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Original Article/Özgün Araştırma

The impact of the COVID-19 pandemic on eating and food shopping habits

COVID-19 pandemisinin yeme ve gıda alışverişi alışkanlıkları üzerine etkisi

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Abstract

Objective: This study aimed to investigate the effect of the COVID-19 pandemic on eating and food shopping habits among the Turkish adult population.

Material and method: Demographics, eating and food shopping habits, and food label reading habits of the participants were collected via online surveys. Coronavirus anxiety was assessed using the Coronavirus Anxiety Scale. The survey was conducted from November 2021 to the end of January 2022. Student's t-test was used to determine the statistical difference between quantitative variables. Chi-Square and Marginal Homogeneity Tests, depending on the number of categories, were used to determine the difference between qualitative variables.

Results and discussion: Unpackaged food consumption decreased during the pandemic. More than half of the participants started to pay more attention to food labels, spend less time for grocery shopping, and started using nutritional supplements. The changes in eating, grocery shopping, and food label reading habits among Turkish consumers during the pandemic have been demonstrated.

Keywords: COVID-19; coronavirus; food shopping habits; eating habits; pandemic

Öz

Amaç: Bu çalışmada COVID-19 pandemisinin Türk yetişkin popülasyonunda yeme ve gıda alışverişi alışkanlıkları üzerine etkisi incelenmiştir.

Materyal ve yöntem: Katılımcıların demografik verileri, yeme ve gıda alışverişi alışkanlıkları, gıda etiketi okuma alışkanlıkları ile ilgili bilgiler çevrimiçi anketler aracılığıyla toplanmıştır. Koronavirüs Anksiyete Ölçeği kullanılarak koronavirüs kaygısı değerlendirilmiştir. Veri toplama işlemi Kasım 2021 ve Ocak 2022 arasında gerçekleştirilmiştir. Kantitatif verilerde istatistiksel farkı bulmak için Student's t-test, kalitatif verilerde ise kategori sayısına bağlı olarak Ki-Kare ve Marginal Homogeneity Test kullanılmıştır.

Tartışma ve sonuç: Pandemi süresince paketsiz gıda tüketiminde azalma tespit edilmiştir. Katılımcıların yarısından fazlası gıda etiketlerine daha fazla dikkat etmeye, market alışverişine daha az vakit ayırmaya ve besin takviyesi kullanımına başlamıştır. Bu çalışmada market alışverişi, yeme ve gıda etiketi okuma alışkanlıklarındaki değişim gösterilmiştir.

Anahtar kelimeler: COVID-19; koronavirüs; gıda alışverişi alışkanlıkları; yeme alışkanlıkları; pandemi

1. Introduction

The World Health Organization declared the novel coronavirus (COVID-19) outbreak a Public Health Emergency of International Concern on 30 January 2020, and a global pandemic on 11 March 2020 (World Health Organization, 2022). The rapid increase in the number of cases has forced governments to take a series of measures to prevent the spread of the disease worldwide. These measures include full and partial closures, quarantine, maintaining social distancing, closing non-essential public places, working from home, distance education, and disinfecting cities at night (Wilder-Smith and Freedman, 2020). After the declaration of the COVID-19 pandemic and public health measures, public concern has grown rapidly, and all these measures have significantly affected daily life such as eating, social interactions, shopping, health behaviors, local and international economy, etc. (World Health Organization, 2022), as interruption of life routine is directly associated with pandemics (Nicola et al., 2020; Prem et al., 2020).

One of the most affected sectors during the pandemic was the food sector. During the home closure, consumers' grocery shopping preferences and eating habits have led to changes such as what is eaten and where it is eaten (Faour-Klingbeil et al., 2021). In addition to this, as the economic problems experienced during the COVID-19 pandemic affected access to food, psychological and physical health factors also affected the food choice behaviors and dietary habits of consumers (Scarmozzino and Visioli, 2020).

In the literature, many studies investigated how the COVID-19 pandemic affects the diet and lifestyle of consumers in different countries. For instance, the COVID-19 outbreak has caused significant changes in grocery shopping preferences among consumers in the United States. They were less willing to shop in the market during the period when the cases increased (Grashuis et al., 2020). In Italy, during the closures in the COVID-19 outbreak, 48.6% of the participants tended to gain weight, while 15% preferred local producers and organic foods when purchasing fruits and vegetables. Participants aged between 18-30 adhered more to the Mediterranean diet compared to the younger and older population (Di Renzo et al., 2020). In a study on eating habits and lifestyle changes during the COVID-19 lockdown in the United Arab Emirates, it was observed that participants preferred an unhealthier diet rather than Mediterranean Diet (Ismail et al., 2020).

Food packaging labels are materials that contain necessary information about the product, such as nutritional elements (fat, carbohydrate, protein, etc.), amount, calories, and portion of the food in the package. The most crucial purpose of food labeling in terms of consumers is to support their conscious food choices (An et al., 2021). Previous studies have demonstrated that the habit of reading food labels is effective in healthy eating, weight control and reducing the prevalence of chronic diseases (Bonanno et al., 2018).

The change coming with an unannounced pandemic is valuable to document. There are not enough studies investigating eating and food shopping habits in Türkiye. Therefore, the objective of this study was to investigate the effect of the COVID-19 pandemic on eating and food shopping habits among Turkish consumers using an online survey.

2. Material and methods

2.1. Study design and participants

This is a cross-sectional observational study conducted between November 2021 and January 2022 with adults (19-64 years old) in Türkiye. The data was collected online with a web-survey. The survey was distributed through e-mail and social networks (Twitter, Instagram, Whatsapp, and Facebook). Participants completed the questionnaire by connecting directly to the Google platform. Anyone who is under 19 and older than 64 years old was excluded from the study. The minimum sample size was decided as 250 participants with G-Power analysis using Power test PS 3.0 package program taking into account the 95% confidence interval at 80% power. The random sampling method, which is one of the non-probability sampling methods, was used in the study.

This study, in which participants participated on a voluntary basis, was conducted in accordance with ethical approval from the Social and Human Sciences Research Ethics Committee. Study participants were informed about the aim and method of the study, and the study was conducted in accordance with the principle of the Declaration of Helsinki. An online informed consent form was obtained from all participants.

2.2. The questionnaire

The questionnaire included sociodemographic characteristics, medical conditions, weight change

during the pandemic, etc. Moreover, the questionnaire included Coronavirus Anxiety Scale (CAS), questions about eating habits, food-shopping habits, and food label reading habits before and during the pandemic to identify any changes. The questions about eating habits were asked about the number and frequency of the meals consumed during the day separately for the pre-pandemic period and during the pandemic. Food-shopping habits questions included comparative questions to investigate the difference before and during the pandemic. Food label reading habits were asked about how often a particular label information is being checked by the participants on a five point scale from never to always (never, rarely, sometimes, often, always).

The Coronavirus Anxiety Scale (CAS) is developed by Sherman A. Lee (2020). Turkish validation study was conducted (Evren et al., 2020), and determined that the CAS is a valid and reliable measure to assess the severity of dysfunctional coronavirus related anxiety. The CAS is a reliable scale with robust factorial (single-factor; sociodemographic invariance) and structural (correlated with anxiety, depression, suicidal ideation, and substance/alcohol coping) validity (> 0.90). The diagnostic properties of CAS (90% sensitivity and 85% specificity) are comparable to related screening tools such as General Anxiety Disorder-7. CAS consists of 5 questions rated on a 5-point scale from 0 (never) to 4 (almost every day) based on experience over the past two weeks. High scores on a particular item or a high overall scale score (≥ 9) may indicate the individual's problematic symptoms that may require further evaluation and/or treatment.

2.3. Statistical analysis

SPSS software (Statistical Package for Social Sciences, version 25.0, Chicago, IL, USA) for Windows was used for data analysis. Descriptive statistics are given as mean±standard deviation, and for nominal variables the number of cases (n) and percentage (%) are shown. Student's t-test was used to evaluate whether there was a statistical difference between quantitative variables. Chi-Square and Marginal Homogeneity Tests, depending on the number of categories, were used to determine the difference between qualitative variables. The statistical significance level was accepted as $p<0.05$, and the data were evaluated within the 95% confidence interval.

3. Results and discussion

A total of 604 people completed the online questionnaire. General characteristics of the population were reported in detail in Table 1. The gender of the participants was 420 females (69.5%) and 184 males (30.5%). Participants' age range was 19-64 years with a mean of 32.06±11.03 years. The mean body mass index was 25.09±10.32 kg/m^2. The rate of smoking was 16.2% and drinking was 12.4% among the participants. Almost half of the participants (299) stated that their body weight remained stable during the pandemic, while 104 (17.2%) people reported a decrease and 201 people (33.3%) reported an increase in their body weight. A similar percentage of people who gained weight during the pandemic was determined in another study in the United Arab Emirates (Ismail et al., 2020), while an Italian survey reported a weight gain of 48.6% of the participants (Di Renzo et al., 2020). Weight gain could be explained by the lockdown and changes in the eating habits of people. Although we did not ask physical activity of people specifically, it is well known that decreased physical activity is conversely related to poor weight maintenance (Fogelholm and Kukkonen-Harjula, 2000). Therefore, that might be another unconfirmed reason of weight gain since the closures and quarantine were applied during the pandemic. The number of participants infected by the disease was only around one-third (191) of the participants. Since most of the data collection for the study was performed at the end of 2021, the Omicron variant which is more easily spreading than the previous variants of the virus including Delta variant (Centers for Disease Control and Prevention, 2022) has not yet come to exist to the best of our knowledge at that time.

The mean score of responses to the CAS was 1.47±2.28. Turkish validation study of the scale developed by Lee (2020) reported a mean score of 6.66±2.65 (Evren et al., 2020). Another study reported a mean anxiety score of 1.35±2.60 in breast cancer patients in Türkiye (Kiyak and Türkben Polat, 2022). Moreover, in a study investigating the relationship between coronavirus anxiety and professional performance level in healthcare professionals working in emergency medical services, the mean anxiety score was reported as 1.95±1.10 (Hoşgör et al., 2020). For the studies conducted in Türkiye, the scores were similar except for the original validation study with a higher mean score. Our study was conducted at the end of the second year of the pandemic, so the lower mean score in our study may indicate the participants got used to the idea of living in pandemic times considering the timing of the study.

Table 1. General characteristics of study participants

	n (%)
Gender	
Female	420 (69.5)
Male	184 (30.5)
Education level	
Elementary	2 (0.3)
High school	30 (5.0)
Undergraduate	355 (58.8)
Graduate	217 (35.9)
Smoking	
Yes	98 (16.2)
No	506 (83.8)
Alcohol use	
Yes	75 (12.4)
No	529 (87.6)
Chronic disease	
Yes	165 (27.3)
No	439 (72.7)
Regular medication	
Yes	128 (21.2)
No	476 (78.8)
COVID-19 infected	
Yes	191 (31.6)
No	413 (68.4)
Body weight change	
Increase	201 (33.3)
Decrease	104 (17.2)
No change	299 (49.5)
	X±SD
Age (mean) (years)	32.06±11.03
BMI (kg/m^2)	25.09±10.32
CAS (mean)	1.47±2.28

BMI: Body Mass Index
CAS: Coronavirus Anxiety Scale

Table 2 shows eating habits in terms of frequency and the number of meals people consume during the day before and during the pandemic. Results showed a significant increase in the percentage of participants consuming one or two meals a day and a significant reduction in the percentage of participants consuming three meals a day during the pandemic ($p=0.004$). While the frequency of breakfast changed significantly ($p=0.004$) for the study participants, no significant change was found for lunch and dinner habits. On the other hand, snacking habits of participants were asked and results showed that the percentage of people who are snacking increased in general regardless of having snacks regularly or sometimes ($p<0.001$). Moreover, the number of people who do not snack regularly before pandemic (40.9%) decreased during the pandemic (35.3%). The results of the present study were consistent with the previous literature. In another study conducted in Türkiye also reported an increase in snack and two main meals consumption among college students (Yılmaz et al., 2020). Kaya et al. (2021) also reported that the number of participants skipping breakfast and snacks decreased significantly, while lunch skipping increased and dinner skipping stayed stable among the participants. Another study from Italy reported a change in the number of main meals during the day for 42.2% of the study participants (Di Renzo et al., 2020). Moreover, unhealthy diet patterns such as restricted eating, skipping meals, and overeating were reported during the pandemic in the United States (Khubchandani et al., 2020).

Table 3 shows the comparison of food shopping habits before and during the COVID-19 outbreak. The majority of the participants (60.3%) stated that the time they spent for grocery shopping decreased during the pandemic compared to before the pandemic. Moreover, the frequency of grocery shopping decreased for most of the participants (57.1%) during the pandemic. The decrease in the time spent and frequency for shopping means that people tried to stay outside less with the anxiety of getting COVID -19 even for basic needs. On the other hand, the majority of the participants (63.1%) did not shop online for groceries. This might be due to the availability of online shopping platforms at the time and location of the data collection. The number of people (341, 56.5%) stating that they would like to go back to their old shopping frequency and duration when the COVID -19 pandemic is over was similar to the people shop less frequently (345, 57.1%). In another study asking food shopping habits, it was reported that 34% of the participants would keep the same shopping frequency, while almost half of the respondents (47%) were willing to visit food and grocery shops more often once the pandemic is over (Faour-Klingbeil et al., 2021). The results showed that participants are concerned about being exposed to coronavirus during their shopping, and trying to decrease the risk by decreasing regular shopping time and frequency. Similar results were reported in the literature (Bracale and Vaccaro, 2020).

As a result of anxiety due to the pandemic, food safety was a rising concern among consumers. Packaged food is better in terms of decreasing the microbiological risk than freshly prepared or unpackaged foods (Cutter, 2002). Many countries took serious measures for unpackaged foods including restrictions on touching the food with bare hands during shopping (Aday and Aday, 2020). The survey included questions on buying unpackaged foods before and during the pandemic. Cheese, olives and bread are some of the most common unpackaged foods available in most of the supermarkets and farmers' markets in Türkiye.

Participants stated that they bought unpackaged bread before the pandemic (70.2%); however, this ratio decreased to 58.8% during the pandemic. A similar decrease on purchasing unpackaged cheese (25.5 to 20.4%) and olives (42.1 to 34.4%) was shown in Table 3.

Table 2. Eating habits before and during COVID-19 pandemic**.**

Daily eating habits	Before the pandemic n(%)	During the pandemic n(%)	p*
Number of meals			
One	19 (3.1)	34 (5.6)	0.004
Two	299 (49.5)	328 (54.3)	
Three	286 (47.4)	242 (40.1)	
Frequency of having breakfast			
Everyday	441 (73.0)	465 (77.0)	0.004
5-6 times a week	63 (10.4)	64 (10.6)	
3-4 times a week	41 (6.8)	23 (3.8)	
1-2 times a week	40 (6.6)	34 (5.6)	
Rarely or none	19 (3.1)	18 (3.0)	
Frequency of having lunch			
Everyday	225 (37.3)	234 (38.7)	0.065
5-6 times a week	91 (15.1)	65 (10.8)	
3-4 times a week	96 (15.9)	86 (14.2)	
1-2 times a week	88 (14.6)	98 (16.2)	
Rarely or none	104 (17.2)	121 (20.0)	
Frequency of having dinner			
Everyday	511 (84.6)	515 (85.3)	0.446
5-6 times a week	52 (8.6)	49 (8.1)	
3-4 times a week	29 (4.8)	31 (5.1)	
1-2 times a week / Rarely or none	12 (2.0)	9 (1.5)	
Regular snacking			
Yes	106 (17.5)	134 (22.2)	<0.001
Sometimes	251 (41.6)	257 (42.5)	
None	247 (40.9)	213 (35.3)	

** Marginal homogeneity test*

Moreover, a more general question on the opinions of the consumers for food being packaged was asked. Fifty-six percent of the respondents reported that their opinion about whether the food is packaged or not changed, while the rest did not report a change when compared to before the pandemic. Accordingly, majority of the study participants (67.4 %) reported an increase in their packaged food consumption as well. These results were as expected since consumers believe packaged food is safer than unpackaged equivalents (Aytop et al., 2021). Also, a general increase in packaged food consumption was reported because people tend to choose more hygienic options and shopping time for packaged food is shorter (Bracalend and Vaccaro, 2020; Artık and Kumral, 2023). Many reports showed functional foods potentially have anti-viral properties and can enhance innate immunity decreasing the risk of damage caused by viruses (Han and Hoang, 2020; Lange, 2021). Most of the participants (87.7%) in our study stated that they think nutrition is directly related to the immune system. Moreover, health-conscious people are reported to be more prone to buy healthy foods such as functional foods to have better health (Enriquez and Archila-Godinez, 2021). Our results are consistent with the literature. Almost half of the respondents (46.5%) stated that their consumption of functional foods (such as kefir, probiotic yogurt, and ginger) has increased compared to before the pandemic. While more people (87.7%) stated that nutrition is related to the immune system, less people (46.5%) act accordingly. This might be because acting about something is much more complicated than having knowledge about the topic (Pfeffer and Sutton, 1999). Moreover, lack of knowledge on the connection between functional foods and immune system could be another reason, which we did not investigate specifically. Another study reported that 34.9% of the dietitians used functional foods during the pandemic (Kamarli Altun et al., 2021). The suggestions of dietitians have been a guide for the public, and lots of

discussions about healthy nutrition have been widespread and publicly available during the pandemic (Alkhatib, 2020). Similarly, 309 participants (51.2%) reported that they started to use nutritional supplements (vitamins, minerals, nutritional extracts, propolis, etc.) during the pandemic. The popularity and consumption of immune related compounds such as nutritional supplements and foods increased during the pandemic. This increase was because of the efforts for improving immunity and preventing themselves from catching COVID -19 or for a better recovery (Hamulka et al., 2021). Although there is no clear evidence of getting certain benefits from nutritional supplementation, circulating news stories and reports on different media platforms about nutritional supplements and their benefits in preventing the spread of the coronavirus increased the popularity of the supplements (Hamulka et al., 2021; Lange, 2021).

Table 3. Food shopping habits during the COVID -19 pandemic

	Yes n (%)	No n (%)
During the pandemic, my packaged food consumption increased compared to before the pandemic	197 (32.6%)	407 (67.4%)
My opinion about whether the food is packaged or not has changed compared to before the pandemic.	341 (56.5%)	263 (43.5%)
During the pandemic, I paid more attention to food labels.	319 (52.8%)	285 (47.2%)
During the pandemic, I started to pay more attention to the ingredients list of the food label than before the pandemic.	258 (42.7%)	346 (57.3%)
During the pandemic, I started to pay more attention to the vitamin content of the foods than before the pandemic.	315 (52.2%)	289 (47.8%)
During the pandemic, I started to pay more attention to the calorie content of the foods than before the pandemic.	190 (31.5%)	414 (68.5%)
During the pandemic, I started to pay more attention to the mineral content of the foods than before the pandemic.	226 (37.4%)	378 (62.6%)
During the pandemic, I started to pay more attention to the fat content of the foods than before the pandemic.	206 (34.1%)	398 (65.9%)
During the pandemic, I started to pay more attention to the carbohydrate content of the foods than before the pandemic.	209 (34.6%)	395 (65.4%)
During the pandemic, I started to pay more attention to the protein content of the foods than before the pandemic.	246 (40.7%)	358 (59.3%)
I think nutrition is directly related to the immune system.	530 (87.7%)	74 (12.3%)
During the pandemic, I started using nutritional supplements (vitamins, minerals, nutritional extracts, propolis, etc.)	309 (51.2%)	295 (48.8%)
During the pandemic, the time I spend for grocery shopping decreased compared to before the pandemic.	364 (60.3%)	240 (39.7%)
During the pandemic, I did most of my grocery shopping online.	223 (36.9%)	381 (63.1%)
During the pandemic, the frequency of my grocery shopping decreased.	345 (57.1%)	259 (42.9%)
I would like to return to the old shopping frequency and duration when COVID-19 pandemic is over.	263 (43.5%)	341 (56.5%)
My consumption of functional foods (such as kefir, probiotic yogurt, ginger) during the pandemic has increased compared to before the pandemic.	281 (46.5%)	323 (53.5%)
Before the pandemic, I used to buy unpackaged cheese.	154 (25.5%)	450 (74.5%)
During the pandemic, I am buying unpackaged cheese.	123 (20.4%)	481 (79.6%)
Before the pandemic, I used to buy unpackaged olives.	254 (42.1%)	350 (57.9%)
During the pandemic, I am buying unpackaged olives.	208 (34.4%)	396 (65.6%)
Before the pandemic, I used to buy unpackaged bread.	424 (70.2%)	180 (29.8%)
During the pandemic, I used to buy unpackaged bread.	355 (58.8%)	249 (41.2%)

n=604

A food label contains information such as caloric content, serving size, ingredients and nutrition facts that identify the product presenting insight to the consumer during the purchase of the product. It allows conveying the information in an understandable and practical way. Research studies show that food label reading habit can help weight control, support healthy eating, and decrease the prevalence of chronic diseases (Güne et al, 2014), and health-conscious consumers tend to read food labels more than others (Wandel, 1997). In this study, 319 (52.8%) participants stated that they

paid more attention to food labels in general during the pandemic. Moreover, 258 (42.7%) participants reported that they paid more attention to the ingredients list of the food they buy. Similarly, Jribi et al. (2021) reported that most of the respondents in their study declared to check food labels always (61%) and often (35%). Consumers need information to comfort them making the right food choice to reduce the perceived risk of COVID-19, and they check the label for this purpose (Jribi et al., 2021). When it comes to specific nutritional ingredient such as vitamins, minerals, the number of calories, protein, fat, and carbohydrate content of the food, 52.2%, 37.4%, 31.5%, 40.7%, 34.1%, 34.6% of the participants started to pay attention during the pandemic, respectively (Table 3).

The frequency of checking food label for a particular information during the COVID-19 pandemic among residents of Türkiye are presented in Table 4. In terms of energy, carbohydrates, and total fat, female participants` tendency to read label information was found to be significantly higher than male participants in our study ($p<0.05$). On the other hand, checking for the saturated fat, cholesterol, protein, salt, vitamin, fiber, calcium and iron content information was not significantly different between male and female participants. Moreover, female participants were more label-conscious than male participants in general for the other components of the label information regardless of statistical significance of the difference. However, both male and female participants reported a similar interest for the protein content in the label (Table 4). Several studies in the literature reported female consumers more frequently checked the nutritional label than male consumers (Azman and Sahak, 2014; Shamim et al., 2022).

Table 4. Food label reading habits of participants for particular information on the label

	Female		Male		p*
	X	SD	X	SD	
a. Energy (Calories)	1.95	1,30	1.59	1.38	0.002
b. Carbohydrates	1.86	1.33	1.57	1.35	0.015
c. Total fat	1.79	1.30	1.54	1.36	0.035
d. Saturated fat	1.74	1.37	1.51	1.37	0.064
e. Cholesterol	1.47	1.29	1.36	1.34	0.377
f. Protein	1.78	1.34	1.78	1.42	0.973
g. Salt or sodium	1.56	1.27	1.51	1.33	0.686
h. Vitamin content	1.95	1.34	1.72	1.39	0.058
i. Fiber	1.29	1.25	1.18	1.29	0.340
j. Calcium	1.54	1.30	1.39	1.33	0.196
k. Iron	1.56	1.31	1.35	1.32	0.073
l. Percentage of the daily nutrient reference value	1.70	1.38	1.37	1.30	0.006
m. Statements like “low fat”, “light” or “a good source of fiber”	1.76	1.35	1.43	1.31	0.006
n. Nutritional information such as calories, protein, fat in one serving	1.91	1.38	1.52	1.37	0.001
o. Information on how much a serving is	1.96	1.37	1.65	1.37	0.011
p. Statements describing how the food is related to health problems (health claims)	2.18	1.44	1.78	1.38	0.002

**Student t-test ($p<0.05$)*
SD Standard Deviation
X Mean score of the respondents' attitudes on a 5-Likert scale: 5 “Always”, 4 “Often”, 3 “Sometimes”, 2 “Rarely”, 1 “Never”.

This study is not without limitations. First, the habit of food label checking was not investigated for pre-pandemic period to avoid a markedly long questionnaire. So, we asked about food label reading habits for during the pandemic. However, eating habits, the number of meals during the day and shopping habits were asked for before and during the pandemic. Second, most of the participants were female having college degree or above possibly due to voluntary sampling using Internet platforms. Therefore, selection bias should be considered for the interpretations of the results (Tsuboi et al., 2015). Last, it is a self-reported

questionnaire so misreporting could be possible, and we cannot exclude these from the study.

4. Conclusion

This study explored eating, food-shopping and label reading habits during the second half of the second year of the COVID-19 pandemic in Türkiye and demonstrated the dietary habit changes. Further investigations are necessary to investigate long-term effects of the pandemic on eating and food shopping habits. For food shopping habits, it could be also better to investigate online shopping habits and its relation to the food choices because of the changing dynamics and growing number of options in online food shopping in Türkiye. Moreover, since it is an ongoing pandemic, our data need to be confirmed and investigated in more extensive population studies in the future.

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