



## Original Research

## Recent facts of eating habits and obesity among adolescent; a case of Pakistan

Mubbasher Munir<sup>a</sup>, Maria Oubaid<sup>b\*</sup>, Atif Amin Baig<sup>c</sup>, Anam Azam<sup>b</sup>, Hira Khalil<sup>d</sup>

<sup>a</sup>Department of Economics and Quantitative Methods, Dr. Hasan Murad, School of Management, University of Management and Technology, Lahore, Pakistan.

<sup>b\*</sup>Department of Life Sciences, School of Science, University of Management and Technology, Lahore, Pakistan

<sup>c</sup>Faculty of Allied Health Sciences University of Lahore, Lahore Pakistan.

<sup>d</sup>Faculty of Science and Health, University of Portsmouth, United Kingdom.

### Article Info.

Received: 02-02-2023

Revised: 06-04-2023

Accepted: 09-04-2023

Online: 29-05-2023

Correspondence:

[mariaoubaid23@gmail.com](mailto:mariaoubaid23@gmail.com)

Keywords: Obesity, Body mass index, LDL, Cholesterol

### Abstract

**Background:** Obesity is an escalating problem that is reaching to pandemic level. Multiple factors may involve in causing obesity such as improper food pattern of physical activities, social and ecological variables, choice of menu and other biological factors. Conducting to a study to evaluate the primary cause. However, a few studies are conducting to see the impact of eating patterns on health and weight. **Methods:** University students (n=150, ages 18-24 years) 50% males and 50% females were selected for data collection via questionnaire. The outcomes showed that 70 individuals prefer to eat saturated fats that can lead to accumulation of bad cholesterol. 5% females and 5% males prefer using trans-fat that is even worse. On the other hand, 44 respondents prefer to choose low fat food. **Results:** About 25% individuals are unaware of nutritional on facts of the products but females are more conscious as compared to the men. 55% individuals eat unconsciously while watching television and consume more than the requirement. 94 individuals got attracted by advertisement tactics of food companies and but to eat them. It is also witnessed that males (32%) consume more carbonated drinks than females (13%). 64 students strongly agreed that supplements lead to obesity. In our sample population 10% obese, 14% were overweight and 47% were of normal weight. **Conclusion:** The major reason of obesity could be that they are eating out more often. It could be due to the fact they are dependent on high calorie food. There is a lack of vegetables and fruits in their diet. On the other hand, fruits, veggies and whole grains are linked to less gain and even weight loss. Making smart food choices can help you stay slim and healthy.



Copyright (c) 2021, International Journal of Natural Medicine and Health Sciences licensed under Creative Commons Attribution-Non-Commercial 4.0 International License.

Citation: Munir M, Oubaid M, Baig AA, Azam A, Khalil H. Recent facts of eating habits and obesity among adolescent; a case of Pakistan. IJNMS. 2023; 2 (2): 49-57.

**Introduction:** In last few decades, an alarming problem of obesity has been detected and characterized by continuous changing of eating habits and lifestyle<sup>1</sup>. Food intake has been related to causing obesity not only in terms of the volume of food ingested, but also in terms of the composition and quality of the diet. Furthermore, eating habits have also changed and current habits - including the low consumption of fruits and veggies, increasing consumption of goodies (cookies with fillings, salty industrialized snacks, sweets) and as well as soft drinks which had helped to decipher the continuous increase in adiposity among adolescents. Obesity is actually the state of imbalance between calories ingested versus calories expended which can lead to excessive or normal fat accumulation. And this problem arises when one intake a large amount of energy dense food and burns calories as required. To conduct a study on this problem is need of the hour to evaluate the root cause of obesity and a solution would be made<sup>2,3</sup>. Several studies have been made to find out important nutritional education to make strategies for improvement of eating attitudes among adolescents and maintaining balanced BMI (*Body Mass Index*). The goal of this study was to explore a major association between eating habits and its influence on causing obesity.

The development of obesity involves multiple factors, such as improper food consumption, sedentary behavior, patterns of physical activity, social and ecological variables, and individual vulnerability; determined by biological factors. Studies have suggested that several characteristics of dietary behavior such as eating frequency, the time-based distribution of eating events across the day, breakfast skipping, and the frequency of meals eaten away from home, together referred to as "eating patterns," may influence body weight<sup>4-6</sup>. However, these earlier studies of the effect of eating patterns on body weight have not accounted for the effects of total energy intake and physical activity, which may misperceive results and introduce misclassification of dietary variables. Hence, the strength of this study is that it has been able to investigate the sedentary or desk-bound lifestyle also.

The speedy increase in world obesity prevalence points to behavioral changes in the 20<sup>th</sup> century as the main cause. Activities that formerly required high energy expenditure have been replaced by the ease offered by urbanization and industrial and technological progress, leading in turn to lower energy consumption at work, during travelling, and in domestic and leisure activities. Compounding factors in this decreased energy expenditure include globalization of eating habits that favor obesity due to distribution of refined and processed foods, rich in fats and sugars. Conditions such as type 2 diabetes mellitus, hypertension, and hypercholesterolemia, which were examined principally in adults, are becoming more common among adults with the increase in the prevalence of obesity. BMI (body mass index) is a body weight corrected for height. For obese BMI is above 30. There is a close relation between BMI and body fat. Females are 10% more obese than males, as they have subcutaneous fats at breast, buttock and thigh as compare to male who have subcutaneous fat in their abdomen region<sup>7,8</sup>. Overweight and obesity are big problems WHO predicted that in 2015, 2.3 billion adults will be overweight and more than 700 million will be obese in UK obesity rates have been

doubled in past 18 years between 1993 to 2011 13% man and 16% women to 24% man and 26% women. University students are exposed to unhealthy eating habits leading to weight gain. One of the major causes of obesity is the changes in the diet in terms of food quantity and quality which have become more westernized. The drastic cultural and social change in Arabian Gulf region since the discovery of oil and the economic boom during 1970's to 1980's was associated with the alarming increase in obesity. Studies have suggested that several characteristics of dietary behavior such as eating frequency, the time-based distribution of eating events across the day, breakfast skipping, and the frequency of meals eaten away from home, together referred to as "eating patterns," may influence body weight<sup>9,10</sup>. However, these earlier studies of the effect of eating patterns on body weight have not accounted for the effects of total energy intake and physical activity, which may misperceive results and introduce misclassification of dietary variables. Changes in dietary habits and physical activity have been implicated as potential causes of obesity. Previous research has shown that weight depends on energy balance defined as the relation between energy intake and energy expenditure. During the past 20 years, obesity among adults has risen significantly in the United States. The latest data from the National Center for Health Statistics show that a third of U.S. adults 20 years of age and older—over 100 million people—are obese<sup>11,12</sup>. This increase is not limited to adults but has also affected young people.

**Literature Review:** Being obese or over-weight was not so popular but by-passing years it is becoming more common among people of every age and escalating obesity has reached epidemic level<sup>13-15</sup>. Obesity is the mother of diseases. There is a wide range of diseases that a man can acquire just because of being obese. So, finding the root cause of obesity is the need of time to get solution for this emerging pandemic. There are many studies conducted which showed a positive relation of obesity with various factors. Food and nutrition play a vital role in maintaining calories and in turn maintaining healthy BMI. Consumption of sugar dense food and drinks can hinder body metabolism. Intake of high energy food and not utilizing it properly can be the baseline cause of the problem<sup>16</sup>. Because the primary building block of obesity is energy imbalance<sup>17,18</sup> between calorie intake and expenditure<sup>19,20</sup>. Energy-dense, high calorie, instant foods are readily available at low cost while nutrient rich food is costly, and not easily available for everyone<sup>21</sup>. However, the majority of the world's leading food companies appear to be completely focused on meeting specified growth targets<sup>22</sup>, ignorant to their tactics' impact on people's health and weight, because calories may be adjusted regardless. People's attitudes regarding food are also altering as a result of advertising strategies<sup>23</sup>. Eating habits involve intake of various kinds of food in different scenarios. Changes in diet, both in terms of quantity and quality, which have become more "Westernized" are one of the key causes of obesity<sup>24</sup>. Research conducted to study the impact of Lebanese university students which showed that university students have positive impact of their eating habits on their health and being obese due to fast food and eating out of the home more often. Males are more prone to the problem than females<sup>25</sup>. In contrast, no study was

found in our literature search regarding obesity prevalence in Pakistan, university students. Therefore, the aim of the current work is to assess overweight and obesity rates among university students in Pakistan and to correlate their body weight status and composition with their eating habits.

**Objectives:** To study dietary habits which are transiting from few years especially among youth to determine its effect on obesity. Exploring living styles (sedentary or active) and fad diets (commercial foods) and their relation to overweight, underweight and obesity prevailing in our society. To investigate diet plan and BMI. Increasing public awareness among university students on campus. Encouraging to adopt weight management programs. To identify diseases and risk factors due to obesity.

**Methodology:** Data collected from sample was based on a close-ended questionnaire of 16 (sixteen) questions per paper along with four options or answers to be chosen. The questionnaire primarily consists of questions about personal demographic information for example their ages (in years), weights (in kg) and heights (in feet and inches) and gender (male/female).

Our sample aged between 18 to 28 years old students on the basis of self-reported weight and height to calculate BMI. Participants were classified as obese if their BMI was 30 kg/m<sup>2</sup> or more. The population of interest was 13000 students at University of Management and Technology (UMT), Lahore. The sample size selected for data collection was 150 individuals. By using both qualitative and quantitative data, results and conclusions were inferred for association or correlation between eating practices and obesity. University students (N=13000, n=150, ages between 18 to 28 years) that included 75 males and 75 females' respondents (50% males and 50% females) were chosen randomly from different places in Pakistan. Weight and height of participants were used to measure and calculate BMI (body mass index) with mean  $\pm$  21.99. WHO criteria were used to calculate BMI in classifying participants as underweight (BMI $\leq$ 18.5 kg/m<sup>2</sup>), normal weight (BMI 18.5–24.9 kg/m<sup>2</sup>), overweight (BMI 25.0–29.9 kg/m<sup>2</sup>) and obese (BMI $\geq$  30.0 kg/m<sup>2</sup>). Eating habits and their food consumption were also self-reported by students using a pre-tested questionnaire.

BMI is an attempt to quantify the amount of tissue mass (muscle, fat, and bone) in an individual, and then categorize that person as underweight, normal weight, overweight, or obese based on that value.

It's formula for calculations is:

$$BMI = \frac{WEIGHT \text{ (in kg)}}{HEIGHT^2 \text{ (in meter}^2\text{)}}$$

The body mass index was average among samples and samples were classified as "overweight" if their averaged body mass index was equal to or greater than 25 kg/m<sup>2</sup> and as "obese" if their averaged body mass index was equal to or greater than 30 kg/m<sup>2</sup>.

**Results and Discussion:** Statistical analysis was carried out by using Ms. Excel (version 2013). The responses and assessments of participants' weight and height were entered and calculated in numbers. Data were analyzed using descriptive statistics for mean, median, mode and standard deviation. Graphs and charts for visual representation were also added. Question related to types of fats, the respondent eating patterns reflected that large

amount of saturated fat foods lead to an increase in blood cholesterol and LDL levels. Not all fats are bad for your health. Although some fat types cause adverse effects on health and weight greatly. A question's response to types of fats which respondents like to eat results to represent those 70 individuals prefer to eat saturated fats which are very harmful for healthy weight as more concentrated amount of saturated fat can lead to increase "bad cholesterol" (LDL) in body and can occlude coronary arteries and cause cardiovascular problems and moreover can develop obesity. Most saturated fats come from animal sources like red meat and butter and are solid at room temperature. These fats can raise low-density lipoprotein, or "bad," cholesterol levels in the body. High levels of LDL in the bloodstream put you at a higher risk for heart disease and stroke. Diets that contain too much saturated fat are linked to chronic conditions such as diabetes and atherosclerosis. The American Heart Association recommends limiting your consumption to no more than 7 percent of your daily calorie intake.

57% males prefer to take saturated fats in their diet and 36% females eat saturated fats in form of ghee and ghee-related products which lead to put on their badly owned weight. Some people responded that they utilize trans-fats about 5% and 7% females and males respectively and are at risk of increasing bad cholesterol in form of LDL and as a bad fat they also decrease good cholesterol HDL. The primary dietary source for *trans* fats in processed food is "partially hydrogenated oils." Food and Drug Administration (FDA) made a preliminary determination that partially hydrogenated oils are no longer Generally Recognized as Safe (GRAS) in human food. About 25% of UMTIANS were unaware and unconscious about reading nutrition facts of their food products that they buy from shops and markets and can't even measure the calories that they are taking in their body which can alter and can exceed their energy needs or requirements and excess of their food's energy can be deposited in form of fat stores which appears as a pear-shaped belly of obese people. On average approximately, 44 respondents showed that they prefer to choose low-fat foods in their diet. Majority of samples believe that fats should be consumed in balanced amount and about 26 individuals disagree, and 7 individuals have no idea about it that they should or should not abandon the usage of fats and thus which can ignore their eating patterns of high energy-dense foods contributing to over-weight and obesity. Fifty-five percent of individuals agreed that they eat while watching televisions which inferred that they unconsciously take large portions of foods without even given a single thought and this large amount or quantity of food or meals taken in this manner can progress obesity risks in them. The majority of sample responded that is 59 individuals who always tend to eat their favorite foods and meals even their stomach is filled with already eaten food. 23 % participants were not good at resisting tempting food .21% distracted from way they intend to eat. And most of UMT participants said they change their diet according to weight. There were 94 individuals who agreed that they are enchanted by advertisements of food products and buy it to eat it. It is the business of most of the companies that they get fame by making such attractive food advertisements that attract the other person to eat that at same time. This is one of the factors of obesity. The

majority of individuals eat little in response to night cravings, whereas 26% individuals prepare food at the time. 21% of the individuals don't eat anything. Late night cravings can ruin diet and those extra calories are hard to burn off. Thus, nutritional knowledge is necessary to cut off extra calories and our results indicated that about 15% have no knowledge regarding nutritional needs. Moreover, it was witnessed that males (32%) consume more sodas and carbonated drinks about more than 4 times per week as compared to females (13%). We inferred that about 10% were obese and 14% were overweight and the remaining students were about 47% of them were of normal weight as shown in figure 1. Not all fats are bad for your health. Although some fat types cause adverse effects on your health and weight greatly. In Figure 3, bar chart shows response on types of fats which 150 samples use and as a result it is obvious that 70 individuals prefer to eat saturated fats which is very harmful for healthy weight as more concentrated amount of saturated fat can lead to increase "bad cholesterol" (LDL) in body and can occlude coronary arteries and cause cardiovascular problems and moreover can develop obesity. Most saturated fats come from animal sources like red meat and butter and are solid at room temperature. These fats can raise low-density lipoprotein, or "bad," cholesterol levels in the body. High levels of LDL in the bloodstream put you at a higher risk for heart disease and stroke. Diets that contain too much saturated fat are linked to chronic conditions such as diabetes and atherosclerosis. The American Heart Association recommends limiting your consumption to no more than 7 percent of your daily calorie intake.

In Figure 4, doughnut chart, there are shown two rings the "inner ring" shows male preferences and about 57% males prefer to take saturated fats in their diet. Moreover, "Outward ring" shows that about 36% females eat saturated fats in form of ghee and ghee-related products which lead to put on their badly owned weight.

Some people responded that they utilize trans-fats about 5% and 7% females and males respectively are at risk of increasing bad cholesterol in form of LDL and as a bad fat they also decrease good cholesterol HDL. The primary dietary source for *trans* fats in processed food is "partially hydrogenated oils." Food and Drug Administration (FDA) made a preliminary determination that partially hydrogenated oils are no longer Generally Recognized as Safe (GRAS) in human food. *Trans* fats can be found in many foods – including fried foods like doughnuts, and baked goods including cakes, pie crusts, biscuits, frozen pizza, cookies, crackers, and stick margarines and other spreads.

Changes in the food environment, including the proliferation of convenience and fast foods high in energy and fat content, have paralleled the obesity epidemic. One tactic to fighting obesity is to educate the public about nutrition and the nutritional components of the food they purchase. Nutrition labeling of foods sold in stores and in restaurants, when available, is designed to provide the public with information to make informed choices about food purchases. The assumption for an obesity influence is that knowledge about the calorie content of foods will motivate and/or guide individuals to consume the appropriate number of calories for proper weight management.

In Figure 5, pie chart represents that about 25% of Pakistani Youth are unaware and unconscious about reading nutrition facts of their food products that they buy from shops and markets and can't even measure the calories that they are taking in their body which can alter and can exceed their energy needs or requirements and excess of their food's energy can be deposited in form of fat stores which appears as a pear-shaped belly of obese people.

As compared to males, females are more conscious and well-aware to explore and look for nutrition facts in order to maintain a healthy weight (Figure 6). This factor can also lead to anorexia nervosa or bulimia nervosa which are psychological eating disorders.

Maintain, don't gain! Maintaining a healthy weight is important for health. In addition to lowering the risk of heart disease, stroke, diabetes, and high blood pressure, it can also lower the risk of many different cancers.

Majority of samples believe that fats should be consumed in balanced amount and about 26 individuals disagree, and 7 individuals have no idea about it that they should or should not abandon the usage of fats and thus which can ignore their eating patterns of high energy-dense foods contributing to over-weight and obesity (Figure 7).

Fifty-five percent of individuals agreed that they eat while watching televisions which inferred that they unconsciously take large portions of foods without even given a single thought and this large amount or quantity of food or meals taken in this manner can progress obesity risks in them (Figure 8).

In most homes, the television is in the dining room, in front of the table where the family eats dinner. It is also common for adults to eat lunch in front of their computer so that they "don't waste time" and continue working. These two habits that are so ingrained in today's society have very bad consequences. In the first place, it causes obesity, according to a study done recently in the United States. These young people are more inclined to eating fats and sugars, and as a result, calories. During this time, they spend the time eating breakfast, lunch, dinner, or just snacking. During this time, they tend to eat more potato chips, cookies, sweets, soft drinks, and junk food. This definitely leads to obesity and other diseases like high cholesterol or even diabetes. According to the author of one of the studies, Leann Birch, at Penn State, the problem itself doesn't come from watching television but rather from when children eat without paying attention to the amount, the taste, etc.

Majority of sample responded that is 59 individuals who always tend to eat their favorite foods and meals even their stomach is filled with already eaten food, so in this perspective it is easy to understand that when a person already ate his/her food so afterwards if he/she use to eat extra /additional favorite food, it would participate to proliferate adiposity in a person's body (Figure 9). The sensory experience of eating is an important determinant of food intake control, often attributed to the positive hedonic response associated with certain sensory cues. However, palatability is just one aspect of the sensory experience. Sensory cues based on a food's sight, smell, taste and texture are operational before, during and after an eating event.

Fried dough and other fast foods can be tempting and delicious, but they are extremely high in calories and can cause weight gain. They are loaded with trans-fat (Figure 10). Those eating Asian foods are at high risk of being obese and overweight because these foods are high in saturated fats concentration. About 30 individuals were in favor of having Chinese foods in their diet.

In Figure 11, pie chart indicates that in our Pakistani Youth, how much participants consume fried foods per week. We infer that out of 150 participants, 81 consume twice a week, 11 do not consume fried food and 36 participants take 4 times while 22 take 6 times per week. Fried food includes fried fish, fried chicken, fried fruits, French fries, chicken fried steaks etc. Fried food contains trans-fat which is bad for health it not only increases the LDL (bad cholesterol) level but also decreases the HDL (good cholesterol). so trans-fat can be a major cause of cardiovascular diseases and type 2 diabetes and all fried foods are rich in fat soluble vitamins (A, D, E and K). A study found that eating trans-fat can affect your hypothalamus in brain which control hunger. Its symptoms include obesity. One study revealed that if a man eats fried food one to three times per week, so his probability of heart attack increases to 18%. If consume four-six times a week the chance increases to 25%, so the chance of disease increases with increase fried food consumption.

In Figure 12, We infer that 23 % participants were not good at resisting tempting food .21% distracted from way they intend to eat. And most of UMT participants said they change their diet according to weight. Mostly girls are very conscious about their weight, and they start dieting even if they feel a little weight gain and this psychological effect is prevalent cause of anorexia nervosa, in fact they are underweight, and this causes decrease in obesity. Males are also conscious about their figure, and they join gym and manage their diet according to their body weight.

In Figure 13 a simple bar chart showing that most of the participants agree with the statement that they are attracted by the advertisements and commercials of food. Out of 150, 94 agreed the statement and only 44 disagreed. 94 who agreed are enchanted by advertisements for food products and buy it to eat it. It is a business of most companies that they get fame by making such attractive food advertisements that attracts the other person to eat that at same time this is one of the factors of obesity. Most people cannot control themselves.

In Figure 14 a multiple bar chart is shown. In this male are shown by purple while females by orange bars. Most of the students do not exercise and lead a sedentary and inactive lifestyle. If one does not move, its calories are not going to burn out in order to lose the weight efficiently so advancing towards stoutness. Most males and only few females exercise for 60 minutes. Most female participants exercise for 30 minutes and some males exercise for 30 minutes. And more females exercise in 15 minutes and some males also exercise for 15 minutes. Exercise is defined as any movement of your body that makes your muscles work and your body burn calories. It is a physical activity which is beneficial for both mind and body. It maintains our weight and it prevents obesity. In fact, female have increased 10% subcutaneous fats as compared to males.

In Figure 15 a simple bar chart explaining what quality of food the students eat outside home. 45 participants prefer to

eat low fat food, 43 never eat low fat they always enjoy the taste of food by their taste buds and never take any precautions against high fat food, 51 out of 150 sometimes prefer to eat low fat food and 11 participants out of 150 never ate food outside the home. Choosing low fat diet is very beneficial for health as dietary guidelines restrict us from consuming too much fat, oil, sugar and salts as this can control obesity. The fat which we consume outside the home is very unhealthy. They use the same oil for frying many times and do not change the oil. These are causing hazardous health problems and ulcers of the stomach and duodenum.

Majority of about 64% of the students strongly agreed that supplements lead to obesity. It has long been known that supplements at does below their toxicity threshold strongly promote fat gain. Studies have demonstrated that they do promote significant weight gain (Figure 16).

In Figure 17 Pie chart shows the response of 150 individuals to night cravings. The graph shows that the majority, 38% of individuals, eat little in response to night cravings, whereas 26% individuals prepare food at the time. 21% of the individuals don't eat anything. Late night cravings can ruin diet and those extra calories are hard to burn off. It is therefore suggested to eat lots of fiber or plan a healthy nighttime snack to deal with late night cravings.

In Figure 18 Simple bar chart shows that 62 individuals have enough knowledge of nutrition to plan their diet according to their weight and individuals in small amount i.e., 12% have no knowledge regarding nutritional needs.

In Figure 19 Simple bar chart shows the preferences of Balanced diet of Pakistani students. It shows that out of a sample of 150 students 60 students prefer fruits and 53 students prefer vegetables. While students prefer meat and fast foods are much less. Fruits and vegetables are an important part of a healthy diet. A diet rich in fruits and vegetables lowers blood pressure, reduces risk of heart disease and stroke, and prevents some types of cancer, lower risk of eye and digestive problems. On the other hand, regularly consuming fast foods like pizza, French fries increases risk for weight gain, insulin resistance and type 2 diabetes.

During the week how many cans/bottles of coke, sprite, Fanta do you drink?

In Figures 20 and 21 Pie charts show how many soft drinks are consumed by 150 students weekly. It is clear from the graph that majority of Male individuals consume more than 4 cans of soft drinks (Coke, Sprite, Fanta) weekly whereas majority of females consume 1 bottle of soft drink in a week. Soft drinks contain high amounts of sugar and regular consumption of soft drinks has been linked to obesity in both children and adults. It also increases the risk of diabetes, heart diseases, and tooth decay. Above graph shows that male students are therefore more prone to above mentioned diseases due to high consumption of fizzy drinks. Males should limit fizzy drinks. Above comparable pie charts reflect that about 43% of males in majority mainly consume more than 4 soda drinks per week as compared to the females whose consumption is about 17% per week. Hence, above data also shows that females are more conscious and aware about their consumption of sugary sodas and drinks as it contributes to obesity in the end.

Approximately a quarter of the sample students were overweight and obese, and the majority of students had a healthy weight. It has also been revealed that most of the students prefer to take saturated fats and soft drinks more than four times per week which unswervingly contributes to overweight and obesity. Nutritional knowledge has been identified as an additional factor contributing to obesity as due to poor eating habits. However, this research has shown that only 11% of students have good nutritional knowledge about food labels and were aware of foods they should eat in order to have balanced nutrition. Thus, limited nutritional knowledge could explain to some extent unhealthy intake habits. The consumption of saturated fats was more in males (57%) than in females (36%). Moreover, high proportion of females (21 respondents) expressed that they give up too easily their eating intentions than males (14 respondents). Education in the area of nutrition, especially with respect to information concerning to foundations of nutrition and healthy weight management is a demand for action as university platform represent the final opportunity for nutritional education of a large number of students. Irregular and infrequent meals together with low vegetable and fruits intake were the most common unhealthy eating habits of the participants. It is well recognized that vegetables and fruits are low in energy density because of their high water and fiber content. Consequently, adding them to a diet reduces its overall energy intake, therefore, helping in weight management for obese people.

**Conclusion:** Majority of Pakistani students are of normal weight and only 10% of participants were found to be obese and 14% were overweight. Thus, obesity could be due to the fact that students, eating away from home, depend mainly on fast food high in calories and fats and low in vegetables and fruits. This is supported by the results of earlier studies which reported that diets of the university students living away from the family are characterized by a number of undesirable practices affecting their healthy lifestyles. A significant decrease in the consumption of fruits, fresh and cooked vegetables, seafood and pulses together with increased intake of sugar and fast foods were the major dietary changes reported for university students living away from the family home. In addition, it has been suggested that the lack of experience in planning meals, and assuming responsibility for food purchasing and preparing for the first time are the main factors underlying the unhealthier dietary choices of these students.

Move more, eat less. Turning off the television and skipping sugary drinks are two ways to get started. Delicious calorie-laden foods that could have you gaining weight without realizing it. Foods that are associated with the greatest weight gain in various research studies include potato chips and sugar-sweetened beverages. On the other hand, foods such as fruits, veggies, and whole grains are linked to less gain and even weight loss. Making smart food choices can help you stay slim.

## References

Stabouli S, Erdine S, Suurorg L, Jankauskienė A, Lurbe E. Obesity and eating disorders in children and adolescents: the bidirectional link.

*Nutrients*. 2021;13(12):4321.

2. Kim S-H, Anne Willis L. Talking about obesity: News framing of who is responsible for causing and fixing the problem. *J Health Commun*. 2007;12(4):359-376.

3. Mokdad AH, Serdula MK, Dietz WH, Bowman BA, Marks JS, Koplan JP. The spread of the obesity epidemic in the United States, 1991-1998. *Jama*. 1999;282(16):1519-1522.

4. Baranowski T, Cullen KW, Nicklas T, Thompson D, Baranowski J. Are current health behavioral change models helpful in guiding prevention of weight gain efforts? *Obes Res*. 2003;11(S10):23S-43S.

5. Caprio S, Daniels SR, Drewnowski A, et al. Influence of race, ethnicity, and culture on childhood obesity: implications for prevention and treatment: a consensus statement of Shaping America's Health and the Obesity Society. *Diabetes Care*. 2008;31(11):2211-2221.

6. Knutson KL. Does inadequate sleep play a role in vulnerability to obesity? *Am J Hum Biol*. 2012;24(3):361-371.

7. Osayande OE, Azekhumen GN, Obuzor EO. A comparative study of different body fat measuring instruments. *Niger J Physiol Sci*. 2018;33(2):125-128.

8. Harris MI. Diabetes in America: epidemiology and scope of the problem. *Diabetes Care*. 1998;21(Supplement\_3):C11-C14.

9. Stuckey HL, Boan J, Kraschnewski JL, Miller-Day M, Lehman EB, Sciamanna CN. Using positive deviance for determining successful weight-control practices. *Qual Health Res*. 2011;21(4):563-579.

10. Haddad AJ, Mondal A, Bhat CR. Eat-in or eat-out? A joint model to analyze the new landscape of dinner meal preferences. *Transp Res Part C Emerg Technol*. 2023;147:104016.

11. Ogden CL. *Obesity among Adults in the United States: No Change since 2003-2004*. US Department of Health and Human Services, Centers for Disease Control and ...; 2007.

12. Huai P, Liu J, Ye X, Li W-Q. Association of central obesity with all cause and cause-specific mortality in US adults: A prospective cohort study. *Front Cardiovasc Med*. 2022;9:25.

13. Sahoo K, Sahoo B, Choudhury A, Sofi N, Kumar R, Bhadoria A. Childhood obesity: causes and consequences. *J Fam Med Prim Care*. 2015;4(2). doi:10.4103/2249-4863.154628

14. Mokdad AH, El Bcheraoui C, Afshin A, et al. Burden of obesity in the Eastern Mediterranean Region: findings from the Global Burden of Disease 2015 study. *Int J Public Health*. 2018;63. doi:10.1007/s00038-017-1002-5

15. Coleman PC, Hanson P, van Rens T, Oyebo O. A rapid review of the evidence for children's TV and online advertisement restrictions to fight obesity. *Prev Med Reports*. 2022;26. doi:10.1016/j.pmedr.2022.101717

16. Ataey A, Jafarvand E, Adham D, Moradi-Asl E. The relationship between obesity, overweight, and the human development index in world health organization eastern mediterranean region countries. *J Prev Med Public Heal*. 2020;53(2). doi:10.3961/jpmph.19.100

17. Wells JCK, Siervo M. Obesity and energy balance: is the tail wagging the dog? *Eur J Clin Nutr*. 2011;65(11):1173-1189.

18. Caballero B. The global epidemic of obesity: An overview. *Epidemiol Rev*. 2007;29(1). doi:10.1093/epirev/mxm012

19. Puska P, Nishida C, Porter D, Organization WH. Obesity and overweight. *World Heal Organ*. Published online 2003:1-2.

20. Organization WH. *WHO Guideline on Use of Ferritin Concentrations to Assess Iron Status in Populations*. World Health Organization; 2020.

21. Drewnowski A. Nutrient density: Addressing the challenge of obesity. *Br J Nutr*. 2018;120(s1). doi:10.1017/S0007114517002240

22. Ludwig DS, Nestle M. Can the food industry play a constructive role in the obesity epidemic? *JAMA - J Am Med Assoc*. 2008;300(15). doi:10.1001/jama.300.15.1808

23. Sahoo K, Bishnupriya Sahoo, 2 Ashok Kumar Choudhury, 3 Nighat Yasin Sofi, 4 Raman Kumar and Ajeet Singh Bhadoria (2015). *Child Obes causes consequences, J Fam Med Prim Care*. 2015;4(2):187-192.

24. Gasbarrini A, Piscaglia AC. A natural diet versus modern western diets? A new approach to prevent "Well-Being Syndromes." *Dig Dis Sci*. 2005;50(1):1-6.

25. Yahia N, Achkar A, Abdallah A, Rizk S. Eating habits and obesity among Lebanese university students. *Nutr J*. 2008;7(1). doi:10.1186/1475-2891-7-32

**Table 1.** Descriptive Statistics

This descriptive statistics table infer that the average weight of students is 60.63. And furthermore, mostly students have weight of 70 kg.

<b>WEIGHT (kg)</b>	
Mean	60.63
Standard Error	1.131938509
Median	60
Mode	70
Standard Deviation	13.86335883
Sample Variance	192.1927181
Range	62
Minimum	34
Maximum	96
Sum	9094.5
Count	150

**Table 2.** Causes and management of obesity

<b>Obesity</b>	
<b>Causes</b>	<b>Management</b>
Sedentary lifestyle	Physical activity
Food availability	Diet control
High fat diet	Behavioral therapy
Hereditary	Medication
Drug induced weight gain	Surgery

**Appendix**

QUESTIONNAIRE

This questionnaire is on research topic “**OBESITY AND EATING HABITS**”. Kindly cooperate to develop such conclusions on basis of following question’s data and information provided by you. Your information will be kept confidential. We shall be grateful to you for this kind

NAME: ----- Age: ----- Gender:  MALE  FEMALE Weight: ----- Height: -----

1-What type of fats do you prefer to take in your food?			
Saturated fats	Unsaturated fats	Polyunsaturated fats	Trans fats
2-Do you read nutrition label to look for your caloric intake?			
Always	Seldom	Usually,	Never
3- To maintain a healthy weight people should cut fat out completely?			
Agree	Disagree	In balanced amount	No idea
4-Do you have habit of eating meals while watching TV?			
Strongly agree	Agree	Disagree	Strongly disagree
5- When I see or smell food that I like, it makes me want to eat?			
Always	Often	Sometimes	Never
6-Which of the following type of food do you find tempting?			
Fast foods	Asian diets	Chinese foods	Others
7-How many times you prefer to take fried foods in a week?			
0	2	4	6
8-Choose from following anyone:			
I give up too easily on my eating intentions.	I'm good at resisting tempting food.	I easily get distracted from the way I intend to eat.	I make changes in my diet according to my weight.
9-I get attracted by commercial aided foods and eating products and also try them for new taste buds:			
Strongly agree	Agree	Disagree	Strongly disagree
10-I exercise in a day despite of working load:			
15 min	30 min	60 min	Don't exercise
11-If I am having lunch away from home, I often choose a low-fat option.			
True	False	Seldom	I never have lunch away from home.
12-Do you think that supplements (such as fat-soluble vitamins) lead to obesity?			
Strongly agree	Agree	Disagree	Strongly disagree
13-What do you do to satisfy your late-night cravings for food?			
Get up and search/prepare for food to eat	Eat little	Ignore	Neutral
14-Do you have knowledge of interaction b/w eating habits and nutritional needs or intake?			
More	Enough to plan my own diet	Less	No knowledge
15-What food would you prefer in balanced diet of your home?			
Meat	Vegies	Fruits	French fries, pizza etc..
16-During week how many cans/bottles of coke, sprite, Fanta do you drink?			
1	2	4	More than 4

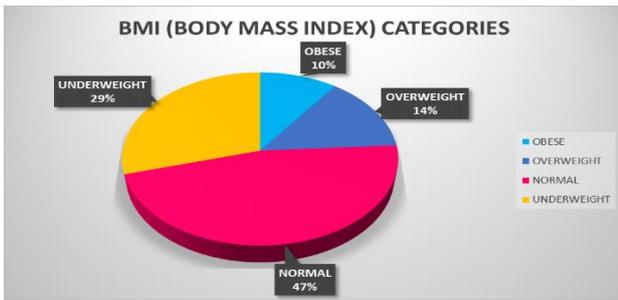


Fig. 1. BMI among adolescents

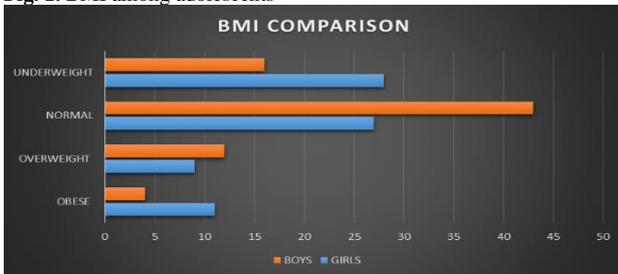


Fig. 2. BMI categories

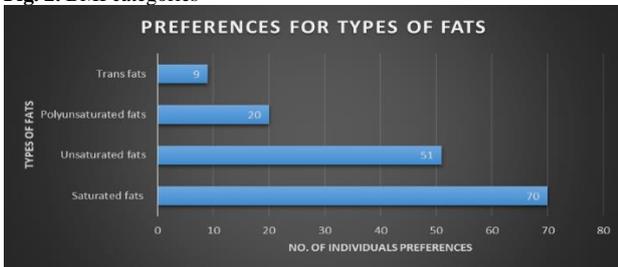


Fig. 3. Preferences for Types of Fat

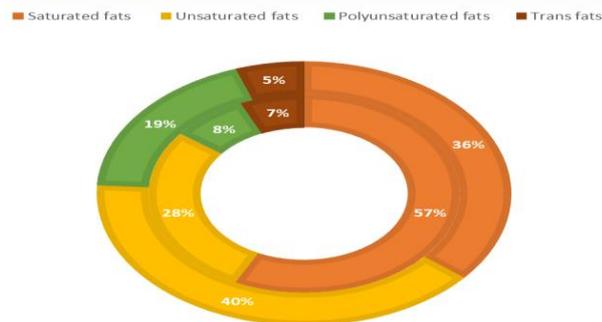


Fig. 4. Fats Intake

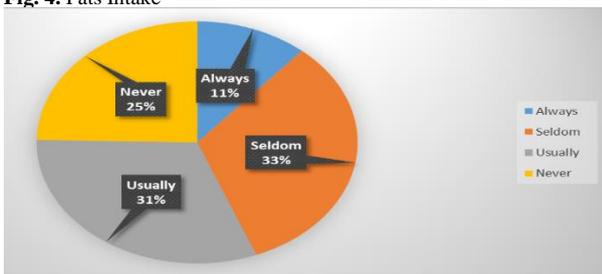


Fig. 5. Awareness of reading nutrition label

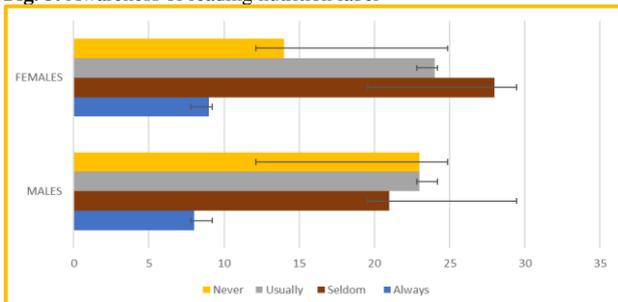


Fig. 6. comparison of females & males for reading of nutrition labels

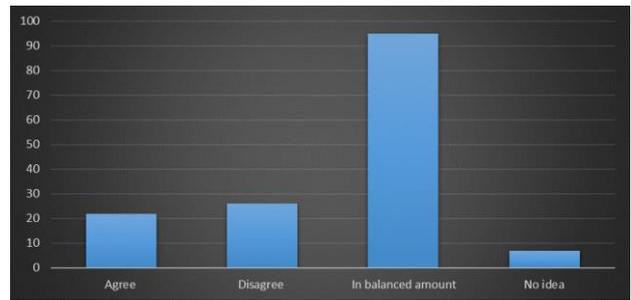


Fig. 7. opinions on utilization of fat to maintain healthy weight.

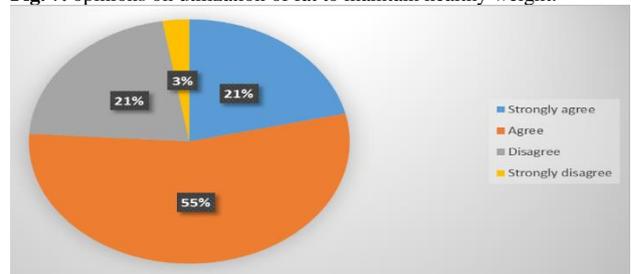


Fig. 8. habit of eating meals while watching TV.

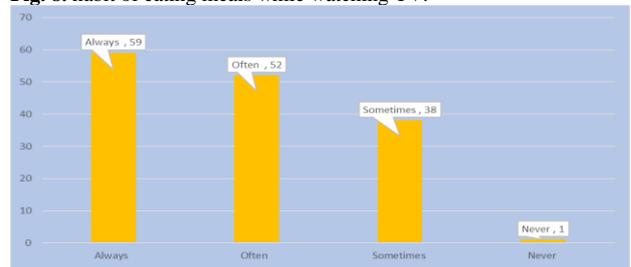


Fig. 9. Tendency to eat favorite foods/meals after smelling & seeing.

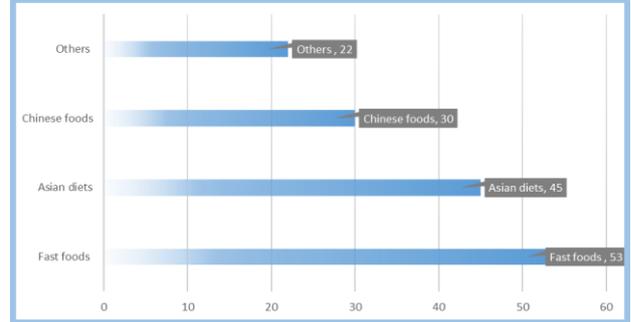


Fig. 10. Types of food which are found to be tempting.

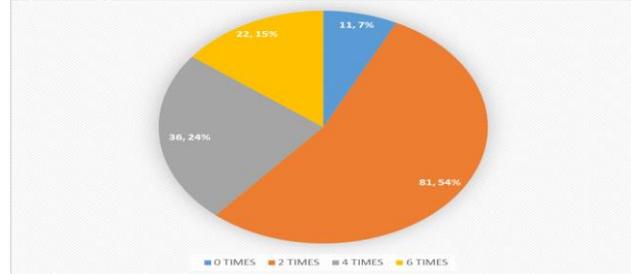


Fig. 11. Frequency of eating fried foods per week

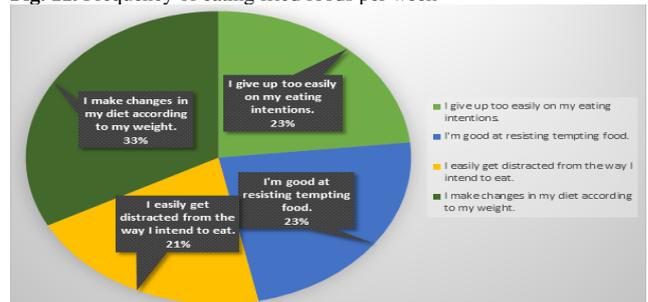


Fig. 12. Opinions on resisting foods

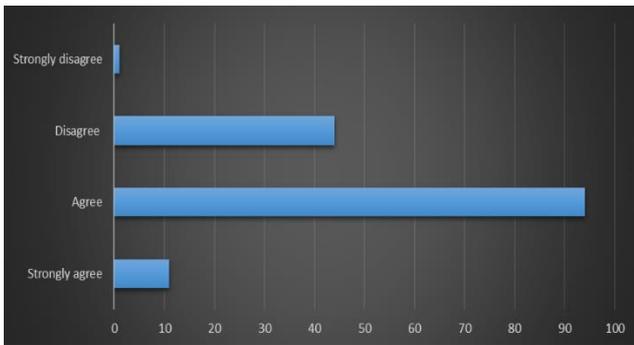


Fig. 13. Eating patterns changing by attraction by commercial-aided foods

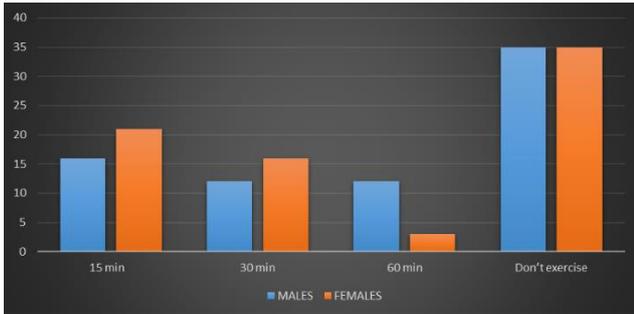


Fig. 14. Exercise routines

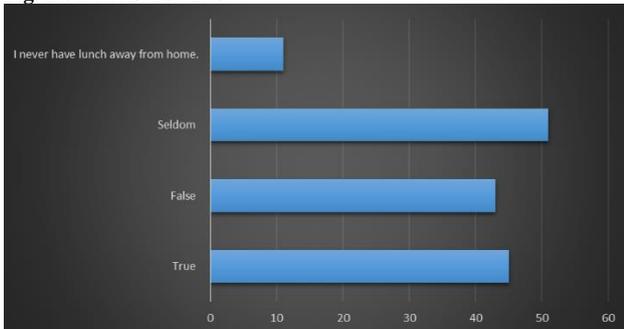


Fig. 15. Choosing low-fat diets when away from home

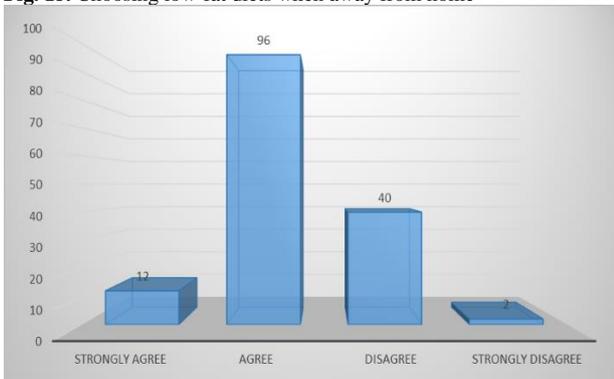


Fig. 16. Supplements Recommendations

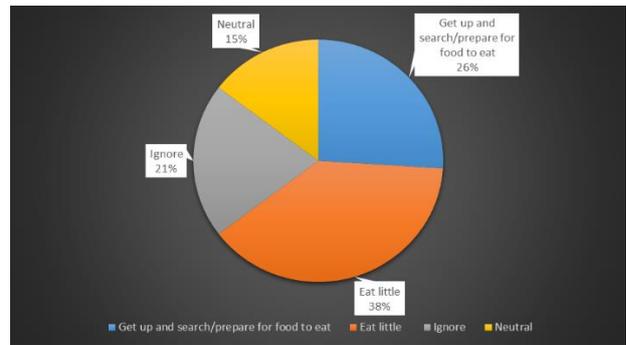


Fig. 17. Night cravings eating habits.

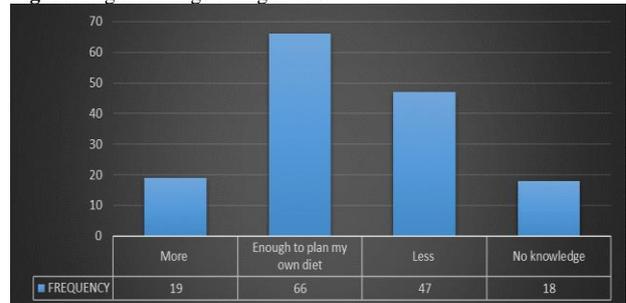


Fig. 18. Number of individuals about nutritional knowledge according to their weight

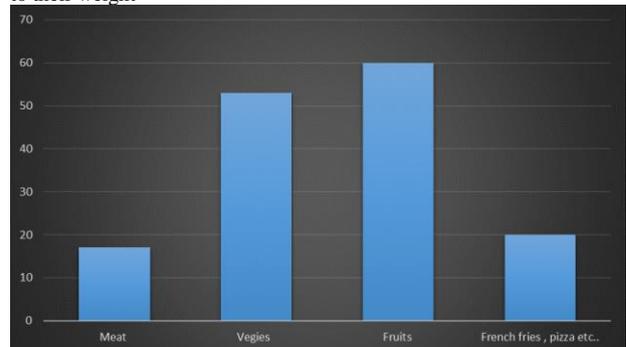


Fig. 19. Preferences of foods at home

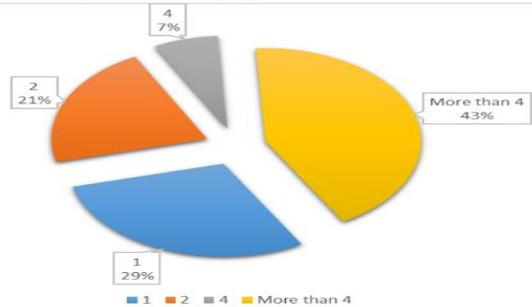


Fig. 20. Males Drink Intake

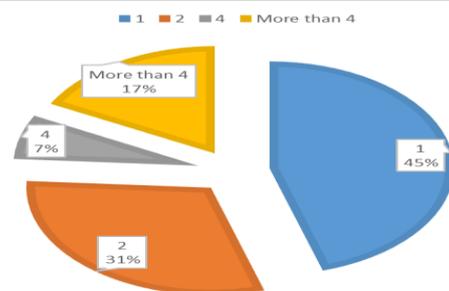


Fig. 21. Females Drink Intake