Health behavior and health needs of first-year medical and health sciences students

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ABSTRACT

Objective: The aim of this study is to evaluate the health behavior and health needs of medical and health sciences students in order to identify areas that need intervention.

Materials and Methods: This descriptive study was conducted with 770 first-year university students. The data were collected with a sociodemographic questionnaire, the Youth Risk Behavior Survey and the Eating Attitudes Test. Body mass index was calculated.

Results: Although, only 12.7% of the students were overweight or obese, 25.6% of the students perceived themselves to be overweight or obese. The students said that in the last week, 20.9% had breakfast 1 or 3 times, 5.7% ate no fruits at all, and 11.6% ate no vegetables at all. 48.1% of the students did not engage in any physical activity, and 83.2% spent more than 2 hours inactively in front of a screen. It was observed that 22.3% were current smokers. A propensity for eating behaviors disorder was found in 9.0%. Drinking energy-boosting sports drinks 1-6 times in the last week (β: 3.286), smoking (β: 1.875) and eating few vegetable dishes in the last week (β: 0.484) were identified as factors that could be associated with a "tendency for eating behavior disorder."

Conclusion: We can conclude that nutritional issues, negative body weight perception, use of tobacco, and sedentary lifestyle are the main intervention and counselling areas for our study group.

Keywords: Health behavior, Health needs, Medical students, Health sciences

1. INTRODUCTION

University life is of critical importance in developing health behavior since in this period people act more independent and with more initiative. This is the time of life in which health behaviors tend to develop [1]. Unhealthy and risky behaviors adopted in this period might lead to many diseases in adulthood and as a result cause disability or mortality in the future [2, 3]. Various health risk behaviors among university students have been identified such as smoking, use of alcohol and illicit drugs, risky sexual behaviors, unhealthy eating, poor weight control, and the lack of physical exercise [4-6]. Detecting such risky behaviors among university students and providing appropriate counseling might contribute to the protection and promotion of students' health. Knowing the health risks of university students, who are destined to be the competent adults of the future, is important in terms of planning initiatives to protect and improve health. The health science students will be teaching and performing the duties of health promotion and prevention, involved in counseling patients about appropriate health-related behavior. Moreover, they may act as a role model for other students by lead in the future [7]. Therefore, it is crucially important for health science students to develop adequate healthy behaviors that are compatible with their profession. In 2020, 44553 people were qualified for admission to the health sciences schools [Medicine 16488; Dentistry 7752; Midwifery/ Nursing 4074 and others (Nutrition and Dietetic, Physiotherapy, Audiology, Orthotics Prosthetics, Ergotherapy, etc) 16239] in Turkey [8].

The first year of university, in which students are 18-19 years old, might be the best time to implement appropriate interventions just the students are about to begin their independent adult lives. In order to contribute to both their own health and that they will be a

role model in their further working life, the freshman students in Health Sciences Campus, a project has been planned by Marmara University Family Medicine Education Application and Research Center. The aim of this project is to help the students of the Faculty of Medicine, Faculty of Dentistry and Faculty of Health Sciences, who are in the occupational group that will take an active role in the provision of health services, to gain self-awareness of healthy lifestyle behaviors from the first year of their education life. Therefore, the first step of the project was to assess the health needs of the health sciences students, make a baseline assessment to provide information for further intervention studies. The aim of this study is to evaluate the health behavior and health needs of first-year medical and health sciences students and to identify necessary interventions, as part of the project, "Starting off on a Healthy Life on the Health Sciences Campus".

2. MATERIALS and METHODS

The population of the study comprises first-year students (n=881) newly enrolled in the Faculties of Health Sciences, Dentistry and Medicine located on the Marmara University Health Sciences Campus in Istanbul. No sample was selected, the aim being to reach the whole study population. This descriptive study was conducted with 770 first-year university students

(87.4% of the study population). Students of Faculty of Health Sciences (n=537), Faculty of Medicine (n=119) and Faculty of Dentistry (n=114), who volunteered to participate were included. Those who failed to complete the questionnaires and those who had been registered prior to 2019 were excluded from the study. Following the approval of the Marmara University Faculty of Health Sciences Non-interventional Clinical Practices Ethics Committee (Approval No. 29.08.2019/90) and of school unit administrators, all newly registered students were informed about the study by brochures, invitations and pre-class announcements during the first two weeks of the academic year. The students who have given verbal and written consent were enrolled in the study.

The data were collected in a supervised classroom setting via an electronic form sent over mobile phones. The data collected was based on a nine-item sociodemographic questionnaire, Youth Risk Behavior Survey and the Eating Attitudes Test (EAT).

The Sociodemographic Questionnaire queried the students' age, sex, most commonly used health institution, chronic illness, department, regular regimen of medications.The form also contained questions on the students' BMI (calculated by the researchers) and their body perception. At the same time, some questions on the Youth Risk Behavior Survey were used. The Youth Risk Behavior Survey is a questionnaire consisting of 89 items developed by the U.S. Centers for Disease Control and Prevention in 1990 [9]. Youth Risk Behavior Surveillance System is a questionnaire system that is used in school-based studies that seeks to assess the change and tendencies in risky health-related behavior over time. In this study, fifteen questions on the young people's eating behavior, nine questions on their behaviors in the context of smoking and drinking, six questions on their physical activity behaviors, and nine questions on their sexual activity, totaling 38 closed-ended, multiple-choice

questions were used. The items were translated into Turkish by two of the authors. The translators were fluent in both languages and familiar with the cultures under study. After translation, the Turkish questions were pilot tested. Since, the questionnaire did not include cultural expressions backtranslate technique was not used. According to the developers' report, the questionnaires may be translated to any language. No specific permission is required. The participant marks the most suitable one [9].

Eating Attitudes Test: The Eating Attitudes Test is a 6-point (Always, Very frequently, Often, Sometimes, Rarely, Never) Likert-type of measure based on self-reporting consisting of 40 items developed by Garner and Garfinkel [10] and adapted into Turkish by Savaşır and Erol [11]. It can be applied to individuals over the age of eleven to identify adolescents with an eating disorder. The cut-off point for the scale is a score of 30. Scores of ≥30 indicate a "tendency for eating behavior disorder".

Height Measurements: Height was measured using a stadiometer with the student's feet together and their head on the Frankfurt plane (where the lower margins of the eyes and the upper margins of the ear canals all lie in the same horizontal plane and parallel to the floor) [12].

Weight Measurements: Weight was measured using a bioelectrical impedance analyzer (BIA) (Tanita BC-418, Tanita Corp., Tokyo, Japan). Bioelectrical impedance analysis is a method for estimating body composition, in particular body fat and muscle mass, where a weak electric current flow through the body and the voltage is measured in order to calculate impedance (resistance) of the body. In this study, the BIA was used for weight measurements only [13]. Measurements of female students who were in the menstrual period were measured at the end of menstruation.

Body mass index was calculated by dividing body weight (kg) by height in meters squared (cm). The classifications of the World Health Organization were used in the assessment of the BMI results. Accordingly, the students' BMI classification was considered as follows: <18.5 = Underweight, 18.5-24.9 = Normal, 25.0-29.9 = Pre-obese, 30.0-34.9 = 1st degree obese, 35.0-39.9 = 2nd degree obese [14] .

Statistical Analyses

The data were analyzed using SPSS version 20.0 (IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corporation). Age and BMI score were summarized using the mean and standard deviation. Other variables were presented by category as numbers and percentages. First, univariate relationships between the dependent and independent variables were explored using the chi-squared test. Then, multiple logistic regression was performed on each dependent variable by using the independent variables that had a p-value of less than 0.1 in the corresponding univariate analysis.[15] Goodness of fit was examined using the Hosmer-Lemeshow test. For the interpretation of the findings from the multiple logistic regression analyses, statistical significance was taken to be p<0.05.

3. RESULTS

A total of 770 students starting their freshman year in the 2019-2020 academic year participated in the study. The mean (standard deviation) age of the students was 19.06 (1.73), (min=17, max=42); 76.6% (n=590) were female. Table I displays the sociodemographic characteristics of the students, the department in which they were enrolled, and data on the state of their health.

Table I. Sociodemographic characteristics, departments and health status

Variables		n	%
Gender	Females	590	76.6
	Males	180	23.4
Age Mean (Standard deviation): 19.06 ±1.73 (min=17, max=42)	17-21	733	96.1
	22-26	24	3.1
	27 and above	6	.8
Departments (n=748)	Nutrition	98	12.7
	PTR	100	13.0
	Midwifery	78	10.1
	Nursing	191	24.8
	Health Management	70	9.1
	Dentistry	114	14.8
	Medicine	119	15.5
Health insurance (n=727)	Social Security	600	82.5
	Private Insurance	39	5.4
	No health insurance	88	12.1
Health institutions most frequently used (n=764)	Family Health Center		
	State hospital	176	23.0
	Private healthcare institution (polyclinic, hospital, etc.)	373	48.8
	Training and Research Hospital	101	13.2
	City Hospital	104	13.6
		10	1.4
When the most recent checkup, physical exam, teeth cleaning or any other dental procedure took place (n=769)	In the last 12 months	429	55.8
	Between 12-24 months ago	95	12.4
	Longer than 24 months ago	69	9.0
	I am not sure	94	12.2
	I never had any procedure done	82	10.7

PTR: Physical Therapy and Rehabilitation

A large majority (82.5%; n=600) of the students had social security, 9.7% (n=130) had a chronic illness, and 9.7% (n=74) had a regular regimen of medications. One striking finding was that almost half of the students (48.8%; n=373) went to state hospitals for medical services instead of primary healthcare.

According to the BMI categories, 14.7% (n=87) of the participants were underweight, 72.6% (n=430) were normal, 10.5% (n=62) were overweight, and 2.2% (n=13) were obese. However, 55.0% of the students described themselves as normal, 8.3% (n=64) as fat,

19.4% (n=149) as slender. There was no difference between both sexes in terms of being overweight or obesity (12.8% F; 12.1% M; p=0.830). Among the students, 26.3% (n=202) said they ate one or two meals a day, 71% (n=546) ate three-four meals, 74.9% (n=576) said they skipped meals, for which the most common reason given (40.7%; n=246) was "not having enough time." While most of the students (76.6%; n=589) said they had breakfast on 4-7 days of the last week, 20.9% (n=161) said they only ate breakfast on 1-3 days, 2.5% (n=19) said they did not eat breakfast at all (Table II).

The students whose scores on the Eating Attitudes Test were above the cut-off point of 30 and thus tend to develop eating behavior disorders constituted 9.0% (n=69). The prevalence of tendency toward eating behavior disorder among the students who consumed fewer vegetable dishes and glasses of milk a day, drank energy-boosting sports drinks and smoke was higher (p<0.05) (Table III).

Table IV presents the results of multiple logistic regression analysis, which was performed using a model incorporating the factors that were found to cause significant differences with tendency for eating behavior disorder were selected as independent variables in the logistic model: smoking status, frequency of eating vegetable dishes and amount of drinking glasses of milk with frequency of drinking energy-boosting sports drinks. Smoking was found to be a significant associated factor for "tendency for eating behavior disorder" (β: 1.875; 95% CI = 1.070–3.286). The other associated factor was "eating fewer vegetable dishes in the last week" (β:0.484; 95% CI = 0.251-0.936).

Of the students, 3.4% (n=26) said that they never buckle up their safety belts when sitting in the passenger seat and 27.9% (n=214) said they buckled up all the time. A group of 8.0% (n=18) said they sent out email or texted while driving at least one day in the last 30 days. Among the students who stated they had tried smoking (50.3%; n=386), 28.9% (n=208) were between the ages of 8-16 and 25.5% (n=183) said they tried smoking after the age of 17. Smoking habits of the students are shown in Table V.

The assessment of the students' physical activity showed that their activity levels were markedly low. Students who had not engaged in physical activity for at least 60 minutes in each of the last seven days constituted 48.1% (n=370); 73.7% (n=566) of the students reported that they did not do resistance and 84.2% (n=645) said that they had not played in any sports team in the last 12 months. Of the students, 21.9% (n=168) said they spent one to four hours watching television on school days. In addition, the students who spent one – or two-hours watching videos or played computer games as leisure activity on school days constituted 69.4% (n=534) while those who spent four or more hours on this made up 13.8% (n=106) of the participants (Table IV).

Among the students, 7.4% (n=54) reported they had been involved in sexual activity at least once. Among the students answered the question of "Did you or your partner use any type of birth control method the last time you had sexual relations?" (n=51), 68.6 % reported using condom, 17.7% withdrawal, 11.8% birth control pill and 3.9% reported using no method. The frequency of the students who had HPV vaccine is 1.1% (n=727).

Table II. Weight status, body perception and eating behaviors

		n	%
Body Mass Index (n=592)	Underweight	87	14.7
Mean ±Standard Deviation: 21.55 ±3.28	Normal	430	72.6
	Overweight	62	10.5
	Obese	13	2.2
Body perception (n=769)	Slender	149	19.4
	Normal	423	55.0
	Overweight	133	17.3
	Fat	64	8.3
Number of meals (n=769)	One-two meals	202	26.3
	Three-four meals	546	71.0
	Five or more	21	2.7
Skipping meals (n=769)	Yes	576	74.9
	No	193	25.1
Reason for skipping meals (n=605)	I do not feel like eating	210	34.7
	I think that I cannot find healthy food that I like	102	16.9
	Dieting, want to be thin, skipping meals will lead to weight loss.	47	7.7
	I do not have time	246	40.7
Number of days you had breakfast last week (n=769)	One-three days	161	20.9
	Four-seven days	589	76.6
	Never had	19	2.5
How many times did you drink 100% fruit juice like orange, apple or grape juice in the last 7 days? (n=761)	100% fruit juice in the last 7 days	493	64.8
	I drank 1-6 times in the last 7 days	268	35.2
How many times did you eat fruit in the last 7 days? (Fruit juice does not count), (n=768)	No fruit in the last 7 days	44	5.7
	I ate 1-6 times in the last 7 days	464	60.4
	I had 4 or more a day	260	33.9
How many times did you eat green salad in the last 7 days? (n=769)	No green salad in the last 7 days	124	16.1
	I ate 1-6 times in the last 7 days	511	66.5
	I had 4 or more times a day	134	17.4
How many times did you eat a vegetable dish in the last 7 days? (Green salad, potatoes or carrots do not count) (n=768)	No vegetables in the last 7 days	89	11.6
	I ate 1-6 times in the last 7 days	576	75.0
	I had 4 or more times a day	103	13.4
How many times did you drink energy or sports drinks in the last 7 days? (n=765)	I did not drink any energy or sports drinks in the last 7 days	728	95.2
	I drank 1-6 times in the last 7 days	37	4.8
How many glasses of water did you drink in the last 7 days? (n=766)	I drank a few glasses of water in the last 7 days	11	1.4
	I drank 1-6 glasses in the last 7 days	67	8.8
	I drank 4 glasses or more a day	688	89.8
How many glasses of milk did you drink in the last 7 days? (you can count box milk or milk you had with corn flakes), (n=768)	I did not have any milk in the last 7 days	354	46.1
	I drank 1-6 glasses in the last 7 days	332	43.2
	I drank 4 glasses or more a day	82	10.7

Table III. Comparison of independent variables according to the Eating Attitudes Test cut-off point

	Eating Attitudes Test scores				x^2	p
	< 30		≥ 30 (n=69; 9%)			
Sex (n=770)	**n**	**%**	**n**	**%**		
Females	535	90.7	55	9.3	0.403	0.52
Males	166	92.2	14	7.8		
BMI (n=534)						
Underweight	77	88.5	10	11.5	4.12	0.39
Normal	393	91.4	37	8.6		
Overweight	52	83.9	10	16.1		
1st degree Obesity	9	90.0	1	10.0		
2nd degree Obesity	3	100.0	0	0.0		
Frequency of eating vegetable dishes in the last 7 days (n=768)						
I never ate any	79	88.8	10	11.2	7.58	0.02
I had 1-6 times in the last week	533	92.52	43	7.5		
I had 1-4 times daily in the last week	87	84.5	16	15.5		
How many glasses of milk did you drink in the last 7 days? (n=768)						
I never drank any	322	91.0	32	9.0		
I drank 1-6 times in the last week	309	93.1	23	6.9	8.28	0.01
I had more than 1-4 glasses daily in the last week	68	82.9	14	17.1		
How many times did you drink energy-boosting sports drinks in the last 7 days? (n=765)						
I never drank any	670	92.0	58	8.0	22.12	0.00
1-6 times in the last 7 days	26	76.5	8	23.5		
1-3 times a day	1	33.3	2	66.7		
Smoker (n=749)						
Yes (n=167; **%22.3**)	144	86.2	23	13.8	5.76	0.01
No (n:582; %77.7)	537	92.3	45	7.7		
Chronic disease (n=763)						
Yes (n=74; % 9.7)	66	89.2	8	10.8	0.311	0.57
No (n=689; %90.3)	628	91.1	61	8.9		

Table IV. Factors associated with "tendency for eating behavior disorder"Eating Attutitudes Test (EAT≥30)

	B	SE	Exp (B)	95% Confidence Interval	p value
Smoking status					
No (Ref)	0.628	0.286	1.875	1.070–3.286	0.028
Yes					
How much milk did you drink in the last 7 days?					
More than 1-4 glasses daily in the last week (Ref)					
Never	-0.438	0.390	0.645	0.300-1.386	0.261
1-6 glasses in the last week	-0.747	0.405	0.065	0.214-1.047	0.065
Frequency of eating vegetable dishes in the last 7 days					
1-4 times daily in the last week (Ref)		0.452			
Never	-0.239	0.336	0.737	0.324-1.911	0.597
1-6 times in the last week	-0.725	0.446	0.484	0.251-0.936	0.031
Frequency of drinking energy-boosting sports drinks in the last 7 days					
Never (Ref)					
1-6 times in the last week	1.190	1.285	3.286	1.371-7.876	0.008
1-3 times daily in the last week	2.539		12.66	1.021-157.216	0.048

Hosmer & Lemeshow test: x^2 =8.406, p=0.135, Cox & Snell's R^2 =0.036, Nagelkerke's R^2 =0.080

The model includes: smoking status, frequency of eating vegetable dishes, amount of milk consumed, frequency of drinking energy-boosting sports drinks, in the last 7 days.
Logistic regression coefficient (B), the standard error (SE)
This is the exponentiation of the B coefficient, which is an odds ratio: Exp (B)

Table V. Driving, smoking and drinking behaviors

Variables		n	%
Frequency of buckling a seatbelt in the passenger seat (n=768)	Never	26	3.4
	Rarely	119	15.5
	Sometimes	127	16.5
	Usually	282	36.7
	Always	214	27.9
Frequency of texting on a cell phone while driving in the last 30 days (n=225)	Never	99	44.0
	I texted at least one day within the last 1-30 days	18	8.0
	I did not drive in the last 30 days	108	48.0
Tried out smoking? (n=768)	Yes	386	50.3
	No	382	49.7
Age of trying out (n=719)	I never tried to smoke	328	45.6
	I tried it out between the ages of 8-16	208	28.9
	At the age of 17 or older	183	25.5
Tried to quit using any kind of tobacco product in last 12 months? (n=581)	Yes	89	15.3
	No	137	23.6
	I did not use any kind of tobacco product in the last 12 months	355	61.1
Smoking status in the past 30 days (n=765)	Never	615	80.4
	1-9 days	82	10.7
	10-19 days	12	1.6
	20 days or more	56	7.3

Table VI. Physical activity behaviors

Variables		n	%
How many days in the last 7 days did you spend at least 60 minutes on physical activity? (n=769)	Never did	370	48.1
	1-4 days	331	43.0
	5 days or more	68	8.8
How many days in the last 7 days did you perform any exercises such as push-ups, sit-ups or weightlifting that challenged or strengthened your muscles? (n=768)	Never	566	73.7
	1-4 days	180	23.4
	5 days or more	22	2.9
How many hours do you watch television on school days? (n=768)	Never	457	59.5
	Less than 1 hour/1 hour	141	18.4
	2-4 hours	168	21.9
	5 hours or more	2	.3
How many hours do you spend watching videos that are not related to your school work or playing computer games on school days? (n=769)	I do not watch videos or play computer games or I do not use the computer for anything besides school work	65	8.5
		64	8.3
		534	69.4
	Less than 1 hour/ 1 hour	106	13.8
	2-3 hours		
	4 hours or more		
How many times in the last 12 months did you play in a sports team? (School or extracurricular teams can be counted) (n=766)	Never	645	84.2
	1-2 times	55	7.2
	3 times or more	66	8.6

4. DISCUSSION

In this study, the health behaviors of freshman health sciences students were studied and found that these individuals engaged in many risky health behaviors, leading to the conclusion that there was a need for intervention. Risky behaviors with the highest frequency were nutritional issues such as skipping meals and insufficient consumption of fruits and vegetables, as well as perceiving oneself to be overweight despite being of normal weight, the use of tobacco, and physical inactivity. As adopting risky health behaviors in university years is common,

an important health challenge is to instill obesity awareness and encourage the implementation of preventive approaches at an early stage [16]. In a multi-site study with university students from developing countries in different continents, it was reported that prevalence of being overweight or obese was quite high (24.7% in male and 20.3% in male students) [17]. In this study, prevalence of being overweight or obese was reported to be 23.9% in male and 13.6% in female students. Another study from Turkey in 2016 reported the prevalence of being overweight or obese as 27.5% in male and 21% in female students [18]. However, in more recent studies the prevalence

of being overweight or obese in Turkey was much higher (51.7%) suggesting an increase in prevalence of obesity [19]. The percentage of students of normal weight (72.6%) in our study is similar to the results of Dülger and Mayda's study but considerably higher than those of Özkan et al.[19].On the other hand, the percentage of our overweight or obese students is 12.7% (obese 2.2%; overweight 10.5%). The 2019 Turkey Health Survey reported that 21.1% of individuals over the age of 15 were in the obese category, also stated that 30.4% of women and 39.7% of men were overweight [20]. The fact that the obese and overweight percentages of our participating students were lower than the average of Turkey might be explained by their freshman status and that they have left their homes and families to live by themselves for the first time. Young people living with their parents may be consuming more of the home-cooked meals that are so much a part of our country's healthy eating culture. In fact, 75% of the participants reported that they had eaten a vegetable dish only 1-6 times in the last seven days. Although, students tend to prefer menus that simulate home-cooked cuisine, many of them live in dormitories and student residences, which provide easy and faster access to the various choices of the fast foods available in the city culture. Additionally, this may be the first time these students oversee their own nutrition. In this respect, we noted another important problem, which was that 9.0% of the students in our study appeared to be prone to developing eating disorders (Table III). Drinking energy-boosting sports drinks 1-6 times in the last week was 3.286 more likely to have "tendency for eating behavior disorder", and this for smokers were 1.875; for those eating fewer vegetable dishes were 0.484. Due to the nature of the cross-sectional study, a cause-effect relationship cannot be established, but it is known that smoking for weight control is prevalent among adolescents and energy drink consumption is associated with weight loss attempts, poor body image, therefore, there may be a possibility that smoking and energy drink consumption have risks for an eating disorder [21, 22]. Researches about interventions on smoking cessation, encouraging non-smoking behavior and healthy eating to prevent eating disorders may be of interest.

When these factors are considered, it can be surmised that the risk of gaining weight or developing eating disorders may increase among university students and it is important that students are monitored in this context. Another issue is the matter of body image. Although, 72.6% of the students were of normal weight, only 55% perceived themselves to be so. In addition, only 12.5% could be categorized as overweight or obese however 25.6% of the students perceived themselves to be overweight or obese. In the Health Behavior in School aged Children (HBSC) a World Health Organization collaborative cross-national study (2017/2018), 21% of the students were overweight or obese but 27% of them perceived themselves to be overweight or obese [23]. In today's society, being thin is associated with being beautiful and in some cases, this belief can lead to various pathological conditions such as eating disorders [24]. A study in which university students were evaluated in the context of the relationship between their body image and BMI indicated that 29.6% and 15.8% of underweight and normal

women, respectively, perceived themselves to be overweight; these percentages were 7.7% and 1.3%, respectively, in men. Similarly, in an international study conducted in 22 countries with 18,512 university students, it was reported that women more than men perceived themselves to be overweight [25]. It was seen that the counselling would be necessary to help participants gain awareness of their body perception.

Majority of the participants displayed unhealthy nutritional habits that included skipping meals, eating insufficient fruits, and drinking sodas. Similar to our study, Dülger and Mayda reported that 20% of university students were not in the habit of eating breakfast and that 5.2%-35.5% skipped at least one meal during the day and the reasons for skipping meals were given as being late (36.2%), not wanting to eat (27.5%) and having the habit of eating regular meals (18.5%) [18]. In the present study, consistent with the literature, the most common reasons for skipping meals was not having time to eat and not feeling like eating. It can be said that our participants were deficient in their habits of nutrition, with skipping meals being a common practice, and were thus at risk (Table II). Interventions such as providing healthy breakfast options at school might be a solution and need to be studied.

The students in the present study were eating daily portions of fruits and vegetables but it was noted that the degree of their consumption was not sufficient. Approximately one third of the students had eaten four or more fruits in the last seven days, and only 13.4% ate vegetables Similar results have been reported in other studies in the literature, where it has been noted that only 10%-20% of students eat five or more portions of fruit a day [26, 27]. According to the Youth Risk Behavior Survey of the Centers for Disease Control and Prevention, 41.8% of students had eaten fruit, 40.7% had eaten vegetables <1 time/day [28]. In a study, the authors reported that 33.7% of the participants had five portions or more fruit and vegetables daily in the last one month [29]. The participants of our study however were eating more fruit than in other studies, however their consumption of green salad and vegetables was comparable to what was reported in the same studies. The higher consumption of fruits may be attributed to the fact that fruits and vegetables are abundantly produced in Turkey, fruits are relatively less expensive and more readily available to the students at dormitories and school cafeterias. On the other hand, even this data shows that a substantial portion of young people are not filling their recommended quota of consuming 5 portions a day of fruit and vegetables. Similar to the results of other studies, in our study even these students studying health-related education are not sufficiently nourished as recommended by nutritional guidelines [30-32] .

Traffic accidents make a 2% contribution to the global burden of disease. The frequency of driving increases when students start the university education, mainly a result of factors such as having to travel long distances, troubles with finding a parking place, the diversity of options available for transport, and the desire to be in close proximity to peers [31, 33]. Wearing seat belts significantly reduces the mortality in traffic accidents. [34] According to Road Traffic Regulations in Turkey (Article 78 of the Highway Traffic Law No. 2918 and Article 150 of the

relevant Regulation), it is obligatory for drivers and passengers to use seat belts. Therefore, there are penalties for not using a seat belt. However, a concerning finding of our study was that approximately one-fifth of the students reported that they never or rarely used a seat belt [35]. In addition, 8.0% of the students said that they texted while driving at least once in the last month. In the light of the fact that using cell phones while driving is one of the most alarming causes of accidents, it was less alarming enlightening to find that participants exhibited a low frequency in this respect. There are no any arrangements about texting while driving in Turkish laws.

Smoking remains to be a major health problem in Turkey. We found that only 77.7% of our students had not smoke free in the last month. In contrast to our findings, using some form of tobacco was reported to be 88.2% as the result of a study conducted with university students of different disciplines [36]. A look into studies with students on health sciences campuses such as ours revealed that the frequency of using some form of tobacco was reported as 65.7% by Çifçi, et al. [37], 95.3% by Kendir, et al. [38], and 80.9% by Nacar, et al. [39]. A study reports a non-smoking frequency of 93.6% among students at Health Sciences Departments in the U.S.[40]. Our finding is somewhat greater than what Çiftçi et al., report, but less than the results of other studies [37]. Almost half of the students in our study (49.7%) had never smoked. Students in our country who never tried smoking were found to be 35.9% by Değer, et al. [37], 54.9% by Şahiner, et al.[41] and 75.2% by Tin Arslan, et al. [42]. On the other hand, 23.0% of our participants were current smokers. Turkey Health Survey [20], reported 28% smoking for individuals over the age of 15. The frequency reported for university students in Turkey varies between 20.6% by Oğuz, et al. [43] and 11.4% by Aksoy Kartci, et al. [6]. In the U.K., this frequency of smoking was reported as 14% [44], 17% among university students in the US. [45]. While our young participants' smoking behavior was similar to the results of other Turkish studies, it is at a higher level than the U.K. and U.S. studies but less than what was reported in Egypt. In Turkey, a comprehensive tobacco control policy has been implemented. Smoking at some indoor public places, all kinds of advertisement of tobacco products and selling tobacco products to youth less than 18 years of age were banned by the Law on Preventing Harms of Tobacco Products, No. 4207 [46]. However, despite comprehensive tobacco control policies, it has been reported that there has been an increase in the consumption of tobacco products in Turkey in recent years [20]. Nevertheless, although the percentage of individuals who have tried to quit smoking is already as low as 15.3%, young people's efforts to achieve smoking cessation should be valued and supported (Table V). At the same time, more effort should be undertaken to prevent tobacco use.

An association between physical inactivity and not only various chronic illnesses including depression and anxiety but also mortality rates has been well established. To ensure the maintenance of a healthy lifestyle, the World Health Organization recommends at least 150 minutes of moderate exercise or 75 minutes of vigorous physical activity weekly. [47].

In this context, the results of our study show that 48.1% of the students had remained insufficiently inactive in the last week, meaning that levels of physical activity are not in line with the WHO recommendation [47]. The majority of the participants did not perform any resistance exercises for muscle power and participation in physical activity and exercising was markedly low. We investigated another risk factor, the sedentary lifestyle, in connection with the physical activity in our study to find how much time the students spent for watching television or using computer for non-classwork-related content. The majority of the students reported that they never watched television at all or less than 1 hour on schooldays (77.9%), and spent less than 4 hours with the computer or played video games (86.2%) on those days (Table IV). In a cross-sectional study conducted in 24 countries, including Turkey, with 12,492 university students; 77.5% of the participants reported spending at least four hours of sedentary activity on schooldays [5]. So, we can conclude that the level of sedentary activity among the students in our study was not quite as high. Nevertheless, the students did not engage in physical activity at the desired level and that most lived a sedentary life. As a result, their risk of developing significant health problems early on in their adult life was high and therefore it would be imperative to raise their awareness and motivate them to be physically active (Table VI).

Fifty-four individuals (7.4%) in our study revealed that they engage in sexual activity. In other studies, conducted in Turkey; the frequency of having sexual experience was reported to higher among university students studying in health sciences or other than health sciences faculties [48-50]. The prevalence in our study was relatively low. A possible reason for the low prevalence might be that our participants were freshmen. In the study (2017/2018), at age 15, one in four boys and one in seven girls report having had sexual intercourse and less than two thirds (61%) of sexually active adolescents used a condom at last intercourse (Table VII). The participants of the HBSC were selected by cluster sampling a proportion of young people aged 11, 13 and 15 year. But Turkey was not included HBSC 2017/2018 study. Comparing the data, we can conclude that although high ages of the study population, prevalence of sexual intercourse (9.7%) and condom use (17.4%) was lower in our study population than the HBSC 207/208 study [23]. One of the most concerning results of our study was that only 1.1% of the young people had been vaccinated for HPV. Probable explanation of low vaccination rates might be the fact that HPV vaccine is not included in the expanded immunization program of Ministry of Health, thus not provided free of charge thereby forcing families to meet the expense with their own resources, which is deterrent since the cost of the vaccine is indeed considerably expensive. Another reason might be that there are only scant recommendations about the benefits of the vaccine. In a study in Turkey conducted with the participation of 348 family health physicians and 317 pediatricians, it was reported that this vaccine was recommended by only 15.8% and 12.7% of these professionals respectively [51].

According to our findings, there is a need to improving the students' healthy lifestyle. Physical activity, recreation and

time spent outdoors are vital parts of a healthy lifestyle. But there are not enough areas in the Campus that the students might use for recreational activities yet. The Health Sciences Campus of our university that the study performed on has been designed as the most comprehensive health campus in Turkey with a land area of 182.000 m². Currently, the construction of spaces for recreational activities continues. Apart from student canteens, libraries and walking areas where they can make sports and spend their leisure activities on campus, there are no social areas yet. There are several schools in the campus each of them different times for recreational activities. There are elective courses, generally two hours a week, embedded in the curriculum of the schools. In addition, there are various student clubs on a variety of topics with voluntary involvement offering opportunity for recreational activities. Therefore, we suggest that increasing recreational acrtivities in the Campus that the study performed on, might be helpful to students improve healthy lifestyle behaviors. The courses related with health prevention and promotion can be added to the curriculum of health sciences and medical faculty students.

Limitations

Due to the study had a descriptive design, the limitations of the study are difficulty make a causal inference, susceptibility to biases such as nonresponse bias and recall bias and it is not possible to analyze the factors that affect risky behaviors over time. Since the study was conducted with the students of at a state university, the results of the study cannot be generalized to students of other universities. In addition, the fact that the use of tobacco products other than cigarettes were not asked can be considered as one of the limitations of the study.

Conclusions

The percentage of those who perceive themselves to be overweight or obese is higher than the percentage of individuals who are actually overweight or obese.

There is a tendency toward eating behavior disorder in 8.9% of the participants. Factors that exacerbate this tendency are smoking, not eating vegetables, and drinking energy-boosting sports drinks.

It was found that a large majority of the students skip meals or do not eat breakfast regularly. The fruits and vegetables intake of many young people is below the daily recommendation of 5 portions; the percentage of students who did not have any fruits and vegetables in the last week is dramatically high. It was seen that the students did not engage in physical activity at the desired level and that they lived a sedentary life.

Almost half of the students had tried to smoke at some point. Of our participants, 22.3% were currently smokers.

The matter of sexuality is still a subject that is hard to discuss in this population and therefore data collection in this area is difficult.

The number of students who had taken an HPV vaccination is negligible.

Therefore, we can conclude that nutritional issues, negative body weight perception, use of tobacco, and sedentary lifestyle are the main intervention and counselling areas for our study group.

Compliance with the Ethical Standards

Ethical Approval: Ethical approval for the study was obtained from Marmara University Faculty of Health Sciences Non-interventional Research Ethics Committee (Approval No. 29.08.2019/90).

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Authors' Contribution: KG, AC, BC, EG and MGP: Design of work, KG,BC,CA and EG: Data collection, SE and EG: Analysis of data, SE, CA, SC and KG: Interpretation of data, KG, CA, SC, SE, ID, AYO and MGP: Preparation of manuscript, KG, CA, SC and SC: Drafting the work. All authors read and approved the final manuscript.

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