Obesity Prevalence and Related Factors among Medical Students in Kayseri

ORIGINAL INVESTIGATION

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ABSTRACT

Objective: The present study aimed at investigating obesity prevalence and related factors in medical students in Kayseri.

Materials and Methods: A total of 849 medical students were recruited in this cross-sectional study. Data were collected using a questionnaire form. Body weight, height, and waist and hip circumferences were measured. Statistical data analysis was performed with chi-square test and logistic regression analysis.

Results: Of the 849 students, 52.8% were males and mean age was 21.37±1.95 years. More than half of them (64.7%) ate three meals a day, while 78.9% skipped meals; 22.4% ate fast food for more than two times a week, 36.9% consumed soft drinks everyday, and 35.3% had a habit of eating at night. Prevalence of overweight, obesity, and central obesity was 22.9% (31.3% males and 13.5% females), 2.5% (4.0% males and 0.7% females) and 23.2% (37.5% males and 7.2% females), respectively, the values being significantly higher in males than in females. For obesity, being male, age ≥22 years, living in a dormitory, not eating fruits and vegetables everyday were determined to be risk factors; and for central obesity, being male, age ≥22 years, not eating fruits and vegetables everyday and eating fast food for more than two times a week were determined to be risk factors.

Conclusion: Turkish medical students have unhealthy nutritional habits. Male students are at higher risk for obesity and central obesity than are female students. The consciousness of being an example to the community in terms of health and nutrition should be constituted in medical students.

Keywords: Medical students, obesity prevalence, central obesity, eating habits

INTRODUCTION

Prevalence of obesity is gradually increasing in Turkey like in the rest of the world (1). It was determined that in adult Turkish population, 44.2% women and 27.3% men were obese and mean increment rate in the last decade was 40% (2). Obesity prevalence in Turkey was 30.3%, according to the preliminary report of Turkey Nutrition and Health Research, 2010. When added the prevalence of central obesity to this ratio, it seems that more than two thirds of adult population have an obesity problem, with the total prevalence of overweight and obesity being 64.9% (3). Changes in traditional nutritional habits of the Turkish population have been recently seen, and fast food consumption continues to increase. Reduction in physical activities leads to increase in prevalence of noncommunicable diseases related to overweight and obesity. Obesity is the most important underlying reason of preventable diseases and death (3). The last report of RAND (Research and Development) organization indicates that obesity is more damaging to health rather than is smoking, over consumption of alcohol, and poverty (4).

Universities and particularly medical students have important roles in developing a healthy lifestyle and promoting nutrition education in the community. Physicians have two different roles in the fight against obesity. The first is helping patients for obesity-related health problems by the treatment of it. The second is being examples to patients by having a healthy body weight and healthy lifestyle habits (5, 6). In the "National Core Education Program" prepared for medical schools in Turkey in 2001, it was decided to include topics of obesity, malnutrition, and nutrition support (7). There have been many studies conducted about level of knowledge about nutrition, nutritional habits, and obesity indicators in university students (8-13). However, studies in Turkey either recruited only students living at dormitories or conducted with a limited sample. There is little data on nutritional status of medical students (11-13).

The aim of this study was to determine obesity prevalence, level of nutritional knowledge, nutritional habits, and health attitudes among medical students at Erciyes University in Kayseri, Turkey.

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MATERIALS and METHODS

Study design and sampling

This cross-sectional, institution-based research consisted of 1522 medical students, all attending classes at Erciyes University (Kayseri, Turkey) during the 2012–2013 academic year. Sample size was calculated as 837, being 454 for males and 383 for females, based on the findings of Orak et al. (8) study, which was conducted on Suleyman Demirel University students (Isparta, Turkey) of whom 15.34% of male and 4.69% of female students had a BMI >25 kg/m^2 and based on α=0.05, power=90%. Sample to reach was determined by stratifying according to the classes and gender. By adding 5% to the determined size, a total of 879 students (476 male, 403 females) were planned to be recruited. Ethical approval from Erciyes University Ethical Committee was obtained (2013/218). Participants were assured of the confidentiality of their responses, and all students signed informed consent before their inclusion in the study.

Data collection

Data were collected with a questionnaire form including 48 questions about descriptive characteristics and nutritional habits and anthropometric measurements taken after verbal consent of students. Body weight, height, and waist (WC) and hip (HC) circumferences were measured. Height, WC, and HC were measured by a non-stretching tape. Height was measured to the nearest 1 mm with the person in a standing position, barefoot with Frankfort plane (eye triangle and upper ear pinna at the same level). WC was determined by measuring the waist diameter of the level of midpoint between iliac crest and lower border of the tenth rib. HC was measured horizontally around the largest diameter of the buttocks (14). Weight was measured to 0.1 kg using a standard beam balance using a Tefal Ultraslim (France). All the measurements were taken as the subjects were relaxed and in minimum clothing only. Body mass index, waist-to-hip ratio (WHpR), and waist-to-height ratio (WHtR) were calculated. Students with BMI <18.5 kg/m^2 were evaluated as underweight, 18.5–24.9 kg/m^2 as normal, 25.0–29.9 kg/m^2 as overweight, and ≥30.0 kg/m^2 as obese. A WHpR ≥0.9 for males and ≥0.85 for females was considered as central obesity (14). Ratio of reaching the sample size was 96.6% with 849 students.

Statistical analysis

Data were statistically analyzed with SPSS 15.0 (SPSS Inc., Chicago, IL) package program. Accordance of descriptive statistics for normal distribution was determined with Kolmogrov–Smirnov tests, and chi-square test was used for testing the differences between variables. Multiple logistic regression analysis was used for evaluating the relationship between nutritional habits and socio-demographic characteristics affecting obesity and central obesity. Odds ratio (OR) at 95% confidence interval (CI) for every model was calculated. P<0.05 was set as statistically significant.

RESULTS

Of the participating students, 52.8% were males and 47.1% were females, with mean age of 21.37±1.95 years. In addition, 42.8% lived with their family while 37.2% lived with their friends at home. The majority stated that economic status was good or moderate (98.0%) (Table 1).

The rate of obese and overweight students were 28.6%, while a high proportion of students (75.9%) expressed that they were on a weight loss diet (Table 2). Number of consumed meals was generally three or more (64.7%), whereas 78.9% skipped meals, the most being breakfast (64.9%); 93.4% ate snacks between meals; and 35.3% had a habit of eating at night. Further, 36.9% consumed soft drinks everyday and 57.2% drank tea and coffee with sugar. More than half of the students (58%) believed that they ate a healthy diet (Table 2).

The proportion of students smoking and consuming alcohol was very low, while that of not doing regular physical activity and that of using public transport were very high. Most students stated that they slept for 6–8 hours a day (Table 3).

Ratio of male and female students having a normal body weight (BMI <25 kg/m^2) was similar (60.9% and 58.4%, respectively), while the rate of overweight (31.3% vs. 13.5%) and obesity (4.0% vs. 0.7%) rates were higher in male students. The percentage of male and female students with WC <94 cm and <80 cm, respectively, was 75.2% and 81.0% (totally 78%), while that with WC >102 cm and >88 cm, respectively, was 7.8% and 4.5% (totally 6.2%) (p=0.064). The percentage of male students with WHpR ≥0.9 (37.5%) was higher than that of female students with a WHpR ≥0.85 (7.2%). Similarly, The percentage of males with WHtR >0.5 was higher than of females (37.1% vs. 11.0%, p<0.001) (Table 4).

Table 5 shows logistic regression analysis of several factors that affect obesity and central obesity (with 95% CI). Compared to female students, the risks of being obese and centrally obese of male students were 3.288-fold and 7.697-fold higher. Similarly, the risk of both obesity and central obesity increased in students >22 years compared to those <20 years (OR: 1.774 and OR: 1.629, respectively). Students living at dormitory had a 1.712-fold higher risk of being obese when compared with students who lived with their families (p<0.001).

Risk of obesity for students without a chronic disease was 1.893-fold higher than for those with a chronic disease. Obesity (OR: 1.777) and central obesity (OR: 1.780) risks of students who did not eat fresh fruits/vegetables daily were higher than who ate regularly (p<0.001). Another factor increasing central obesity risk is fast food consumption, which means that risk of being centrally obese in students who consumed fast food more than two times a week was higher than students who consumed rarely. The risk of obesity and central obesity of students who drank 1–2 L of water was also higher than students drinking less than 1 L of water (OR: 1.600 and OR: 1.820, respectively). The risk of being obese (2.36-fold) and centrally obese (2.26-fold) for students sleeping <6 hours a day was higher than for those sleeping 6–8 hours daily (p<0.001) (Table 5).

DISCUSSION

The present study aimed at determining nutritional habits, healthy lifestyle behaviors, and overweight and obesity prevalence rates among medical students in Kayseri. To the best of our knowledge and according to the literature review, there is no study on both obesity and nutritional habits in university students residing in this region. In the study by Mazıcıoğlu and Öztürk (12) conducted in 2003, obesity prevalence rate was not determined while their nu-

Table 1. Socio-demographic characteristics of the students

Characteristics	n (%)	Characteristics	n (%)
Age (year)*	21.37±1.95	Occupation of Mother	
Gender		Housewife	607 (71.5)
Male	448 (52.8)	Officer	192 (22.6)
Female	401 (47.2)	Other	50 (6.0)
Marital Status		Occupation of Father	
Single	838 (98.7)	Officer	411 (48.4)
Married	11 (1.3)	Laborer	78 (9.2)
Class		Farmer	35 (4.1)
1	150 (17.7)	Retired	126 (14.8)
2	164 (19.3)	Self-employment	122 (14.4)
3	183 (21.6)	Other	77 (9.1)
4	148 (17.4)	Economical Status**	
5	124 (14.6)	Good	395 (46.5)
6	80 (9.4)	Moderate	437 (51.5)
Education Status of Mother		Poor	17 (2.0)
Illiterate	55 (6.5)	Living Place	
Elementary–Secondary	363 (42.8)	At home with family	346 (40.8)
High School	220 (25.9)	At home with friends	318 (37.2)
College–University	211 (24.9)	At home alone	45 (5.3)
Education Status of Father		At dormitory	140 (16.5)
Illiterate	19 (2.2)		
Elementary-Secondary	190 (22.4)		
High School	186 (21.9)		
College–University	454 (53.5)		

*: Mean±SD
**: Based on students' statements

tritional habits were questioned. There are different results in the studies conducted on obesity prevalence and nutritional habits in university students in several regions of our country. The prevalence rate of overweight and obesity was 19% in male and 6.1% in female medical students in Garipağaoğlu et al. (11) study and 20% in Uludağ University medical students (gender distinction was not regarded) (13). In the present study, the prevalence rate of overweight and obesity was found to be higher (35.3% in male and14.2% in female students) than in other studies, which may result from nutritional habits in this region and physical activity level of the students. Generally, pastry with high content of carbohydrate, fat, and energy is eaten in high amounts, whereas fruit/vegetable consumption is very low in Middle Anatolia. Furthermore, only 13.3% students stated that they did regular exercise and 30.3% never exercised (Table 3). Another study has shown that the prevalence of central obesity, which is an important component of metabolic syndrome (MetS), was higher in people living in Middle Anatolia than in other regions (15).

A low prevalence of obesity in female students is an expected result because women usually take care of body weight more than men due to society's expectations. Pictures of movie actresses and

models shown in magazines and mass media contribute to setting the standards of women's body shape and image (16-18). A lower percentage of underweight students (3.8%) compared to female students (27.4%) in this study supports this information (Table 4). Similar rates of male obesity in university students were reported in other studies (8, 11).

High levels of WC, WHpR, and WHtR are of another concern in the present study. Obesity rate based on BMI (>25 kg/m^2, 25.3%) and WC (>94 cm, 24.8%) were similar to that based on WHpR (≥0.9, 37.5%) and WHtR (>0.5, 37.1%) in male students. Whereas, in female students, 14.1% had BMI >25 kg/m^2, 19.0% had WC >80 cm, and 11.0% had WHtR >0.5, while 7.2% had WHpR ≥0.85 (Table 4). These figures are alarming with respect to central obesity in students. WC, an important parameter for MetS, is a sensitive measurement in evaluation of central obesity. WC >102 cm for men and >88 cm for women is one of the MetS diagnostic criteria of ATP III (14, 15). However, although BMI is accepted as the key component in standardized definition of obesity, it is not an efficient determinant for body fat distribution. Along with total body fat amount, it is more significant to know where this fat is accumulated. Fat accumulation in central body is more prevalent and leads

Table 2. Nutritional properties of the students

Characteristics	n (%)	Characteristics	n (%)
Self-evaluation of own body weight		Snacking between meals	
Underweight	124 (14.6)	Often	268 (31.6)
Normal	482 (56.8)	Sometimes	525 (61.8)
Overweight	208 (24.5)	Never	56 (6.6)
Obese	35 (4.1)	Place where between-meals are eaten	
Dieting for weight loss		Home	416 (49.0)
Yes	644 (75.9)	Dining hall of school/dormitory	323 (38.0)
No	205 (24.1)	Restaurants	49 (5.8)
Method of diet (n=205)		Canteen/cafe/pastry	61 (7.2)
With dietitian	30 (14.9)	Frequency of consuming sugary/soft drinks	
Popular diets	32 (15.9)	Every day	313 (36.9)
On his/her own	124 (61.7)	Every other day	297 (35.0)
Physical exercise	15 (7.5)	Rarer	223 (26.3)
Number of meals		Never	16 (1.8)
<3	117 (13.7)	Daily consumption of tea, coffee (glass/cup)*	4.34±3.12
3	549 (64.7)	Adding sugar into tea and coffee	
>4	183 (21.6)	Yes	486 (57.2)
Number of meals*	3.13±0.78	No	363 (42.8)
Skipping meals		Daily consumption amount of water	
Yes	670 (78.9)	<1 liter	329 (38.8)
No	179 (21.1)	1–2 liters	370 (43.5)
Most skipped meals (n=670)		>2 liters	150 (17.7)
Breakfast	435 (64.9)	Night eating habit	
Lunch	166 (24.8)	Yes	300 (35.3)
Dinner	69 (10.3)	No	549 (64.7)
Reasons for skipping meals (n=670)		Fast food consumption frequency	
Unable to wake up	189 (26.9)	More than 2 times a week	190 (22.4)
Lack of time	160 (22.7)	1-2 times a week	413 (48.6)
Fear of being late to school	150 (22.4)	Rarer	246 (29.0)
Lack of appetite	142 (21.2)	Believing that he/she eats a healthy diet	
Other	46 (6.8)	Yes	357 (42.0)
		No	492 (58.0)

*: Mean±SD

to more health risks than the accumulation of fat around hips and other body parts (19, 20). Many authors accept those limits as for obesity (BMI >30 kg/m²; WC >102 cm and >88 cm for males and females, respectively). Recently, there is an attempt for these values to be reduced. For example, threshold for WC in men and women in China is accepted as 85 cm and 80 cm, respectively, and higher levels are emphasized to cause crucial health risks (21, 22).

The definition "metabolically obese with normal weight subjects (MONW)" was used by Ruderman et al. (23) at the beginning of 1990s. These subjects were reported to have hyperinsulinemia, insulin resistance, and increased risk of type 2 diabetes mellitus, hypertriglyceridemia, and cardiovascular diseases despite having a

normal body weight. Many researchers have used "normal-weight obesity (now)" definition and found that body fat tissue of these subjects increased while muscle mass decreased (19, 20, 24). Moreover, prevalence of central obesity has been reported to be higher than general obesity (22). Especially in young adults and populations with moderate level of income, risk of NWO is emphasized to be higher (19). NHANNES III determined that cardiovascular mortality risk of subjects with BMI 18.5–24.9 kg/m² and body fat percentage higher than 23.1% and 33.3% was 2.2-fold higher (20), while in another study, NWO subjects had a 4-fold higher risk of MetS than subjects with normal fat percentage (19). A study has shown that central obesity prevalence was 6.5% in men and 22% in women with a BMI <25 kg/m² in Australia (21). Gündoğan et

Table 3. Life style characteristics of the students

Characteristics	n (%)	Characteristics	n (%)
Having chronic disease		Exercising	
Yes	58 (6.8)	Never	257 (30.3)
No	791 (93.2)	Regularly	113 (13.3)
Smoking		Irregularly	479 (56.4)
Never	649 (76.4)	Transportation type to school	
Still smoking	140 (16.5)	On foot	108 (12.7)
Gave up	60 (7.1)	Private car	161 (19.0)
Alcohol consumption		Mass transportation vehicles	580 (68.3)
Never	638 (75.2)	Mean daily sleeping duration*	7.40±1.31
Sometimes	198 (23.3)	Daily sleeping duration (hour)	
Every day, at least one glass	13 (1.5)	<6 h	30 (3.5)
		6-8 h	691 (81.4)
		>8 h	128 (15.1)

*: Mean±SD

Table 4. Risk of central obesity according to gender of the students

Parameters		Male (n=448)		Female (n=401)		Total (n=849)	
		n	%	n	%	n	%
Body Mass Index (kg/m²)							
Underweight <18.5		4	0.9	35	8.7	39	4.6
Under normal-Acceptable (18.5–19.9)		13	2.9	75	18.7	88	10.4
Normal (20–24.9)		273	60.9	234	58.4	507	59.6
Overweight (25–29.9)		140	31.3	54	13.5	194	22.9
Obesity (>30)		18	4.0	3	0.7	21	2.5
		X^2=117.920		p<0.001			
Waist Circumference (cm)							
Male	Female						
<94	<80	337	75.2	325	81.0	662	78.0
94–102	80–88	76	17.0	58	14.5	134	15.8
>102	>88	35	7.8	18	4.5	53	6.2
		X^2=5.503		p=0.064			
Waist-to-hip Ratio							
Male	Female						
<0.9	<0.85	280	62.5	372	92.8	652	76.8
≥0.9	≥0.85	168	37.5	29	7.2	197	23.2
		X^2=108.789		p<0.001			
Waist-to-height Ratio							
≤0.5		282	62.9	357	89.0	639	75.3
>0.5		166	37.1	44	11.0	210	24.7
		X^2=77.314		p<0.001			

Table 5. Logistic regression analysis of risk factors affecting obesity and central obesity

Factors	Obesity OR (95% CI)	Central Obesity OR (95% CI)
Gender		
Female	1	1
Male	3.288 (2.339-4.623)*	7.697 (5.039-11.755)*
Age (years)		
<20	1	1
20-21	1.053 (0.662-1.673)	0.728 (0.450-1.176)
≥22	1.774 (1.154-2.728)*	1.629 (1.062-2.499)*
Living Place		
At home with family	1	1
At home with friends or alone	1.281 (0.906-1.812)	1.096 (0.776-1.548)
At dormitory	1.712 (1.105-2.650)*	0.794 (0.776-1.548)
Chronic Condition		
Yes	1	1
No	1.893 (1.087-3.297)*	1.539 (0.861-2.750)
Smoking		
Never	1	1
Still smoking	1.931 (1.305-2.858)*	1.572 (1.046-2.363)*
Gave up	1.738 (0.985-3.066)	1.334 (0.731-2.436)
Frequency of fresh fruits-vegetables consumption		
Every day	1	1
Rarer	1.777 (1.222-2.583)*	1.780 (1.207-2.624)*
Frequency of soft drink consumption		
Every day	1	1
Rarer	0.649 (0.437-0.964)*	0.637 (0.425-0.954)*
Daily water consumption		
<1 liter	1	1
1–2 liters	1.600 (1.126-2.274)*	1.827 (1.271–2.626)*
>2 liters	1.601 (1.026-2.499)*	1.422 (0.886–2.282)
Fast food consumption		
>2 times a week	1	1
1-2 times a week	1.029 (0.697-1.519)	0.713 (0.483-1.053)
Rarer	0.788 (0.506-1.225)	0.611 (0.392-0.951)*
Daily sleeping duration		
<6 h	1	1
6–8 h	0.423 (0.201-0.890)*	0.441 (0.208-0.935)*
>8 h	0.454 (0.199-1.035)	0.420 (0.181-0.975)*

al. (15) showed that prevalence of MetS was very high. The MetS prevalence, which was determined in 24 cities located in 7 separate geographical regions in Turkey, was 36.6% and 44% based on ATP III and IDF criteria, respectively. Moreover, the prevalence has increased to 42.6% and 52.9%, respectively, in Middle Anatolia, where the present study was conducted. It was also remarkable that MetS prevalence was higher in women (41.8%) than in men (30.3%). In the present study, central obesity based on WC (19%) was found to be higher compared to obesity prevalence based on BMI levels (14.1%) in female students (Table 4). WC has been suggested to be measured in Asian studies, and WC measurements were determined to be correlated with myocardial infarction (MI) and all-cause mortality in all BMI categories (21, 22).

WC should be measured because it is cheap, easy to measure, and shows a proper correlation with health risks (21, 23). However, in practice, measuring WC in subjects with normal BMI is ignored by healthcare professionals. Determining NWO in young populations is crucial (19, 24) because it is a leading metabolic disorder that can be more easily treated early and it is important for developing preventive community healthcare strategies. In a study conducted with Saudi University students, obesity prevalence rate has been found as 20.6% based on BMI; on the other hand, it was 26.9% and 42.2% based on WC and WHtR (25).

Eating habits of students participating in the present study were determined to be rich in fat and carbohydrate and poor in fruits and vegetables, which therefore may cause tendency to obesity. As a matter of fact, students also did not believe they ate a healthy diet (58%). High frequency of soft drink consumption (36.9%), adding sugar in hot beverages (57.2%), consumption of fast food more than once a week (71%), and not having adequate fresh fruits/vegetables everyday are considerable results of our study (Table 2).

The regression analysis for obesity-related factors has shown that obesity risk coefficient increased among students who did not eat fresh fruits/vegetables daily and who consumed fast food for more often than two times a week (Table 5). Living far from their family may lead to acquiring unhealthy nutritional habits among university students. Widespread fast food consumption due to globalization of nutrition is causative. Aggravation of the economic conditions causes eating only to fill the stomach of the students. Also, students prefer tasty foods that are easily accessible and affordable (26, 27). Fast food consumption is well known for its weight gain and health-threatening effects due to high amount of energy and fat (16). Fast food consumption has been declared to correlate with obesity and be strongly related to overweight in a research referred by American Dietetic Association; this was also announced as media press (28). However, 94.4% of students in another study have known the need to eat various foods for health (29). Students also thought that a healthy diet should contain more vegetables and fruits besides lower amounts of fat (30). According to the reports of CDC (Centers for Disease Control and Prevention), only 23% of American adults meet recommendation of 5 servings fruits/vegetables a day. Young people stated that 32% ate 2 servings of fruits and 13% consumed 3 servings of vegetables daily (31). Fruit/vegetable consumption was recommended as 2 and 3 servings, respectively, in the Healthy People 2010 project (32). A study in Louisiana involving 35 university students has revealed that 82% of students ate fresh fruits and vegetables daily, while only 8% consumed 3 servings of fruits/vegetables a day (31). The effects of fruit/vegetable consumption on reduction of disease risk and provision of healthier diet habits are well documented (28, 31, 33). Fruits and vegetables contain low amounts of energy and fat, besides being rich in vitamins, minerals, and fiber; they are therefore recommended to be eaten in various colors and kinds by dietary guidelines to obtain the benefit of several nutrients (fiber, folate, potassium, vitamins A and C, etc.) (32). Promoting the sale of vegetables and fruits, especially in schools, with an affordable price is a suggestion to increase consumption. Within this context, there is an urgent need for collaboration between many individuals and institutions (managers, healthcare professionals, school administrations, farmers, and market operators).

Drinking water reduces hunger and acute energy intake. Epidemiological studies have found that people with high water intake take less energy and that water consumption helps weight loss (34, 35). Popkin et al. (36) have determined that adults who have water drinking habits consume 9% less energy on average than adults who do not. Water drunk before or during meals was found to decrease food intake (37). The results of the present study are exactly the opposite. Obesity and central obesity risk for students who drink 1–2 L of water was higher than for students drinking <1 L of water (OR: 1.820 and OR: 1.600, respectively) (Table 5). This difference may be due to high fast food consumption rich in energy, fat, sodium (salt), and refined carbohydrates, which cause high water consumption. Salty and sugary foods are known to stimulate thirst and 1-mL water is required for every 1 kcal of energy intake. In a study in Malaysia, medical students had mostly unhealthy eating habits such as fruit/vegetable consumption less than three times a week, frequent intake of fried foods, and drinking <2 L of water a day (38).

Energy-containing beverages (soft drinks, fruit juices) have an important contribution to the increase of obesity prevalence. The higher consumption of these beverages makes them replace water and drinks with nutritional value (yogurt-based drink, milk, fresh fruit juices) (39). Energy-containing beverages do not provide satiety. Therefore, drinking water and other energy-free beverages (sugar-free tea and coffee, Diet Coke, etc.) is recommended for preventing weight gain (40).

CONCLUSION

The present study revealed that prevalence of obesity and overweight is high in medical students, and central obesity is especially prevalent in alarming proportions. Inadequate water consumption besides excessive soft drink intake, adding sugar to hot beverages, not consuming fruits and vegetables everyday, skipping meals, habit of eating at night, and frequent fast food consumption are unhealthy nutritional habits of students. Places selling healthy food should be established in the university campus and around dormitories, and efforts of families, university administrators, community, and the government are crucial for obesity prevention and health promotion. Getting more information about nutrition and reflection of those information to healthcare applications are very important for medical schools and healthcare professionals.

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