Original Article

Determinants of Overweight among Young Adults in Jordan

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ABSTRACT

Objectives

To determine the contribution of selected demographic characteristics and dietary practices in relationship to overweight and obesity in Jordanian young adults.

Subjects and Methods

This cross sectional was conducted during spring 2008 and a total of 278 university students participated in the study. Data were collected using a questionnaire which was based on a national dietary survey developed by the Health and Labor Ministry of Japan.

Results

About 76.2% (n=212) of the students' weight was within a normal range, 11.9% (n=33) were underweight and 11.9% (n=30) were excess weight. There was a statistically significant difference between males and females (p<0.05). 69.8% students reported eating meals on a regular basis; and it was significantly associated

with female (p<0.05). There was statistically significant association between excess weight and gender, daily meals except light meals, weakly eating fried food, weakly eating with family and tried to be on a diet.

Conclusion

Nearly 12% participants were overweight or obese. There is an urgent need to educate university students about optimum nutrition and eating habits in order to promote healthy lifestyles. (Rawal Med J 2010;35:).

Keywords

College students, diet, overweight, obesity.

INTRODUCTION

Nutrition is one of the well known factors that affect health of populations across all age groups.[1] Chronic diseases such as diabetes, hypertension, and elevated triglycerides are linked to overweight.[2,3] Additionally, overweight is associated with a sedentary lifestyle.[4] Approximately 24% of college students are overweight or obese[5] and some studies report even higher rates of obesity.[6] Variations in obesity exist by gender, as female students desire to be thinner than males in general and thus, watch out for their weight.[7-9] Young adulthood is a critical time when health habits get established; thus it is important to identify the existing nutritional status to be able to guide the future direction of interventions.

Food consumption has changed over the past decade in Arabic countries and Jordan is witnessing similar trends.[9] The transition in food consumption can be attributed to the growing number of fast food restaurants and their competition to

attract customers. Most of the customers of the fast food restaurants are university students or young adults. Overweight is prevalent among children and older adults in Jordan.[10-12] However, little is known about young adults in Jordan. The purpose of this study was to determine selected demographic characteristics and dietary practices in relationship to overweight in Jordanian young adults.

SUBJECTS AND METHODS

This cross sectional study was carried out during spring 2008 at a major public university in Jordan and a total number of 280 students participated in it. The required sample size was calculated based on expected of overweight or obesity.[5,13] The only inclusion criterion was age 18-24 years. Data were collected using a 16 item self-reported questionnaire consisting of the following categories: eating habits (9 items); nutritional knowledge (2 items), dieting (4 items) (trying to lose weight), and on smoking status (1 item). Height and weight were used to calculate Body Mass Index (BMI) in kg/m^2. The WHO definition of overweight as BMI of 25-29.9 kg/m^2 and obesity as a BMI of 30 or greater was used.[14] For purpose of this study, overweight and obesity were combined and called excess weight.

The questionnaire was adapted to suite the Arabic culture and language from a national dietary survey by the Health and Labor Ministry of Japan and was modified on three items on diet.[15] The survey aimed to monitor the dietarys intake for prevention of diet-related chronic diseases and health promotion.[16] Since Arabic is the official language in Jordan the survey was translated into Arabic and

a translation and back translation protocol was observed.[17] Content validity was established by experts who are familiar with the subject area. Copies of the instrument were sent to an expert panel of five professionals (nutritionists, researchers with expertise in instrumentation) for content validity. The questionnaire was pilot tested with 80 students before the actual data collection took place, and no modifications were needed.

Statistical Analysis and ethical considerations: The SPSS program version 13 was used for statistical analysis. The questionnaires were analyzed using descriptive and inferential statistics including means, standard deviations (sd), Chi-square test was used to evaluate the association between eating habits and gender. Student's t test was used to analyze the differences between males and females by age and BMI. Multivariate analysis using binary logistic regression was used to determine the risk factors associated with excess weight. Excess versus normal weight was used as the dependent outcome variable. Students who were underweight were excluded from analysis leaving a sample size of 245. All the independent variables were recoded into two categories. Of the total students, 245 were considered in the logistic regression. The results were considered statistically significant at $p < 0.05$.

Ethical approval to conduct the study was obtained from the Hashemite University. To ensure confidentiality, no personal identifying information was obtained and students were informed of the voluntary nature of the study.

RESULTS

Out of 278 respondents, 245 were included in the analysis. Most of the respondents were females (70.5%). Mean age was 20.05±1.06 years. The average BMI for males and females was 20.53 and 19.86 respectively. Approximately, 94% of smokers were males (Table 1). Approximately 76.2% (n=212) of the students were normal weight and 11.9% (n=33) excess weight. Comparisons were made between males and females on age and BMI, there was statistical significant difference (p<0.05).

Table 1. Sample Characteristics.

Variables	Male (n) %	Female (n) %
Age (mean ± sd)	20.53±1.25	19.86±0.91
Level of study		
First year	(15) 42.9	(20) 57.1
Second year	(10) 14.1	(61) 85.9
Third year	(24) 32.9	(49) 67.1
Fourth year	(28) 42.4	(38) 57.6
Smoking status		
Smokers	(33) 94.3	(2) 5.70
Not smokers	(44) 21.0	(166) 79.0
BMI		
Normal	(63) 29.7	(149) 70.3
Excess	(14) 42.4	(19) 57.6

Female students reported having meals on a regular basis (90.8%), having breakfast from 3-7 times a week (48.55), and having snacks daily (49%). Overall, students reported eating regularly a variety of vegetables (64.6%), fruits (58.6%), and meat (75.7%) (Table 2). Knowledge deficit was prevalent among male students. When asked "*What type of food do you think you should eat to have a*

balanced nutrition" male students responded only meat (16.7%) compared to

females (6.7).

Table 2. Responses to questionnaire.

Questions	Levels	Total	Male	Female
		n %	n %	n %
Do you take your meals regularly	Always	(52) 18.9	(21) 26.6	(31) 15.8
	Regular	(192) 69.8	(45) 57.0	(147) 75.0
	Irregular	(31) 11.3	(13) 16.5	(18) 9.2
Do you always take breakfast	Daily	(78) 28.2	(22) 27.2	(56) 28.6
	3 or 4 times per week	(56) 20.2	(21) 25.9	(35) 17.9
	1 or 2 times per week	(59) 21.3	(18) 22.2	(41) 20.9
	Rarely	(84) 30.3	(20) 24.7	(64) 32.7
How many times do you eat meals except snacks	1 Time	(51) 18.4	(13) 16.0	(38) 19.4
	2 times	(171) 61.7	(46) 56.8	(125) 63.8
	3 times	(46) 16.6	(16) 19.8)	(30) 15.3
	4 times	(9) 3.2	(6) 7.4	(3) 1.5
How often do you take snacks apart from regular meals	Daily	(132) 47.7	(36) 44.4	(96) 49
	3 or 4 times per week	(68) 24.5	(21) 25.9	(47) 24
	1 or 2 times per week	(51) 18.4	(11) 13.6	(40) 20.4
	Rarely	(26) 9.4	(13) 16	(13) 6.6
How often do you eat green, red or yellow colored vegetables	Daily	(68) 24.5	(14) 17.3	(56) 27.6
	3 or 4 times per week	(111) 40.1	(31) 38.3	(80) 40.8
	1 or 2 times per week	(65) 23.5	(24) 29.6	(41) 20.9
	Rarely	(33) 11.9	(12) 14.8	(21) 10.7
How often do you eat fruits	Daily	(50) 18.1	(12) 14.8	(38) 19.4
	3 or 4 times per week	(112) 40.4	(28) 34.6	(84) 42.9
	1 or 2 times per week	(78) 28.2	(23) 28.4	(55) 28.1
	Rarely	(37) 13.3	(18) 22.2	(19) 9.7
How often do you eat	Daily	(38) 13.9	(14) 17.9	(24) 12.3

fried food	3 or 4 times per week	(85) 31.1	(27) 34.6	(58) 29.7
	Once or twice per week	(110) 40.3	(29) 37.2	(81) 41.5
	Rarely	(40) 14.7	(8) 10.3	(32) 16.4
What type of food do you think you should eat to have a balanced nutrition	Mainly meat	(26) 9.6	(13) 16.7	(13) 6.7
	Mainly vegetable	(30) 11	(7) 9.0	(23) 11.9
	meat, vegetable and other variety of food	(206) 75.7	(54) 69.2	(152) 78.4
	others	(10) 3.7	(4) 5.1	(6) 3.1
Do you consider you should change your dietary habits	Yes	(144) 52.7	(39) 50.0	(105) 53.8
	No	(63) 23.1	(21) 26.9	(42) 21.5
	I do not care	(66) 24.2	(18) 23.1	(48) 24.6
In general, how conscious you are of the dietary habits	I want to learn more	(182) 66.9	(44) 57.1	(138) 70.8
	I want to learn in the future	(43) 15.8	(16) 20.8	(27) 13.8
	I am not interested in but better to learn	(36) 13.2	(11) 14.3	(25) 12.8
	No interest at all	(11) 4.0	(6) 7.8	(5) 2.6
Do you want to be slim to be beautiful	Yes	84 (30.8)	22 (28.2)	62 (31.8)
	No	189 (69.2)	56 (71.8)	133 (68.2)
Have you tried to be on a diet	Yes	(91) 33.8	(17) 22.1	(74) 38.5
	No	(178) 66.2	(60) 77.9	(118) 61.5

More female students' thought that a balanced meal included vegetables, meats, and other food groups (78.4%) compared to male students (69.2%). Moreover, female students expressed the need to learn more about healthy dietary practices (70.8%) compared to male students (57.1%). A difference was also noted for

dieting between female students (38.5%) and males students (22.1%). Of the

students who liked to be slim, 72.9% were females.

Table 3. Multivariate analysis of factors associated with excess weight.

Variable	OR	Lower 95CI%	Upper 95CI%	p
Age	1.49	0.84	2.65	0.172
Gender Male Female	0.22	0.06	0.81	0.023
Eating regular meals No Yes	0.39	0.10	1.49	0.167
Eating breakfast meals 2 or less weekly 3 or more weekly	1.75	0.65	4.70	0.260
Daily meals except light meals One daily 2 or more	4.99	1.28	19.36	0.020
Weekly light meals Every day Not every day	1.16	0.45	2.99	0.752
Weekly eating color vegetables Every day Not every day	0.51	0.18	1.44	0.206
Weekly eating fruit Every day Not every day	0.97	0.39	2.44	0.962
Weekly eating fried Every day Not every day	3.10	1.13	8.48	0.027
Weekly eating with family Every day Not every day	6.42	2.19	18.82	0.001
Smoking not smoking smoking	0.53	0.12	2.36	0.412
Want to be slim Yes No	1.28	0.45	3.62	0.640
Tried to be on a diet Yes No	0.12	0.04	0.34	0.00
Years of study Year1				

Year2	5.85	0.95	35.82	0.056
Year3	3.33	0.66	16.71	0.143
Year4	1.25	0.23	6.79	0.789
Constant	0.00			0.458

Table 3 shows the factors that were found to be significantly associated with excess weight in the multivariate analysis. Female students (OR=0.22), 95% CI 0.06, 0.81) were protected from excess weight compared with male students. Students having daily meals during the week (OR=4.99, 95% CI 1.28, 19.36) were more likely to be of excess weight compared to those who did not have daily meals. Eating daily fried food (OR=3.10, 95% CI 1.13, 8.48) was a risk factor for excess weight. Student who did not eat daily meals with family and friends (OR=6.42, 95% CI 2.19, 18.82) were more likely to have excess weight. Also, the analysis showed that not trying to be on a diet (OR=0.12, 95% CI 0.04, 0.34) was less likely to be predictive of excess weight.

DISCUSSION

The key findings of this study were that BMI above normal was prevalent in male students who had nutritional knowledge deficit, ate unhealthy meals, and reported irregular dietary practices. Almost all of the smokers were males. These trends were consistent with studies conducted in Japan, Korea, and in Spain[8,16,18] but are different than reported by a study from Lebanon.[9] Moreover, this was considered lower than compared to industrial countries such as the United States where the obesity rate is 35 %.[6] This study also showed that excess weight was lower in

Jordanian college students than in medical students reported from United Arab Emirates.[5]

More healthy dietary practices were noted in female students compared to male students. The reported practices were: eating meals on a regular basis, and eating a variety of foods especially vegetables. Engagement in regular eating patterns could indicate that students' had adequate knowledge of appropriate nutrition.[19] On the other hand, skipping meals or not having them on regular basis may increase the risk for obesity[20] and cardiovascular disease.[21]

Male gender, being on a diet and eating meals with family and friend were statistically significant predictors of excess weight. The encouraging findings were that many of the students weight was within normal range, and they were well acquainted with what constituted a healthy diet, ate a variety of foods, and ate meals on a regular basis. The study showed that females were more protected from excess weight and this may reflect that females are more willing than males to monitor their weight, as most of the students who liked to be slim were females. This study had several limitations. First, the sample used in this study was a convenience sample and thus findings need to be interpreted with caution. Second, the questionnaire designed for a Japanese population may not have been optimum for an Arabic sample. Third, most of the students attending the Hashemite University come from low to middle socio-economic communities. Fourth, self reported weight is likely to be an underestimation in the overweight and an overestimation in the underweight sample.

Conclusion

We found 11.9% students from Jordanian University were over weight. There is

an urgent need to educate these students about optimum nutrition and eating

habits in order to promote healthy lifestyles.

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