hours and BMI status was statistically significant.

Screen time was found to be an important factor in obesity, with the majority of participants watching television 2 to 5 hours per day. The majority of overweight participants watched less than 2 hours per day, while the majority of normal weight participants slept 8 to 10 hours per day. However, sleep duration and BMI status did not show a favorable correlation, according to the study.

In conclusion, the study highlights the importance of addressing sedentary behaviors and promoting physical activity to reduce obesity rates and improve overall health.

Conclusion:

Obesity has evolved into a life-threatening and pervasive public health issue that has grown to epidemic proportions in both developed and developing countries, including Bangladesh. Current scientific research suggests that, rather than treating obesity as a single behavioral chronic state, a multidisciplinary strategy that

targets the obese person's current surroundings as well as larger socioeconomic circumstances should be taken into consideration. Incentives at various organizational levels, changes in food policies and distribution, and support from the media, educational institutions, and low-income populations are all necessary for the success of such an endeavor in developing countries. Interventions aimed at improving physical activity levels, health literacy, and healthy eating habits should be promoted.

Acknowledgments

None

Conflict of Interest

No conflict of interest.

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