

# Nutritional Approaches of University Students during the COVID-19 Pandemic

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**Abstract.** *Study Objectives:* The aim of this study was to investigate nutritional approaches in university students during the COVID-19 pandemic. *Methods:* A total of 579 university students (male: 296, female: 283) participated in the study. Besides the personal form, the students filled out a nutrition approach testing questionnaire. Students participated voluntarily. The surveys were conducted on social media. Independent sample t and one-way analysis of variance (ANOVA) were applied to analyze the difference in groups. *Results:* Nutrition scores on the days of curfew (Lockdown) and the days when there is no prohibition or restriction did not change according to gender ( $p > 0.05$ ). A significant difference was found in the nutrition scores of the students according to the levels they felt on the days when there was a curfew and, on the days, when there was no prohibition or restriction ( $p < 0.05$ ). A significant difference was found between the scores of the students of different faculties on the days when there was a curfew and, on the days, when there was no prohibition or restriction ( $p < 0.05$ ). *Conclusion:* It has been determined that the nutritional habits of university students do not change according to gender in the event of prohibition and restriction or not during the coronavirus epidemic. While the nutritional habits of university students were similar according to gender, it was found that they changed according to the type of faculty. The nutritional habits of the faculty students who received education on health were found to be better. Those who feel bad have lower nutritional scores. During the coronavirus epidemic, it is recommended to provide psychological assistance to students in support of nutrition, whether there are curfews, bans, or days when there is no ban.

**Key words:** COVID-19, Food Consumption, Nutritional Approach

## Introduction

Nutrition is the adequate use of nutrients necessary for a person to grow, develop and live healthily and efficiently for a long time. Adequate and balanced nutrition is the intake of all nutrients necessary for the growth and regeneration of the body. Nutrition is essential for growth, survival, and health (1). People generally tend to eat in their spare time. They can focus their attention on food. Unhealthy eating habits can increase the risk of developing obesity and, beyond being a chronic pain condition, is often complicated by heart disease, diabetes, and lung disease, which have been shown to increase the risk of more serious complications of COVID-19 (2).

Many studies show that young students, and especially athletes, do not have an adequate and balanced diet and that their nutrition education and nutritional knowledge are insufficient (3,4). Studies have shown that students have significant unhealthy eating habits and that they have a significant risk in this regard (5). Nutrition and health are closely related concepts. One of the risky groups related to unhealthy nutrition is university students. The prevalence and frequency of eating disorders among young people and especially women are a public health problem that is defined by the World Health Organization (WHO) as an important medical condition and requires medical attention (6). COVID-19, a disease caused by a new coronavirus,

is a major threat that has turned into a pandemic and affected the whole world. Social isolation, maintaining social distance, and using masks are the primary measures taken to reduce the spread of the disease. Widespread outbreaks of infectious diseases such as COVID-19 are associated with psychological distress and symptoms of mental illness (7). As with physiological systems, the development of the immune system is affected by nutritional status. Moreover, many epidemiological studies have shown dysfunction of both innate and adaptive immunity during malnutrition. While a pandemic causes sharp shocks to world economies and societies, it has negative effects on individuals (8,9). The detected literature reports the negative impact of the new coronavirus on the mental health of the individual. Stresses include perceived security, threat and risk of contamination, ignorance of the unknown, quarantine and imprisonment, stigma (a sign of shame associated with a particular situation, quality, or person), and social exclusion, as well as financial loss and job insecurity (10). Research on the nutritional habits of young people, especially in our country, show that there are very serious problems related to nutrition in this period. In the literature, it is stated that the level of education is effective in realizing health behaviors (11). The period of limitation is a new situation where boredom and stress are threats that can cause athletes to lose their normal daily habits and adopt poor eating habits. These threats are sometimes overeating or snacking, especially foods rich in sugar and fat, and overly processed foods (12,13,14). Maintaining a healthy diet is important for supporting a strong immune system (15).

During the coronavirus epidemic in Turkey, a curfew was imposed for a while, workplaces were closed and some restrictions were made. Some days the restrictions were lifted. In this study, it was investigated whether there was a change in nutritional status on the days when there was a curfew and restriction and, on the days, when there was no restriction.

## Materials and Methods

### *Participants*

Participants consisted of university students. A total of 579 students (296 men and 283 women)

participated in the study. Besides the personal form, the students filled out the nutrition approach testing questionnaire. Students participated voluntarily. The surveys were conducted on social media. Health-related faculty students are students of the faculty of medicine, faculty of health sciences, and faculty of sports sciences. Other faculty students are education faculty, engineering faculty, theology faculty, and business faculty students.

### *Personal Information Form*

Personal information includes age, height and body weight, feeling of self, days of restriction and prohibition, chronic disease status, vaccination, catching the virus, and similar information. Those with chronic diseases, those who were vaccinated, and those who were infected with the virus were excluded from the study.

Body Mass Indexes (BMI); Calculated using the formula  $BMI = \text{Weight (kg)} / \text{Height (m}^2\text{)}$ .

### *Nutrition Approach Testing Questionnaire*

The nutritional habits questionnaire consists of a total of 12 questions. In the preparation of the questionnaire questions, the validity of the previous research on the subject was used. If the distribution of points in the nutrition approach testing questionnaire is between 0-8 points, the eating habits should be improved. Between 8-15 points mean the necessity of making small changes in eating habits. If it is between 16-20 points, the eating habit is generally good. A score of 24 can be considered as an excellent eating habit (16).

### *Statistical Analysis*

The SPSS version 22.0 (SPSS Inc., Chicago, IL) program was used for statistical analyses. The data were expressed as the mean, and standard deviation. The Kolmogorov-Smirnov test was used to assess normality. The Independent sample t test was applied to analyze the difference in groups. To determine the difference between groups for one dependent variable, one-way analysis of variance (ANOVA) was used. The Least Significant Difference (LSD) correction

was used to analyze the difference of mean between groups. Significance was defined as  $p \leq 0.05$ .

## Results

In this study, the average age was 21.25 years for males and 21.13 years for females. Body mass indexes were found as 23.92 kg/m<sup>2</sup> in males and 22.21 kg/m<sup>2</sup> in females (Table 1).

While the mean age of the students by gender is similar, their height, body weight, and body mass index values are statistically significantly different ( $p < 0.05$ ).

Nutrition scores on days with curfew and days without prohibition or restriction did not change according to gender ( $p > 0.05$ ).

A significant difference was found in the nutrition scores of the students according to the levels they felt on the days when there was a curfew and, on the days, when there was no prohibition or restriction ( $p < 0.05$ ).

**Table 1.** Comparison of students' age, height, and body weight

	Gender	N	Mean	SD	p
Age (years)	Male	296	21.15	4.08	0.091
	Female	283	21.13	3.09	
Height (cm)	Male	296	176.12	6.79	<b>0.001 †</b>
	Female	283	164.55	9.31	
Body weight (kg)	Male	296	74.10	10.57	<b>0.001 †</b>
	Female	283	59.74	9.22	
BMI (kg/m <sup>2</sup> )	Male	296	23.92	3.12	<b>0.001 †</b>
	Female	283	22.21	3.09	

† $p < 0.05$ ; BMI = body mass index; SD = standard deviation

**Table 2.** Comparison of nutritional status on the days when there is a curfew and, on the days, when there is no ban or restriction during the coronavirus process by gender

	Gender	N	Mean	SD	p
Days with curfew (Lockdown)	Male	296	16.41	1.92	0.053
	Female	283	16.19	1.91	
Days with no bans or restrictions	Male	296	18.42	1.81	0.157
	Female	283	18.34	1.86	

SD = standard deviation

It was observed that this difference was between those who felt bad and those who felt good and very good.

A significant difference was found between the scores of the students of different faculties on the days when there was a curfew and, on the days, when there was no prohibition or restriction ( $p < 0.05$ ). Nutritional scores of students studying in faculties related to health are higher.

## Discussion and Conclusion

While the average age of the students by gender is similar, their height, body weight, and body mass index values are statistically significantly different ( $p < 0.05$ ). A normal body mass index between 20 and 25 is considered healthy (17). According to this evaluation, the students participating in the study can be considered healthy.

It is important to take the right supplementary food supplements, try to do regular physical activity

**Table 3.** Nutrition scores of the students according to the levels of their feelings

	Feel	N	Mean	SD	p
Days with curfew (Lockdown)	bad	70	15.03 <sup>a</sup>	2.10	<b>0.032 †</b>
	good	352	16.27 <sup>b</sup>	2.34	
	very good	157	16.93 <sup>b</sup>	2.34	
Days with no bans or restrictions	bad	70	17.01 <sup>a</sup>	2.15	<b>0.035 †</b>
	good	352	18.40 <sup>b</sup>	2.23	
	very good	157	18.95 <sup>b</sup>	2.73	

† $p < 0.05$ ; <sup>a,b</sup> = means within the same column with different superscripts differ from significantly SD = standard deviation

**Table 4.** Comparison of nutrition scores of students from different faculties

	Category	N	Mean	SD	p
Days with curfew (Lockdown)	Health related faculties	282	16.62	2.62	<b>0.039 †</b>
	Other faculties	297	16.00	2.54	
Days with no bans or restrictions	Health related faculties	282	18.90	2.72	<b>0.041 †</b>
	Other faculties	297	17.90	2.43	

† $p < 0.05$ ; SD = standard deviation

despite social isolation, and try to eat a balanced diet to strengthen immunity. During the COVID-19 pandemic, individuals are responsible for choosing a healthy lifestyle, eating diets rich in fruits and vegetables, exercising during leisure time, trying to gain a healthy, balanced weight, and getting enough sleep (18). It has been stated that malnutrition causes increased susceptibility to infection (19). In some studies, conducted on university students, they stated that students are at high risk in terms of their eating habits, that the nutritional consumption levels of the athletes are below the required amount, and that they have faulty eating habits (20,21).

Kesik (2019) examined the nutritional knowledge levels and nutritional attitudes of university students and stated that there was no significant difference between male and female individuals (22). In some studies, feeding behaviors vary according to gender. In the study of Dilber and Dilber (2020), it was stated that the coronavirus outbreak affected the nutritional habits of individuals and that the gender variable also changed their eating habits (1). Serin and Koç (2020) stated that they found a gender difference in the eating behaviors of university students who stayed at home during the coronavirus epidemic in COVID-19 (23). This may be because the students lived in a similar environment during the restriction process, and that they could not move freely on the days when there was no restriction or prohibition. It can also be caused by people not complying with full closure or paying attention to nutrition. It can be thought that even on days when there is no ban, students are careful not to be indifferent environments as gender.

In this study, a significant difference was found in the nutrition scores of the students according to the levels they felt on the days when there was a curfew and, on the days, when there was no prohibition or restriction ( $p < 0.05$ ). It was observed that this difference was between those who felt bad and those who felt good and very good. At the same time, the nutritional scores of the students on the days when there are restrictions are lower than on the days when there is no restriction or prohibition (Table 2). Prohibition and restriction make us think that students' eating habits are affected negatively. A healthy diet should be followed that provides all the nutrients needed during

quarantine, lockdown, or free time to strengthen the immune system.

Yılmaz and Karaca (2019) stated that individuals who are sedentary have lower nutritional knowledge levels than individuals who do sports (24). Jones et al. (2015) stated that the nutritional knowledge level of the students who took nutrition courses was significantly higher than the others (25). In the study of Kutlu (2020), while it was determined that the students had a low level of previous education on nutrition, he also stated that the healthy eating habits of the students were at a low level (26). In this study, a significant difference was found between the scores of students from different faculties on the days when there was a curfew and, on the days, when there was no ban or restriction ( $p < 0.05$ ). Nutritional scores of students studying in faculties related to health are higher. Students who receive education on health may be more conscious about health than others, and there may be courses on nutrition among the courses they take. Courses or seminars on nutrition can be given to faculty students who do not receive health-related education. Again, it is recommended that malnourished individuals and their families be educated about purchasing and storing appropriate food, healthy food preparation-cooking techniques, and giving tips on minimizing leftovers (27). In addition, impairment individual should also be given education about nutrition (28).

According to the scale scoring, it was stated that small changes should be made in eating habits between 8-15 points (16). Those who feel bad during the quarantine have a score of around 15. These students should be provided with nutritional support and psychological support.

As a result, it has been determined that the nutritional habits of university students do not change according to gender in the event of prohibition and restriction or not during the coronavirus epidemic. While the nutritional habits of university students were similar according to gender, it was found that they changed according to the type of faculty. The nutritional habits of the faculty students who received education on health were found to be better. Those who feel bad have lower nutritional scores. During the COVID-19, whether there is a curfew, quarantine, or days when there is no ban, students should be supported with nutrition.

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