

## Evaluation of the dietary habits, body images and BMI of Turkish University students who live in dormitory

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### ABSTRACT

**Objectives:** To determine the factors that influence the dietary habits, BMIs, and body images of students living in dormitory.

**Methodology:** The study was performed in the Dormitory of Hacettepe University. Study population was 301 girl students. Data were collected by personal interviews; height and weight measurements were performed.

**Results:** The mean age of 301 students enrolled in the study was 21.2±1.7 years. About 69.7% of the students were skipping at least one meal in most of the days. Studying and dormitory conditions had a heavier negative influence over medical school students than others (p<0.05). Approximately four out of every 10 students had gone on a diet sometime while the underlying reason in 78.4% of those was to lose weight. According to the BMI values, 11.6% of them were underweight, 80.8% were normal, and 7.6% were overweight. 57.5%, 89.6%, and 12.8% of the students who described themselves as underweight, normal, and overweight, respectively, were found to define their actual condition.

**Conclusions:** A dietary and nutritional counseling office within the framework of the Student Health Center, educating students on nutritional issues, and providing a dining hall service particularly for dinners, should help overcome dietary problems.

**KEY WORDS:** Nutrition, Body mass index, Adolescence.

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### INTRODUCTION

Although nutrition of students living in university dormitories poses problems due to dormitory conditions, heavy curriculum, and students' young age, studies on this issue are limited. Among major nutritional problems of university students, the following can be mentioned: irregular meals, inadequate intake of essential food groups, excessive consumption of fast/junk food, poor living conditions, unhealthy diets, obesity, differences between BMI and body image, insufficiency in nutritional education, and other problems concerning a healthy life. Those problems may differ depending on the gender, ethnic origin, and school.<sup>1-8</sup> It has been shown that the frequency of eating regular three square meals a day varies between 12.0-61.5%, whereas the frequency of having a regular breakfast is 34.0-60.0%.<sup>1-3</sup>

Turkey Health Survey 2008 revealed the frequency of being overweight or obese among  $\geq 15$  years of age as 47.2% (49.2% among men and 45.2% among women).<sup>9</sup> In different studies carried out among university students, it was found to be 10.0-42.0% for overweight, 3.2-31.0%, for obesity, and 1.0-15.0% for underweight.<sup>1-7</sup> The disturbances of body image can be seen in adolescent girls especially in university students. Females (34%) are twice as likely as their male counterparts (15%) to view themselves as "too fat".<sup>10</sup> Adolescents may be dieting even when they are not overweight and they need help to accept having more realistic body weights.

The aim of this study was to determine nutritional habits, BMIs, and body images of female students living in girls' dormitory, and develop recommendations and solutions to nutritional problems.

### METHODOLOGY

The study was performed in the Girls' Dormitory of Hacettepe University. The study population included 315 girl students staying in the dormitory. Data were collected by personal interviews; height and weight measurements were performed. Assessments were performed based on the international (WHO) standards:  $< 18.5$  kg/m<sup>2</sup> underweight; 18.5-24.9 kg/m<sup>2</sup> normal, 25.0-29.9 kg/m<sup>2</sup> overweight;  $\geq 30.0$  obese.<sup>11</sup> Required permissions were obtained for the study which was completed in March and April 2009.

The study was based on voluntary participation. Students that might have nutritional problems were referred to the Student Health Center. SPSS for Windows version 15.0 was used for the analysis of the data and Chi-square test was applied as a significance test, while using predictivity values for comparison of the BMI results and self-assessment of the participants.

### RESULTS

The age range of the study group was 18-25 years (21.2 $\pm$ 1.7, mode and median: 21). Students of the medical faculty constituted the majority (70.8%),

whereas other participants were from schools such as nutrition and dietetics, nursing, dentistry, social work. Duration of the dormitory stay was 3.3 $\pm$ 1.8 years.

Only one (25.9%) out of five students had breakfast daily and 3/5 (59.5%) of students who had no regular breakfast, mentioned shortness of time as the underlying reason. Frequency of having refreshments between meals, lunch and dinner was higher than the frequency of breakfast (Table-I). About 69.7% of students skipped at least one of the meals in most of the days; the reason behind this in approximately half of those students (46.7%) was shortness of time. Breakfast is usually eaten in the canteen (54.9%), lunch in student dining hall (73.6%), and dinner in the restaurants around the dormitory (43.3%). Two students out of three (67.4%) consumed junk-food during studying. No statistically significant correlation was found between BMI values in terms of meal regularity and the frequently visited eating places ( $p > 0.05$ ).

The frequency of consuming main food groups at least 3-5 times a week was 55.9% and less than once a month was 8.6% for milk and dairy products, 54.5% and 4.3% for meat-egg-grain legumes, 79.4% and 1.7% for cereals, and 64.7% and 1.8% for vegetable-fruit (Table-II). The frequency of fast/junk food consumption at least 1-2 times a week was considerably high (90.4% for chocolate etc.; 85.0% for pastry; 67.9% for pizza, hamburger, and sandwich. BMI revealed that 10.3% of students who had junk/ fast food while studying, 2.0% of students who did not eat fast/junk food ( $p < 0.05$ ), 10.3% of students who drank soda beverage, and 2.0% of students who did not drink ( $p < 0.05$ ), were overweight. As 9.5% of students who attend classes regularly were overweight, others were not overweight ( $p < 0.05$ ).

Factors that negatively influence meal regularity and well-balanced nutrition were studying (45.2%), heavy curriculum (58.1%), dormitory conditions (67.8%), financial status (18.9%), and circle of friends (20.9%). Studying and dormitory conditions affect medical faculty students more significantly than

Table-I: Distribution of the Daily Meal Frequency of Students Staying in the Dormitory.

	Never		Occasionally		Most of the days		Everyday		Total	
	N	%	N	%	N	%	N	%	N	%
Breakfast	27	9.0	127	42.2	69	22.9	78	25.9	301	100.0
Lunch	6	2.0	48	15.9	117	38.9	130	43.2	301	100.0
Dinner	1	0.3	18	6.0	94	31.2	188	62.5	301	100.0
Snacks	12	4.0	108	35.9	93	30.9	88	29.2	301	100.0

Table-II: Percentages of the Consumption of Certain Foods and Beverages by Students Staying in the Dormitory (n=301).

	<i>Every day</i>	<i>3-5 day per week</i>	<i>1-2 day per week</i>	<i>2 per month</i>	<i>1 per month</i>	<i>Rare / never</i>	<i>Total</i>
Milk and dairy products	22.3	33.6	28.2	7.3	2.0	6.6	100.0
Meat-egg- legumes	14.3	40.2	32.9	8.3	3.3	1.0	100.0
Cereals	48.5	30.9	17.3	1.7	0.7	1.0	100.0
Vegetable-fruit	25.2	39.5	26.2	7.3	1.4	0.4	100.0
Pizza, hamburger, and sandwich	4.7	21.3	41.9	19.6	8.0	4.5	100.0
French fries and potato chips	4.0	17.9	33.9	21.6	11.3	9.3	100.0
Simit, pastry	27.2	35.9	21.9	10.0	3.0	2.0	100.0
Chocolate, cake,. biscuit etc	33.3	34.3	22.8	5.3	2.0	2.3	100.0
Carbonated drinks such as cola and soda	9.6	20.6	28.2	17.9	7.3	16.4	100.0
Nuts	1.7	8.0	25.9	32.6	19.3	12.5	100.0

other students (studying: 50.7%, 31.8%,  $p < 0.001$ , dormitory conditions: 67.1%, 71.8%,  $p < 0.05$ ).

It was found that 70% of the students were on a diet, whereas 28.9% planned to start one. 42.5% had a history of at least one dieting program. The reason of dieting among 139 students which were currently on diet or had been on a diet in the past, was to lose weight in 78.4%, protect their health in 15.8%, gain weight in 2.9%, and a disease in 2.9%. 34.1% determined their diet by themselves, diet recommended by a friend was followed by 20.3%, by a newspaper or magazine 18.8%, by a dietician 18.1%, and by a physician 5.8%.

While their self-assessment for their physical appearance was; completely dissatisfied (2.7%), dissatisfied (24.2%), indecisive (29.9%), satisfied (38.2%), and very satisfied (5.0%); they described themselves as obese (5.0%), overweight but not obese (36.2%),

normal (44.8%), underweight and need a few pounds (9.7%), too underweight and can't gain weight (1.3%), and indecisive (3.0%).

BMI values were between 15.8-29.3 kg/m<sup>2</sup> (21.3±2.4 kg/m<sup>2</sup>, mode:20.2, median:21.2); 11.6% were underweight, and none was obese. Among the students with normal weight, the rate of those who consider themselves to be unable to stop eating too often was higher than other student (41.5%) ( $p = 0.029$ ). The rate of students who mentioned themselves as being occupied with the thought of becoming fat was highest in overweight students (56.5%) ( $p = 0.00$ ). (Table-III).

According to the BMI assessments, 55.9% of underweight considered themselves as underweight (Pearson Chi-Square: 176,  $p < 0.001$ ) (Table-III). Based on BMI values, positive predictive value of students' self-assessment was 57.5%, 89.9%, and 12.8% in

Table-III: Data on Body Mass Index Among Students Staying in the Dormitory (n=301) (%).

	<i>Underweight</i>	<i>Normal</i>	<i>Overweight</i>
Frequency of BMI category	11.6	80.8	7.6
The distribution of students who noted themselves to be unable to stop eating too often according to body weight ( $p = 0.029$ )	2.9	41.5	30.4
The distribution of students who mentioned themselves as being occupied with the thought of becoming fat according to body weight ( $p = 0.00$ )	8.6	52.0	56.5
Body Images (n=292)*			
Underweight	55.9	5.9	-
Normal	38.2	51.3	4.5
Overweight but not obese	5.9	39.4	63.6
Obese	-	3.4	31.8

\*Excluding 9 individuals who were hesitant to evaluate their body images.

students who considered themselves as underweight, normal, and overweight but not obese, respectively. Frequency of students going on a diet to lose weight was 14.7% in underweight, 38.1% in normal, 63.6% in overweight students, whereas it was 6.0%, 2.1%, 55.9%, and 53.3% among students whose body images were underweight, normal, overweight but not obese, and obese, respectively.

## DISCUSSION

In our study highlighting the dietary habits, one of the significant characteristics is the irregularity of the meals. 69.7% of students skip at least one meal in most of the days. Four students out of ten eat lunch each day regularly, whereas six eat dinner each day. For university students, skipped meal usually happens to be breakfast, which, in contrast, is the most important meal of the day.<sup>1-3</sup> While every one student out of ten never had a breakfast; the most common cause for not having breakfast is known to be shortness of time. Majority of the students prefer dormitory canteen for breakfast, student dining hall for lunch, and restaurants around the dormitory for dinner. In order to support healthy eating habits in students staying in dormitories, eating in student dining halls should be encouraged and dormitories should provide breakfast and dinner options.

University students do not consume main food groups adequately.<sup>2,4,5,12</sup> Our study provided similar results, as well. Only one out of five students used milk and dairy products each day, whereas meat-egg- legumes, cereals, vegetable-fruit were daily consumed by 3/20, 1/2, and 1/4 of students, respectively. Fast/junk food eating which is not considered as part of a healthy diet, are consumed in high amounts in similar to other studies.<sup>2,5</sup> It was found that the frequency of being overweight among students who eat junk food and drink beverages while studying, was higher than others. Consumption of such foods and drinks that have a high carbohydrate content, contribute to the total energy intake and may lead to weight gain.

While almost half of the students noted studying and heavy curriculum among most important factors which disrupt meals and well-balanced diets, 2/3 called dormitory conditions as the underlying reason. Those two factors were mentioned at a significantly higher frequency among medical school students who face longer college years and heavier curriculums. However, only 1/5 of the students noted financial status and circle of friends as factors that disrupt meal regularity and well-balanced diets. Financial status has also been shown to be a

nonsignificant factor on nutritional habits in another study.<sup>1</sup> Economical nutritional services delivered by universities play a role in this regard.

More than half of the students were either on a diet, had been on a diet, or were planning to be on a diet; 3/4 of those were diets targeting weight-loss, whereas only 1/4 had the support of a physician or a dietician. In BMI assessment, 11.6% of the students were found to be underweight, 80.8% normal, and 7.6% overweight; and there were no obese student. These results were consistent with the results of a study conducted previously in two girls' dormitories.<sup>5</sup> Overweight students constitute a smaller fraction in Turkey compared to the students in US universities.<sup>13-15</sup>

**Body image is defined in components:** perception of body size and its accuracy; a subjective component of feeling satisfied or not with one's body; and a behavioral aspect.<sup>16</sup> Body image is important in adolescence and disturbances affecting it are associated with obesity, dietary disorders and psychological discontent. In the current study, students were asked to state their body images and the obtained results showed inconsistency with the BMI assessment. As 57.5% of the students who considered themselves underweight, were actually underweight; 89.6% who assessed themselves normal, were normal; 12.8% of students who evaluated themselves as overweight but not obese, were overweight; and none of the students who called themselves obese, was obese. The frequency of dieting for losing weight was found to be high in students whose body images were overweight but not obese. Another study revealed a yet even more disturbing fact that 25% of the girls who considered themselves to be the "right weight", were still trying to lose weight.<sup>10</sup> A nutritional counseling and diet center that will serve within framework of Student Health Center should be opened in order to provide support in issues such as healthy nutrition, body image, and proper dietary programs.

Physical activity of students under an intense study program are limited. The level of physical activity tends to fall significantly at the time of adolescence and female adolescents tend to be less active than boys.<sup>17-20</sup> They study for a mean period of 3.26 hours each day and 2/3 of them consume foods such as junk food. However, approximately 1/5 (22.9%) regularly do sports. More sports facilities should be provided to the students. Only 5.6% of students were found to drink alcohol regularly, while 6.3% were regular smokers. Those frequencies are lower than the findings of the study performed in two girls'

dormitories.<sup>5</sup> In Turkey 34.6% of adults (52.0% of men and 17.3% of women above 18 years old) smoke.<sup>21</sup> This difference may be due to the fact that our study group consisted of students from health-related schools.

Nutrition education is an important factor for healthy eating habits. While half of the students did not have a lesson on this subject, some who attended this lesson as part of their professional training, considered it useless. Four students out of five from a school other than nutrition, mentioned the necessity of nutrition lessons in university curriculum. The efficiency of nutrition education given as part of a profession, should be elevated. Moreover, students should be informed on the importance of breakfast, adequate and well-balanced diet, harms of fast food, and utilization of campus dining hall.

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