FOOD HABITS AND OBESITY: A STUDY OF UNIVERSITY STUDENTS OF SRINAGAR

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Abstract :

Overweight and obesity are most important health problem in all societies and its prevalence is rapidly increasing. The relationship between obesity and many diseases such as type 2 diabetes, hyperlipidemia, hypertension, coronary heart disease and breast cancer has been proven in many studies. Unhealthy dietary habits are among the factors that can have adverse effects on weight status in young adulthood. The purpose of this cross sectional study was to assess the frequency of intake of energy giving, body building and protective foods by the young adults belonging tyo various universities of district Srinagar of Kashmir. Results of the study revealed that cereal intake was found to be high, body building foods especially flesh foods and eggs were taken frequently in the diet , protective foods consumption was little less but the consumption of junk foods was high by the university students.

Introduction:

Obesity is defined as an impaired physical composition of the body as a form of increasing in the amount of adipose tissue and is very common **(Onis & Blossner, 2000).** Obesity prevalence is increasing in the society and currently 0.5 billion of world population have obesity. Increasing urbanization and industrialization in many countries, along with behavioral and nutritional changes to feeding high fat and energy and lack of movement, cause to increasing obesity in in many communities . Obesity leads to many diseases such as cardiovascular disease, type II diabetes and some cancers **(James, 2001).** In addition, obesity and its complications impose a great financial load on the individual and society. Obesity occurs by the result of several factors including genetics, hormonal factors and metabolic behavior **(Windmaier & Raff, 2006).**

Physical inactivity and unhealthy dietary habits are among the main behaviors that potentially have adverse effects on weight status in young adulthood, and consequently, the future health of adults **(Allom & Mullan, 2014).** As reported by the World Health Organization **(WHO, 2014).** the adult disease burden is due to health risk behaviors that start during early stages of life (e.g., unhealthy eating practices). For example, most of the young adults do not consume the recommended daily amount of fruit and vegetables, nuts, and seeds. On the other hand, the consumption of added sugars, processed meats, and trans fats is higher than the recommended daily intake **(Blondin, 2016).** It has been shown that after the transition from adolescence to young adulthood,

when independency increases, young adults are continuously challenged to make healthful food choices **(Stok et al, 2018).** Along with unhealthy eating behaviors, a new series of weight-related behavioral patterns begins throughout this period, such as excessive alcohol consumption and a low level of physical activity.

According to the literature university is a critical period for young adults regarding food choices and their relationship with weight gain. **(Crombie et al, 2009; Vella, 2009; Racette et al, 2008).** Various poor eating habits have been noted among university students in many recent studies. Brown conducted an experiment in which they implemented interventions on vending machine sales on a university campus. They stated that many students tended to select food according to convenience, taste, time, and price rather than nutritional values. Many other students tended to choose quick and tasty options, which were usually available through vending machines . **(Brown et al, 2014).** Dietary habits of young adults are now affected by the fast-food market. This is the reason that overweight and obesity are increasingly observed among the young. Universities may contribute significantly in reducing the prevalence of obesity among the young population by promoting healthy eating habits. Universities can provide an ideal forum for reaching out to a large number of young adults through nutrition education programs that may positively influence students' eating habits by by inculcating healthy food choices. **(Shommo, 2014).**

A cross-sectional survey was conducted with 228 students in a university setting .A food frequency questionnaire was used as a tool of the study . It was found that food habits such as daily Breakfast consumption, light meals, eating with a family, intake of soft drinks had insignificant impacts on BMI ($P > 0.05$) **(Fayez, 2017) .**

Trends in vegetable consumption show younger adults to be the poorest consumers, for example, in France [**Tamers *et al.*, 2009**]. Young adults have also shown the greatest intakes of food prepared outside the home [**Powell *et al.*, 2012**]. Studies have also indicated that consuming fast food two or more times per week is associated with increase in waist circumference (abdominal obesity) in young adults in Australia [**Pereira *et al.*, 2015**].

Another cross sectional study was done on students of colleges and university aged 18 - 22 from Kingdom of Saudi Arabia chosen by randomly sampling method.. Results revealed that majority of students preferred to take natural drinks (68.7%) with no significant differences between BMI categories. Moreover Frequency of drinking soft beverages 3 or more per week was reported by 38.3% . Fast foods was being consumed 3 or more times per week by 41.3% . It is worth mentioning that 84.8% of students reported eating snacks 3 or more times per week with no significant differences between BMI categories. **(El Hakeem, 2015).** Therefore within Kashmiri context it becomes important to understand the current food habits and intake of the young adults belonging to universities. Thus the present study was undertaken with an aim to assess the intake of eb=nergy giving, body building ,

protective and junk foods by the young adults belonging to various universities of Srinagar district of Kashmir, J & K.

Methodology:

1. *Data source and collection*:

In the present study both the primary as well as secondary sources of data were used to obtain the desired information.

A) Primary Data: The present study was conducted in Universities. The sample was primarily collected from various universities of Srinagar. A structured questionnaire and an interview schedule was devised and used for collecting the primary information from the subjects selected (Young adults). A non-stretchable measuring tape and a digital weighing scale were also used to collect information regarding the height and weight of the respondents. Weight of the subjects was assessed by using standard weighing machine and recorded in scientifically designed questionnaire. Weight was recorded on a pre-prepared questionnaire.

B) Secondary Data: Data collected from secondary sources represented the information obtained from books, published or unpublished dissertation, medical and public health journals, and latest information from internet etc.

2. *Sample size* The present study included a total no. of 700 young adults who belonged to universities . The subjects were selected using a purposive random sampling method. The sample size was determined on the basis of the estimated prevalence of the pregnant women, with the help of the formula:

$$n = \frac{z^2 \times p(1-p)}{d^2}$$

Where:

n = required sample size

z =confidence level at 95% (standard value of 1.96)

p= estimated prevalence of Pregnant women in Kashmir valley

d = margin of error at 5%.

Sample selection procedure

Young adults were selected from two renowned universities of Srinagar namely University of Kashmir (KU) and SKUAST. Young adults were chosen from universities because university students represent a highly educated elite sector which can expected to possess much knowledge about what to eat and what not. Selection of youth from universities was done by various statistical methods such as stratified random sampling technique and purposive sampling. Sample was taken from various faculties and departments of universities. Departments were chosen from faculties using a statistical technique called as probability proportion to size. Students from each department by systematic random sampling technique. The individuals below and above the age range under study (20 to 30 years) were excluded from the study. Therefore a total number of 700 students were sampled for the study.

Tools used:

The tool used in the present study was essentially a questionnaire. Questionnaire was devised as per objectives of the study. After a thorough and detailed study of the problem and the review of literature, a preliminary questionnaire was framed. This was pre-tested on 10% of the sample size to ensure the validity and feasibility of the questionnaire and was then used in the study. Questionnaire was supplemented by an interview schedule to obtain the desired information.

Data analysis:

For analysis of data Microsoft Excel and statistical package SPSS were used. The data was tabulated, analyzed and interpreted as per the needs of the study. Besides percentage, mean and standard deviation, other statistical tools were also used to see the correlation of obesity with various factors affecting it and significance of the results obtained.

Results and discussion:

The results obtained from the present investigation are presented below:

Table 1: Distribution of the respondents as per consumption pattern of cereals

Frequency of cereals intake	Energy giving foods		
	Rice N(%)	Wheat N(%)	Oats N(%)
Daily	648(92.5)	700(100)	3(5)
Alternatively	-	-	-
Once a week	14(2)	-	28(4)
Twice a week	21(3)	-	-
Once a month	-	-	70(10)
Occasionally	10(1.42)	-	231(33)
Never	7(1)	-	336(48)

Table 1 shows the distribution of respondents as per the frequency of intake of cereals. While assessing the frequency of intake of cereals and cereal products among the respondents , it was found that Rice and wheat were consumed daily by majority of the respondents (92.6% , 100%) respectively). As far as the consumption pattern of oats is concerned, majority of the respondents never used to include them in their diet (48%). Cereal intake was thus found to be high in our study. Our results are somewhat similar to a study conducted by **Shommo *et al.*, 2014** who also found higher consumption of cereals. His study reported that 89% consumed cereals daily. This implies that cereal continues to form a major part of our daily diet, that's why majority of young adults were found to include it daily. Cereals provides us with many essential nutrients especially complex carbohydrates. Carbohydrates though essential for our body but excess gets converted into sugar by our body which if not utilized will deposit as fat. Consumption of oats and cornflakes at breakfast can help maintain a healthy weight and also provide us with fiber thus should be consumed frequently.

Table 2: Distribution of the respondents as per consumption pattern of flesh foods, eggs and pulses

Frequency	Body building foods		
	Pulses N(%)	**Flesh foods N(%)**	**Eggs N(%)**
Daily	105 (1.5)	84(12)	399(57)
Alternatively	21.98(3.1)	49(7)	154(22)
Once a week	213(30.5)	140(20)	77(11)
Twice a week	142(20.4)	168(24)	14(2)
Once a month	246(35.2)	63(9)	56(8)
Occasionally	43(6.1)	182(26)	-
Never	21(3)	14(2)	4(0.6)

Table 2 shows the distribution of the respondents as per the frequency of consumption of protein rich foods i.e. pulses, flesh foods and eggs. Pulses were included by the majority of young adults on a monthly basis (35.2%). As far as frequency of intake of flesh foods is concerned, it was found that the majority reported to include it at least once a week in their diet (20%) . Daily consumption was however found to be low (12%). Moreover, when asked about the inclusion of eggs in their diets, it was found that eggs were taken on a daily basis by the majority of the respondents i.e. (57%).

Our study also shows a good consumption of flesh foods among the young adults . An Indian study by **Tharani 2013** also shows higher consumption of flesh foods. Meat, chicken, fish, eggs are considered as protein rich foods, not only are they useful as a source of protein, but are also rich in carbohydrates and fats .We should include enough of these foods to meet the recommended dietary allowances but frequent consumption of these foods above the normal levels can be a contributing factor towards the development of obesity. .

Table 3: Distribution of the respondents as per consumption pattern of fruits/vegetables by the respondents

Frequency	Protective foods			
	Fruits N(%)	**Green leafy Vegetables N(%)**	**Roots and tubers N(%)**	**Others N(%)**
Daily	77(11)	168(24)	224(32)	50(7.25)
Alternatively	49(7)	77(11)	115(16.5)	119(17)
Once a week	287(41)	98(14)	148(21.1)	147(21)
Twice a week	161(23)	217(31)	93(13.2)	213(30.5)
Once a month	98(14)	119(17)	77(11)	145(20.7)
Occasionally	28(4)	21(3)	44(6.2)	26(3.5)
Never	-	7(1)	-	

Table 3 shows the consumption pattern of fruits and vegetables among the young adults. Fruit consumption pattern showed that fruits were not included on a daily basis. Majority of respondents reported that they included fruits once a week (i.e 41%). Consumption pattern of green leafy vegetables showed that the majority of the respondents included it twice a week (i.e 31%). Moreover as far as intake of roots and tubers is concerned it was found that majority included it daily (32%) .With respect to other vegetables other than green leafy and roots and tubers, it was found that majority of respondents included them twice in a week in their diets (i.e 30.5%).

Respondents in our study were found to consume fruits and vegetables less frequently than the other young adults outside our state. In a study conducted by **Sharma 2009**, 22% of the young adults were found taking fruits on a daily basis, and in another study by **Shommo *et al.*, 2014,** more than half of the respondents were taking green leafy vegetables daily, these results thus contradicts with the results of the present study in which fruits and vegetable especially greens were consumed less frequently. The reason for this difference could be lack of knowledge and awareness among Kashmiris about the importance of inclusion of fruits and vegetables in the daily diet. Fruits and vegetables intake is very important to remain healthy and is protective against certain chronic diseases because they are rich in antioxidants and photochemical. Their protein and fat content is low and they are also rich in fiber. Despite these benefits, young adults consume a disproportionate amount of nutrient poor foods such as fast foods, thus depriving themselves of the healthy foods like fruits and vegetables. Every individual should consume fresh, locally available and preferably seasonal vegetables and fruits.

Table 4: Consumption Pattern of junk foods by the Respondents

Frequency	Junk foods			
	Pizza/ Burger N(%)	**Potato Chips N(%)**	**Samosa/ pakoda N(%)**	**Chocolate/ Sweets N(%)**
Daily	7(1)	217(31)	196(28)	84(12)
Alternatively	-	147(21)	105(15)	42(6)
Once a week	182(26)	126(18)	189(27)	126(18)
Twice a week	35(5)	105(15)	91(13)	175(25)
Once a month	238(34)	70(10)	105(15)	49(7)
Occasionally	210(30)	21(3)	14(2)	161(23)
Never	28(4)	14(2)	-	63(9)

Table 4 throws some light on the consumption of various junk foods among the young adults. It was found that junk foods consumption was found to be high among the respondents. Pizza, Burger was Taken once a month by the majority of the respondents (30%). Potato chips was mainly included on daily basis by majority of respondents (31%). Samosa pakoda was mainly taken once a week by the majority i.e. 27%. Moreover chocolates and sweets were also taken twice a week by the majority (25%).

Results of our study showed that junk foods remained the most favorite food among the youth. Most of the students reported having sweets and chocolates once to twice a week, potato chips , samosa , pakoda was taken mainly on a daily basis . Overall majority of students used to eat fast foods 3 or more times per week. Our results are similar to other studies conducted on young adults (**Shommo 2014** ; **Hakeem *et al.*, 2015**).Another Indian study showed higher consumption of junk foods **(Jan et al, (2018)**. Young adults often consume fast foods. A number of factors could explain this increase. First, increased availability of fast food outlets nowadays makes it a relatively more convenient purchase . Second reason can be a reduction in the relative price of these foods especially in educational institutes.

Junk foods contains more amount of fat, (especially trans fats and saturated fats) than carbohydrates and proteins. Besides they are rich in sodium and low in fiber. Dietary fat is stored more efficiently than carbohydrates or proteins which finally results in overweight or obesity.

Major Findings:

Cereal intake was thus found to be high in our study. Rice and wheat were consumed daily by majority of the respondents (92.6% , 100%) respectively). Consumption pattern of oats showed that majority of the respondents never used to include them in their diet (48%).

Results of our study shows a good consumption of flesh foods among the young adults. Pulses were included by the majority of young adults on a monthly basis (35.2%). As far as frequency of intake of flesh foods is concerned, it was found that the majority reported to include it at least once a week in their diet (20%). Eggs were taken on a daily basis by the majority of the respondents i.e. (57%).

Respondents in our study were found to consume fruits and vegetables less frequently Majority of respondents reported that they included fruits once a week (i.e 41%). Consumption pattern of green leafy vegetables showed that the majority of the respondents included it twice a week (i.e 31%) and intake of roots and tubers showed that majority included it daily in their diet (32%).

Junk foods consumption was found to be high among the respondents. Pizza, Burger was taken once a month by the majority of the respondents (30%), Potato chips on daily basis by majority of respondents (31%), Samosa pakoda once a week by the majority i.e. 27%. And chocolates and sweets were also taken twice a week by the majority (25%).

Conclusion:

Higher consumption of cereals was found in our study as rice and wheat were taken on a daily basis by the majority of the young adults. Moreover flesh foods and consumption of eggs was also found to be on a higher side as flesh foods were mainly taken on weekly basis and eggs on a daily basis. As far as protective foods are concerned, university students were found to take fruits less often , however vegetable consumption was found to be little bit satisfactory. Junk foods remained the most popular choice for the young adults as majority of students reported to include junk foods quiet frequently in their daily diet.

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