



CODEN [USA]: IAJ PBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.3401770>Available online at: <http://www.iajps.com>

Research Article

**ASSESSMENT OF NUTRITIONAL STATUS OF MEDICAL
STUDENTS OF AVICENNA MEDICAL COLLEGE, LAHORE**¹Dr. Aqsa Liaqat, ²Dr. Sarosh Jameel, ³Dr. Saad Ahmad¹Avicenna Medical College, Lahore.**Article Received:** July 2019**Accepted:** August 2019**Published:** September 2019**Abstract:**

Introduction: *Balanced nutritional intake is essential for human development and healthy life, thus it should be practiced with every meal. Meal contents and dietary habits play important roles in nutritional intake (Choi, 1999). College students are considered an important segment of the population and are a group inclined to develop poor eating habits. Inadequate intake of nutrients would have a direct effect on both health and performance (Labib et al., 2001).*

Objectives: *To assess the nutritional status of Medical Students at Avicenna Medical College Lahore,*

Materials and methods: *A descriptive cross sectional study was done. Closed ended questionnaire was used as data collection tool after getting consent from the participants & Administration. Data was collected by team members & will be analyzed & compiled through SPSS software version 22. 100% confidentiality & privacy will be maintained.*

Results: *Results were analyzed through SPSS software version 22.*

Conclusion: *After the completion of research the results will be analyzed & a conclusion was drawn.*

Key Words: *Nutritional assessment - medical students- Food intake - Energy.*

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Please cite this article in press Aqsa Liaqat et al., *Assessment of Nutritional Status of Medical Students of Avicenna Medical College, Lahore., Indo Am. J. P. Sci, 2019; 06(09).*

INTRODUCTION:

Nutrition is the intake of food, considered in relation to the body's dietary needs. Good nutrition – an adequate, well balanced diet combined with regular physical activity – is a cornerstone of good health. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development, and reduced productivity(WHO). Nutrition: 1: The process of taking in food and using it for growth, metabolism, and repair. Nutritional stages are ingestion, digestion, absorption, transport, assimilation, and excretion. 2: A nourishing substance, such as nutritional solutions delivered to hospitalized patients via an IV or IG tube.(Medicine.Net). Nutritional Status is used for the purpose to estimate functional status, diet intake and body composition compared to normal populations.

Baker et al . [7] reported that the most important life style factors responsible for obesity were, long time spent using computer, eating more during time of stress and snacking between meals. In our study, significant findings were not observed which might be due to the following reasons. Due to the compact class schedule and stay in hostel, the students of this Medical College were forced to take a regular diet at least up to afternoon. They practically had little choice to select their preferred food. Moreover, a very short time is left for them to snack between meals. They do not have easy access to computer when they are in the hostel. Indian taboo and traditions prevent most of the students to smoke or consume alcohol.

The evaluation of the nutritional status is a broad topic, and to be of clinical importance the ideal method should be able to predict whether the individual would have increased morbidity and mortality in the absence of nutritional support. In short, can it predict the occurrence of nutrition-associated complications and thus predict outcome? Unfortunately, disease and nutrition interact so that disease in turn may cause secondary malnutrition or malnutrition may adversely influence the underlying disease. Thus, patient outcomes are multifactorial, and attempting to formulate the influence of malnutrition on outcome based on single parameters or simple models fails to consider the many interacting factors. This complexity has been recognized in the recent recommendations by the American Dietetic Association.1(**American Dietetic Association.1994**)

Nutritional Status is used for the purpose to estimate functional status, diet intake and body composition compared to normal populations. Body composition reflects calorie and protein needs. Nutritional status

predicts hospital morbidity, mortality, length of stay, cost. Baseline body composition and biochemical markers determine if nutrition support is effective. Nutritional status has been traditionally defined by body composition, plasma-protein concentrations, immune competence, and multivariate analysis.2,3(**Blackburn GL, Bistrian BR 1977**)3. (**Detsky AS, Baker JP, Mendelson RA, 1984**)

Assessment of nutritional status based on body composition involves detecting the loss (or gain) of body components relative to previous measurements and relating the values in a given patient to normal standards. The former is affected by the reproducibility and error in the measurements themselves, and the latter is dependent on the normal range of values. A person who starts off at the upper end of the normal range may be classified as “normal” despite considerable changes in the measured value. Therefore, it is possible for a person to be in a negative nutritional state for a long time before anthropometric measurements fall below normal. Body weight is a simple measure of total body components and is compared to an “ideal” or desirable weight. This comparison can be made by using formulas such as the Hamwi formula or to tables. However, a simple approach that gives as much information as tables is the calculation of the body mass or Quetelet index (BMI). BMI is calculated as weight in kilograms divided by height in meters squared. A BMI of 14–15 is associated with significant mortality. However, measurements of body weight in patients in hospitals and intensive-care units and in those with liver disease, cancer, and renal failure are confounded by changes in body water due to under-hydration, edema, ascites, and dialysate in the abdomen. Unintentional weight loss greater than 10% is a good prognosticator of clinical outcome.4,5:(**4. Stanley KE.1980**)5. (**DeWys WD, Begg C, Lavin PT, 1980**)

However, it may be difficult to determine true weight loss. Morgan et al.6(**Morgan DB, Hill GL, Burkinshaw L.1980**) showed that the accuracy of determining weight loss by history was only 0.67 and the predictive power was 0.75. Hence, 33% of patients with weight loss would be missed, and 25% of those who have been weight stable would be diagnosed as having lost weight. Furthermore, the nutritional significance of changes in body weight can be confounded by changes in hydration status. Concurrent stress such as trauma, sepsis, inflammation, and burns accelerates loss of tissue mass and function. Ultimately, critical loss of body mass and function occur and result in death.

Displacement followed by resettlement of medical students in the hostels is likely to have an impact on their nutritional status and their health status in the short-term as well as their work capacity and hence their contribution to national development in the long term. Monitoring the nutritional status in this group will be an important consideration. In keeping with the accepted practices to use rapid assessment techniques to monitor nutritional status, it is decided to carry out such assessments, periodically.

Generally, university food services should do their best in order to prepare and serve varied nutritious and appetizing. Attention should be paid to decrease the amount of energy from carbohydrate rich foods. Calcium and vitamin A rich foods must be increased to avoid osteoporosis in future years by increasing milk consumption instead of carbonated soft drinks. The present results recommended additional nutritional education is required in order to eliminate the errors and miss-conception related with the food intake.

This survey will be carried out to fulfil the information needs that will help the Government of Pakistan (Ministries), UN agencies (UNICEF, WFP, FAO) and non-governmental organizations (NGOs) plan long-term health, nutrition and food aid programs for the medical students in the long term. It will also give useful information about the coverage of the current interventions and suggest areas of gap and opportunity for improvement.

Methodology:

Study Variables

Dependent variable Nutritional status

Independent variable Dietary changes and life style variations.

Study Design Descriptive Cross Sectional. **Study universe** Lahore.

Study population Medical students

Study settings Avicenna medical college Lahore

Duration of study

Three months Completion time

Study subjects selection criteria

Inclusion criteria Medical students of Avicenna Medical College Lahore will be included.

All males & females are included. Only those students giving informed consent are included.

Exclusion criteria Other medical students else than those of ACMC are excluded. Students not giving consent are not included. Students ill due to any disease are not included in this research.

Social and Ethical Considerations Observing cultural & religious ethics.

Consent will be obtained for interview from administration & participants. After consent the confidentiality and secrecy of research will be maintained during & after research. The information about the names addresses etc. will not be disclosed to anyone and will not be used for unethical purpose.

Sample size: Sample size will be estimated using WHO software S size & by using formula of estimating a population +proportion with specified relative precision. At confidence level of 95% with anticipated population proportion of 70% & relative precision of 10%, the minimum sample size will be taken as 100. will be collected by research conducting members.

Data compilation and analysis: The data will be compiled and analyzed through SPSS software version 22 & appropriate statistical techniques. Data will be presented by means of tables, charts & diagrams.

Data collection tool: A semi structured questionnaire (pre-designed close ended with few open ended questionnaires) will be used to collect information from patients.

Pre-tested: Before carrying out the actual exercise of data collection, questionnaire will be tested on some subjects on experimental basis to observe any deficiency in questionnaire, ethical and social acceptability of questionnaire.

Work Plan

Activity	1St Week	2nd Week	3rd Week	4 th Week	5th Week	6th Week
Finalization and approval of Synopsis						

Data Collection						
Data Compilation						
Data Analysis						
Report Writing						
Report Presentation						

Administrative Plan:

Activity	Personnel
Selection of problem	Whole group
Preparing finalizing and presenting Research protocol	Dr Sarosh Jameel
Preparing Questionnaire and Presenting	Dr Aqsa Liaqat
Data collection	Dr Saad Ahmad
Data compilation and analysis	Dr Aqsa Liaqat & Dr Sarosh Jameel
Report writing	Dr Saad Ahmad

Budget:

The various aspects of this exercise which demand financial support are as follows:

Photostats	Rs. 500
Prints	Rs. 500
Stationary	Rs. 320
Computer	Rs. 320
Final Prints	Rs. 800
Total	Rs. 2440

Table 1

Age of population selected for research

		Respondents age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	age group b/w 17-20		68.0		56.0
	age group b/w 21-25	34 16	32.0	56.0 44.0	44.0
	Total	50	100.0	100.0	100.0

Results:

It states that

- 68% students belong to 17-20 years age group.
- 32% students belong to 21-25 years age group.

Table 2:

Gender percentage of the population

		Respondents sex			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female		60.0		100.0
	male	30 20 50	40.0	60.0 40.0 100.0	100.0
	Total		100.0		

Result:

It states that:-

- 60% students were female.
- 40% students were male.

Table 3:**Awareness among medical students regarding nutritional status**

		Awareness of Nutritional status			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes		76.0		76.0
	No	38		76.0	
		12	24.0	24.0	100.0
Total		50		100.0	

Result:

It states that:-

- 76% students were aware of their nutritional status.
- 24% students were not aware of their nutritional status.

Table 4**Prevalence of under weight,over weight & obesity among medical students**

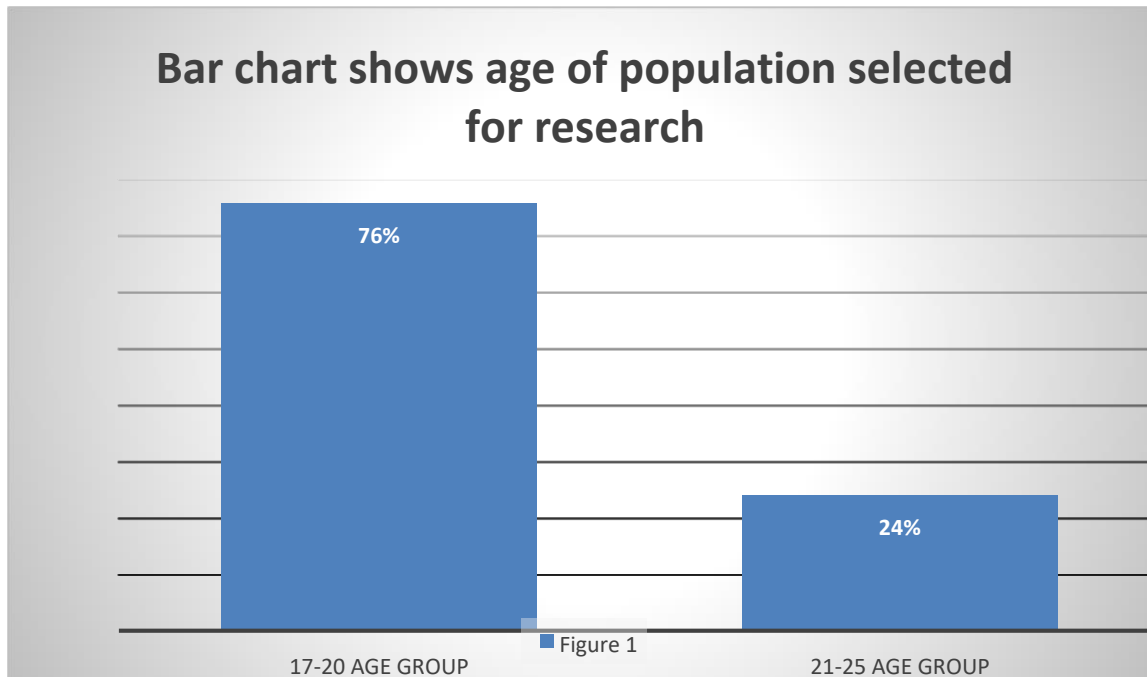
		Underweight	Overweight	Obese	Normal(within limit)
Males			10%		20%
Females		8%		2%	
		10%	14%	8%	28%
Total		18%	24%	10%	48%

Results

It states that:-

- 8% males & 10% females are underweight.
- 10% males & 14% females are overweight.
- 2% males & 8% females are obese.
- 20% males & 28% females are normal weight

Figure 1:

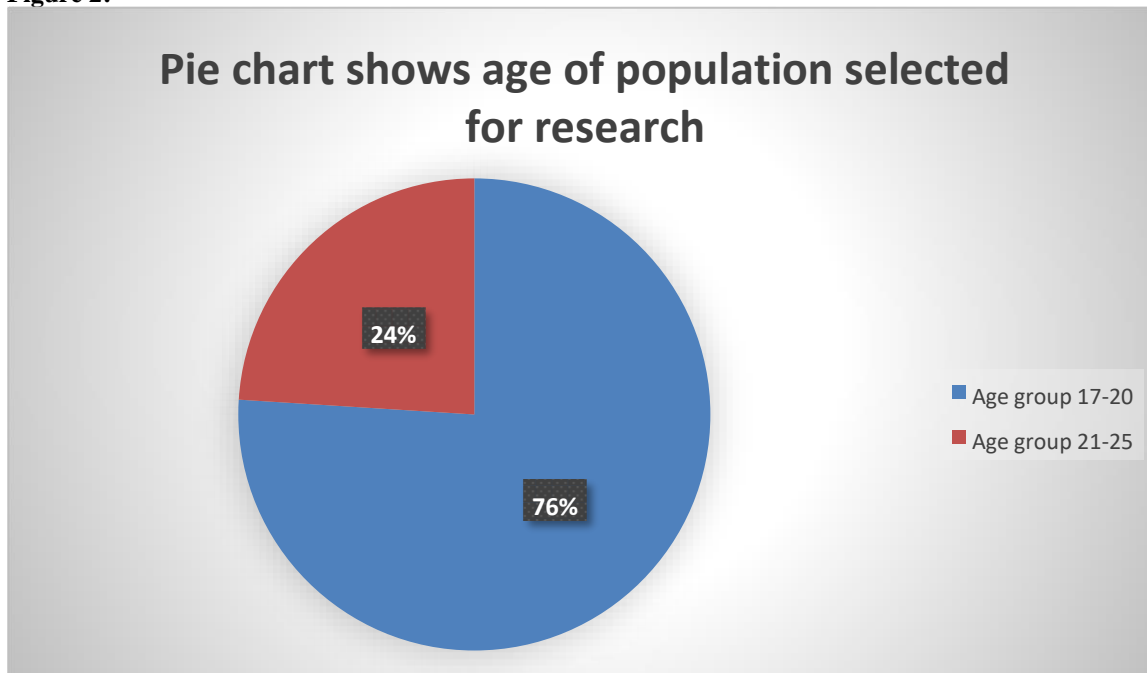


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Figure 2:

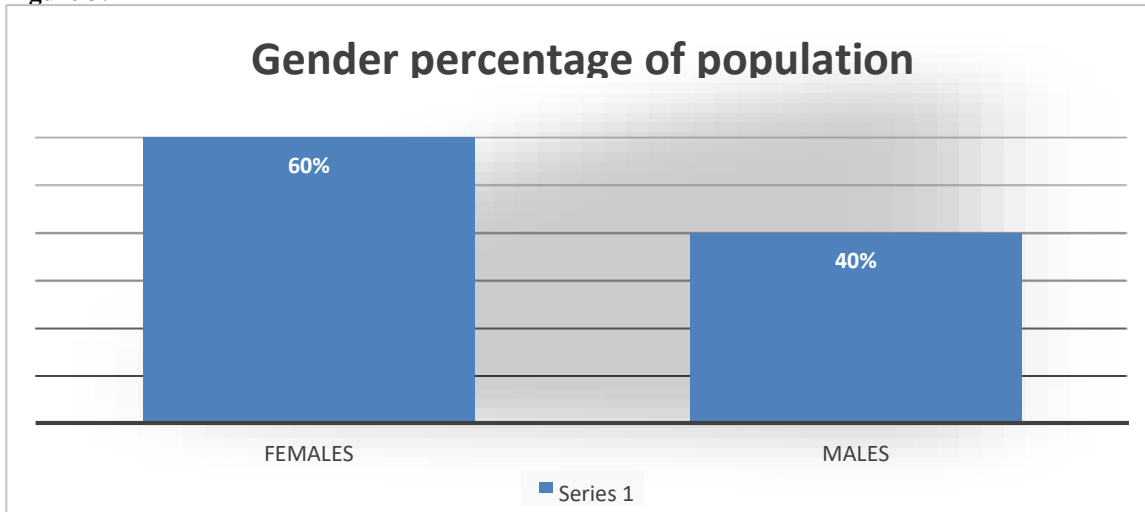


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It states that

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Figure 3:

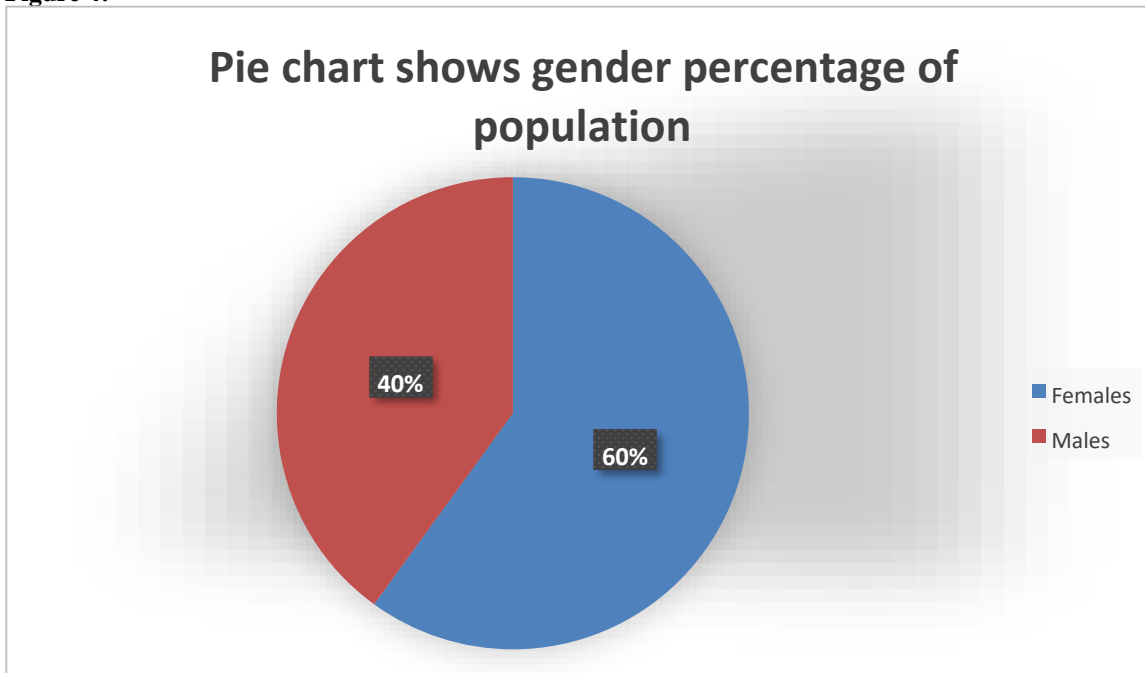


Result:

It states that:-

- 60% students were female.
- 40% students were male.

Figure 4:

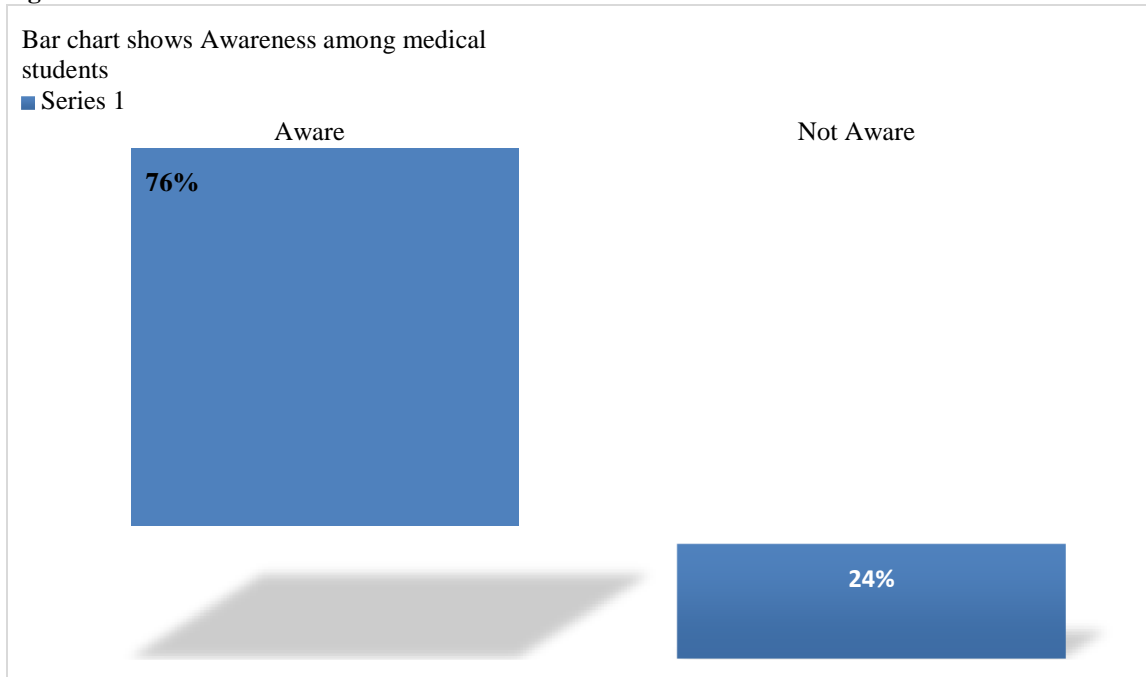


Result:

It states that:-

- 60% students were female.
- 40% students were male

Figure 5:

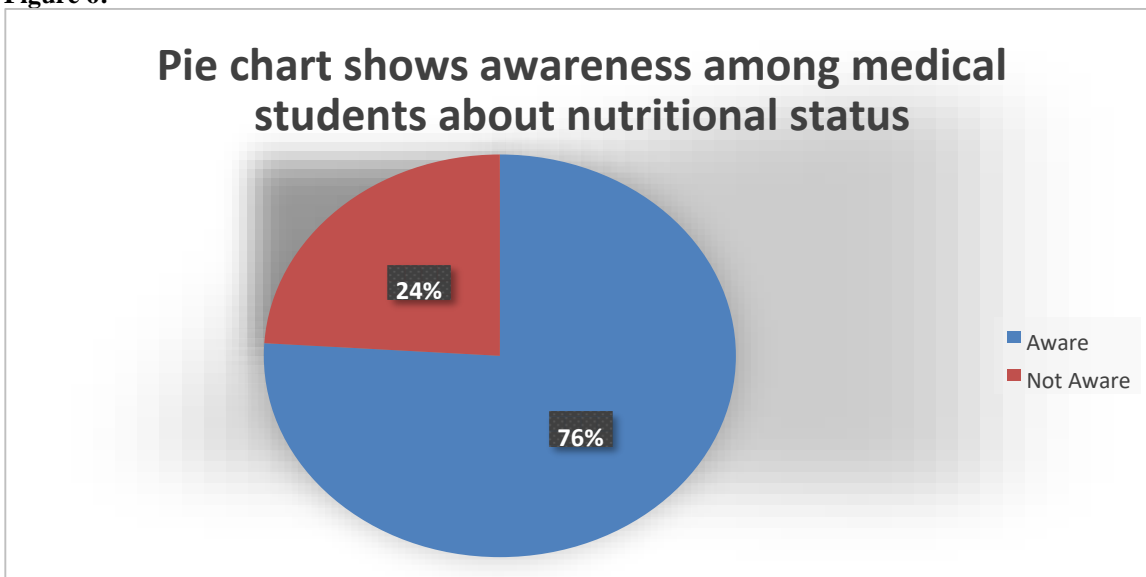


Result:

It states that:-

- 76% students were aware of their nutritional status.
- 24% students were not aware of their nutritional status.

Figure 6:



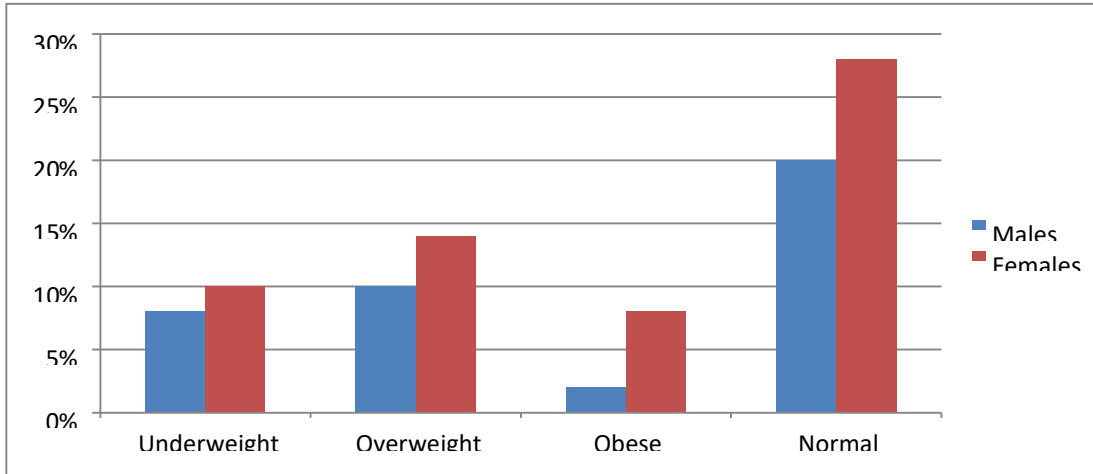
Result:

It states that:-

- 76% students were aware of their nutritional status.
- 24% students were not aware of their nutritional status.

Figure 7:

Bar chart shows Prevalence of under weight,over weight & obesity among medical students.



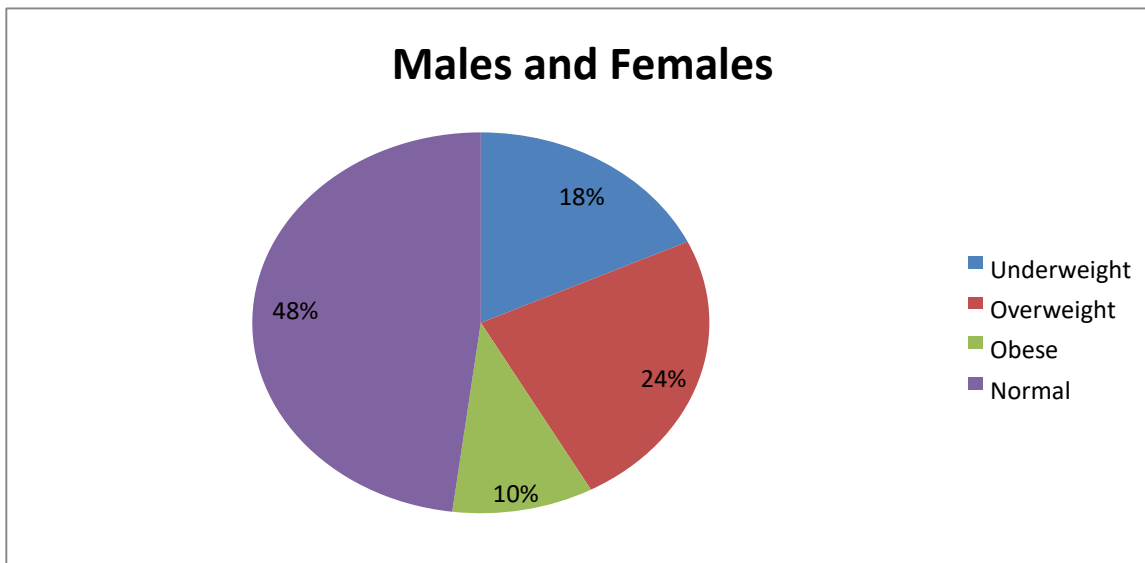
Results

It states that:-

- 8% males & 10% females are underweight.
- 10% males & 14% females are overweight.
- 2% males & 8% females are obese.
- 20% males & 28% females are normal weight.

Figure 8:

Pie chart shows Prevalence of under weight,over weight & obesity among medical students.



Results:

It states that:-

- 8% males & 10% females are underweight.
- 10% males & 14% females are overweight. □ 2% males & 8% females are obese.
- 20% males & 28% females are normal weight

DISCUSSION:

Based on the result of the study, 76% students are aware and 24% are unaware of their nutritional status. Result of the study showed that majority of student agreed on the importance of nutrition in the health. Other believes that although it is very important but due to some reasons, the importance has been ignored.

The prevalence of underweight is higher than the obese. The study shows the percentage of underweight is 18% and obese is 10%. The percentage of overweight is 24% and the percentage of those students having normal value is 48%. 10% female students are underweight. This is higher than the males as 8% of males are underweight. This is may be due to the reason that males prefer to have larger body size but female students idealize smaller body size.

Low body weight is unhealthy because it is not only can increase the risk of clinical conditions such as anemia and low body mass and also can increase the risk of eating disorder such as anorexia and bulimia.

Student living away from home had developed bad eating habits compared to students living with family. The low energy intake of subjects in the study could also be due to the habit of skipping breakfast as been investigated in present study. The percentage of student who skipped breakfast is high among those who are living in hostel. Study shows that the leading cause for skipping breakfast was lack of time. Apart from that, it is also observed that the lack of appetite, dislike to eat early in the morning and over sleeping are the reasons for skipping breakfast.

The intake of fruits and vegetables among the students had decrease since beginning of college. The average consumption of fruit and vegetables was several times a week (1-4times). The availability of fast food restaurant can be the reason of prevalence of fast food intake more than 3 occasions per week.

Unfortunately, we do not have accurate data about familial history of obesity and if the students live alone or with the family; therefore, we can't produce a complex analysis of overweight and obesity etiology using the current data.

In this study, more than half of respondents had meals regularly at least three times per day. Regular breakfast consumption among medical students is important for sufficient energy intake to overcome fatigue due to busy (daily) learning schedule. In this study, less than half of respondents had breakfast daily.

The frequent consumption of snacks and light meals is a recognizable aspect of teenage food behavior. Surprisingly, our study found that only few number of the students had snack at least three times per week. Our study also found that 48.5% of respondents consumed fruits at least three times per week.

It was reported that low intake of fruits and vegetables is associated with several chronic diseases at adulthood. Our study disclosed that majority of medical students were aware of this health risk. Attending a university or college can be a stressful experience for many students, so the behavioral consequences of stress may affect eating habits.

From our study it is found that female students eat vegetables more frequently than men. On the other hand male students likes chicken more than vegetables.

Faulty nutrition exacerbate a wide spectrum of disease condition diminishing the quality of life, personal productivity and longevity .Student may face difficulty in regulating eating behavior since it is the transition of when they are staying away from family homes.

CONCLUSION:

- In this study, the prevalence of underweight is higher than obese. Majority of students in this study were deficient in their energy intake. The student were also lacking in other nutrients.
- Students tend to skip their breakfast intake and their fruit and vegetable consumption was also low.
- Many students usually consume fat food several times in week. Educational campaign regarding healthier food choices, lifestyle and weight management could make a positive impact on health of student.

- The nutrition interventions should focus on increasing personal valuation of health and education. Future research would be benefit if the study is design for longitudinal studies which would provide more information.
- It is also needs to including identifying the magnitude of potential nutritional risks associated with skipping main meal intake especially in large sample size.
- A food checking authority or supervisor should be appointed by the hostel administration to check the quality of food.

Recommendation:

- The students should be encouraged to adopt healthy dietary practices with due emphasis on consumption of iron rich food.
- The students should be encouraged to adopt healthy dietary practices with due emphasis on consumption of iron rich food.
- In teaching curriculum of community medicine more weightage should be given to topics of nutrition.
- Boys should include vegetables, fruits, sprouted pulses etc. in their daily diet, so as to avoid vitamins and mineral deficiency.
- Students should be motivated for various outdoor sports activities to adopt healthy lifestyle.
- There is need to undertake a larger study involving all the medical students to identify the trends and plan necessary action.
- Medical students should have a regular medical checkup after every 6 months.
- A food checking authority or supervisor should be appointed by the hostel administration to check the quality of food.

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QUESTIONNAIRE**Assessment of Nutritional status of medical students of
Lahore .****Avicenna Medical College,**

This data is intended for research purposes only and will be kept confidential. Please read the following questions and answer truthfully to the best of your knowledge

Name: _____ Age: _____ Sex: _____ Year: _____ Weight: _____ Height: _____

QUWSTIONS:

- | | |
|--|------------------------|
| 1) Average number meals eaten each day? | 2/3/more |
| 2) If less than three, which meal(s) tend to get skipped ? | breakfast/lunch/dinner |
| 3) Average number of between meal snacks? | 2/3/more |
| 4) Average number of caffeinated beverages consumed per day? | No/ 2/4 |
| 5) Average number of glasses of water consumed per day? | 4/6/8 |
| 6) Do you drink milk? | Yes/No |
| 7) When do you usually eat your first meal or snack of the day? | 8am/10am/12pm |
| 8) When do you usually eat your last meal or snack of the day? | 4pm/9pm/12am |
| 9) Are weekend eating habits different from week day eating habits? | Yes/No |
| 10) Is there any foods that you dislike or rarely eat? | Yes/No |
| 11) Do you eat fatty food? | Yes/No |
| 12) Do you think that your mess fulfills your daily calories requirements? | Yes/No |
| 13) Are you satisfied with your dietary plan? | Yes/No |
| 14) Do you eat fruits every day? | Yes/No |
| 15) Do you smoke? | Yes/No |
| 16) Do you eat your meals regularly? | Yes/No |
| 17) Have you ever calculated your Body Mass Index (BMI) | Yes/No |
| 18) What is your BMI at present? | ----- |
| 19) How many times you order food from restaurant? | ----- |