Nutritional Status among Majmaah University Female Students, Majmaah City, 2017 Saudi Arabia

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ABSTRACT

Introduction: Nutritional habits and life style playing a major role in our life and health. That associated with increase the prevalence of obesity and overweight around the world. In 2014, more than 1.9 billion adults, 18 years and older, were overweight. The aim of this study was to assess the nutritional status among female students of Majmaah University at 2017.

Methodology: This was a cross-sectional study done by using self-administered questionnaire followed by measuring body mass index (BMI) for female students of Majmaah University, Kingdom of Saudi Arabia, according to body mass index (BMI), food habits and lifestyle.

Results: Majority of student (70.6%) were healthy weight, while (13.9%) of them were overweight, (9.9%) underweight and (5.6%) of them were obese. Majority of student were consuming carbs mostly (71%). (61.9%) were drinking soda and (90.5%) admitted eating fast foods. Exercise done by 52.7% of the Preparatory year student, 46.3% of medical student, 50.0% of applied science student, 72.2% of computer and information technology student and 41.2% of Business administration student.

Conclusion: The majority of female were healthy weigh, overweight, underweight, Obese, respectively. More than half of female students regularly do exercise, Almost all of students consumed fast food, Soda dirking was also high.

Keywords: Obesity, Female Students, Majmaah University.

INTRODUCTION

Nutrition affects our life before we were born and will affect it until we die. Nutrition is both a physical and a behavioral science; it is defined by Council on Food and Nutrition of the American Medical Association, as follows: nutrition is the science of food, nutrients and the substances there in, with their associated body process in relation to health and disease.[1]

Every day we make food choices that may affect our health for better or worse. If beneficial choices are made, these may decrease the chances of getting various diseases including chronic diseases like cancer and heart disease. As well as play an important role in obtaining and maintaining good health.[1] Our choice of food can affected by many factors, including, cultural (family, caregivers), religious, ethical, convenience, social, and psychological. Economic and convenience factors are usually major influences for those who study in colleges.[1] The affect of these factor it will lead to adequate nutritional state or malnutrition. Excesses or imbalances in a person's intake of energy and/or nutrients that will lead to malnutrition.[2]

Malnutrition affects people in every country. In 2014, more than 1.9 billion adults, 18 years and older, were overweight. Of these over 600 million were obese. 39% of adults aged 18 years and over were overweight in 2014, and 13% were obese. Most of the world's population lives in countries where overweight and obesity kills more people than underweight.[3]

In the Arab Gulf countries; there has been a drastic change in food consumption patterns which involve the amount and type of diet. Scientists showed that even the structure of diet has shifted towards a high-energy diet with more fat and sugar added in foods, and lower intake of complex carbohydrates, dietary fiber, fruit, and vegetables.[4]

In 2005, Obesity and overweight are increasing in KSA with an overall obesity prevalence of 35.5%.[5] due to the economic and social transformations over the past few decades; that had been accompanied by change of dietary habits. College students are highly exposed to unhealthy eating habits leading to body weight gain.[6]

A common anthropometric indicator to measure adult malnutrition is body mass index (BMI) (excluding pregnant women and adults with edema).

BMI is calculated by dividing a person's weight in kilograms by their height in meters squared (kg/m2).[7] This value is compared to reference values that can gauge whether a person is healthy or malnourished.[8] The World Health Organization (WHO) gave the following

Classifications of BMI:
<18.50 is considered Underweight,
18.50 - 24.99 Normal range,
≥25.00 Overweight,
≥30.00 Obese.[9]

Increased mortality and substantial morbidity are associated with obesity due to its impact on type 2 diabetes, cardiovascular, gastrointestinal, osteoarticular and reproductive disease and certain cancers. It is the single most important risk factor for type 2 diabetes. Obesity and its consequences represent a major unmet need for improved therapies and prevention strategies.[10] According to WHO, obesity is generally more common among women than men.[9] Also, underweight is no less complication than overweight and obesity. It makes the body more prone to infection due to comprised immune system, low muscle mass, osteoporosis, reduced cognitive function, anemia, and delay wound healing.[11]

There was no study found in our literature search regarding obesity, overweight and underweight prevalence among female students in Majmaah University. Therefore, the aim of the current work is to assess underweight, overweight and obesity rates among female students in Majmaah University and to correlate their body weight status and composition with their eating habits.

METHODOLOGY

Study Design: Descriptive, cross-sectional study to assess the nutritional status among female students of Majmaah University, 2017

Study Area: Majmaah University established in 2009 which located in Saudi Arabia in Majmaah state. It consists of collage of medicine, collage of applied science, collage of education, collage of information and computer science and collage of business addition to students of preparatory year.

Majmaah city is located in Majmaah province which is located in Al Riyadh area, had an area of 30,000 square kilometers 45,000 population. Majmaah City was in a geographical point gave it the strategically location where Alzulfi province is to the north, Hafrelbatin to the east and Shegraah to the west, and the schools in Al Majmaah area are 269 including primary, intermediate and secondary schools. 127 for boys and 142 for girls. Students' numbers in primary schools are 6686 boys and 6451 girls.

Study Population: The sample frame of this study was the whole female students in Al Majmaah University which are the faculty of preparatory year, faculty of medicine, faculty of applied science and faculty of computer and information science. Through multi-stage systemic sampling and the sample size was calculated to be 246 students.

Sample technique Majmaah students as a whole were the sample frame, colleges were listed and 50% of them were selected. Batches from 1 to 4 in each college were listed and selected and from each batch students were selected randomly.

Inclusion Criteria: 18-24 years old female student in Majmaah University
Exclusion Criteria: Visitors and employees.
Data Collection Methods and Tools: Pre-tested, pre-coded, questionnaire was used to collect data. The questionnaire was contained socio demographic data and data on dietary habits and exercise. The questionnaire was filled by the data collector and the informers were the children.
Measurement of Weight and Height: Measurement of weight and height were conducted to calculate the Body Mass Index (BMI). Relevant details were recorded on specially prepared forms. Height was recorded using a measuring tape, with individuals standing and without shoes. Each individual was asked to stand straight next to the wall. The head was kept erect and the height was measured to the nearest 0.1 cm. Weight was recorded on a measuring scale calibrated daily at the beginning of each working day. The weight was recorded by taking two successive readings to the nearest 100 g, when individuals were wearing light clothes and are bare footed. The height and weight data were used to calculate the quetelet index or the BMI using the formula: Weight (kg)/height^2 (m^2). The data collection teams were trained in detailed on how to use the questionnaire including practical training on how to fill the questionnaire, how to ask the questions and keep it in the study objectives track. And the team from registration department were trained on the methodology of sampling selection of the respondents .Teams were also trained on how to measure the weight and height. Data was analyzed by computerized method Statistical Package for the Social Sciences (SPSS) version.

Ethical Considerations
Informed consent was obtained from all students who are enrolled in the study. There was no physical, emotional or mental harm to the participants. Confidentiality, respect and dignity were maintained throughout the research process. A letter was taken from the college.

Table 1: Information of students in Majmaah University N=252

College (program)	n	%
Preparatory	112	44.4
Medicine	41	16.3
Applied medical sciences	64	25.4
Computer and information technology	18	7.1
Business administration	17	6.7
Age group	**n**	**%**
18-20 years old	164	65.1
21-23 years old	86	34.1
24 and above	2	0.8

Table 2: Prevalence of body mass index (BMI) among Majmaah University students, Majmah, 2017; N=252

Body mass index	n	%
Under weight	25	9.9
Healthy weight	178	70.6
Overweight	35	13.9
Obese	14	5.6
Total	252	100.0

Table 3: Life style of students in Majmaah University (N=252)

Number of meals per day	n	%
3-4	187	74.2
5-6	50	19.8
7 or more	15	6.0
Dominant item taken	**n**	**%**
Meat	45	17.9
Vegetables and fruit	26	10.3
Carbohydrate	179	71.0
All	2	.8
Meat	45	17.9
Eating fast food	**n**	**%**
Yes	156	61.9
Soda drinking	**n**	**%**
Yes	228	90.5
Exercise	**n**	**%**
Yes	130	51.6

RESULTS

270 questionnaires were distributed to the student of Majmaah University, and 252 questionnaires were collected and entered from 5 colleges. The great majority of students, 112 (44.4%) from preparatory year, while 41 (16.3%) from medical college, 64 (25.4%) from applied medical sciences, 18 (7.1%) from computer and information technology, and 17(6.7%) business administration ,164 (65.1 %) students were of age between 18-20 years old, while 86 (34.1 %) between 21-23 years old, and only 2 (8%) students had 24 years old and above (Table 1).

The percentage of students in each BMI category calculated from measured height and weight is shown the most of students were healthy weight 178 (70.6%), while 35 (13.9%) of students were overweight, 25(9.9%) of students were under weight and 14 (5.6%) of students were obese (Table 2).

The majority of students were eating 3-4 meals per day 187 (74.2), while 50 (19%) were eating 5-6 meals per day and 15 (6%) of students were eating 7 or more meals per day. Most of students were eating carbohydrate 179(71%), while 26 (10.3%) of those students eating vegetables and fruit, 45 (17.9%) student eating meat and only 2 (8%) of students were eating all. Most of student 156 (61.9%) were drinking soda. In contrast 96 (38.1) of students were not drink soda. Physical exercise was done regularly in 130 (51%) of the students and 122 (48%) were not do exercise. The majority of the students 228 (90.5%) admitted eating fast foods, and 24 (9.5%) were not eating fast foods (Table 3).Association between number of meals and obesity, when number of meals is 3-4 obesity is 3.8%,meals 5-6 obesity is 8.0% and when meals are 7 and more obesity is 20.0% (Table 4).

Table 4: Association between the body mass index and number of meals per day by Majmaah University students, Majmaah, 2017; N=252

Body mass index	Number of meals per day			Total	Pearson Chi-Square
	3-4 meals per day	5-6 meals per day	7 or more		
Under weight	19	5	1	25	
	10.2%	10.0%	6.7%	9.9%	0.124
Healthy weight	131	37	10	178	
	70.1%	74.0%	66.7%	70.6%	
Over weight	30	4	1	35	
	16.0%	8.0%	6.7%	13.9%	
Obese	3	4	7	14	
	3.7%	8.0%	20.0%	5.6%	

DISCUSSION

Due to the economic and social transformations in Saudi Arabia and the middle east over the past years that had been accompanied by change of nutritional habits. College students are most likely to be affected by these transformations especially in eating habits.[6] The present study is conducted in Majmaah University among female student, to provide data on the prevalence of obesity, overweight and underweight and to determine common food habits, risk factors affecting nutritional status, and the relation between nutritional status and socioeconomic status. Regarding to weight classification, the current study revealed that 70.6% of the students fell in the normal weight, compared to the combined prevalence of overweight and obesity was 19.5%, and underweight was 5.6% among the 252 participants. The result of weight classification were consistent with the finding of other study that conducted by Jafar m. El-qudah, et al. In tabuk[13] who identified that most of the students fell in the normal category (BMI 18.5-24.9). There was an association between body mass index and specialty. Here it shown that the majority of the student who had obesity are the computer and information technology student, were (22.2%) and the least were the medical student, were (2.4%).so this study show studying under stress is not in associate with obesity . This finding is not in agreement with a study conducted in khartoum.[12] In which it was found that studying under stressful conditions is associated with obesity. The study also showing that most of students consume fast food 90.5% however that is much higher than the Tabuk study[13] where 58% of the students consume fast foods.

In this study the body mass index of student does not increase with number of meal per day. However, there were no statistically significant association between the BMI groups and number of meals per day. Concerning the dominant item taken per day among those students, it shows that there is no significant association between increase in the BMI and dominant item taken per day. But the importance of eating balanced food was not awared by the students. In this study it show that only (8%) of students were eating all balanced food.

In study, the exercise and physical activity were noticeable. Approximately half of the students in each collage were doing exercise. But there was no significant effect of the specialty and their physical activity.

This finding include the medical college were 46.3%. So there was not in agreement with a review conducted in Dammam.[14] In which it was found that the majority of medical students had poor physical activity.

Soda drinking among the student in this study showed that there was significant association was observed between the specialty and soda drinking. The majority of the student who drink the soda were from computer and information technology were (77.8%) and more than half of medical and business administration students were not drinking soda.

CONCLUSION

The majority of female students in Majmaah University were healthy weighted and the highest percentage of obesity was found in Computer and information technology students.

Regarding to life style, the study showed that more than half of female student regularly do exercise, fast food consumption has been reported as more than 90% of the female students consume fast foods and soda dirking was also high, the main type of items taken by students were carbohydrates while the less item were fruit and vegetables.

Seminars about the importance of having more healthy food and less of the unhealthy one were done. Also encouragement campaign to keep doing exercise was done also.

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