

"COVID-19 İÇİN EVDE KAL" HAYATININ ÖĞRENCİLERİN KAYGI DÜZEYLERİ VE YEME DAVRANIŞLARINA ETKİSİ

THE EFFECT OF "STAY HOME FOR COVID-19" LIFE ON STUDENTS ANXIETY LEVELS AND EATING BEHAVIORS

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ÖZET

AMAÇ: Bu çalışma COVID-19 pandemisinde uygulanan karantina sürecinin bireylerin kaygı düzeyleri ve yeme davranışlarına etkisini belirlemek için yapılmıştır.

GEREÇ VE YÖNTEM: Çalışma bir üniversitenin sağlık bölümünde okuyan öğrenciler ile kesitsel tipte yapılmıştır. Çalışmaya 510 öğrenci katılmıştır. Veriler sosyodemografik anket formu, Üç Faktörlü Yeme Anketi (TFEQ) ve Yaygın Anksiyete Bozukluğu Testi (YAB-7) kullanılarak toplanmıştır.

BULGULAR: Çalışmaya katılan öğrencilerin yaş ortalaması 21.82 ± 4.45 , %21.4'ü erkek, %78.6'sı kadındır. Evde kalınan süre zarfında bireyler daha fazla ev yemeği tükettiğini ve sağlıklı beslendiğini sıklıkla ifade etmiştir. Araştırmada öğrencilerin yaşları ile TFEQ alt boyutu olan kontrolsüz yemek yeme ve duygusal yemek yeme arasında anlamlı bir korelasyon saptanmıştır. Öğrencilerin Yaygın Anksiyete Bozukluğu Ölçeğinden aldıkları puan ortalaması 8.73 ± 5.80 olarak bulunmuştur. Ayrıca anksiyete düzeyleri derecelendirildiğinde ise %25.9'unun hafif anksiyete, %35.5'inin orta derece anksiyete, %21.8'inin yüksek anksiyete ve %17.8'inin ciddi anksiyete yaşadığı saptanmıştır. Yaygın anksiyete grupları ile TFEQ toplam puanları ve TFEQ alt gruplarına ait puanları karşılaştırılmış olup yaygın anksiyete gruplarından hafif anksiyetesi olan kişilerin TFEQ toplam puanı 38.03 ± 10.57 iken orta seviyede anksiyetesi olanların 41.65 ± 10.74 yüksek anksiyetesi olanların 45.22 ± 8.58 ve ciddi anksiyetesi olanların ise 41.97 ± 11.62 olarak belirlenmiştir.

SONUÇ: Bu çalışma, pandemiden kaynaklı ülke çapında uygulanan karantina sırasında, üniversite öğrencilerinin önemli bir bölümünün yeme davranışlarında değişimler ve anksiyete bozukluğu yaşadığını ortaya koymaktadır. Toplum sağlığını korumak için alınan karantina önlemleri özellikle hafif şişman ve şişman grupta yeme bozukluklarının arttığını göstermiştir.

ANAHTAR KELİMELER: COVID 19, Karantina, Yeme bozukluğu, Kontrolsüz yeme, Anksiyete.

ABSTRACT

OBJECTIVE: This study was conducted to determine the effect of the quarantine process applied in the COVID-19 pandemic on the anxiety levels and eating behaviors of individuals.

MATERIAL AND METHODS: The study was made in a cross-sectional type with students studying in the health department of a university. 510 students participated in the study. Data were collected using a sociodemographic questionnaire, the Three-Factor Eating Questionnaire (TFEQ), and the Generalized Anxiety Disorder Test (GAD-7).

RESULTS: The mean age of the students participating in the study was 21.82 ± 4.45 , 21.4% were male and 78.6% were female. During the stay at home, individuals frequently stated that they consume more home-cooked food and eat healthy. In the study, a significant correlation was found between the ages of the students and the TFEQ sub-dimension, uncontrolled eating and emotional eating. The mean score of the students from the Generalized Anxiety Disorder Scale was found to be 8.73 ± 5.80 . In addition, when their anxiety levels were graded, it was found that 25.9% had mild anxiety, 35.5% had moderate anxiety, 21.8% had high anxiety and 17.8% had severe anxiety. The general anxiety groups and TFEQ total scores and the scores of the TFEQ subgroups were compared and the TFEQ total score of the generalized anxiety groups was 38.03 ± 10.57 , while those with moderate anxiety were 41.65 ± 10.74 and those with high anxiety were 45.22 ± 8.58 and those with severe anxiety were determined as 41.97 ± 11.62 .

CONCLUSIONS: This study reveals that a significant portion of university students experienced changes in eating behaviors and anxiety disorders during the nationwide quarantine caused by the pandemic. Quarantine measures taken to protect public health have shown that eating disorders have increased especially in the overweight and obese group.

KEYWORDS: COVID-19, Quarantine, Eating disorder, Uncontrolled eating, Anxiety.

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INTRODUCTION

The new Coronavirus disease (Covid-19) emerged in Wuhan, China in December 2019 and spread all over the world in a short time. This disease is a severe acute respiratory syndrome caused by SARS coronavirus 2 (SARS-CoV-2) (1). Due to the increasing cases in different international locations in addition to China, on January 30, 2020, the World Health Organization (WHO) Emergency Committee declared this disease as a global health emergency, a pandemic. During this period, important practices were implemented to combat the pandemic. The most important of these practices, which are important for public health, is quarantine. The droplet contamination feature of COVID-19 particularly has made it mandatory to implement quarantine measures in many areas.

Quarantine measures significantly affect lifestyle, and consequently, health-affecting risks associated with sedentary behavior, smoking, and sleeping habits can arise (2). Individuals with reduced physical activity and limited access to groceries started to stock up on food during the quarantine period. And it was reported that ready-to-eat foods, junk food and snacks, and highly processed food products are started to be consumed more. However, recent research has indicated that consumption of fresh foods, especially fruit, vegetables, and fish decreased. Furthermore, psychological and emotional responses to the COVID-19 pandemic also increase the risk of uncontrolled eating behaviors (1, 3, 4).

Nutrition and food choices are affected by many factors including genetic, physiological, psychological, social, and cultural. Emotional state not only affects the type, quantity, and quality of food consumed but also affects subsequent food choices. Depending on one's emotional state or their own characteristics, the relationship between eating and emotions may vary (5). Research has shown that emotional coping strategies or stress avoidance behavior can lead to unhealthy eating behaviors such as meal skipping (6). Emotional eating is believed to be a response to a stressful situation. Exposure to high levels of stress, especially after a natural disaster can affect eating behaviors. In a 2-year study involving 105 middle-aged women, the pre- and

post-earthquake eating behaviors of women were examined and the results revealed that a correlation exists between high stress and eating behavior. Earthquake-related high levels of stress reduced healthy eating behaviors (vegetable eating, breakfast eating) (7).

The COVID-19 pandemic is accompanied by many challenging stress factors. Some of these are fear of getting sick or losing a family member, losing job, financial insecurity, and quarantine measures. Studies have shown that these stressors significantly increase anxiety in people (8). Generalized anxiety disorder (GAD) is a chronic and very common disorder characterized by uncontrollable excessive worry, chronic anxiety, and tension (9). Generally, GAD is accompanied by a series of physical findings that cause significant impairments in daily social and occupational functioning (10).

GAD is common both in communities and across healthcare settings. A study conducted in the United States showed that the lifetime prevalence of GAD ranged from 5.1% to 11.9% (11, 12). In a review study on epidemiological studies in Europe, the 12-month prevalence of anxiety ranged from 1.7-3.4%, and the lifetime prevalence ranged from 4.3% to 5.9% (13, 14).

Many studies examining the emotional state and uncontrolled eating behaviors have shown that there is a positive or negative relationship between emotional states and food intake (1). Emotional and uncontrolled eating behaviors are important risk factors for recurrent weight gain. Accordingly, the current study presents the examination of anxiety among college students caused by the quarantine measures implemented during the pandemic and its relation to eating habits and eating behaviors.

MATERIAL AND METHODS

Sample

The study was intended to include 756 students enrolled in the health departments of a university in 2021. A cross-sectional study was designed and a sample selection procedure was not performed. The consent forms were sent to all students via email and those who agreed to participate in the study were asked to fill out the online forms. 246 students who did not accept

to participate in the study and filled the questionnaires incompletely were not included in the study. A total of 510 students who completely filled out the forms participated in the study.

Data Collection Tools

The data for this study were collected from February to April 2021 using a 13-item sociodemographic data sheet prepared by the authors, the Three-Factor Eating Questionnaire (TFEQ), and the Generalized Anxiety Disorder Scale-7 (GAD-7).

The sociodemographic data sheet measures the sociodemographic characteristics of the participants such as age, gender, meal skipping status, body mass index (BMI), and sleep duration. *Three-Factor Eating Questionnaire* (TFEQ) was developed by Stunkard and Messick and further revised by Karlsson et al. (15). The questionnaire was adopted into the Turkish language by Kırac et al and the authors also verified the validity and reliability of the Turkish version questionnaire (16). The choices in questions 1 to 13 are from 4 to 1 from top to bottom, the choices between questions 14 and 17 are from 1 to 4 from top to bottom, and in question 18, choices 1 and 2 are 1, 3 and 4. 19 choices Options 2, 5 and 6 are scored as 3, 7 and 8 are scored as 4 points.

Factor-1: It consists of questions 1-7-13-14 and 17 and measures the level of uncontrolled eating (loss of control of excessive food intake and a tendency to eat more than normal due to subjective thoughts against hunger).

Factor-2: It consists of questions 3, 6 and 10 and measures the emotional eating (insufficiency against emotional symptoms) levels of individuals.

Factor-3: It consists of questions 2-11-12-15-16 and 18 and measures the degree of conscious eating restriction (consciously restricting food intake in order to keep body weight under control or to increase body weight loss).

Factor-4: It consists of questions 4-5-8 and 9. and it was determined that it measures the levels of sensitivity to hunger (difficulty of controlling the level of eating when hunger is felt).

Emotional eating behavior increases as the uncontrolled eating score, emotional eating score and hunger sensitivity score increases. As the conscious eating restriction score increases, emotional eating behavior decreases.

Generalized Anxiety Disorder Scale-7 (GAD-7) was developed by Spitzer et al and is a 4-point Likert scale (17). This 7-item self-report scale was developed according to DSM-IV-TR criteria and measures generalized anxiety disorder within two weeks. The scale was adopted into the Turkish language by Konkan et al and the validity and reliability of the Turkish version were confirmed (18). A total GAD-7 score of 0-4 indicates mild, 5-9 moderate, 10-14 high, and 15-21 severe anxiety disorder (16).

Ethical Committee

Ethical permission to conduct the study was obtained from Amasya University (dated 06/01/2021 and numbered 2021/30) and permission from the relevant administrative institution was also received (dated 15/06/2020 and numbered E.11290). Plus, informed consents were obtained from the students who agreed to participate in the study.

Statistical Analysis

The data collected in this study were examined by SPSS 25.0 for Windows (Statistical Package for Social Sciences). Discontinuous variables were examined using frequency analysis and continuous variables using descriptive statistics. In the frequency analysis, numbers (n) and percentages (%) of the discontinuous variables were examined. And the descriptive statistics were reported using numbers (n) and percentages (%), arithmetic mean \pm standard deviation, min. and max. values of continuous variables. An independent sample t-test was performed for comparing numerical data between two independent groups. For examining data that met non-parametric test conditions; the Mann-Whitney U test was conducted to compare two independent groups and the Kruskal-Wallis test for more than two groups. In the analyses, $P < 0.05$ was considered statistically significant.

RESULTS

The mean age of the participant students was 21.82 ± 4.45 years. The participants were 21.4% males and 78.6% females. The sociodemographic and descriptive characteristics of the students are given in **Table 1**. Also, the mean daily sleep duration of the students was 8.34 ± 1.67 hours.

Table 1: Sociodemographic characteristics and descriptive statistics of the participants

| Characteristics | Number (n) | Percentage (%) |
|------------------------------|------------|----------------|
| Gender | | |
| Female | 401 | 78.6 |
| Male | 109 | 21.4 |
| Smoking | | |
| Never smoked | 360 | 70.6 |
| Smoked but quit | 63 | 12.4 |
| Still smoking | 87 | 17.1 |
| Alcohol drinking | | |
| Never drank | 411 | 80.6 |
| Drank but quit | 49 | 9.6 |
| Still drinking | 50 | 9.8 |
| BMI classification | | |
| Underweight (18.5 and below) | 75 | 14.7 |
| Normal weight (18.6-24.9) | 325 | 63.7 |
| Overweight (25.0-29.9) | 95 | 18.6 |
| Obese (30.0 and above) | 15 | 2.9 |
| The most skipped meal | | |
| Breakfast | 142 | 27.8 |
| Lunch | 340 | 66.7 |
| Dinner | 28 | 5.5 |
| Snacking | | |
| Yes | 330 | 64.7 |
| No | 180 | 35.3 |
| Total | 510 | 100.0 |

The participant students were asked to state what has changed in their diets since the COVID-19 pandemic and accordingly, 17.7% of the participants stated that they started to consume more home-cooked meals, 13.2% started eating healthy, 11.5% had a regular diet. On the other hand, 9.4% expressed that their diet did not change.

The results indicated that students' age significantly correlated with the uncontrolled eating and emotional eating dimensions of TFEQ. Uncontrolled eating score decreased by 0.124 ($p=0.005$) and emotional eating score decreased by 0.095 ($p=0.032$) with every 1-year increase in the participants' age.

The comparison of students' BMI, smoking, and alcohol use status with Three-Factor Eating Questionnaire (TFEQ) scores is presented in **Table 2**.

Table 2: Relationship between specific characteristics of participants and TFEQ scores

| Characteristics | Three-Factor Eating Questionnaire (TFEQ) | | | | TFEQ Total |
|---|--|------------------|-------------------------------|-----------------------|----------------|
| | Uncontrolled Eating | Emotional Eating | Cognitive Restraint of Eating | Sensitivity to Hunger | |
| BMI | | | | | |
| Underweight (18.5 and below) ^a | 11.04±3.89 | 5.33±2.71 | 11.56±3.18 | 8.28±3.32 | 36.21±10.25 |
| Normal weight (18.6-24.9) ^b | 11.73±3.69 | 6.37±2.98 | 13.90±3.56 | 9.16±3.53 | 41.17±10.25 |
| Overweight (25.0-29.9) ^c | 12.57±3.95 | 7.47±3.06 | 14.75±3.56 | 10.69±3.84 | 45.50±10.49 |
| Obese (30.0 and above) ^c | 14.73±3.39 | 9.13±3.77 | 15.13±1.92 | 12.46±3.54 | 51.46±10.01 |
| p | 0.001* | 0.0001* | 0.0001* | 0.0001* | 0.0001* |
| Smoking | | | | | |
| Never smoked | 11.50±3.72 | 6.36±2.94 | 13.95±3.60 | 9.11±3.54 | 40.93±10.40 |
| Smoked but quit | 12.41±3.39 | 6.95±3.23 | 13.22±3.45 | 9.74±3.27 | 42.33±9.83 |
| Still smoking | 13.01±4.21 | 6.79±3.48 | 13.29±3.66 | 10.43±4.21 | 43.54±12.23 |
| p | 0.002* | 0.325 | 0.110 | 0.017* | 0.128 |
| Alcohol drinking | | | | | |
| Never drank | 11.59±3.65 | 6.30±2.95 | 13.81±3.53 | 9.19±3.51 | 40.91±10.27 |
| Drank but quit | 12.81±4.44 | 7.42±3.52 | 13.67±3.98 | 9.93±4.09 | 43.85±12.29 |
| Still drinking | 13.28±4.06 | 7.26±3.40 | 13.40±3.78 | 10.70±4.19 | 44.58±11.86 |
| p | 0.006* | 0.029* | 0.627 | 0.038* | 0.022* |

* $p < 0.05$

a, b, c: The difference between groups with different letters is significant ($p < 0.05$).

It was found that the mean Generalized Anxiety Disorder Scale-7 (GAD-7) score of the participant students was 8.73 ± 5.80 . Furthermore, the results revealed that 25.9% of the participants experienced mild anxiety, 35.5% moderate anxiety, 21.8% high anxiety, and 17.8% severe anxiety. A negative correlation was obtained between students' GAD-7 scores and daily sleep durations. The comparison between certain participant characteristics and GAD-7 scores is shown in **Table 3**.

Table 3: Relationship between specific characteristics of participants and GAD-7 scores

| Characteristics | Generalized Anxiety Disorder (GAD-7) | | | | GAD-7 Mean Total Score $\bar{x} \pm SS$ |
|---|--------------------------------------|---------------------------|-----------------------|-------------------------|--|
| | Mild Anxiety % (n) | Moderate Anxiety % (n) | High Anxiety % (n) | Severe Anxiety % (n) | |
| Gender | | | | | |
| Male | 25.7 (28) | 33.9 (37) | 27.5 (30) | 12.8 (14) | 8.37±5.64 |
| Female | 25.9 (104) | 34.7 (139) | 20.2 (81) | 19.2 (77) | 8.82±5.84 |
| p | 0.253 | | | | 0.622 |
| BMI | | | | | |
| Underweight (18.5 and below) ^a | 18.7 (14) | 36.0 (27) | 13.3 (10) | 32.0 (24) | 10.48±6.50 |
| Normal weight (18.6-24.9) ^b | 27.7 (90) | 33.2 (108) | 22.8 (74) | 16.3 (53) | 8.47±5.64 |
| Overweight (25.0-29.9) ^c | 26.3 (25) | 34.7 (33) | 26.3 (25) | 12.6 (12) | 8.27±5.65 |
| Obese (30.0 and above) ^c | 20.0 (3) | 53.3 (8) | 13.3 (2) | 13.3 (2) | 8.26±5.25 |
| p | 0.031* | | | | 0.048* |
| Smoking | | | | | |
| Never smoked | 28.6 (103) | 38.6 (139) | 18.6 (67) | 14.2 (51) | 8.01±5.47 |
| Smoked but quit | 23.8 (15) | 25.4 (16) | 25.4 (16) | 25.4 (16) | 9.69±6.15 |
| Still smoking | 16.1 (14) | 24.1 (21) | 32.2 (28) | 27.6 (24) | 11.01±6.20 |
| p | 0.000* | | | | 0.000* |
| Alcohol drinking | | | | | |
| Never drank | 28.0 (115) | 34.5 (142) | 19.5 (80) | 18.0 (74) | 8.47±5.35 |
| Drank but quit | 22.4 (11) | 32.7 (16) | 26.5 (13) | 18.4 (9) | 9.57±6.36 |
| Still drinking | 12.0 (6) | 36.0 (18) | 36.0 (18) | 16.0 (8) | 9.98±5.39 |
| p | 0.088 | | | | 0.074 |

* $p < 0.05$.

a, b: The difference between groups with different letters is significant ($p < 0.05$).

The comparison of students' generalized anxiety (GAD-7) classifications and TFEQ total and subscale scores are given in **Table 4**.

Among the generalized anxiety groups; the TFEQ total score of the students with mild anxiety was 38.03 ± 10.57 , students with moderate anxiety were 41.65 ± 10.74 , students

with high anxiety were 45.22 ± 8.58 , and students with severe anxiety were calculated as 41.97 ± 11.62 . Statistically significant differences were obtained between the GAD-7 classifications and TFEQ scores of the participants.

Table 4: Comparison of the GAD-7 and TFEQ

| GAD-7 (n) | Three-Factor Eating Questionnaire (TFEQ) | | | | TFEQ Total |
|-------------------------------------|--|------------------|-------------------------------|-----------------------|-------------|
| | Uncontrolled Eating | Emotional Eating | Cognitive Restraint of Eating | Sensitivity to Hunger | |
| Mild anxiety (132) ^a | 10.65±3.72 | 5.35±2.73 | 13.87±3.89 | 8.14±3.62 | 38.03±10.57 |
| Moderate anxiety (176) ^b | 11.59±3.46 | 6.63±3.07 | 14.31±3.26 | 9.11±3.43 | 41.65±10.74 |
| High anxiety (111) ^c | 13.18±3.44 | 7.39±2.85 | 13.81±3.49 | 10.83±3.29 | 45.22±8.58 |
| Severe anxiety (91) ^b | 12.59±4.38 | 6.84±3.35 | 12.42±3.63 | 10.10±3.88 | 41.97±11.62 |
| p | 0.000* | 0.000* | 0.001* | 0.000* | 0.000* |

*p<0.05

a, b, c. The difference between groups with different letters is significant (p<0.05).

DISCUSSION

Several recent reports indicated that eating behaviors are affected by many factors. The Covid-19 pandemic, which continues to affect for more than 1 year, also triggers anxiety and therefore negatively affects eating behavior. The current study evaluated the correlation between students' eating behaviors and general anxiety disorders during the pandemic.

The participant students were 21.4% males and 78.6% females. It is suggested that this difference in the ratio is because the study was conducted in a department containing health-related departments and female students preferred these programs more. Two-thirds of the participating students stated that they have never smoked and 17.1% expressed they still smoke. In a previous study conducted on students in health programs, the prevalence of smoking was found to be 26% (19). According to the National Adult Tobacco Survey (2014) conducted in Turkey, the prevalence of daily tobacco use in the 15-24 age group was 27.1%, and this rate was found to be higher in men (41.5%) than in women (13.1%) (20).

The mean BMI of the participant students was calculated as 22.26 ± 3.50 kg/m². According to the BMI classification, we determined that 14.7% of the participants were underweight, 63.7% were normal weight, 18.6% were overweight, and 2.9% were obese. In a previous

study involving 1676 college students, 12.1% of the students were found to be underweight, 70.4% were normal weight, 14.0% were overweight, and 3.6% were obese (19). Moreover, a literature survey revealed that the prevalence of obesity varied between 4.0%-28.3% in men and 6.2%-36.5% in women (21, 22).

In the current study, 7.1% of the participants stated that their alcohol consumption has increased. Both alcohol use and smoking potentially increase the susceptibility to SARS-CoV-2 infection and therefore, may worsen the clinical course of COVID-19. Besides, chronic alcohol exposure, with the effect of innate and acquired immune mechanisms, has a complex and negative effect on individuals and is known to increase susceptibility to viral infection (23). Staying at home for longer times than usual has a potential impact on smoking and alcohol consumption. As determined in the previous studies, prolonged isolation increases the level of stress; and increased stress is the most effective risk factor for smoking and alcohol abuse (24). Therefore, it can be argued that some people are more prone to excessive alcohol use during quarantine measures.

It determined that the participants' TFEQ total and sub-scale scores significantly differ according to their BMI classifications. Underweight and normal-weight students' TFEQ total and subscale scores were significantly lower than those of overweight and obese students. Verzijl et al. obtained a significant correlation between uncontrolled eating behaviors and BMI (25). Previous studies involving university students indicate that students' emotional eating and hunger sensitivity positively and significantly correlated with their BMI (26, 27). Löffler et al. conducted a large-scale study involving 3144 participants and found that BMI values significantly correlated with uncontrolled eating, emotional eating, and sensitivity to hunger (28). They determined that the strongest correlation was between 'uncontrolled eating' and BMI. Furthermore, French et al. examined the uncontrolled eating variable and highlighted

that a consistent relationship between uncontrolled eating and BMI was found in 10 of the 11 cross-sectional studies and 7 of the 9 prospective studies (29). Eating behaviors including the choices about when and where to eat, the decisions to start and stop eating, as well as types and amount of food chosen affect energy intake. Therefore, the BMI values of those who have problems in controlling their eating behavior are greatly affected by this situation.

According to the participants' smoking status and three-factor eating questionnaire scores, no significant differences were obtained in total, emotional eating, and cognitive restraint of eating scores according to smoking. On the other hand, uncontrolled eating and sensitivity to hunger subscale scores were found to be significantly higher in students who stated that they still smoke. The COVID-19 pandemic can be considered a stressful life event. Country-wide quarantines require individuals to adapt to staying at home for prolonged periods. And this causes people to face more stress. A study examining young adults determined that uncontrolled eating behavior was more frequently exhibited in response to stress (30). Therefore, it can be claimed that the prevalence of obesity will increase due to uncontrolled eating behaviors during quarantine practices.

It was found that total TFEQ and uncontrolled eating, emotional eating, and sensitivity to hunger sub-scale scores significantly differ according to the increase in alcohol consumption during quarantine. It is suggested that increased stress levels during the quarantine period change alcohol consumption and eating behaviors. It is a generally accepted fact that increased alcohol consumption will cause significant public health problems (31). Considering the impact of alcohol and tobacco consumption on health, the fight against these factors should continue even in pandemic conditions. The long-term destructive effects of alcohol and tobacco consumption will be much more severe.

Contagious and deadly epidemics negatively affect public mental health. The high spread and mortality rate of COVID-19 raises concerns about the mental health and psychological adaptation of the public (32 - 34). After Covid-19

was declared a pandemic by WHO, schools and universities were closed and long quarantine durations caused concern among students. Our findings showed that 25.9% of the students had mild anxiety, 35.5% had moderate anxiety, 21.8% had high anxiety, and 17.8% had severe anxiety. In a review study examining 62 studies with 162,639 participants from 17 countries, including China, Turkey, Iran, Spain, and Italy, the anxiety rate was reported as approximately 33% (28-38%) (35). Furthermore, a previous study reported that the prevalence of severe anxiety symptoms among Asian university students was 7.04% (36). Moreover, in another study involving 3,881 university students in China, the country where the COVID-19 pandemic first started, the incidences of mild, moderate, and severe anxiety were found to be 23.19%, 2.71%, and 0.70%, respectively (5). The possible reason for the different results in these studies is probably sample selection, the evaluation duration, the differences in the analyzes, and cut-off scores.

Although the anxiety rate among female students was found to be higher than male students in our study, this difference is not significant. The results of similar studies indicate female students were more emotional and more prone to tension than male students, so they exhibit more anxiety rates (5).

It was obtained a significant correlation between students' BMI values and GAD-7 scores. Students with a BMI of <18.5 and below had higher anxiety scores. Since appearance is more important in this period, concerns about gaining weight, and deterioration of body image increase students' anxiety. Similar results were also observed in underweight individuals who have high anxiety about being obese and were diet-oriented (37 - 39). The high spread rate throughout the world and high death numbers of the COVID-19 pandemic increased the anxiety level of people living in quarantine and affected their BMI values. It was found that a significant relationship exists between smoking and GAD-7 scores. According to our findings, mild and moderate anxiety rates were high in non-smokers, whereas high and severe anxiety rates were higher in constantly smoking students. Similarly, although smokers perceive smoking as a

stress reliever and experimental studies have reported that smoking temporarily reduces stress levels, research has shown that continued smoking may eventually lead to the formation or exacerbation of negative emotional states, support negative coping strategies, and increase overall stress levels (20, 30, 40).

Mental health is highly sensitive to traumatic events as well as the social and economic consequences of these events. The pandemic has deeply affected all individuals around the world and has therefore caused many mental problems. The mental problems experienced by individuals due to the pandemic were accompanied by loss of income and social isolation, naturally, this situation changed the eating behaviors of the society. People have stayed at home during quarantine and have become more dependent on digital life, and physical activities have decreased. The results of research showed that students with mild and moderate anxiety had higher cognitive restraint of eating scores; however, eating control decreased as their anxiety level increased. It was found that participants with mild anxiety had significantly lower TFEQ scores than those with moderate, high, and severe anxiety. On the other hand, the TFEQ scores of the participants with high anxiety were found to be statistically significantly higher than those with moderate and severe anxiety. The interruption of work routine due to the quarantine measures caused distress in people and accordingly, individuals consumed more food and got more energy at home. However, constantly following the updates and getting information about the COVID-19 pandemic from the media are also effective in increasing the level of stress. Increased stress leads individuals to overeat, especially to sugar-rich foods which are described as "relaxing". The main purpose here is serotonin, whose synthesis is triggered by carbohydrate-rich foods (41, 42).

As the pandemic continues, actions should be planned to protect the physical, mental, and social health of individuals. During staying at home, time spent using computers, telephones, and the internet has increased; therefore, the concepts of health and media literacy have

become more important for young people to prevent technology addiction. Young people should be provided with accurate information based on scientific data about healthy lifestyles, eating behaviors, and other issues. Young people should also be properly informed about nutrition and lifestyle through TV programs, telephone apps, and social media. Planning exercises and gaining new occupations/hobbies is thought to be effective in making the time spent at home more productive and reducing anxiety.

Nutrition courses given at universities are important in terms of focusing on the relationship between stress and diet and stress management. In addition, it will be beneficial to increase the practices to protect the mental health of the society during epidemic periods and to draw attention to different directions with crisis management trainings.

The current study is limited to college students cannot be generalized to the whole society. Therefore, further research with different age groups should comprehensively reveal how this issue affects the whole population.

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