



AN EVALUATION OF BALANCE DIET AND EATING PRACTICES OF UNIVERSITY STUDENTS IN PESHAWAR, PAKISTAN

Shahab Shah

(Abdul Wali Khan University, Mardan)

Mujahid Ahmad

(Gandhara University Peshawar)

Nasrullah Dahani

(Sindh Agriculture University Tandojam)

Haq Nawaz khokhar

(Sindh Agriculture University Tandojam)

Corresponding author: iamshahabshah@gmail.com

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Abstract:

The term balanced diet is in actual the technique of food intake in which the body is provided with all the required nutrients, vitamins and the minerals, those are required to maintain the correct functionality of cells, tissues and other body organs. Many health problems are directly linked to a diet which is lacking in nutrients, which afterwards arises problems ranging from lack of energy and tiredness to serious health problems which highly affects the functionality of vital organs and its decrease of growth and improvement. The amount of energy gained from the intake of food has a unique number of calories which highly depends on the selection of food. To evaluate the balance diet and eating practices in university students. Cross sectional study design and consecutive sampling technique was used. A sample size of 60 participants were included the data is collected from Abdul Wali Khan university students of different departments. The study recruited 60 participants that there is high frequency of students with normal Body mass index and have enough knowledge about nutrition but the frequency of the balance diet in university students is low which is about 24 with the percentage of 40%. This study was mainly based on evaluating the balanced diet and eating practices in university students. The data indicated that most of the students were normal body mass index (BMI) shows that they have enough knowledge about nutrition and diet. our study included sixty participants the study was limited to the Abdul Wali Khan University students. This study also shows a high percentage of normal participants with a low percentage of obese

Keywords: Balanced diet, Eating practices, University Students, Peshawar, Pakistan

1. INTRODUCTION

The term balanced diet is in actual the technique of food intake in which the body is provided with all the required nutrients, vitamins and the minerals, those are required to maintain the correct functionality of cells, tissues and other body organs.(Swetaa, Gayathri et al. 2018)

Many health problems are directly linked to a diet which is lacking in nutrients, which afterwards arises problems ranging from lack of energy and tiredness to serious health problems which highly affects the functionality of vital organs and its decrease of growth and improvement. The amount of energy gained from the intake of food has a unique number of calories which highly depends on the selection of food. (Racette, Deusinger et al. 2008) (Silliman, Rodas-Fortier et al. 2004).

Calories are used by our bodies for every movement we make like walking, breathing, fatigue, performance and even thinking. Those children who do not get a proper diet are always confronted to the risk of underdeveloped growth problems and poor academic performance. The food intake by the people is dependent upon the habitual decisions of the individual which they obtain about their diet and is finally converted to their dietary habits. A proper diet should comprise of the consumption of vitamins, minerals, proteins, carbohydrates and fats. (Butler, Black et al. 2004) (Deliens, Clarys et al. 2013).

Dairy products play a vital role in our health. A major factor of risk is linked to an unhealthy diet which leads to several chronic diseases including pressure diabetics, abnormal blood lipids, overweight/obese, and cancer. To encounter such problems it is divided in two



therapies, first is the medical nutritional therapy, and second is the traditional Chinese method. (Megel, Wade et al. 1994, Chourdakis, Tzellos et al. 2011).

On the other hand, recommendation of dietary for the general population. There are some diets modules those have been very popular and primarily obtained in specific population groups in order to promote better health. The core of a balanced diet food depends upon foods those have lower fats and sugar values and are high in vitamins, minerals and other nutrients. (Swetaa, Gayathri et al. 2018)

There are some diet plans those are commonly practice in general population for fight against the problems like high blood pressure (as in low sodium diets or the same specific DASH diet) or for people who are overweight or obese (in weight control diets). Though, some of them may have more or less evidence for beneficial effects on normal people as well. (Swinburn, Caterson et al. 2004, Von Ah, Ebert et al. 2004)

A diet can be called balanced if only it provides an sufficient energy and intake of nutrients for maintenance of the body and therefore good health. A diet can easily be ample for functionality of normal body. However, it may not be a balanced diet. An ideal human diet would contain fat, protein, carbohydrates, vitamins, minerals, water and fiber all in correct proportions. Such proportions are different for each person because every person has different metabolic rates and levels of activity. (Steptoe and Wardle 2001)

Unbalanced diet results in malnutrition, the reason behind it can be both, either the lack of other components or dietary components, not only lack of complete food. Too much intake of a single component can be very harmful to the body as equivalent to none. Cause of deficiency diseases occur when there is a lack of a specific nutrient, however some other disorders can also result in eating excess of a specific food. A stable diet provides ample energy for the performance of the body to function. (Butler, Black et al. 2004)

Carbohydrates, fats and proteins are the source of energy. Proteins are responsible for providing energy in emergency circumstances; however, their primary function is to build block for growth and its work as a body tissues repairer. Other nutrients such as vitamins and minerals are also required but in smaller amount as compared to Carbs, fats and proteins. Despite the small quantities, these are essential in providing a healthy diet. (Greaney, Less et al. 2009, Swetaa, Gayathri et al. 2018)

Nutritional status is a complicated mixture of many factors which includes age, sex, marital status, educational attainment, income, food preference and dietary habits. Consumption of canned goods is associated with higher BMI while dairy products like fruits, grains and vegetables account for normal BMI.

(Eyre, Kahn et al. 2004)

1.1. What Is Diet?

In nutrition, diet is the sum of food consumed by a person. The word diet often implies the use of specific intake of nutrition for health or weight-management reasons. Diet can also refer to the food and drink a person consumes daily and the mental and physical circumstances connected to eating. Nutrition involves more than simply eating a "good" diet—it is about nourishment on every level. It involves relationships with family, friends, nature (the environment), our bodies, our community, and the world.

1.2. What Is Balance Diet?

A balanced diet is one that provides the body with all the essential nutrients, vitamins, and minerals required to maintain cells, tissues, and organs as well as to function correctly. A diet that is lacking in nutrients can lead to many different health problems ranging from tiredness and lack of energy to serious problems with the function of vital organs and lack of growth and development. The number of calories in a food is a measurement of the amount of energy stored in that food. Your body uses calories from food for walking, thinking, breathing, and fatigue, and poor performance. Children with a poor diet run the risk of growth development problems and poor academic performance, and bad eating habits can persist for the rest of their lives. Dietary habits are the habitual decisions of individuals or group of people regarding what foods they eat. Proper dietary choices require the consumption of vitamins, minerals, carbohydrates, proteins, and fats. (Steptoe and Wardle 2001)

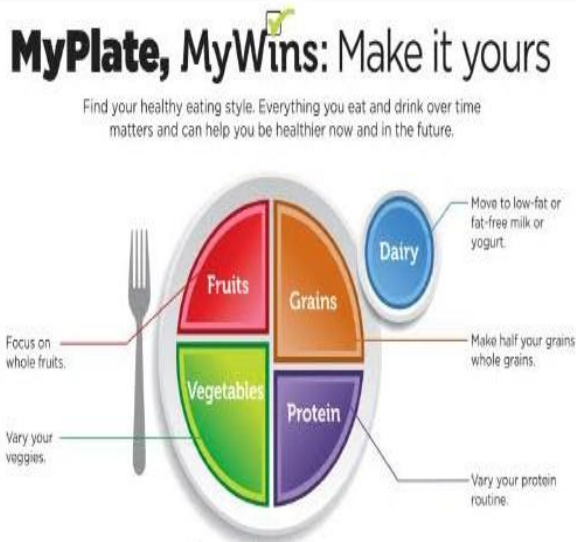
Young adults, in consideration of important lifestyle changes, are arranged to negatively modify their way of eating in terms of the variety, the consumption of fruit and vegetables, and the frequency and timing of intake (de Castro, Bellisle et al. 1997, Beasley, Hackett et al. 2004). The years spent at the university represent a critical period that is able to influence both the quality of lifestyle and eating habits of the subsequent adulthood and, also, on long-term, the health of the individuals (Johansen, Rasmussen et al. 2006). Specifically, the university population is divided into two categories, those who continue to live with their parents and those that are attending universities far from their usual residence that are forced to live away from home. For both, the beginning of the university matches with more freedom and independence and is often the first time that young people assume the responsibility to choose and prepare foods (Krešić, Kenđel Jovanović et al. 2009). It has long been known how much college students have difficulties in following healthy dietary habits (Glore, Walker et al. 1993). Taking in consideration this background, special attention should be paid to university students as a group particularly prone to poor dietary habits (Papadaki, Hondros et al.

2007).

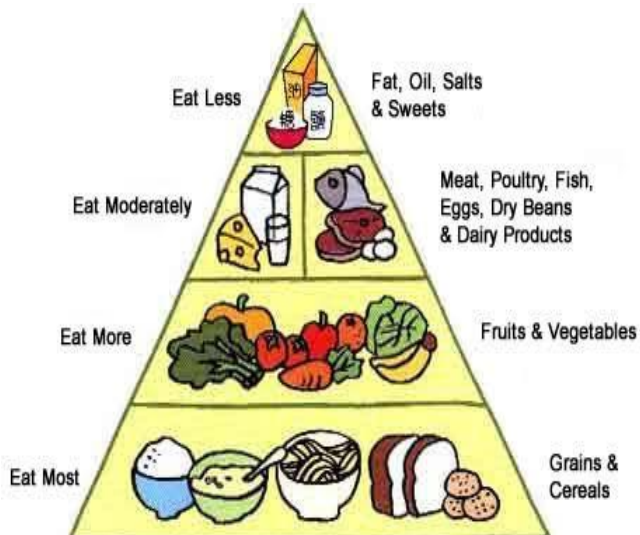
1.3. MyPlate

Myplate is used to remind our fit and well eating style and construct it during their life time. MyPlate is a reminder to find your healthy eating style and build it throughout your lifetime. The whole thing you drink and eat matters.

The U.S. Department of Agriculture (USDA) created MyPlate, an easy-to-follow food guide, to help parents to figure out how to feed their kids nutritious, balanced meals. The colorful divided plate includes sections for vegetables, fruits, grains, and foods high in protein.



The United States Department of Agriculture (USDA) has provided Americans with food guides since 1916 in a perpetual endeavor to assist the public in making healthy food choices. The Food Guide Pyramid, introduced in 1992, became a well-recognized icon nation-wide and was used extensively in guiding consumers to make healthful diet decisions.



When the 2005 Dietary Guidelines for Americans were released, however, the USDA determined that it was time to update the food guide symbol to reflect the new guidelines. (Uruakpa, Moeckly et al. 2013)

Changes made to the original Food Guide Pyramid were based in part on consumer input from focus group studies conducted during the design and development stages of the food guide. In these focus groups, consumers indicated that they liked symbols including a representation of a man, as it helped them to feel connected to the message of the symbol. They also indicated that they preferred visual representations of action to signify exercise and physical activity as part of a healthy lifestyle along with a healthy diet. When questioned about retaining the pyramid shape for the updated icon, the majority of consumers interviewed indicated that retaining the pyramid shape would help to promote continuity of the message in changing from the previous icon to the updated one. However, others indicated that retaining the pyramid shape was not necessary because the original pyramid was ineffective or irrelevant, or that the shape simply wasn't "magical" in regard to communicating the messages needing to be conveyed. (Haven, Burns et al. 2006) The resulting icon was MyPyramid, which introduced physical activity, the oils food group, and the USDA's website to the icon. (Uruakpa, Moeckly et al. 2013)

With the release of the 2010 Dietary Guidelines for Americans, the USDA decided to update the food guide icon once again to reflect the newly-released guidelines. Again, focus groups of consumers were consulted to determine what characteristics would be most effective in a food guide icon. Research conducted by the USDA's Center for Nutrition Policy and Promotion. (Center for Nutrition Policy and Promotion, 2005.) indicated that though most consumers had learned the basic concepts taught by MyPyramid, a knowledge deficit remained in the concept areas of calories and portions. Consumer preference, as indicated in the focus groups, favored a plate-shaped icon, as it conveyed a positive message regarding healthy eating patterns. Consumers also indicated that they found the terms "Protein" and "Dairy" were more comprehensive than "Meat and Beans" and "Milk and Milk Products," respectively. (Post, Haven et al. 2011)

In June 2011, the USDA released the new icon, MyPlate. The key MyPlate characteristics were simplicity and practicality. (United States Department of Agriculture, 2011). It presented significant differences from previous food guides, such as the removal of a human being demonstrating physical activity and the pyramid shape, (Burns A, MyPyramid food guidance system Nutrition Education Behavior, 2006). MyPlate is inherently simpler than MyPyramid. By design, it shifts focus from providing education on the entirety of the Dietary Guidelines for Americans to highlighting key



messages from the Guidelines. (Post, Haven et al. 2011)

According to the press release from the USDA and First Lady Michelle Obama, the focus of MyPlate is to prompt consumers to conscientiously build healthy meals and snacks by presenting them with a familiar object, the plate, rather than a pyramid. (Kim, Moore et al. 2014) The goals of this research study are to determine whether

- 1) Consumers are aware of MyPlate's replacement of MyPyramid,
- 2) The public considered MyPlate simpler and more practical for their daily lives
- 3) It would impact their dietary decisions, as it was designed to do.

1.4. Why Should You Eat Healthy?

- Eating healthy can drastically reduce your chances of developing heart disease and cancer, the world's leading killers (Anand, Kunnumakara et al. 2008)
- A good diet can improve all aspects of life, from brain function to physical performance. In fact, food affects all your cells and organs (Parletta, Milte et al. 2013)
- If you participate in exercise or sports, there is no doubt that a healthy diet will help you perform better (Medicine and Association 2000)

1.5. Understanding Macronutrients

The three macronutrients are carbohydrates (carbs), fats and protein. These nutrients are needed in relatively large amounts. They provide calories and have various functions in your body. Here are some common foods within each macronutrient group

- **Carbs:** 4 calories per gram. All starchy foods like bread, pasta and potatoes. Also includes fruit, legumes, juice, sugar and some dairy products.
- **Protein:** 4 calories per gram. Main sources include meat and fish, dairy, eggs, legumes and vegetarian alternatives like tofu.
- **Fats:** 9 calories per gram. Main sources include nuts, seeds, oils, butter, cheese, oily fish and fatty meat.

How much of each macronutrient you should consume depends on your lifestyle and goals, as well as your personal preferences. **Rudy Mawer, MSc, CISSN on July 5, 2016**

1.6. Understanding Micronutrients

Micronutrients are important vitamins and minerals that you require in smaller doses. Some of the most common micronutrients you should know include:

- **Magnesium:** Plays a role in over 600 cellular processes, including energy production, nervous system function and muscle contraction (De Baaij, Hoenderop et al. 2015)

- **Potassium:** This mineral is important for blood pressure control, fluid balance and the function of your muscles and nerves (Ekmekcioglu, Elmadfa et al. 2016)
- **Iron:** Primarily known for carrying oxygen in the blood, iron also has many other benefits, including improved immune and brain function (Abbaspour, Hurrell et al. 2014)
- **Calcium:** An important structural component of bones and teeth, and also a key mineral for your heart, muscles and nervous system (Cumming 1990)
- **All vitamins:** The vitamins, from vitamin A to K, play important roles in every organ and cell in your body.

All of the vitamins and minerals are "essential" nutrients, meaning that you must get them from the diet in order to survive. The daily requirement of each micronutrient varies between individuals. If you eat a real food-based diet that includes plants and animals, then you should get all the micronutrients your body needs without taking a supplement.

1.7. Eating Whole Foods Is Important

You should aim to consume whole foods at least 80-90% of the time. The term "whole foods" generally describes natural, unprocessed foods containing only one ingredient. If the product looks like it was made in a factory, then it's probably not a whole food. Whole foods tend to be nutrient-dense and have a lower energy density. This means that they have fewer calories and more nutrients per serving than processed foods. In contrast, many processed foods have little nutritional value and are often referred to as "empty" calories. Eating them in large amounts is linked to obesity and other diseases

1.8. Objectives of the Study

- To evaluate the balanced diet and eating practices of university students
- To investigate the attitude of university students towards the nutrition
- To determine the student's behaviors towards the healthy diet

2. REVIEW OF LITERATURE

A cross-sectional study was conducted in Oman the purpose of the study was to assess the nutritional knowledge, nutrition intake, nutrition habit, and nutritional status in university students the total number of participants was 71 in which 49 were male and 22 were female with the mean age of 21.0 ± 1.811 and 19.32 ± 0.72 years and body mass index (BMI) of 22.51 ± 1.98 and 20.34 ± 2.97 kg/m for male and female respectively, contributed in study. The male participant taking information about nutrition from friends which is



about (17%) as compared to female subjects who depend on family members which are (20%). In which they found that male participants have fair dietary habits and nutritional knowledge whereas the female students have poor dietary habits and nutritional knowledge. (Ali, Al-Siyabi et al. 2015). Another study was conducted in India the aim of the study was Awareness of a balanced diet and eating practices among college students. The sample size was 110 students in which 82.7% of students are already aware of a balanced diet but still, they like to eat junk foods where 59.6% of students were eating an unhealthy diet (Swetaa, Gayathri et al. 2018). Same study was conducted with the objective to assess the nutritional behavior among college students in which he recruited 300 participants among them 75(25%) were males and 225(75%) were females. Where most of them skipped their main meals a common of 184(61.33%) students chose for high-fat diet and 268(89.33%) chose for high carbs food. A total of 222(74%) students frequently eat four different varieties of vegetables but only 71(23.66%) of them eat fruits each week. (Begum, Kavuri et al. 2018)

The same nature of study conducted in Italy with the aimed to evaluate the correspondence of diet and lifestyle to the Mediterranean model in two groups of Italy and Spanish university students. The sample size of 210 participants in which (105 Italian and 105 Spanish) university students. In the results, they found that the Italian students consumed mostly cereals and vegetables but Spanish students commonly consumed fish and pulses, as a result, most of the Spanish students were obese. (Baldini, Pasqui et al. 2009)

Another study conducted in United States of America with the objective to study to assess college students' views of the health effects of fast-food ingesting and their eating habits. In the study 120 participants were recruited. Most of the students were aware of the risks connected with fast food eating on health; however, their consumption habits did not show they experienced what they recognized could be injurious to their health, especially when they were socializing with friends. Confidently, this study will help interest attention to the evils of food choices and its health effects (Abraham, Martinez et al. 2018).

Another cross-sectional survey study in northern Italy the purpose of the study was to determine the dietary habits of university students. In study 258 undergraduate students were included they found that Students living at home practiced more sport and consumed more frequently raw and cooked vegetables, bread/cereals, eggs, fish, poultry, fresh fruit, and meat. Equally, students living away from home expended more often packed/ready food, beer, and spirits, milk, and chips. Undergraduates living alone met more problems in assuming a fit diet so it would be needed to assume

nutritional educational involvements on university students, usually deserted by these measures. (Lupi, Bagordo et al. 2015).

Another cross-sectional study was conducted with the purpose to examine the university students eating habits and information and about nutrition. The students are well-informed that consuming fast food, soda, and managed food is unhealthy and they comprise flavors. They designated a strong contract to keep themselves hydrated and choosing food because of taste favorite. Even though commonly acknowledged eating fresh fruits, an important number consume managed food such as chips, cookies, and cereal-based on convenience (Abraham, Noriega et al. 2018).

Another study in Poland were conducted with the aim to evaluate the eating manners of students taking into account gender and nutritional information. In the study 456 students were recruited in which both male and female gender were included and they found that the nutritional information for a male is 40.2% satisfactory 25.1% good and for women was 34.7% satisfactory 34.7% was good. (Zaborowicz, Czarnocinska et al. 2016)

Another study in Iran were conducted with the aim to make sure students on eating habits for their better understanding of nutrition and eating habits, of university students. The sample size was 415 which is selected randomly. The findings of the study were that there is more knowledge of nutrition with physical education students as compare to business management students. (Barzegari, Ebrahimi et al. 2011)

Same type of study was done in turkey, the objective of study was to evaluate the nutrition information of university students receiving sports education. In which 343 students were voluntarily selected. Most of the students expected to continue their profession in sports were lack of nutrition information. The knowledge of nutrition in 1st year students was found 11.150 ± 2.962 , while the mean value of the 4th year students was 13.460 ± 3.703 (Ozdoğan and Ozcelik 2011).

A comparative study took place in Saudi Arabia University of Hail's objective of study was to see the comparison of KAP (Knowledge, attitude, and practices) of balanced diet between non-nutritional and nutrition students. One hundred young adult female students were part of this study half of them were from nutrition and 50 was from non-nutrition students where the age group was 18 to 24 years old. Results and discussion: The, in the end, ANOVA show that there were major differences in the nutrition knowledge and concept of a balanced diet among the nutrition and non-nutrition students. Total breakfast skipping was more common among the non-nutrition students (Bano, AlShammari et al. 2013)



A study was conducted at the University of Pavia, ITALY. The aim of the study was to evaluate eating habits and behaviors, and nutritional and food safety knowledge of a group of Italian students. A questionnaire was designed to collect data from 532 students aged 15.4 – 20.7 years. The results show that only 37.0% of students have an acceptable intake. 18.5% have a very active lifestyle; only 8.6% have the right nutritional knowledge, where only 2.4% have satisfactory food safety knowledge, although 43.7% have good hygiene practices. (Turconi, Guarcello et al. 2008)

A cross-sectional study took place in Saudi Arabia to determine the eating habits among college students. The data was collected from 375 from male students on questionnaires randomly at Qassim University. Where they measured body mass index (BMI), body fat percent (BF%), and visceral fat level (VFL). 21.8% of the students were overweight and 15.7% were obese. The total body fat exceeded its normal limits in 55.2% of the students and VFL was high in 21.8% of them. (Al-Rethaiaa, Fahmy et al. 2010)

A cross-sectional study included 200 students between ages 19-24 years at King Abdulaziz University, Kingdom of Saudi Arabia. The study aimed to evaluate their nutrition knowledge, their eating habits, and overall perception regarding the importance of healthy eating habits. In the sum of most medical students were aware of the importance of healthy eating habits yet they were not practicing it adequately in their daily life. Improving nutrition knowledge, attitude, and dietary practices through nutritional education may help to prevent many nutrition-related diseases. (Alissa, Alsawadi et al. 2015)

3. DATA AND METHODS

3.1. Overview

Overview The research will be based on the quantitative approach. Through this approach, the researcher evaluates the balanced diet and eating practices of a university student. This issue will be explored quantitatively. This research will also study the positive as well as negative effects of diet and eating practices in university students.

3.2. Population

This study has been particularized to Abdul Wali Khan University students in Mardan where the researcher can easily communicate with the students and gather information from the students. All the information regarding a balanced diet and eating habits would be limited to the same area. This locality is reasonable for the researcher to gain information that is connected to the same topic.

3.3. Sample Size

This study has been confined to sixty individuals. Every individual will be provided with a

hand-deliver questionnaire in university students. All respondents will have different perspectives regarding the questions of a balanced diet and eating habits. Here researcher will come to know about the opinion of every respondent's thought. Every thought will be noted down and analyzed by the researcher.

3.4. Data Analysis

All the data or information that will have been collected by the researcher will be analyzed.

- SPSS (statistical package of social sciences) version 16.0 will be used for data analysis
- Data will be analyzed by using descriptive statistics
- Pie graphs will be used for gender description
- Bar graphs for interpreting frequencies for BMI, nutrition knowledge, and other variables.

4. RESULTS

4.1. Description of Gender

The study recruited 60 participants which include both gender male and female. The frequency of males was 33 with a percentage of 55.0% and the frequency of females was 27 with a percentage of 45.0%. as shown below in table 1.

Table 1 Shows Description of Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	33	55.0	55.0	55.0
Female	27	45.0	45.0	100.0
Total	60	100.0	100.0	

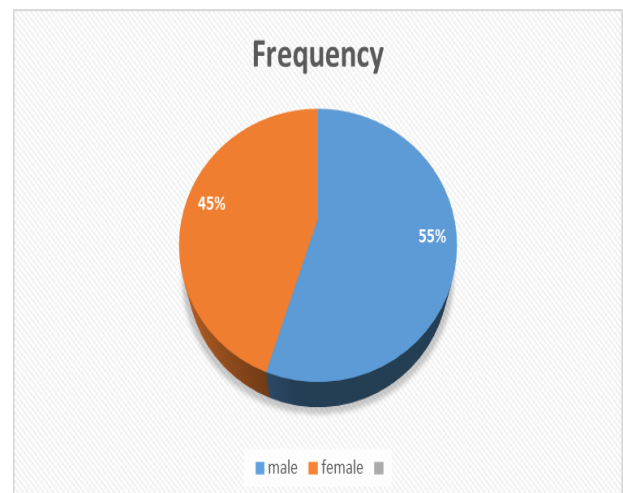


Figure no:1

4.2. Body Mass Index

The study included 60 participants which are divided into four groups which are underweight, normal, overweight, and obese. The frequency of underweight was 11 with the percentage of 18.3%, normal was 40

with the percentage of 66.7%, the overweight frequency was 8 with the percentage of 13.3% and the frequency of obese was 1 with the percentage of 1.7% as shown below in table 2.

Table 2 Shows the Classification of BMI

	Frequency	Percent	Valid Percent	Cumulative Percent
Underweight	11	18.3	18.3	18.3
Normal	40	66.7	66.7	85.0
Overweight	8	13.3	13.3	98.3
Obese	1	1.7	1.7	100.0
Total	60	100.0	100.0	

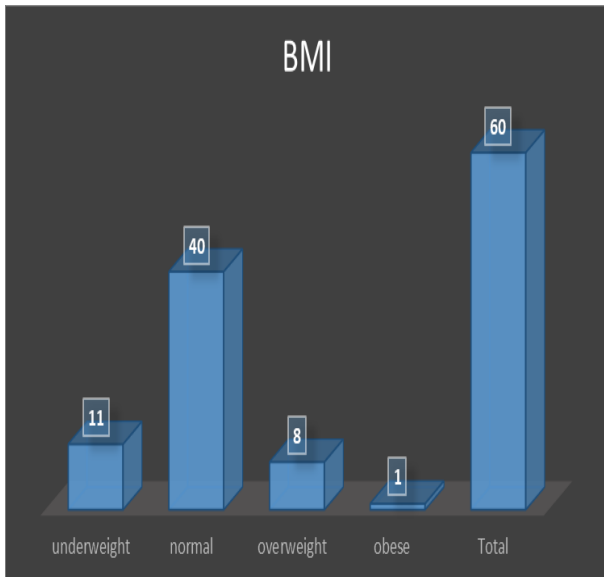


Figure no:2

4.3. Knowledge About Nutrition

60 participants have recruited in which 50 participants know about nutrition and the other 10 have a lack of knowledge about nutrition as shown below in table 3.

Table 3 Show knowledge about Nutrition

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	50	83.3	83.3	83.3
No	10	16.7	16.7	100.0
Total	60	100.0	100.0	

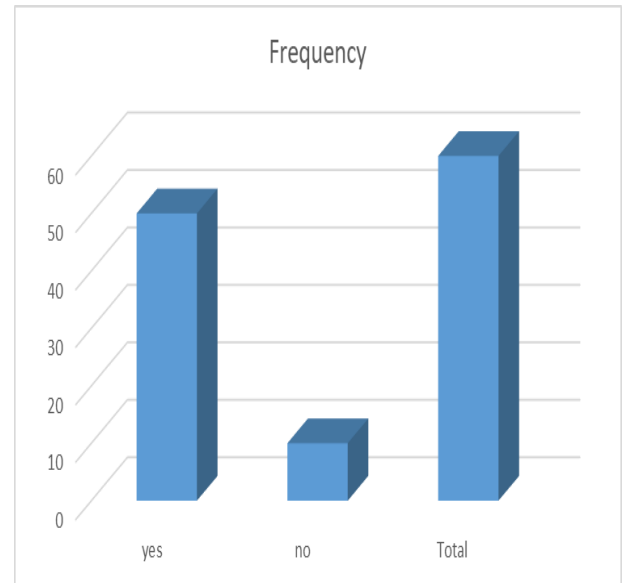


Figure no:3

4.4. Knowledge About Food Pyramid

In the study, we recruited 60 participants in which 34 participants have Information about the Food Pyramid and the other 26 participants have no information about the food pyramid as shown below in table 4.

Table 4 Shows knowledge about food Pyramid

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	34	56.7	56.7	56.7
No	26	43.3	43.3	100.0
Total	60	100.0	100.0	

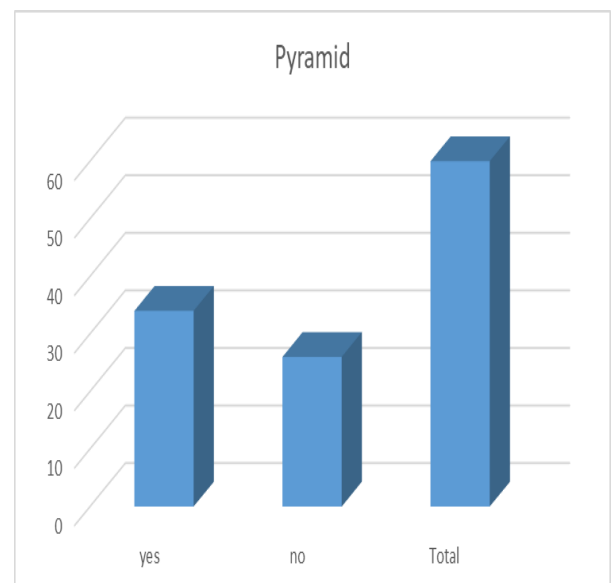


Figure no:4

4.5. Knowledge About Myplate

MyPlate is a reminder to find your healthy eating style and build it throughout your lifetime. Everything you eat and drink matters. In this study, there are 60 participants in which only 15 knew about Myplate and 45 have a lack of knowledge about Myplate as shown below in table 5.

Table 5 Shows knowledge about Myplate

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	15	25.0	25.0	25.0
No	45	75.0	75.0	100.0
Total	60	100.0	100.0	

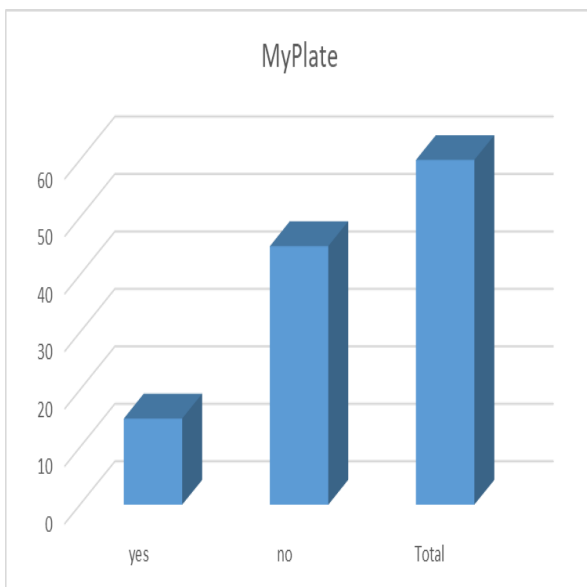


Figure no:5

4.6. Proper Breakfast

Breakfast is most important for every individual but some people did not take it properly. In our study, there are 60 subjects in which only 41 were taking proper breakfast and the other 19 didn't as shown below in table 6.

Table 6 Shows proper Breakfast

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	41	68.3	68.3	68.3
No	19	31.7	31.7	100.0
Total	60	100.0	100.0	

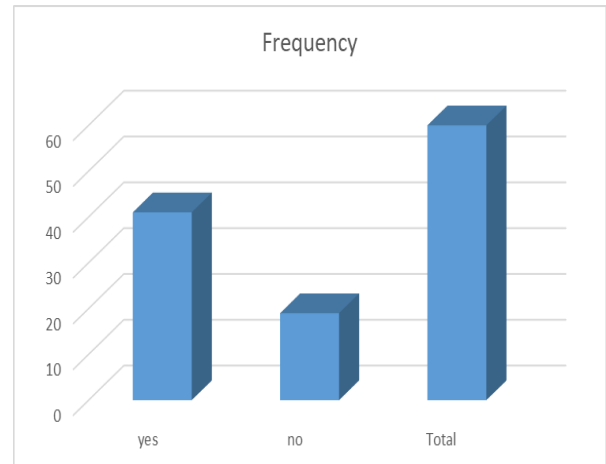


Figure no:6

4.7. Special Diet

There are 60 members which are included in our study in 27 were taking a special diet and 33 didn't take a special diet as shown below in table 7.

Table 7 Shows about Special diet

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	27	45.0	45.0	45.0
No	33	55.0	55.0	100.0
Total	60	100.0	100.0	

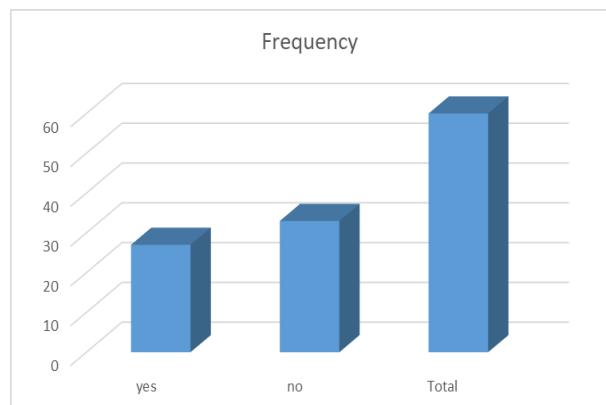


Figure no:7

4.8. Snacks

We recruited 60 applicants in our study in which 35 were taking snacks and 25 didn't take snacks as shown below in table 8.

Table 8 Shows about taking snacks

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	35	58.3	58.3	58.3
No	25	41.7	41.7	100.0
Total	60	100.0	100.0	

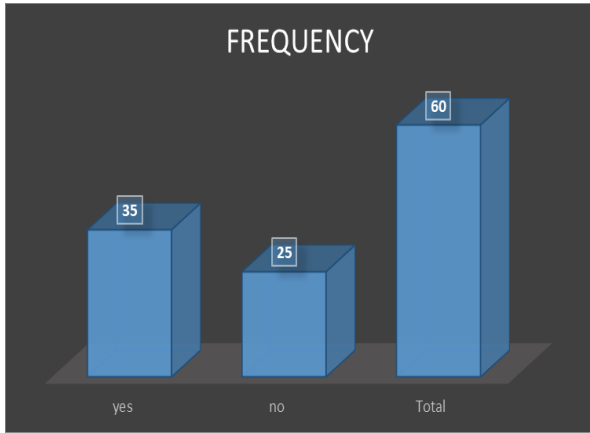


Figure no:8

4.9. Eat At Least 5 Portions of Fruit and Vegetables Every Day

Some of the students were eating fruits and vegetables and some were eating only fruits but not vegetables but, in our study, we recruited 60 members in which 31 were taking fruits and vegetables and the other 29 didn't take any fruits and vegetables as shown below in table 9.

Table 9 Shows fruit and vegetables taking every day

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	31	51.7	51.7	51.7
No	29	48.3	48.3	100.0
Total	60	100.0	100.0	

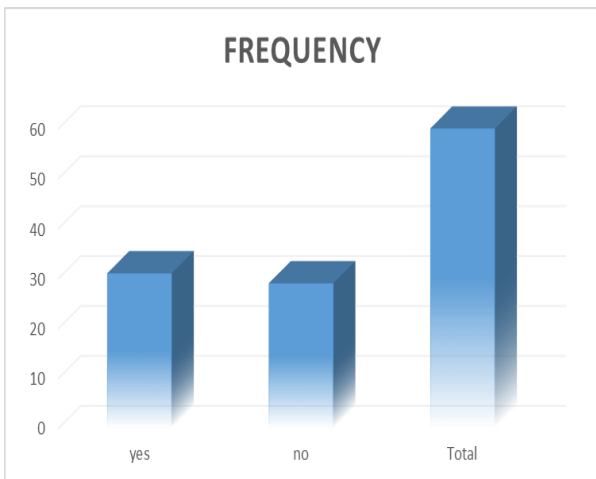


Figure no:9

4.10. Balance Diet At University

In the university environment, some student knows about proper diet and following all these diet plans but some students even didn't know about diet in our study we recruited 60 participants in which 24 followed their balance diet plan and other 36 didn't follow all these things as shown below in table 10.

Table 10 Shows a balanced diet at university

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	24	40.0	40.0	40.0
No	36	60.0	60.0	100.0
Total	60	100.0	100.0	

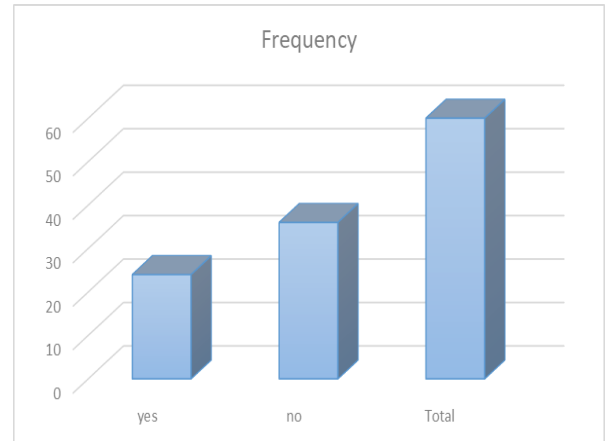


Figure no:10

4.11. Protein Rich Food

Some food is protein-rich which is very important for our body's commonly for muscle building. In our study, we recruited 60 members in which 48 applicants know about protein-rich food and 12 have a lack of knowledge as shown below in table 11.

Table 11 Shows about protein in food

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	48	80.0	80.0	80.0
No	12	20.0	20.0	100.0
Total	60	100.0	100.0	

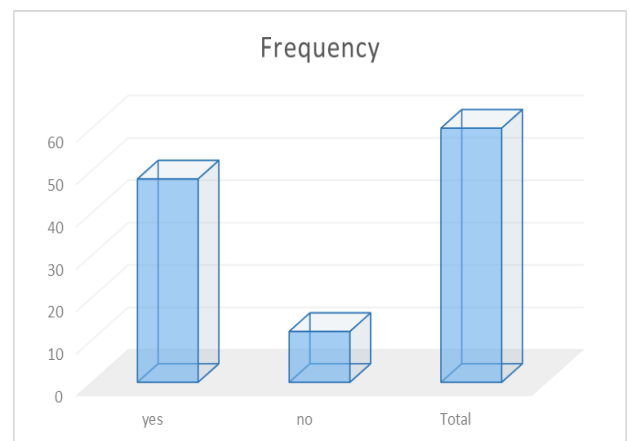


Figure no:11

4.12. Drink Plenty of Fluids at Regular Intervals During the University or Working

In our study, we included 60 participants in which 28 university students were taking fluids regularly at university and working but the other 32 were not taking that much fluid as shown below in table 12.

Table 12 Shows fluid intake in regular at university and working

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	28	46.7	46.7	46.7
No	32	53.3	53.3	100.0
Total	60	100.0	100.0	

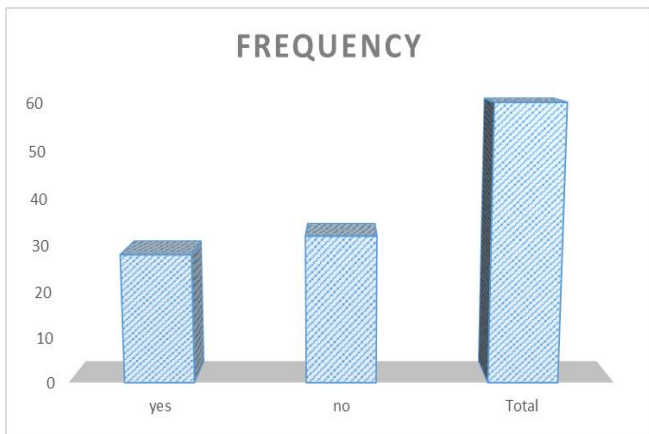


Figure no:12

4.13. Does Lack of Money Affect Your Food Intake

In university students there are a lot of students are poor and hardly they can manage their food and diet in our study we included 60 members in 36 have lack of money and their diet is much more affected than the other 24 members as shown below in the table no 13

Table 13 Shows Lack of money affect your food intake

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	36	60.0	60.0	60.0
No	24	40.0	40.0	100.0
Total	60	100.0	100.0	

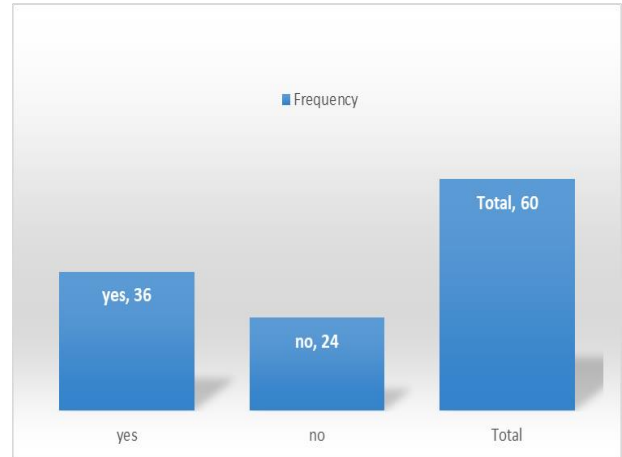


Figure no:13

4.14 Reason for Skipping a meal

Some students have some issues due to which they can not continue their diet plans. In our study we recruited 60 participants in which there is some reason we are discussing that way they skip their meals in which 5 had due to no food available, 14 were no appetite, 7 were lack of money, and 34 have other reasons as shown below in table 14.

Table 14 Shows reason for skipping a meal

	Frequency	Percent	Valid Percent	Cumulative Percent
No food available	5	8.3	8.3	8.3
No appetite	14	23.3	23.3	31.7
Lack of money	7	11.7	11.7	43.3
Other reason	34	56.7	56.7	100.0
Total	60	100.0	100.0	

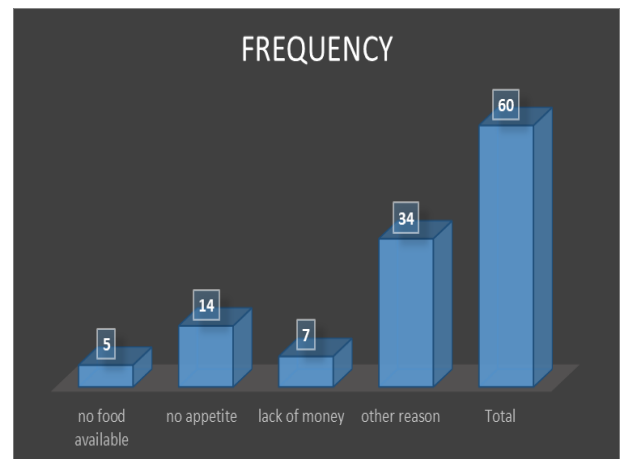


Figure no:14



4.15 Taking off some Supplement

Now a day there are a lot of university students those who participate in sports activities and they cannot fulfill their requirements of proteins, fats, carbohydrates, and other essential micronutrients so they can take supplements in our study we included 60 members in which 10 were taking a protein supplement, 6 were taking fats, 1 was taking carbohydrates some 10 were taking all of these and 33 participants cannot take any supplements as shown below in table 15.

Table 15 Shows Taking of some Supplement

	Frequency	Percent	Valid Percent	Cumulative Percent
Protein	10	16.7	16.7	16.7
Fat	6	10.0	10.0	26.7
Carbohydrate	1	1.7	1.7	28.3
Over all	10	16.7	16.7	45.0
No	33	55.0	55.0	100.0
Total	60	100.0	100.0	

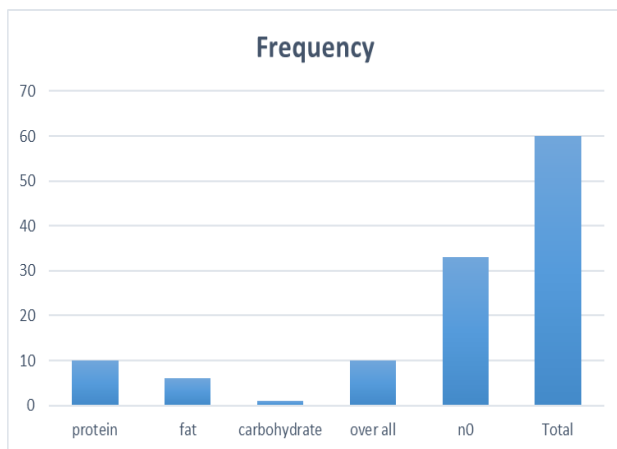


Figure no:15

4.16 Taking of Meals

We determined that those students who were taking meals regularly and some were taking meals irregularly. We included only 60 applicants in 29 were taking regular meals and the other 31 were taking irregular meals as shown below in table 16.

Table 16 Shows regularly taking of meals

	Frequency	Percent	Valid Percent	Cumulative Percent
Always regular	29	48.3	48.3	48.3
Irregular	31	51.7	51.7	100.0
Total	60	100.0	100.0	

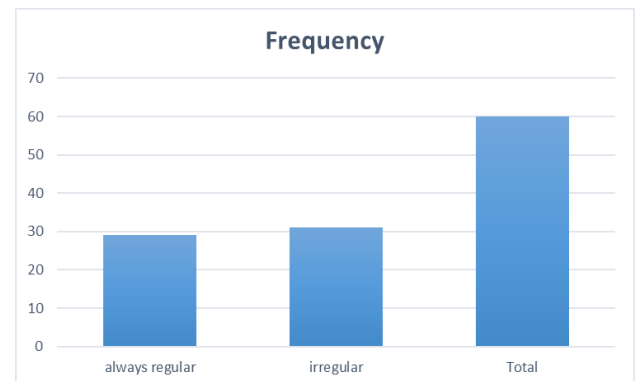


Figure no:16

4.17 Age Description

In our study we recruited 60 participants which we divided into groups which are starting from 18 years and up to 34+ years of age were also included but mostly of age range from 18-21 were 39 participants and on 2nd place range from 22-25 were 16 participants, 2 participants of age 26-29, 2 participants of age 30-33 and 1 was above 34 years of age as shown below in table 18. And in table 17 we find the mean age of the participants.

Table 17 Shows mean value of Age

	N	Minimum	Maximum	Mean	Std. Deviation
Age	60	1.00	5.00	1.5000	.85371
Valid N (listwise)	60				

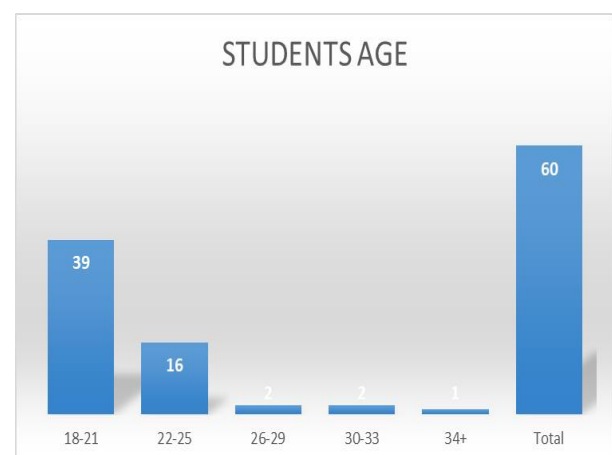


Figure no:17



4.18 Breakfast Value

In our study we recruited 60 applicants in which 36 participants were taking daily breakfast, 5 were taking 1-2 times per week, 8 were taking 3-4 times per week, 11 were taking rarely as shown below in table 19.

Table 18 Shows Age Description

	Frequency	Percent	Valid Percent	Cumulative Percent
18-21	39	65.0	65.0	65.0
22-25	16	26.7	26.7	91.7
26-29	2	3.3	3.3	95.0
30-33	2	3.3	3.3	98.3
34+	1	1.7	1.7	100.0
Total	60	100.0	100.0	

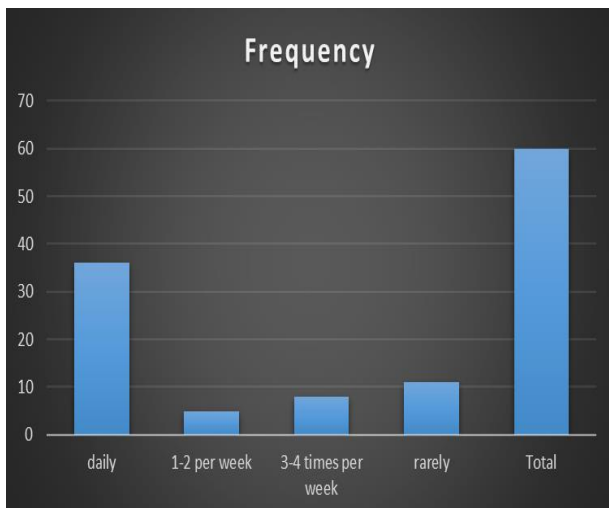


Figure no:18

4.19 Relationship between age and knowledge about nutrition

We find that the relationship between the age of the participants and knowledge about nutrition that how much information is distributed among age group participants. In which 32 participants age 18-21 have more knowledge than other age group members and the age of 34 has the least knowledge of nutrition as shown below in table 22.

Table 19 Shows Breakfast Value

	Frequency	Percent	Valid Percent	Cumulative Percent
Daily	36	60.0	60.0	60.0
1-2 per week	5	8.3	8.3	68.3
3-4 times per week	8	13.3	13.3	81.7
Rarely	11	18.3	18.3	100.0
Total	60	100.0	100.0	

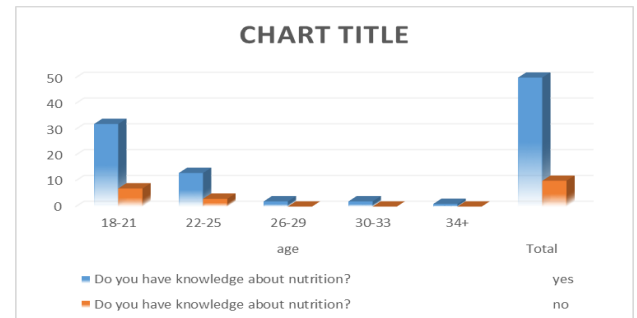


Figure no:19

4.20 Cross-tabulation of gender and balanced diet at university

In our study, we included 60 participants in which both genders were included in which males were more focused on taking a balanced diet at university and females did not take care of a balanced diet at university as shown below in table 23.

Table 20 Shows the relationship between age and knowledge about nutrition

	Do you know about nutrition?		Total
	Yes	No	
Age 18-21	32	7	39
22-25	13	3	16
26-29	2	0	2
30-33	2	0	2
34+	1	0	1
Total	50	10	60

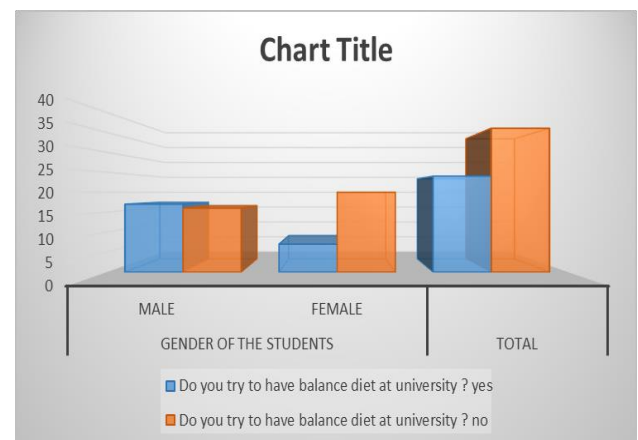


Figure no:20

4.21 Cross-tabulation of Gender and knowledge about the food pyramid

In our study, we determined that the knowledge about food pyramid is somehow equal which is 17 as shown below in table 24.

Table 21 Cross-tabulation of gender and balanced diet at university

		Do you try to have a balanced diet at university?		Total
		Yes	No	
Gender of the students	Male	17	16	33
	Female	7	20	27
Total		24	36	60

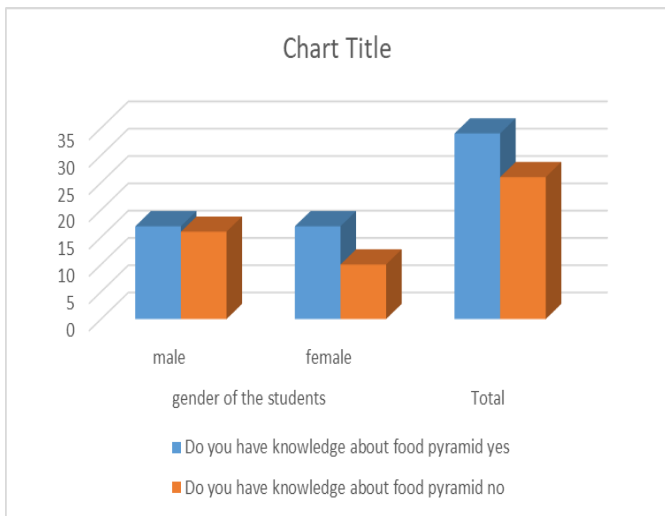


Figure no:21

4.22 Cross-tabulation of Gender and knowledge about MyPlate

The information about MyPlate is more in the female which is 10 and males have only 5 as shown below in table 25.

Table 22 Cross-tabulation of Gender and knowledge about the food pyramid

		Do you know the food pyramid		Total
		Yes	No	
Gender of the students	Male	17	16	33
	Female	17	10	27
Total		34	26	60

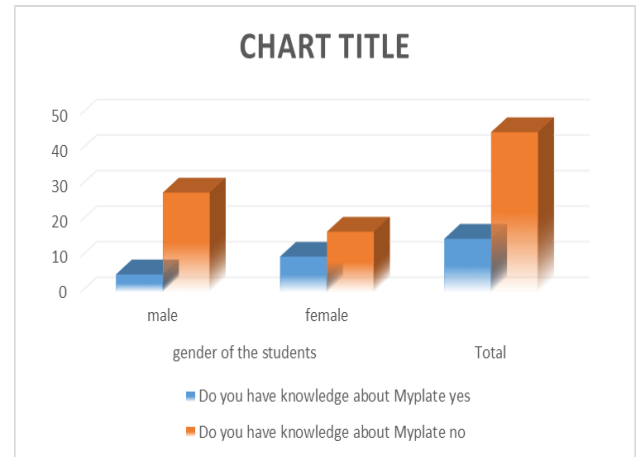


Figure no:22

Table 25 Cross-tabulation of Gender and knowledge about MyPlate

		Do you know Myplate		Total
		Yes	No	
Gender of the students	Male	5	28	33
	Female	10	17	27
Total		15	45	60

4.23 Cross-tabulation of Gender and BMI

We found the relationship between gender and BMI of the participants in which 4 males were Underweight, 23 were Normal, 6 were Overweight, and 0 were Obese, and in females 7 were Underweight, 17 were Normal, 2 were Overweight and 1 was Obese as shown below in table 26.

Table 26 Cross-tabulation of Gender and BMI

		Classification of BMI				Total
		Underweight	Normal	Overweight	Obese	
Gender of the students	Male	4	23	6	0	33
	Female	7	17	2	1	27
Total		11	40	8	1	60

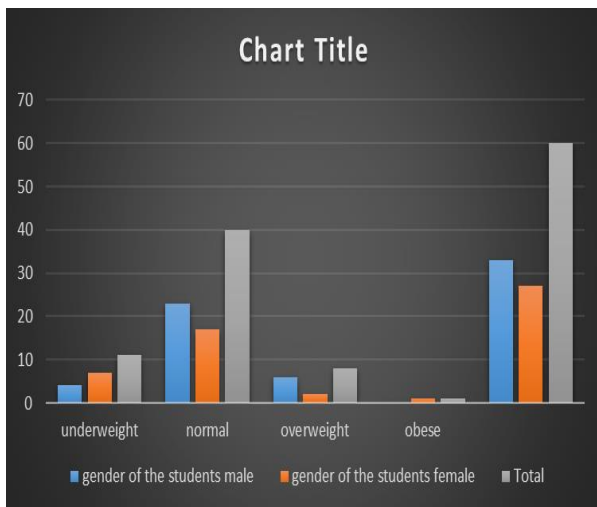


Figure no:23

5.DISCUSSION

A balanced diet is one that delivers the body with all the important nutrients, vitamins, and minerals mandatory to maintain cells, tissues, and organs as well as to function properly. The result of this study the frequency of a balanced diet in university students was 24 with the percentage of 40% but R. Gayathri et al conducted a cross-sectional study in India in which 82.7% of students were aware of a balanced diet but still, they were taking unhealthy diet.

Marta Baldini et al conducted a cross-sectional study in Italy in which the result of the evaluation of diet and lifestyle in Italy and Spanish university students. The result of our study was changed which is 8 participants were overweight and only 1 participant was obese.

S. K. SHAFIYA BEGUM et al conducted a cross-sectional study in which 74 % of students were eating an unhealthy diet and 23% were eat a somehow healthy diet. The result of the current study was slightly different from the previous study in which 40% of students were eating a healthy diet in university.

Silvia Lupi et al conducted a cross-sectional study in northern Italy the result of the study was that most of the students living in home consumed a healthy diet then those living alone or in the hostels consumed an unhealthy diet. In the current study, only 45% were taking a special diet, and the other 55% taking an unhealthy diet which is unlike the existing study.

Abdallah S Al-Rethaiaa et al conducted a cross-sectional study in Saudi Arabia in which there are 21.8 % of students were overweight and 15.7% were obese due to taking of an unhealthy diet. In the current study only 8% were overweight and only 1% were obese which is different from the previous study.

6.CONCLUSION AND RECOMMENDATION

This study was mainly based on evaluating the balanced diet and eating practices in university

students. The data indicated that most of the students were normal body mass index (BMI) shows that they have enough knowledge about nutrition but the frequency of balance diet in university students is low. our study included sixty participants the study was limited to the Abdul Wali Khan University students. This study also shows a high percentage of normal participants with a low percentage of obese.

There should be some sources of knowledge for every department student for a better understanding of a balanced diet and nutrition where proper diet plays a very important role in cognitive functions. In the sum of the university, time is very important for every student's future there should be a proper understanding of diet and physical activities which is vital for every individual.

There are limited studies done on university students' diet and proper nutrition, in the future more focus is needed to work on **"Effects of nutrition on cognitive functions on University going students"**.

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