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Changes in Food Supply and Consumption Practices of People in Turkey During the COVID-19 Pandemic

Hatice SIÇRAMAZ[1], Güliz HASKARACA*[1], Yusuf ARSLAN[2]

Abstract

The COVID-19 pandemic has had social and economic impacts on every country in the world and has caused significant changes in human nutrition. In this study, changes in the food supply chain and consumption practices before and after the controlled normalization of people living in Turkey were examined, with a survey of 1087 people. The results revealed that people focused on a healthier diet during the pandemic. The increase in dietary supplement consumption has not been too high, only 11% of people started to take dietary supplements, but fast food consumption had a sharp fall. The packaging has become more critical. People continued to use take-out services from supermarkets and fast-food restaurants. Although normalization has begun, most of them (90%) reduced or did not think about eating out until COVID-19 will over. This study revealed the effects of the pandemic on human nutrition and showed which direction the food supply should go.

Keywords: Pandemics, coronavirus, nutritional supplements, consumption habits

1. INTRODUCTION

The new coronavirus disease (COVID-19) is a highly transmittable and pathogenic viral infection caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that has started to affect the whole world in the last months of 2019 and still continues [1]. This disease was declared a pandemic on March 11, 2020 [2]. Many business sectors have been affected positively or negatively by the COVID-19 pandemic depending on sector and region [3, 4]. However, the literature data obtained from google searches, sectoral communications, unemployment rates, and surveys have shown that the COVID-19 pandemic has had significant adverse effects on the economy of countries [5-9]. Within that period, the food sector was one of the most negatively affected sectors by the COVID-19 pandemic. Restaurants and fast food points were closed and were only permitted take-out services with the curfews. Besides, education was paused in education units, and many workplaces switched to remote work. As expected, with a change in the daily hassle and "staying at home" calls people's eating routines changed. Individuals who had previously eaten their meals outside started to prepare their meals at home. On the

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other hand, the first wave of the COVID-19 pandemic was a situation that the current generation encountered for the first time. This emerging situation has created an unusual situation for both Turkey and other countries in the world [10, 11]. In the face of this sudden situation, the media frequently published nutritional suggestions which are necessary or helpful to avoid the disease. And not only do people tend to obey these instructions, but also, they spread them from social media accounts to be beneficial to others. But, how are this information and instructions affect people? How were food consumption habits affected by this chaotic environment? Studies seeking answers to these questions from many countries have started to be published. The current study aimed to contribute to the studies on the subject and to reveal the changes in the food supply chain and food consumption habits of individuals living in Turkey.

Food consumption habits of people have changed during the pandemic. For example, a study carried out by Marty et al. [12] revealed that during the curfews in France, people's moods in food choices were much more critical than in the previous periods. Out of 48% of the 938 people who participated in their study pointed out that the convenience of preparing meals was less important now. In addition, in the same survey, 26% and 29% of participants reported that a healthy diet and not gaining weight were more important comparing the previous, respectively. To understand the change in consumption habits before and after the COVID-19 pandemic in underdeveloped countries of Africa, two other researches were carried out in Sudan in 2017 and 2020. The results had shown that while cereal and milk were preferred on day and night before 2020, fish and other seafood were started to be preferred in 2020. Similar results were obtained in research on Tanzania [13, 14]. In Italy, one of the countries most affected by the COVID-19, it was observed that people did not eat breakfast but had a late snack before the COVID-19 pandemic, however in 2020, most people prefer a healthy breakfast enriched with green vegetables [15, 16].

On the other hand, fast food is one of the most consumed ready-to-eat meals among young people, especially those between the ages of 18-35. The survey conducted by Mediabrands Insight company with 2500 participants stated that fast-food consumption was caused by starving [17]. Within the daily routine, people were eating fast foods in order to save time and reach or eat food in a very short time period as soon as possible. However, with the effects of curfews, the closure of restaurants and fast-food points, and a slowing of daily bustle, it is estimated that there is a sharp decrease in the consumption of ready meals. Determining the level of these decreases is of great importance both for determining the effects of the pandemic on the fast-food sector and for determining the changes in consumers' eating tendencies.

According to a survey of Turkish Statistical Institute [18], before the pandemic, the most commonly consumed food group in Turkey was bread and other cereals with a proportion of 19.9%, followed by vegetables (18.8%) and protein-rich foods - meat, fish and other seafood (17.3%). However, with the COVID -19 pandemic, the food consumption habits of Turkish adults may have changed, as in other countries. On the other hand, although people's eating and food supply habits have changed during the COVID-19 pandemic, an investigation by Sheth [19] revealed that governments' normalization steps brought back eating out habits. In line with this knowledge, our study aimed to evaluate Turkish people's food supply and food consumption practices before and after the COVID-19 pandemic and assess the extent of this change. Evaluating the study results will contribute to the roadmap to be followed in the food consumption chain during the pandemic period.

2. MATERIAL AND METHODS

In the current study, a questionnaire study was administered to determine the changes in food supply and consumption practices of people living in Turkey during the COVID-19 pandemic. For that purpose, an online method was used for the data-gathering processes. An online survey

was created using Google Forms, forms and the questionnaire link was disseminated through the connections of the authors. Links were restricted so that they cannot be accessed twice from the same IP. People who had the link were also asked to feel free to share it with their friends and family so that the sample would have maximum diversity. As expected, it was not possible to reach people face to face during the lockdown period, so the study was carried out with people who can be reached online. An online survey was carried out with the approval of the Sakarya University Ethics Committee between the 20th and 27th of July 2020 in Turkey, with the attendance of 1087 usable questionnaires, for people over the age of 18. In total, 32 different questions (including both multiple-choice questions and open-ended questions) were asked to the participants to determine the demographical information of the sample group, changes in consumption practices, weight changes during pandemic, hygienic rules followed during purchase, use of take-out services, consumption advices of World Health Organization [20]. The questions asked to the participants within the scope of the study are given in Table 1. The data were analyzed through descriptive statistics and chi-square analyses by using the IBM SPSS version 20 statistic program (IBM Corporation, Armonk, NY) (IBM Corp, 2011).

Table 1 Questions in the survey

	Questions
Demographical Information	What is your gender?
	How old are you?
	What is your marital status?
	What is your educational status?
	Where do you live in?
	How do you evaluate your economic status?
Questionnaire	Was there any change in your food consumption practices during the pandemic COVID-19?
	If there were changes, can you describe?
	Did you gain weight in the last 5 months? Please choose the appropriate option.
	Did you take supplements during the pandemic?
	Please choose the option that best reflects your preference to purchase packaged food products from the market before the COVID-19 outbreak.
	Has your preference for purchasing packaged food products changed after the COVID-19 outbreak (during and after the pandemic)?
	During the COVID-19 pandemic, did you pay attention to purchase your bread in packages?
	Choose the answer that best reflects your opinion about your bread purchases during the COVID-19 pandemic.
	During the COVID-19 pandemic, did you pay attention to the packaging of the meat and meat products that you purchase?
	Choose the answer that best reflects your opinion on meat and meat product purchases during the COVID-19 pandemic.
	Were there any products you suspected while consuming during the pandemic?
	Which product and / or products did you suspect?
	Is there a food group that you have difficulty to obtaining during the pandemic?
	If yes, what is the category of this product?
	Are there any food product(s) you gave up buying during the COVID-19 outbreak?
	If there are product(s) you gave up, what are they?
	What is your reason for giving up?
	Do you take care to choose corporate, well-known brands in the products you will purchase during COVID-19?
	Have you used take-out services on food products before the normalization process started?
	If you have used the services, which product group(s) did you prefer?
	Have you used take-out services in your food shopping after the normalization process started?
	If so, which product(s) did you prefer?
	Do you care about the compliance with the hygiene rules while choosing the opened cafes, restaurants, etc.?
	Please mark the option that best reflects your opinion about eating in food consumption areas (cafe, restaurant, etc.) considering the COVID-19.
	Have you read the 'healthy eating recommendations for adults' published by the World Health Organization (WHO) during the COVID-19 pandemic?
	How carefully did you pay attention to these published suggestions?

3. RESULTS AND DISCUSSION

3.1. Participants' demographical information

The results of a survey with 1087 participants living in Turkey were evaluated in this study. The gender distribution of the people participating in the study was 641 women and 446 men. The percentage of the age group of the participants was 44% for 18-25, 29% for 26-35, 17% for 36-45, 8% for 46-55, and 2% for 56 and above. A great majority of the participants, with 75%, had a university or higher degree. Half of them were living in the metropolis, and 95% of these people

described their economic situation as a medium, good or excellent.

3.2. Changes in eating habits of participants and preferences of packaged foods

The COVID-19 pandemic has caused significant changes in daily life. These necessarily experienced changes have brought about adaptation problems in many areas. The most important of these changes is eating habits [21]. During the quarantine period, factors such as stress, anxiety, anger, low mood, insomnia, and restrictions on access to food have changed the eating habits of individuals. The hypothalamic-pituitary-adrenal axis, which regulates stress responses, also regulates nutritional responses because the neural circuits that regulate food intake converge in the paraventricular nucleus. Since the systems controlling food intake and stress responses share the same anatomy, each system can affect the other. It is known that stress changes nutritional responses in both an increase and a decreasing manner [22].

Out 46% of 1087 participants reported that their eating habits were not affected by the COVID-19 pandemic, while 54% of them said that their eating habit was affected. When our survey results were examined according to the Chi-Square test, it was seen that there is a statistically significant relationship between the gender of the participants and the change in their eating habits within the COVID-19 period ($\chi 2(1) = 35.659$, $p<0.001$). According to these results, it can be said that, within the COVID -19 period, there has been a greater chance for female participants (61.6%) than the male participants (43.3%) in terms of their eating habits.

The change in eating habits is shown in Figure 1. In total, 37% of the participants consumed a healthier and more balanced diet, while 21% started to eat more pastries. The outbreak oriented most people to a more nutritious diet, but a large group opted for a less healthy, carbohydrate-heavy unbalanced diet. Eftimov et al. [23] concluded that frequencies of salt, fat/oil, and sweet products have decreased and consumption of fruits and vegetables has increased during the quarantine in almost all countries. McAtamney et al. [24] conducted a study to determine the effects of emotional dysregulation on eating habits during COVID-19 in the United Kingdom. As a result of that study, it was found that the majority of the participants (58.1%) did not change the amount of food they ate compared to before COVID-19, 16.2% ate less on average, and 25.7% ate more [24]. Conformably, Chenarides et al. [25] reported that 60% of the participants ate the same amount of food as compared before while 13% of them ate less, and 20% of them ate more, among the 861 people living in the United States. Besides, 4 % of the participants reported that they started to consume more junk food than compared in the period before the pandemic. Some of the people with uncontrolled free time at home may be addicted to junk food. This situation may have occurred because people had to stay at home for a long time against their will and did not know how to spend time at home. On the other hand, junk food consumption could be changed according to country, even within the same country. Some of the literature data conducted during the Covid-19 period have revealed that junk food consumption of people has varied during the lockdown. In these studies, between 19-45 % of the consumers reported that their junk food consumption increased, while 10-28 % of the consumers reported that their junk food consumption decreased during lockdown [26-35].

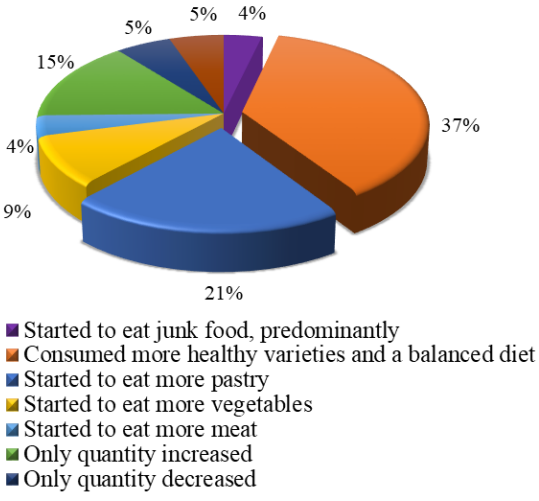

Figure 1 Change in diet during the COVID-19 pandemic

When the relationship between eating habits and age was examined according to the Chi-Square test, there was a statistically significant relationship between the age group of the participants and the change in their eating habits within the COVID-19 period ($\chi2(4) = 23.590$, $p<0.001$). According to Tamhane's T2 test results, the most important changes were observed between the "18-24" and "56 and above" groups (mean dif =0.323, $p<0.05$). There was also a statistically significant relationship between the subjective income level of the participants and the change in their eating habits within the pandemic ($\chi2(4) = 15.705$, $p <0.05$) according to the Chi-Square test results. Tamhane's T2 test results revealed that the significant changes were between the "very low" income group and all the other groups (Respectively; Low: mean dif= 0.550; $p<0.001$ / Middle: mean dif=0.561; $p<0.001$ / Good: mean dif=0.533; $p<0.001$ / Very good: mean dif=0.346; $p<0.05$).

An unbalanced and carbohydrate-heavy diet is expected to result in higher calorie intake and weight gain. During the outbreak, while 40% of the participants stated that they kept their weight, 38% gained 1-3 kg, and 18% gained 4-7 kg in the first three-month period after the pandemic started. There are more reasons to gain weight than eating, but the results in Figure 1 and the weight gaining quantities confirm each other; a balanced diet helps maintain weight. Al-Domi et al. [36] reported that, as a result of a survey that is carried out in Jordan with the attendance of 4473 responders (obese (n = 1135), normal body weight (n = 1561), and underweight (n = 116)), a significant increase was observed in the bodyweight of Jordanians. According to the study, 12.9% of underweight, 28.5% of the normal body weight, 36.4% of the overweight' and 41.1% of the obese participants gain weight during the COVID-19 quarantine.

Our results were also in accordance with the results of a study carried out by Fancourt et al. [37]. According to the study conducted by University College London with 90,000 panelists to assess the situation in the 14th week of the pandemic, it was revealed that 17% of the panelists ate more than usual, 23% of them ate healthier than usual, 40% of them gain weight while 40% of them did not gain weight. Young people and women have been most likely to change their eating habits [38].

Food supplements are sources of nutrients in concentrated forms and are regulated by the directive 2002/46/EC of the European Council [39]. Supplements do not substitute a balanced diet, but it can be concluded that those who take supplements are healthier and more conscious [40]. The nutritional supplement intake status of participants was researched in this survey. It was observed that 11% of them started to consume nutritional supplements during the pandemic, and 5% were already using supplements. According to the Chi-Square test results, there is a statistically significant relationship between the gender of the participants and their supplementary food consumption situation within the pandemic period ($\chi2(4) = 9.965$, $p <0.05$). 12.6% of the female participants stated that they started to use supplementary food, while only %9.9 of male participants said so. The ratio was also greater for females (5.9%) than males (2.5%) for the period before the pandemic. No relationship was found between the age group of the participants and their supplementary food consumption during the pandemic. ($\chi2(8) = 9.502$, $p=0.302$). The participants' educational levels did not affect their supplementary food consumption habits during the pandemic ($\chi2(6) = 6.634$; $p=0.356$). Their income levels were likewise determined to be ineffective ($\chi2(8) = 4.671$, $p=0.792$). Al-Domi et al. [37] reported that 32.7% of people did not want food intake or supplements containing antioxidants while 46% of them wanted to take, among the 4473 responders that attended their survey.

Packaging is one of the main tools to ensure food safety. It has been used for centuries and protects the product from physical, chemical, and biological damage. In the survey, participants' preferences to purchase packaged food products before the pandemic was investigated. 80% of people preferred packaged foods, and 17% did not pay attention to whether it was packaged. Of course, food safety was not the only reason to choose to package; living in the metropolis also

brought supermarkets to replace small grocery stores, which required packaging. According to the data, it was observed that most of the participants maintained their packaging preferences during the pandemic. Changes, if any, were in the direction of packaging preference. These results are shown in Table 2.

Table 2 Preferences for purchasing packaged food products after the pandemic

Has your preference for purchasing packaged food products changed after the COVID-19 outbreak (during and after the pandemic)?	**Percentage of people (%)**
No, it has not changed, I still only buy packaged food products.	50
No, it has not changed, I still only buy unpackaged food products.	8
Yes, it has changed, I started to pay attention that all the food products I buy are packaged.	37
Yes, it has changed, and I started to prefer unpackaged products.	5

3.3. Preferences for bread

Bread is the primary foodstuff in daily nutrition. Turkey is among the first countries in the world with high consumption of bread such that 199.6 kg/year consumption per person was recorded in the book Guinness World Records in the year 2000 [41]. Demirtas et al. [42] revealed in 2018 a bread consumption of 101.5 kg/year for people living in Turkey. Considering these statistics, it can be concluded that bread was the primary nutrient during the pandemic. Turkish Ministry of Agriculture and Forestry has required the use of packaging in bread in March 2020 [43]. While 60% of the participants paid attention to only buying packaged bread during the COVID-19 outbreak, the remaining 40% packaged themselves after purchasing. In Figure 2, the considerations of participants about bread packages were given in detail. The data collected showed that 13% of people did not care whether the bread was packed or not. The gender of this 13% group was 53% male and 47% female. According to the Chi-Square test results, there is a statistically significant relationship between the gender of the participants and their packed bread buying behavior habits within the COVID-19 period ($\chi2(1) = 8.452$, $p < 0.05$). According to these results, it can be said that, within the COVID-19 period, there has been a greater demand for female participants (63.5%) than the male participants (54.7%) in terms of their preference for packed bread. The ages of participants also affected their preferences for packaged bread consumption habits ($\chi2(4) = 17.150$, $p < 0.05$). The effect of the pandemic on packaged bread purchase was most seen in the 18-25 and 46-55 age groups (mean dif=0.209, $p<0.05$). The education level of the participants had no effect on the bread packaging preferences ($\chi2(3) = 3.544$, $p= 0.315$). However, the economic situation had a significant impact on this decision ($\chi2(4) = 9.595$, $p<0.05$). According to Tamhane's T2 test results, the only significant difference occurred between the "very low" and "very high" income groups (mean dif= 0.466, $p<0.05$).

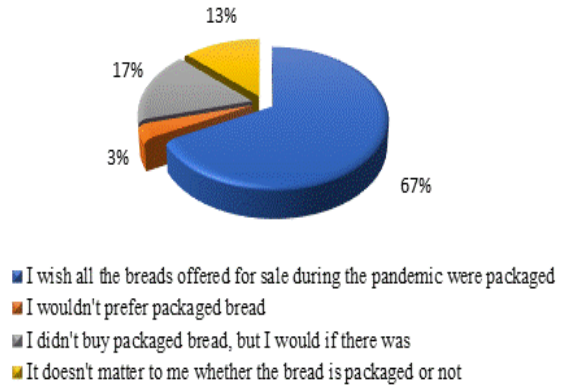

Figure 2 Considerations of the participants while purchasing bread

3.4. Preferences for meat

Meat and meat products are exposed to direct contact with butchers. They can be considered risky in terms of contamination, but fortunately, they are mostly consumed after cooking. Even so, packaging was preferred by 60% of participants in meat and meat product supply as in bread. According to Figure 3, 70% of participants preferred packaged meat and meat products,

while 10% complained that they could not find the packaged product.

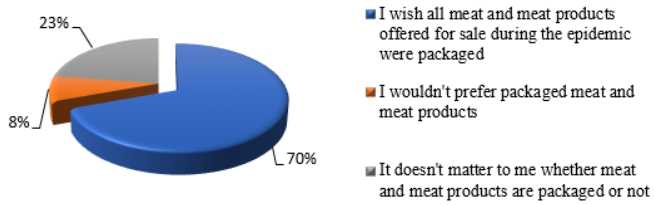

Figure 3 Considerations of the participants while purchasing meat and meat products

When the effect of demographic data on packaged meat consumption was examined, it was seen that while the gender ($\chi2(1) = 34.699$, $p<0.001$), age ($\chi2(4) = 20.071$, $p <0.001$), and education level ($\chi2(3) = 8.206$, $p <0.05$) of the participants significantly affected their consumption of packaged meat, economic income level ($\chi2(4) = 3.584$, $p=0.465$) did not. According to the Chi-Square test results, it can be said that, within the COVID-19 period, there has been a greater demand for female participants (67.6%) than the male participants (49.8%) in terms of their preference for packed meat. As a result of Tamhane's T2 test, the most significant differences were seen in the 18-25 and 26-35 age groups (mean dif=0.131, $p<0.05$). In addition, "high school graduate" and "post-graduate" participants revealed the most significant differences (Tamhane's T2 test -mean dif=0.164, $p<0.05$).

3.5. Cases of suspicion and access to food

58% of 1087 surveyed people suspected some products during the pandemic. Table 3 shows which product(s) it was. Bakery and pastry products, as well as fruits and vegetables, were found suspicious due to the possibility of direct contact. According to the Chi-Square test results, there was a statistically significant relationship between the gender of the participants and their suspicion of certain products ($\chi2(1) = 5.500$, $p <0.05$). The suspicion was higher for female participants (60.7%) than the male participants (52.9%). There was no effect of age on suspicion ($\chi2(4) = 6.961$, $p=0.138$). Educational background has had a significant effect ($\chi2(3) = 9.810$, $p <0.05$) on suspicion for "primary educated" and "post-graduate" participants (mean dif=0.241, $p<0.05$).

Table 3 Suspected food groups

Which product(s) did you suspect?	**Number of people**
Bakery products (bread and bagel)	347
Meat and meat products	206
Milk and dairy products	157
Fruits and vegetables	387
Pastry products (other than bread)	267
Others (fast foods, foreign foods, etc.)	10

Food supply is an essential factor in survival, and any inaccessibility to food during the pandemic can bring significant problems. The survey revealed an 87% availability rate of food supply during the COVID-19 outbreak. The difficultly obtained food group names are given in Table 4. The leading group was bakery products, although, in Turkey, bakeries are served at home on curfew days. However, due to the change in the order that people are accustomed to, when they went to the market, they tried to supply a large amount of flour and yeast at a time and tried to make their own bread at home. Many individuals who participated in the survey also stated that they could not find bread yeast in the market for a while.

Table 4 Difficultly supplied food groups

What is the category of difficultly obtained food during the pandemic?	**Number of people**
Bakery products (bread, bagel)	32
Meat and meat products	10
Milk and milk products	10
Fruits and vegetables	32
Nuts	6
Pastry products	15
Other (legume, yeast for bread making, etc.)	35

During the COVID-19 outbreak, 61% of the people participating in the survey did not give up purchasing any product. Fast food products were

at the top of the product groups that the remaining 421 people gave up on purchasing. The reason for this is thought to be the closure of restaurants and food supply centers during the pandemic process. Bakery products followed fast food products (Table 5). When the participants were asked about their reasons for giving up purchasing, the most given answer was observed as the suspicion of possible hygiene neglect.

Table 5 Categories of food products that were given up to purchase during the pandemic

What was the category of food product you gave up to purchase?	Number of people
Fast food products	328
Snack products	180
Bakery products (bread, bagel)	93
Meat and meat products	24
Milk and milk products	18
Fruits and vegetables	36
Nuts	52
Pastry products	209
Sugary drinks and foods	119
Tea and coffee products	20
Other	9

3.6. Preferences for the corporate status of the production and sales area and use of take-out services

Well-known companies did not lose customers due to the confidence that the risk of contamination was well managed. 81% of the surveyed people paid attention to purchasing products from corporate companies during the COVID-19 pandemic.

Before the "controlled normalization process" started, the number of participants using take-out service was 347 (32%). Fast food was the most preferred product group for take-out, as illustrated in Figure 4. It was followed by bakery and pastry products with 24%. The 16% group that marked "the other" option stated "all supermarket needs" in the explanation part of the survey. The gender ($\chi2(1) = 3.511$, $p > 0.05$) and age ($\chi2(4) = 3.947$, $p > 0.05$) of participants were not effective on these preferences. However, education level was an important factor in their preference for well-known brands during the pandemic ($\chi2(3) = 12.587$, $p < 0.05$). The most significant differences were obtained for "high school graduate" and "post-graduate" participants (mean dif=0.146, $p<0.05$).

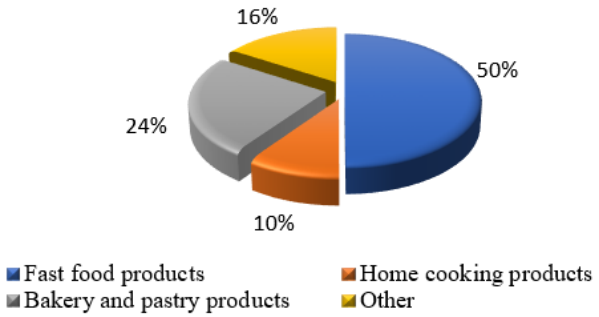

Figure 4 Take-out service product groups preferred by participants before the normalization process begin

With controlled normalization, people mostly returned to their social lives, restaurants were opened, and the demand for take-out service decreased from 32% to 29%. During the controlled normalization period, it was observed that the interest in fast food continued to a rise (Figure 5).

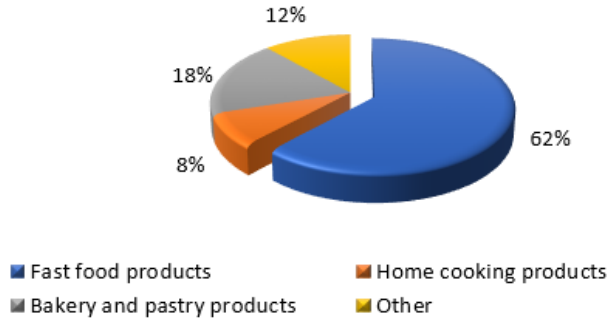

Figure 5 Take-out service product groups preferred by participants after the normalization began

3.7. Observing the effects of compliance with hygiene rules

Most of the participants (94%) paid attention to the compliance to hygiene rules of food consumption areas opened with normalization. In fact, the possibility of foodborne transmission of COVID-19 is considered negligible yet [43]. However, 66% of the participants stated that they

did not consider eating out during the pandemic (Figure 6). According to analyses, there was a statistically significant relationship between the gender of the participants and their consideration of hygiene policies while choosing between the restaurants ($\chi2(2) = 14.060$, $p < 0.05$). It was observed that hygiene was a more important factor for female participants (86.4%) than the male participants (77.8%) in terms of their restaurant preferences. However, the age ($\chi2(8) = 10.050$, $p > 0.05$) and educational background ($\chi2(6) = 5.373$, $p > 0.05$) did not have a significant effect.

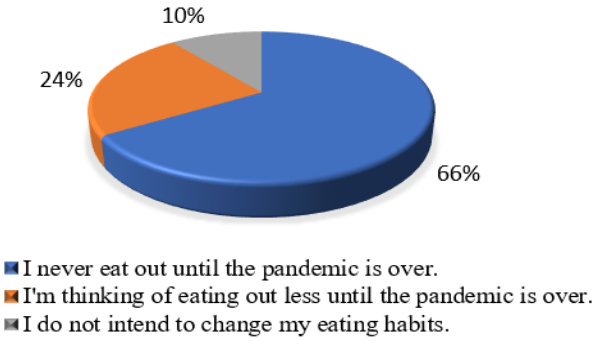

Figure 6 Decision about eating in food consumption areas due to the COVID-19 pandemic

3.8. Attention to the guidelines of WHO about eating habits

Butler & Barrientos [44] summarized the impact of diet on COVID-19 and claimed that a healthy diet reduces the possibility of getting COVID-19 disease. WHO has published practical advice on maintaining a healthy diet to reduce the susceptibility of COVID-19. However, 68% of the participants stated that they did not hear these recommendations. Besides, only 42% of those who are aware of the recommendations practiced them. Also, as demonstrated in Section 3.2 and in Figure 1, 37% of the surveyed people stated that they started to consume healthier foods and take care of eating a healthy diet after the covid-19 period. The gender ($\chi2(1) = 1.414$, $p > 0.05$) and education level ($\chi2(3) = 0.929$, $p > 0.05$) of the participants did not affect the results. However, their age ($\chi2(4) = 12.622$, $p < 0.05$) and economic status ($\chi2(4) = 10.119$ $p<0.05$) had important effects on their attention to WHO's suggestions regarding healthy nutrition during the COVID-19 pandemic.

4. CONCLUSIONS

The survey with 1087 participants living in Turkey revealed that, during the COVID-19 pandemic, there were no vast problems with the food supply. The survey revealed that take-out services were used generally for fast food products before the pandemic. The consumption of fast food decreased significantly during the COVID-19 pandemic, but still, the services were used to purchase. The total take-out service usage was 32% of participants during the pandemic, and the rate decreased to 29% in the controlled normalization period.

Although most people were not aware of the recommendations of WHO, they focused on a healthier diet by regulating daily nutrients. Also, most of them did not take any additional dietary supplements. While 30% of the participants stated that they gave up fast food consumption, 19% left pastry products, 17% left snacks, and 11% left sugary products. There has been an increasing trend in packaged product purchases.

It was also exhibited that, although normalization has begun, most people do not consider eating outside until the pandemic is over. The study revealed the food supply and consumption practices of people in Turkey during the COVID-19 pandemic. It is estimated that the results will demonstrate the current situation and guide the precautions to be taken.

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The Declaration of Conflict of Interest/ Common Interest

No conflict of interest or common interest has been declared by the authors.

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