Nutrition, Health Behaviour Changes, and Eating Behaviours of Adults During the COVID 19 Pandemic Period

COVID 19 Pandemi Döneminde Yetişkinlerin Beslenme, Sağlık Davranışı Değişiklikleri ve Yeme Davranışları

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ABSTRACT

Aim: The aim of this study was to examine the changes in the health behaviours, food consumption, meal patterns and eating behaviours of adults during the COVID-19 pandemic, which globally poses a major public health threat. **Method:** The research designed as descriptive and cross-sectional type was conducted on 330 voluntary adults aged 20 and over, between May and July 2020 (mean age: 33.1±11.5 years). Data were collected through an online survey method. The questionnaire included questions to identify the changes in participants' health behaviours, food consumption, meal patterns, and an eating disorder rating scale to evaluate their eating behaviours. SPSS 21.0 software was used for the evaluation of the data. **Results:** During the pandemic period, while smoking (p<.05), alcohol (p>.05) consumption, physical activity (p<.05) rates decreased; sleep duration and body mass indexes increased (p<.05). During the pandemic, the rate of those consuming one main meal a day increased, while the rate of those consuming three main meals decreased (p<.05). In addition, the rate of eating at night increased during the pandemic (p<.05). During the pandemic period, the adults' consumption of cereals and sweets which are rich in carbohydrates, and their fat, tea, coffee consumptions increased, while their fish consumption decreased. The average global eating disorder rating scale score of adults during the pandemic period was 2.4±1.4, and it was determined that the risk of possible eating disorders was low. However, during the pandemic process, it was determined that they displayed negative behaviours such as consuming more food than usual, feeling losing control while eating, experiencing excessive eating attacks, and obsessive exercise. **Conclusion**: As a result of the study, it was revealed that the pandemic process negatively affected the nutrition and health behaviours of individuals in general. It is thought that adults should be made aware of the effects of nutrition and lifestyle on sensitivity to COVID-19 and recovery.

Keywords: COVID 19, nutrition, health, adult.

ÖZET

Amaç: Bu araştırmanın amacı, küresel boyutta önemli bir halk sağlık tehdidi oluşturan COVID- 19 pandemisi sürecinde yetişkin bireylerin sağlık davranışları, besin tüketimleri, öğün düzenlerindeki değişimlerin ve yeme davranışlarının incelenmesidir. **Yöntem**: Tanımlayıcı ve kesitsel tipte tasarlanan bu araştırma, Mayıs-Temmuz 2020 tarihleri arasındaki 20 yaş ve üzeri 330 gönüllü yetişkin üzerinde yürütülmüştür (ortalama yaş: 33.1±11.5 yıl). Veriler, çevrimiçi anket yöntemiyle toplanmıştır. Anket formunda katılımcıların sağlık davranışları, besin tüketimleri, öğün düzenlerindeki değişimleri belirlemeye yönelik sorular ile yeme davranışlarının değerlendirilmesi amacıyla yeme bozukluğu değerlendirme ölçeği yer almıştır. Verilerin analizinde SPSS 21.0 programı kullanılmıştır. **Bulgular:** Pandemi döneminde, yetişkinlerin sigara (p<.05), alkol (p>.05) tüketim oranları ve fiziksel aktivite (p<.05) yapma oranları düşmüş; uyku süreleri ve beden kütle indeksleri artmıştır (p<.05). Pandemi süresince günde tek ana öğün tüketenlerin oranı artmış, üç ana öğün tüketelerin oranı azalmıştır (p<.05). Ayrıca, pandemi sürecinde gece yeme oranı artmıştır (p<.05). Yetişkinlerin pandemi döneminde; karbonhidrat yönünden zengin besinler olan tahıllar, tatlı türleri ile katı yağ, çay, kahve, tüketimlerinin arttığı; balık tüketimlerinin azaldığı bulunmuştur. Yetişkinlerin yeme bozukluğu değerlendirme ölçeği ortalama puanı 2.4±1.4 olup pandemi döneminde, olası yeme bozukluğu riskinin düşük olduğu belirlenmiştir. Bununla birlikte pandemi sürecinde normalden daha fazla besin tüketme, yemek yerken kontrolü kaybetme hissine kapılma, aşırı yemek yeme nöbetleri yaşama, saplantılı biçimde egzersiz yapma gibi olumsuz davranışlar gösterdikleri belirlenmiştir. **Sonuç:** Araştırmanın sonucunda pandemi sürecininin genel olarak bireylerin beslenmelerini ve sağlık davranışlarını olumsuz şekilde etkilediği ortaya çıkmıştır. Yetişkinlerin, beslenme ve yaşam biçiminin COVID-19'a duyarlılık ve iyileşme üzerindeki etkileri hakkında bilinçlendirilmesi gerektiği düşünülmektedir.

AnahtarKelimeler: COVID 19, beslenme, sağlık, yetişkin.

INTRODUCTION

Coronaviruses (CoV) are a large family of viruses that cause diseases ranging from common cold to more serious diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). New Coronavirus (COVID-19) is a virus that causes respiratory infection. COVID-19, which is considered as a pandemic by the World Health Organization, poses a major public health threat in Turkey.[1] Having a strong immune system is the most important element of successful treatment in preventing viral diseases such as COVID-19. The immune system is directly related to nutritional status, and adequate and balanced nutrition is required for optimal functioning of immune cells.[2,3] It has been reported that unhealthy diets and lifestyle behaviours can cause an increase that can worsen the picture of COVID-19.[4] Globally, the treatment for COVID-19 has not yet been discovered and confirmed. However, nutrition is applied as an important part of acute and chronic treatment. During the Ebola virus epidemic that emerged in West Africa in 2014, emergency supportive care such as nutrition has been reported to significantly reduce case fatality rates.[5,6] It is predicted that this will also be effective in combating the COVID-19 pandemic.[7]

There is a strong relationship between nutrition and mental health in adults.[8] Studies show that nutrition has important effects on mood. Although the factors that determine mental health are complex, increasing evidence suggests a strong association between malnutrition and mood disorders.[9] Individuals may tend to have an unhealthy diet in order to get away from increasing stress and problems and to get rid of the negative effects of these situations.[10] It is necessary to address physical and mental health problems and to increase the awareness of individuals in terms of fighting against the COVID-19 pandemic. It is reported that all these will affect the pandemic directly and indirectly. [11]

The aim of this study, planned in the light of this information, is to examine the changes in the health behaviour, food consumption, meal patterns of adults during the COVID-19 pandemic, and the eating behaviour in this process. It is thought that the results obtained from the study will contribute to the international literature by revealing the relationship between nutrition and the COVID-19 pandemic, a new phenomenon that has not yet been fully enlightened on a global scale.

METHOD

The descriptive and cross-sectional study was conducted between May and July 2020. The population consisted of individuals who were 20 years and over, living in Turkey. A sample size was not calculated for the study, and at the time of the study, 330 adults who were eligible and agreed to participate were included in the study. In order to carry out the study, scientific research permission was obtained from the Ministry of Health beforehand. In addition, ethics approval was obtained from Selcuk University Faculty of Health Sciences Ethics Committee to conduct the study (Decision number: 20/596). The subjects participated on a voluntary basis after being fully informed about the study. They signed an informed consent and filled in questionnaires, which adhered to the Declaration of Helsinki protocols (World Medical Association). Study data were obtained through online survey method. The questionnaire includes descriptive information of the participants, questions to determine their health behaviour, meal patterns, food consumption before and during the pandemic, and the Eating Disorder Rating Scale (EDE-Q) to determine the eating behaviours of the participants.[12] Participants' height and body weight information were recorded according to their own statements and body mass indexes (BMI) were calculated. BMIs were calculated as weight (kg) divided by height squared (m^2). Then, BMI was classified as BMI <18.5 kg/m^2 "underweight", BMI:18.5-24.9 kg/m^2 "normal", BMI:25.0-29.9 kg/m^2 "overweight" BMI≥30.0 kg/m^2 "obese" according to World Health Organization's classification.[13]

Eating Disorders Examination Questionnaire (EDE-Q)

The Eating Disorders Examination Questionnaire (EDE-Q), which was developed by Fairburn and Beglin (1994)[14], is a scale that is scored between 0-6, consisting of 28 questions and five subscales, evaluating the possible disorder in eating behaviours, taking into account the eating behaviours of individuals during the last 28 days. Sub scales are Restraint Concern (RC) (Items 1, 2, 3, 4, 5), Binge Eating (BE) (Items 13, 14, 15, 16, 17, 18), Shape Concern (SC) (Items 6, 8, 10, 11, 23, 26, 27, 28), Eating Concern (EC) (Items 7, 9, 19, 20, 21) and Weight Concern (WC) (Items 8, 12, 22, 24, 25). Except for the binge eating subscale, the total score (global score) of the scale is obtained by summing the four subscale scores and dividing them by 4. Increasing scores indicate the presence of pathology. 4 and above was accepted as the cut-off point of the total score and subscale scores obtained from the scale as an indicator of clinical significance. The Turkish validity and reliability study of the scale was conducted by Yucel et al. (2011) and the internal consistency coefficient of

the scale was found to be .93 and test-retest reliability as .91.[12] The Cronbach alpha value for this study was found to be as 0.86.

Statistical Analysis

SPSS 21.0 (Statistical Package for the Social Sciences) software was used for the evaluation of the data. The One Sample Kolmogorov-Smirnov test was used to determine whether outcome variables were normally distributed. Accordingly, number (n), percentage (%), mean±standard deviation (SD), median [inter-quartile range-IQR] were applied to evaluate the data, Wilcoxon Signed Rank test to analyse the changes in body weight and BMI during the pre-pandemic and pandemic periods, Mc Nemar test to analyze the changes in health behaviours and meal patterns. In all statistical tests, the range of reliability was accepted as 95.0% and evaluated at significance level of $p<.05$.

RESULTS

General Characteristics

Of the adults participating in the study, 73.9% were women and 26.1% were men. Their age ranged from 20 to 66, with an average of 33.1±11.5 years. Of them, 51.2% were married, 48.8% were single. 92.1% of them had nuclear family structure, 82.4% resided in the city centre and 17.6% in the district, 38.9% had 3000-6000 TL, 28.2% had >6000 TL, 21.5% had 1500-3000 TL, 11.5% had<1500 TL monthly income, 66.4% of the adults were associate/undergraduate, 15.4% post- graduate, 9.7% high school, 8.2% primary school graduates, 38.8% were civil servants, 26.7% were students, 12.1% were housewives, 12.1% were workers, 10.3% were health personnel, 20.3% of them had a chronic disease and 17.3% took medication regularly.

Health Status of Adults Before and During the COVID-19 Pandemic

Table 1. Health Behaviours of Adults Before and During the COVID-19 Pandemic

		Pre-pandemic period n (%)	Pandemic Period n (%)	Statistics
Current smoking	Yes	89 (27.0)	82 (24.8)	p:0.018[a]
	No	241 (73.0)	248 (75.2)	
Alcohol consumption	Yes	21 (6.4)	19 (5.8)	p:0.500 [a]
	No	309 (93.6)	311 (94.2)	
Regular Diet	Yes	77 (23.3)	55 (16.7)	p:0.010 [a]
	No	253 (76.7)	275 (83.3)	
Physical Activity	Yes	168 (50.9)	120 (36.4)	p:0.000 [a]
	No	162 (49.1)	210 (63.6)	
Sleep Duration (hour/day)	Median [IQR]	7.0 [1.0]	8.0 [2.0]	p:0.000 [b]

[a] McNemar Test   [b] Wilcoxon Signed Ranks Test

The proportion of the adults smoking before the pandemic (27.0%) decreased by 2.2% during the pandemic period (p>0.5). Of those who consumed alcohol (6.4%) before the pandemic, 2 subjects (0.6%) were detected to quit alcohol (p>.05). The rate of those who followed a regular diet plan before the pandemic was 23.3%, while the rate of those who diet during the pandemic period is 16.7% $(p<.05)$. The rate of those who reported that they were physically active before the pandemic was 50.9%, and this rate decreased to 36.4% during the pandemic $(p<.05)$. Sleep duration of adults also increased during the pandemic, and the difference between the pre-pandemic and pandemic period was significant $(p<.05)$.

Table 2. BMI Changes of Adults Before and During the COVID-19 Pandemic

	Mean±SD	Median [IQR]	Wilcoxon Signed Ranks Test
Pre-pandemic height (cm)	1.66±0.1	-	
Pre-pandemic body weight (kg)	69.1±14.9	-	-
Body weight during pandemic (kg)	70.1±15.1	-	
Pre-pandemic BMI (kg/m²)	24.8±4.7	24.1 [6.7]	p:0.000
BMI during pandemic (kg/m²)	25.2±4.7	24.3 [6.3]	

Average height of the adults was 1.66±0.1 cm, body weight before COVID-19 pandemic was 69.1±14.9 kg, body weight in COVID-19 pandemic period was 70.1±15.1 kg, average BMI was 24.8±4.7 kg/m² before pandemic and 25.2±4.7 kg/m²during pandemic period. An increase in BMI of adults was determined during the pandemic. BMI changes before and during the pandemic were statistically significant $(p<.05)$.

Nutritional Changes of Adults Before and During COVID-19 Pandemic

Table 3. Comparison of Adults' Meal Patterns Before and During COVID-19 Pandemic

		Pre-pandemic n (%)	Pandemic Period n (%)	McNemar Test
Number of main meals	One meal	1 (0.3)	10 (3.0)	p:0.000
	Two meals	173 (52.4)	201 (60.9)	
	Three meals	156 (47.3)	119 (36.1)	
Skipping main meal	Yes	174 (52.7)	211 (63.9)	p:0.001
	No	156 (47.3)	119 (36.1)	
The most frequently skipped main meal	Breakfast	97 (46.0)	41 (19.4)	p:0.000
	Lunch	104 (49.3)	162 (76.8)	
	Dinner	20 (4.7)	8 (3.8)	
Reason for skipping meal	Getting up late	121 (57.3)	99 (46.9)	p:0.002
	Lack of habit	43 (20.4)	31 (14.7)	
	Lack of appetite	36 (17.1)	62 (29.4)	
	Worrying about gaining weight	11 (5.2)	19 (9.0)	
Consuming snacks	Yes	197 (59.7)	208 (63.0)	p:0.260
	No	133 (40.3)	122 (37.0)	
The most frequently consumed snack	Mid-morning	21 (10.7)	13 (6.3)	p:0.201
	Afternoon	102 (51.8)	84 (40.4)	
	Night	74 (37.6)	111 (53.4)	
Night eating	Yes	153 (46.4)	205 (62.0)	p:0.000
	No	177 (53.6)	125 (38.0)	

Before and during the pandemic, adults consumed at most two main meals a day (52.4%, 60.9%, respectively). During the pandemic period, the rate of those consuming one meal a day increased, while the rate of those consuming three meals decreased *(p<.05)*. Before the pandemic, 52.7% of the adults skipped the main meal, this rate increased during the pandemic period (63.9%, *p<.05)*. The reason for skipping the main meal before and during the pandemic was getting up late with the highest rate (57.3%; 46.9%, *p<.05*, respectively). In the pandemic period, the snack consumption of adults also increased, and while the most frequently consumed snack was the afternoon snack (51.8%) before the pandemic, it was determined that adults consumed more snacks at night during the pandemic period (p>.05). When the night eating status of adults is examined, it is understood from Table 3 that the rate of night eating increased during the pandemic period too *(p <.05)*.

Table 4. Changes in Food Consumption of Adults During the COVID-19 Pandemic

Foods	Increased	Decreased	Not changed
	n (%)	n (%)	n (%)
Milk and Dairy Products			
Milk, yoghurt, cheese, ayran, etc.	145(43.9)	17 (5.2)	168 (50.9)
Meat, poultry, fish, eggs, legumes, nuts			
Meat, poultry	148 (44.8)	17 (5.2)	165 (50.0)
Sausage, salami, etc.	80 (24.2)	47 (14.2)	203 (61.5)
Fish	34 (10.3)	86 (26.1)	210 (63.6)
Legumes	92 (27.9)	27 (8.2)	211 (63.9)
Egg	173 (52.4)	15 (4.5)	142 (43.0)
Nuts	124 (37.6)	33 (10.0)	173 (52.4)
Vegetables			
Green leafy vegetables	172 (52.1)	19 (5.8)	139 (42.1)
Other vegetables	114 (34.5)	15 (4.5)	201 (60.9)
Fruits			
Fruits	155 (47.0)	39 (11.8)	134 (40.6)
Grains			
Bread	103 (31.2)	71 (21.5)	156 (47.3)
Rice, bulghur, pasta, noodles, flour, etc.	142 (43.0)	28 (8.5)	160 (48.5)
Biscuits, crackers	131 (39.7)	69 (20.9)	130 (39.4)
Pastry, pies, cakes, cookies, etc.	163 (49.4)	46 (13.9)	121 (36.7)
Doner, kebab, pita, pizza, burger, etc.	27 (8.2)	165 (50.0)	138 (41.8)
Desserts			
Sugar, honey, jam, molasses	75 (22.7)	41 (12.4)	214 (64.8)
Turkish Delight, candy, chocolate	99 (30.0)	53 (16.1)	178 (53.9)
Fruity dessert	79 (23.9)	42 (12.7)	209 (63.3)
Milk dessert, ice-cream	171 (51.8)	19 (5.8)	140 (42.4)
Pastry dessert	146 (44.2)	50 (15.2)	134 (40.6)
Fats and Oils			
Olive oil	105 (31.8)	9 (2.7)	216 (65.5)
Other oils	53 (16.0)	37 (11.3)	240(72.7)
Butter	115 (34.8)	14 (4.2)	201 (60.9)
Margarine	25 (7.6)	53 (16.0)	252 (76.4)
Beverages			
Packaged fruit juices	38 (11.5)	101 (30.6)	191 (57.9)
Fresh fruit juices	90 (27.3)	34 (10.3)	206 (62.4)
Fizzy drinks	61 (18.6)	74 (22.4)	195 (59.0)
Mineral water	114 (34.6)	30 (9.0)	186 (56.4)
Coffee	125 (27.9)	51 (15.5)	154 (46.7)
Tea	184 (55.8)	25 (7.6)	121 (36.6)
Herbal tea	67 (20.3)	47 (14.2)	216 (65.5)

When the changes in the food preferences of adults during the pandemic period were examined, it was determined that they increased their consumption of milk and dairy products (43.9%), meat (44.8%), eggs (52.4%), oil seeds (37.6%), green leafy vegetables (52.1%), fruit (47.0%), cake, pastry, cookies, pies, etc. (49.4%),

milky desserts, ice cream (51.8%), pastry desserts (44.2%), butter (34.8%), olive oil (31.8%), tea (55.8%). On the other hand, it was determined that they reduced their consumption of fish (26.1%), doner, kebab, pita, pizza, burger, etc. (50.0%) and ready-made fruit juices (30.6%).

Table 5. EDE-Q Scale Scores of Adults in the COVID-19 Pandemic		
	Mean±SD	Median [IQR]
Global Score	2.4±1.4	2.1 [2.1]
Restraint Concern- RC	2.5±1.9	2.0 [2.4]
Shape Concern-SC	2.7±1.7	2.4 [2.7]
Eating Concern-EC	2.0±1.6	1.4 [2.0]
Weight Concern-WC	2.3±1.5	2.0 [1.8]
Binge Eating- BE	-	-
Number of eating unusual amounts of food in the past 28 days	5.1±7.5	2.0 [7.0]
Number of having the feeling of losing control over eating in the past 28 days	3.7±5.6	2.0 [5.0]
Number of days when binge eating attack was experienced in the last 28 days	3.5±6.1	1.0 [5.0]
Number of self-induced vomiting to control body shape or weight in the past 28 days	0.6±5.8	0.0 [0.0]
Number of laxative use to control body shape or weight in the past 28 days	0.4±2.0	0.0 [0.0]
Number of times you have exercised "by losing yourself" or "obsessively" to control weight, shape or fat and burn calories in the past 28 days	1.0±3.3	0.0 [0.0]

The average global EDE-Q score of the adults was 2.4±1.4, RC score: 2.5±1.9, SC score: 2.7±1.7, EC score: 2.0±1.6, WC score: 2.3±1.5. When the binge eating behaviours of the adults in the last 4 weeks as of the date of the study were examined, it was determined that they consumed 5.1±7.5 times more food than usual, had a feeling of losing control while eating on average 3.7±5.6 times, had binge eating attacks on average 3.5±6.1 days, and exercised obsessively on average 1.0±3.3 times.

DISCUSSION

The COVID-19 pandemic significantly affects the lifestyles of people.[16]Negative effects have occurred on people's mental health and behaviours, especially with the effect of social isolation. It has been reported that these negative effects during the pandemic period may cause changes in the sleep and eating patterns of people, an increase in weight, smoking and alcohol consumption, and worsening of chronic health conditions.[17-19] Elements of a healthy lifestyle are listed as adequate and balanced diet, regular sleep and physical activity, hygiene, avoidance of smoking and alcohol. These health behaviours are the factors that shape the health and well-being of individuals and societies.[20]Therefore, in order for people to manage this period in the healthiest way, it is important that they show healthy lifestyle behaviours, especially social distance. When the health behaviours of adults participating in the study before and during the pandemic were examined, it was seen that the proportion of adults smoking decreased positively by 2.2% during the pandemic period (p>0.5). This result is good for health. However, the rate of those who followed a regular diet plan before the pandemic was 23.3%, while the rate of those who diet during the pandemic period was 16.7%

(p<.05), the rate of those who were physically active before the pandemic was 50.9% and this rate decreased to 36.4% during the pandemic (p<.05).In addition, the sleep duration of adults increased during the pandemic (p<.05). These results pose a risk especially for the development of obesity. When the BMI changes of adults during the pandemic period were examined, it was determined that they gained weight during the pandemic process, so there was an increase in their BMI (p<.05). Adequate and balanced diet helps prevent and control diseases such as obesity, diabetes, hypertension, and regulates sleep and mood.[17] Therefore, it is important for individuals to consume regular meals as 3 main meals a day and to make healthy food choices. When the changes in the meal patterns of adults during the pandemic period were examined, it was determined that the rate of those consuming 3 main meals decreased and the rate of those who skipped meals increased during the pandemic period (p<.05, Table 3). The most frequently skipped main meal during the pandemic period is lunch (76.8%, p<.05). The most frequently reported reason for skipping meals is getting up late (46.9%, p<.05).Therefore, these results are thought to be related to the increase in sleep duration of adults during the pandemic period. When the consumption of snacks in adults during the pandemic period was examined, it was determined that they mostly consumed snacks at night (53.4%, p>.05), and that the rates of night eating increased significantly during the pandemic period compared to the pre-pandemic period (62.0%, p<.05). A growing number of studies have shown that night eating was associated with poor diet quality, higher BMI and negative health outcomes.[21,22] It would be helpful to inform adults about the importance of regular meals and sleep.

It is known that fear, anxiety, and depression symptoms increased during the pandemic period.[18] People may show tendency to an unhealthy diet in order to get away from increased stress and problems.[10] It is common to consume more food than normal in times of stress, and to prefer foods that are high in simple carbohydrates, easy to prepare and sweet.[23] In this study, it was found that cereals which are rich in carbohydrates, desserts, fat, tea and coffee consumption of adults increased during the pandemic period, while fish consumption decreased (Table 4). However, the positive findings of the study are that milk and dairy products, green leafy vegetables, fruits, oilseeds, olive oil consumption of adults increased and the consumption of ready-to-eat foods decreased (Table 4).The eating behaviours of the adults during the pandemic period were also examined, and as a result, the average global EDE-Q score was 2.4±1.4, and it was below 4 points, which is accepted as an indicator of clinical importance in the evaluation of the scale score; therefore, it can be said that the risk of possible eating disorder was low.[15]However, when the scale items included in the scale but not included in the total scoring were examined, it was determined that the adults consumed on average 5.1±7.5 times more food than normal in the last 4 weeks as of the date of the study, they had the feeling of losing control while eating on average 3.7±5.6 times, they had binge eating attacks on average 3.5±6.1 days and obsessively exercised on average 1.0±3.3 times. These results can be evaluated as adults tended to develop negative eating behaviours during the pandemic period and the pandemic period had a negative effect on adults' nutrition and health behaviours. Recent studies report that unhealthy diets and lifestyle behaviours can adversely affect immunity and cause an increase that can worsen the picture of COVID-19.[3,4] Therefore, during the pandemic period, it is recommended that individuals avoid eating foods high in saturated fat and simple carbohydrates and instead consume high amounts of fiber, whole grains, fish, unsaturated fats and antioxidants to increase immune function.[24]

CONCLUSION

As a result, it has been revealed that the pandemic process negatively affects the nutritional and health behaviours of adults in general. It is thought that adults should be made aware of the consumption of inadequate and unbalanced diets and the impact of unhealthy living behaviours on susceptibility to COVID-19 and recovery. It is of great importance to follow a balanced diet rich in protein, fiber, vitamins, minerals and anti-oxidants in this period. In addition, it is recommended to avoid the consumption of substances such as cigarettes and alcohol, and to have regular sleep and physical activity in order to be protected against the COVID-19 virus.

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