INTRODUCTION

Food habits mean why and how people eat, what foods they consume, and with whom they eat, and how people buy, shop, use, and give up food. The eating habits of people are all affected by human, social, cultural, religious, economic, environmental and political factors. [1] Healthy eating means eating a variety of foods that provide you with the nutrients you need to keep you healthy, feel good and have energy. Protein, carbohydrates, fat, water, vitamins and minerals are among those nutrients. [1-2]

Nutrition is the science which interprets the interaction of nutrients and other substances in food with respect to an organism’s maintenance, development, reproduction, health and disease. This includes intake of food, absorption, assimilation, biosynthesis, catabolism and excretion.[3]

Obesity has more than doubled worldwide since 1980. Overweight and obesity are emerging non-communicable disease worldwide. The prevalent non-communicable disease globally is overweight and obesity. Around 1.9 billion people, aged 18 and older, were overweight in 2014. Around 600 million of those had been obese. In 2014, 39% of adults aged 18 years and older were overweight and 13% were obese. [4] Therefore, this study has been undertaken to scientifically to assess the food-habits, eating-behaviour and nutritional-knowledge and anthropometry measurement among graduate students of allied health science

MATERIALS AND METHODS

A cross-sectional study was conducted among Under-graduate Allied Health Science students of J.N. Medical College, Belagavi, Karnataka from Nov 2018 to Feb 2020. The Under-graduate Allied health science students were selected by complete enumeration and data collection was done by using pre-designed and pre-tested questionnaire and observation. It was organized under eleven sections. They are: Socio demographic Data, Information on Risk Factors, Food Frequency Consumption, Food Habits, Physical Activity and Lifestyle, Healthy and Unhealthy Dietary Habits and Food, Self-Efficacy, Barriers to change, Nutrition Knowledge, Knowledge on Food Safety, Food Safety and Behaviour in Hygiene Practices.Students from allied health courses (Radiology, Cardiology, Perfusion Technology, Anesthesia, BMLT, Public Health and Neuroscience) were selected for the study. Out of 456 students, 374 of them were included in the study. The height and weight measurement of each selected student was recorded. They were interviewed using a predesigned and pretested questionnaire, on nutritional knowledge, food habits and eating behaviour.

ABSTRACT

Objective: To assess the BMI, nutritional knowledge, food habits and eating behaviour of Under-graduate allied health science students

Materials and Methods: A facility based cross-sectional study was conducted among 374 Under-graduate students of allied health science. Height and weight measurements of each student who consented to the study was recorded. They were interviewed using a predesigned and pretested questionnaire, on nutritional knowledge, food habits and eating behaviour.

Results: 24 % students were overweight or obese. Breakfast was missed by 32 % students. It was found that 74 % of the students consumed junk food during breakfast. 47 % did not do any physical activities. 35.5 % students scored good on Nutritional Knowledge.

Conclusion: Unhealthy food habits and eating behaviour exits among the youth. They are mostly over weight and do not have the right nutritional knowledge to prevent diseases related to nutritional disorders in future.

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study among which 257 were female and 199 were male. The weight scale was held parallel to the horizon plane for the collection of anthropometric data and students were standing in upright position at the centre of the scale, without shoes, heavy clothing and other items. The weight was measured to nearest 0.5 kg in the ‘kg’ unit. Height was measured using a flexible measuring tape; labelling on the wall was achieved. The subject was made to stand erect, without boots together with feet and head touching the wall and eye looking straight. The height was measured in the ‘in’ unit with a closest to 0.1 cm. and BMI was calculated.

**Waist Circumference**

Waist circumference was measured at the top level of the iliac peak. Overall and heavy clothes removed from the waist line. On the side of the waist, not at the front of the neck, the top of the hip bone felt the region between the thumb and the index finger used to reach the hip bone on the side of the waist. The measuring tape bottom edge coincided with the top of the hip bone.

**Inclusion Criteria**

Undergraduate students of allied health sciences studying in J.N. Medical College, Belagavi during the study period

**Exclusion Criteria**

Those under graduate students of allied health sciences of JNMC who were not available after three attempts or on medical/long leave.

**Ethical Clearance**

Ethical clearance was obtained from the Institutional Ethics Committee for Human Subjects’ Research of J. N. Medical College, Belagavi and permission was obtained from the Principal of the college to approach the allied health science students.

Written Informed consent was obtained from all the Undergraduate Allied health science students.

**Data Analysis**

- The data collected was collected was compiled in MS Excel sheets.
- Data was analyzed using SPSS version 22.
- Inferential data was analyzed using Chi-square test to see the association between BMI, nutritional knowledge and safety food & demographic variables.
- Descriptive data was analyzed & presented in percentage & proportion and table/ graph chart were prepared.

**RESULTS**

**Demography**

Table no.1 shows the distribution of students according to their age in completed years out of 374 students, majority 148 (73.3%) of them were in age group of (20-25) years, 50 (24.85) students were in the age group of (18-20) years and 4 (2%) students were in the age group of (25-30) years. Out of 374 students, majority 202 (54.04%) were male and 172 (46.06%) were female. The distribution of students according to their type of family. Out of 374 students, majority 273 (73.0%) of them belonged to Nuclear family and 101 (27%) students belonged to joint family.

Table 2 Distribution of Study Participants according to their Waist and Hip ratio

<table>
<thead>
<tr>
<th>Waist and Hip Ratio</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.40-0.80 (Low health risk)</td>
<td>225</td>
<td>60.2</td>
</tr>
<tr>
<td>0.81-0.84 (Moderate risk)</td>
<td>76</td>
<td>20.3</td>
</tr>
<tr>
<td>0.85-4 (High risk)</td>
<td>73</td>
<td>19.5</td>
</tr>
<tr>
<td>Total</td>
<td>374</td>
<td>100</td>
</tr>
</tbody>
</table>

Out of 374 study participants, 225 (60.2%) were low health risk due to their nutritional status, 76 (20.3 %) were moderate risk, 73 (19.5 %) were high risk due to their own dietary pattern of under graduate allied health science students of JNMC.

Table 3 Distribution of study, participants on the basis of healthy eating behaviour

<table>
<thead>
<tr>
<th>Healthiest eating behaviour</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking two glasses of milk/eating two cups of curd every day</td>
<td>184 (49.2)</td>
</tr>
<tr>
<td>Preferring cooked vegetables to uncooked vegetables</td>
<td>134 (35.8)</td>
</tr>
<tr>
<td>When you eat snacks, preferring, fruit/fruit juice/biscuits and crackers</td>
<td>56 (15)</td>
</tr>
<tr>
<td>Total</td>
<td>374 (100)</td>
</tr>
</tbody>
</table>

According to the study participants 184 (49.2%) told drinking two glasses of milk/eating two cups of curd every day, 134 (35.80%) told preferring cooked vegetables to uncooked vegetables and 56 (15%) told when you eat snacks, preferring, fruit/fruit juice/biscuits and crackers when asked about the healthiest eating behaviour.

Table 4 Distribution of study, participants on the basis of knowledge on the foods containing dietary fiber

<table>
<thead>
<tr>
<th>Do not contain dietary fiber</th>
<th>Percentage (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leafy vegetable</td>
<td>20.9 (78)</td>
</tr>
<tr>
<td>Beans</td>
<td>11.8 (44)</td>
</tr>
<tr>
<td>Fruits</td>
<td>19.8 (74)</td>
</tr>
<tr>
<td>Meat</td>
<td>47.6 (178)</td>
</tr>
<tr>
<td>Total</td>
<td>100 (374)</td>
</tr>
</tbody>
</table>

Table no.4 shows the study participants, 48% told meat, 21% told leafy vegetable, 12 % told beans and 20% told fruits when asked which food items which don’t contain dietary fiber

Table 5 Association between Knowledge level with Gender of the study participation

<table>
<thead>
<tr>
<th>Knowledge level</th>
<th>Gender</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Male</td>
<td>123</td>
</tr>
<tr>
<td>Very Good</td>
<td>Male</td>
<td>74</td>
</tr>
<tr>
<td>Excellent</td>
<td>Male</td>
<td>5</td>
</tr>
</tbody>
</table>
Mr. Ajay K. Yadav, Dr. Shivaswamy M.S and Dr. Mubashir A., Bmi, Nutritional Knowledge, Food Habits and Eating Behaviour of Under-Graduate Allied Health Science Students

Table no.5 shows the study participants, out of 202 male 53 % (123) had good knowledge, 57 % (74) had very good knowledge and 84 % (5) had excellent knowledge about nutritional. Out of 172 female participants, 48 % (113) had good knowledge, 57 % (74) had very good knowledge and one 17 % had excellent knowledge about nutritional.

Table 6 association between nutrition knowledge level and Age group of study participants

<table>
<thead>
<tr>
<th>Knowledge level</th>
<th>Age group years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(18-20) year</td>
<td>(20-25) year</td>
</tr>
<tr>
<td>Good knowledge (&lt;=40)</td>
<td>97</td>
<td>137</td>
</tr>
<tr>
<td>Very Good knowledge (41-60)</td>
<td>41.10%</td>
<td>58.10%</td>
</tr>
<tr>
<td>Excellent (&gt;61)</td>
<td>33.30%</td>
<td>66.70%</td>
</tr>
<tr>
<td>Total</td>
<td>39.80%</td>
<td>58.60%</td>
</tr>
</tbody>
</table>

Graph 2 Distribution of study participants on the basis of frequency of doing physical activity.

Graph No.2 shows, Half of 176 (47.10%) the study participants were usually sometimes practice a physical activity, 65 (17.4%) were always during the entire year, 92 (24.6%) were doing only in some seasons, 41 (11%) were never practiced any physical activity.

Graph 3 Distribution of study, participants on the basis of knowledge on healthy diet

Graph No.3 shows, according to the study participants 34 % (125) told a diet rich in different foods, 35.80 % (134) told foods rich in protein, 29 % (106) told a diet without any fats and 3 % told eating fish very often as the healthy diet.

Graph 4 Distribution of study participants, on the basis of frequency of eating breakfast

Graph No.1: Revealed that out of total 374 participants, 16 % (59) study participants were underweight, 61 % (225) were normal weight, 24 % (90) were overweight and obese.
Graph No.4 shows Out of 374 participants; 69 % used to eat breakfast always, 21% used to eat breakfast sometimes and 11% of the participants used to eat breakfast often.

Graph No.5 Distribution of study participants by the type of food they take in breakfast.

Graph No.5 shows the Majority (74.1%) of the study participants used to eat in breakfast Biscuits/cakes/crackers/breakfast cereals / bread, 19.5% used to eat fruits and 6.4% used to eat in breakfast potato chips/noodles.

Graph No.6 shows, Out of 374 participants only 38% used to consume sweets and cakes 1-2 times, 17% used to consume 3-4 times, 3 % used to consume one time every day, 6 % consumed more than 1 time, 2 % consumed daily, 21 % were eat one time in 10-15 days consumed and 16 % of the participants rarely consumed sweets and cakes in one week.

Dietary Intake

Majority 71% of the participants used to consume fruits and vegetables every day and only 30% participants did not consume fruits and vegetables every day.

Out of 374 study participants, 42 % ate 1-2 times fast food in once week, 12 % ate more than 2 times, 21% ate once time in 10-15 days, 26% never ate a fast food at least once a week. And out of 374, 50% of the participants did not eat a pizza every week, 30% ate a pizza once in 10-15 days, 12.80% ate only 1-2 times/week and 8% ate a pizza in once a week.

Most of the participants 54% drank Tea/coffee, 37% drank Milk/milk and coffee/tea/curd, 7% drank fruit juice and out of 3 % drank coca cola with at breakfast.

Majority 46% (171) of the study participants used to eat vegetables always, 24% (89) ate often, 27% (102) ate vegetable sometimes and3% (12) rarely used to eat vegetables at least 2 portions (200g) of vegetables every day.

Majority 84% (314) of the study participants used to eat always, 8% (31) used to eat often, 7.8% (29) were eat breakfast, lunch and dinner every day.

Out of 374 participants; 64 % had low knowledge, 36 % had good knowledge and 2 % had very good knowledge about the nutrition.

DISCUSSION

Objective of the study was to assess the Food Habits, Eating Behaviour and Nutritional Knowledge and to assess the Anthropometry Measurement – Height, Weight, BMI and Waist and Hip Circumference of allied health science students. Present study discussed the main theme in the light of the existing literature. It was organized under eleven sections. They are: Sociodemographic Data, Information on Risk Factors, Food Frequency Consumption, Food Habits, Physical Activity and Lifestyle, Healthy and Unhealthy Dietary Habits and Food, Self-Efficacy, Barriers to change, Nutrition Knowledge, Knowledge on Food Safety, Food Safety and Behaviour in Hygiene Practices.

Sociodemographic Data

Age

In the present study, majority 74 % (148) of them were in age group of 20-25 years, 25 % (50) students were in age group of 18-20 years and 2% (4) students were in age group of 25-30 years. Majority of the participants were under 20-25 years because of the study was conducted under graduate students. Similar study conducted in Southern China in 2013, total sample size was 2617, found that 40% belonged to age of 14 years, 32 % belonged to age of 13 years, 17 % belonged to age of 12 years, 11% belonged to age of 15 years and only 1 % belonged to age 16 years. [3]

The age group between 20-25 years had a high prevalence of obesity.

Type of family

The present study shows that majority of the participants 73% were in nuclear family followed by 27% in joint family. A study conducted in Pune in 2014, total of sample size 159, revealed that 80 % of participants were in nuclear family and 21% were in joint family. [6]

Most of the participants were living with nuclear family. Similar study which was conducted in Pune in 2014 showed BMI prevalence to be 22% in Joint family and 22% in Nuclear family. [6]
**Anthropometric Measurements**

In the present study, BMI of participants, 15.77% (59) study participants were underweight, 60.16% (225) were normal weight, 24% (90) were overweight and obese.

Similar, a study was conducted in Islamabad Medical and Dental college from March to 1st June in 2014 with 149 participants. Out of 149 study participants, 59% students had a normal BMI. [9]

**Frequency of Dietary history of the students**

Out of 49 vegetarian participants, 24 % (14) were underweight, 14 % (31) were normal weigh, 5% (4) were overweight. Out of 53 non vegetarian participants 17% (10) were underweight, 15% (32) were normal weight, 13% (11) were overweight. Out of 272 mixed diet participants 50% (35) were underweight, 72% (162) were normal weight, 84% (75) were overweight and obesity.

Similarly, a study was conducted in Guntur in 2017 with 195 participants, out of 5 were vegetarian participants, 100% were normal weight, and out of 63 mixed participants, 6.3% were overweight, 79.4% were normal weight and 14.3% were overweight and obesity. [7]

**Eating junk food at breakfast**

In the present study, 374 participants, 277 were eating biscuits/ cake/ crackers/breakfast cereals/bread, among them 16% were normal weight, 61% were overweight, 24% were underweight and obese. 73 study participants were eating fruits, among them 15% were normal weight, 59% were overweight, 25% were underweight and 2% were obese. 24 study participants were eating potato chips/noodles, among them 58% were normal weight, 21% were overweight, and 21% were underweight.

Similar study conducted in Saudi Arabia in 2014, among 276 female university students, showed that prevalence of overweight was 6.5% among participants who were eating junk food sometimes. Prevalence of obesity was 0.5% among who ate junk food always, and 3.3% among who were eating sometimes. [10]

**Eating sweet/beverage**

In the present study prevalence of overweight was 24%. Among them 33% had fruit juice and milk shakes, 54% were eating biscuits/Crackers/Bread/Bikajibhujia, 5% were eating fried potatoes/popcorn/crape/peanuts/soft drinks and 9% consumed sweet/beverage.

**Association between BMI and Physical activities**

In the present study 60.16% were normal in weight, among them 11.6% never involved in sports activity, 47.6% involved in sports sometimes, 22.7% involved only in some seasons, 18.2% always participants during the entire years. Prevalence of overweight was 23%, among them 10.2% never involved in sports activity, 40% sometimes involved in Physical activities, 35.2% involved only in some seasons and 15% always involved in sports activities. The prevalence of obesity was 0.53%, among them 50% always during the entire in year involved in sports activities, 50% seasons involved.

Similar study conducted in Pune in 2014 with 159 participants showed that statistically significant association between decreased physical activity and overweight and obesity. And 52.20% had adequate activity and 47.79% had inadequate physical activity. [11]

**CONCLUSION**

Unhealthy food habits and eating behaviour exists among the youth. They are mostly over weight and do not have the right nutritional knowledge to prevent diseases related to nutritional disorders in future.

**Recommendations**

Universities/Colleges can consider the restriction to access to junk/fast food and sweets/beverages served in the hostel mess / kitchens / canteens in their campus and encourage healthy food items.

Universities should create wellness clusters in colleges, where counselling should be done regarding proper nutrition, proper exercise and healthy habits and also regarding the money they can save by avoiding junk food and investing healthy life style. The anthropometric data of college should be collected students at periodic intervals, which can reveal changing trends in Junk food consumption and BMI.

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