THE RELATIONSHIP BETWEEN NUTRITION AND HEALTH, NUTRITIONAL HABITS DURING THE COVID-19 PANDEMIC: THE CASE OF THRAGE REGION IN TURKEY

COVID-19 PANDEMİSİ SIRASINDA BESLENME ALIŞKANLIKLARI, BESLENME VE SAĞLIK İLİŞKİSİ: TÜRKİYE'DE TRAKYA BÖLGESİ ÖRNEĞİ

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Abstract

In this study determined the nutritional habits, and the relationship between their nutritional status and their health status of individuals living in the Thrace region during the Covid-19 pandemic. The relationship between the participants (1023person)' daily water consumption and body mass index (BMI) values, diabetes was statistically significant ($\chi2$: 33,444; $P<0.05$), ($\chi2$: 13.640; $P<0.05$) respectively. There was no significant relationship between daily water consumption and stomach ailments ($\chi2$: 4.070; $P>0.05$). Forty-five point five percentage of the participants was skip lunch, 6.9% was skip dinner, 23.2% was skip breakfast. Twenty three point seventeen pergentage of participant wasn't skip meals. The relationship between skipping meals and stomach ailments, diabetes was statistically insignificant ($\chi2$: 2.777; $P>0.05$), ($\chi2$: 6.659; $P>0.05$), respectively. Thirty five point eight pergentage of the participants were eating fast, 49.3% were eating at normal speed, and 15% were eating slowly. The relationship between eating speed and BMI values was found to be statistically significant ($\chi2$: 66.477; $P<0.05$). There was a positive and significant relationship ($r=0.246$; $P<0.05$) between eating speed and BMI groups. As the rate of eating increased, the probability of entering the overweight group increased. While 50.34% of the participants stated that the taste of the food affected their desire to eat the most, 40.2% of the participants stated that their mood changes greatly affected their desire to eat. Consumers should be informed about the importance of meals and water, and the nutritional values of foods.

Keywords: Covid-19, water consumption, healthy nutrition, chronic deseases, meal skipping

Özet

Bu çalışmada, Trakya bölgesinde yaşayan bireylerin Covid-19 pandemisi sırasında beslenme alışkanlıkları ve beslenme durumları ile sağlık durumları arasındaki ilişki belirlendi. Katılımcıların (1023 kişi) günlük su tüketimi ile vücut kitle indeksi (BKİ) değerleri, diyabet

arasındaki ilişki, istatistiksel olarak anlamlıydı (χ2: 33,444; P<0,05), (χ2: 13,640; P<0,05). Günlük su tüketimi ile mide rahatsızlıkları arasında anlamlı bir ilişki yoktu (χ2: 4,070; P>0,05). Katılımcıların %45,5'i öğle yemeğini atlarken, %6,9'u akşam yemeğini, %23,2'si kahvaltısını atlıyordu. Katılımcıların %23,17 öğün atlamıyordu. Öğün atlama ile mide rahatsızlıkları, diyabet arasındaki ilişki istatistiksel olarak anlamsız bulundu (χ2: 2,777; P>0,05), (χ2: 6.659; P>0,05). Katılımcıların %35,8 hızlı, %49,3'ü normal hızda ve %15'i yavaş yemek yiyordu. Yeme hızı ile BKİ değerleri arasındaki ilişki istatistiksel olarak anlamlı bulundu (χ2: 66,477; P<0,05). Yeme hızı ile BKİ grupları arasında pozitif ve anlamlı bir ilişki (r=0,246; P<0,05) vardı. Yeme oranı arttıkça kilolu gruba girme olasılığı da arttı. Katılımcıların %50,34'ü yemek yeme isteğini en çok yemeğin tadının etkilediğini belirtirken, katılımcıların %40,2'si duygu durum değişikliklerinin yemek yeme isteklerini büyük ölçüde etkilediğini ifade etmiştir. Tüketiciler öğün ve suyun önemi ve gıdaların besin değerleri konusunda bilgilendirilmelidir.

Anahtar kelimeler: Covid-19, su tüketimi, sağlıklı beslenme, kronik hastalıklar, öğün atlama

1. INTRODUCTION

The coronavirus disease 2019 (COVID-19), which emerged in Wuhan, China at the end of 2019 and spread rapidly to other countries, is a viral disease that threatens our health, reduces our quality of life, and causes us to change our habits in our daily life (Çulfa et al., 2021). Quarantine application, which is a protective method in reducing the spread of the virus along with a strong immune system, is extremely important in protection against Covid-19. The quarantine situation affects the emotional state of the individuals, and their emotional state affects the nutritional status. Increasing time spent at home, constantly listening and watching pandemic news, increasing anxiety, increasing the desire to consume food (especially carbohydrate foods) and decreasing physical activity can cause unwanted increases in body weight. In order to ensure weight control and to keep immunity strong, it is necessary to engage in the right behaviors in nutrition (Eskici, 2020). Various risk factors have been identified for the COVID-19. It has been reported that the presence of comorbidities such as hypertension, diabetes, cardiovascular diseases, advanced age and male gender are some risk factors. In addition to these risk factors, obesity and malnutrition are also known to significantly affect the mortality and morbidity of COVID-19 (Daziroglu et al., 2021).

The aim of this study is to determine the nutritional habits , and the relationship between their nutritional status and their health status of individuals living in the Thrace region during the Covid-19 pandemic.

2.MATERIALS AND METHODS

The data of this study were collected in the first half of 2021. The participants of the research consist of individuals living in the Thrace region (Çanakkale, Edirne, İstanbul Europe, Kırklareli and Tekirdağ) in Turkey. Questionnaire technique, which is one of the quantitative data collection and analysis methods, was used in the research. The research data were obtained from both social networks (google docs form) and as a face-to-face surveys. Due to the Covid-19 pandemic, the face-to-face survey wasn't included much. Participants were allowed to start the survey after accepting the consent form in order to start the survey.

The questionnaire was answered by 1023 participants aged 18 and over. Participants who answered the questionnaire were asked not to reveal their names and to answer all the questions in the questionnaire. Within the scope of the research carried out to determine the relationship between nutrition and health during the Covid-19 pandemic in the Thrace Region, the sample size was calculated as follows (Malhotra, 1994):

$$n = \frac{p.q.z_{\alpha/2}^2}{D^2}$$

n = sample size
p = Percentage of visitors*
q = 1-p
D = Margin of error**
$Z_{\alpha/2}$ = %99
* Since there is no prior knowledge of p, it will be assumed as 0.5
** 0,04 tolerance

In this type of sampling, the general rule is accepted as (p) = (q) = 0.5. In this case, a constant sampling error and a degree of confidence are obtained, as is the largest possible sample size. Sampling error will also be taken as 4%, which is classically used. If the sampling error (D) is 4% and the confidence level is 99% ($Z\alpha/1$ = 2.53), the required number of surveys (sample volume) will be calculated from the formula.

$$n = \frac{0,5 X 0,5 X 2,53^2}{0,04^2} = \approx 1000$$

In the first part of the questionnaire, the demographic information of the participants was asked. In the second part, information about the dietary habits of the participants in the Covid-19 pandemic was obtained. In determining fast food consumption using a 7-point Likert scale, participants were asked to tick one of the options "every day", "2.3 times a week", "4-5 times a week", "Once in 15 days", "once a month", "never". The relationship between water consumption and BMI Values, stomach ailments and diabetes, the relationship between eating speeds and BMI values, the relationship between skipping meals and stomach ailments and diabetes were examined.

The data obtained from the research were transferred to the SPSS 22 program and analyzed. Chi-square test was used in the statistical analysis of the data. In addition to the chi-square test, the Spearman Correlation test was used to determine the relationship between the eating speed of the participants and their BMI.

3.RESULTS
3.1. Demographic Information of Participants
Demographic distributions of the participants are shown in Table 1.
Table 1. Percentage distribution of participants by demographic profile

Tablo 1. Demografik profile göre katılımcıların yüzde dağılımı

Gender	n	(%)	Distribution by Provinces	n	(%)
Female	658	64.3	Istanbul European Side	669	65.4
Male	365	35.7	Tekirdağ	176	17.2
Average monthly revenue			Kırklareli	68	6.6
≤2500 ₺	203	19.8	Edirne	56	5.5
3000- 4000 ₺	303	29.6	Çanakkale	54	5.3
4000- 5000 ₺	162	15.8	**BMI**		
5000- 10000 ₺	286	28	<18,50 kg (Group 1) Underweight	31	3
≥10000 ₺	69	6.7	18,50-24,99 kg (Group 2) Normal	495	48.4
Level of education			25,00-29,99 kg (Group 3) Overweight	348	34.0
Primary School	72	7	≥30 kg (Group 4) Obese	149	14.6
Secondary School	71	6.9			
High School	262	25.6			
University	502	49.1			
Postgraduate	116	11.3			

3.2. Comparison of Participants' Water Drinking Status and BMI Values

Those with normal weight (Group 2) had the highest daily water consumption of <5 glasses, 5-7 glasses, and >10 glasses. They were followed by overweight people (Group 3). It was determined that the majority of the participants who consumed between 7-10 glasses of water were in the overweight group. The weakest group (Group 1) had the lowest rate in all water consumption groups (Table 2). The fact that 51.3% of the participants consuming <5 glasses of water were of normal weight suggests that they may be consuming too much of other beverages other than water. The fact that 612 out of 1023 participants drank <7 glasses of water may be associated with the fact that the season in which the questionnaire was applied was winter and spring. The relationship between daily water consumption and BMI values of the participants (χ2: 33,444) was found to be statistically significant (P<0.05).

Water intake as a weight loss tool is not an evidence-based recommendation. Recent research has shown mixed results, possibly due to the large number of social, cognitive, sensory, and logistical factors that influence hunger and thirst, as well as eating and drinking behaviors (Mattes, 2010; Chang et al., 2016). While some studies suggest that water intake may be a promising target for the prevention and treatment of obesity, other studies report an association between obesity and greater water intake (Armstrong, 2012; Muckelbauer et al., 2013; Chang et al., 2016). Obese individuals may consume foods with higher salt content. And this triggers the need for increased water intake to balance the renal solute load. Because water needs depend on metabolic rate, body surface area, and body weight, obese individuals need more water than non-obese individuals (O'Connell et al., 2011; Chang et al., 2016). Although these cross-sectional studies of water intake and obesity show dissimilar results, results from recent longitudinal studies and randomized controlled trials point to the potential of water to effectively prevent and treat obesity (Parretti et al., 2015; Dennis et al., 2010; Chang et al., 2016). In the study of Erçim et al. (2018), with female participants, it was determined that as water consumption decreased, body fat ratio increased significantly. The Institute of Medicine recommends women to consume more than 2 liters of water per day, although it varies according to age (Avcuoğlu et al., 2014).

In the study of Arslan et al. (2016), 55.4% of female students and 69.1% of male students drink 8-10 glasses of water a day. It has been determined that these students consume too much tea despite insufficient water. It is reported in the literature that the rule of drinking 10 glasses of water for every 2000 calories consumed is valid and approximately 1 liter of water (4-5 glasses of water) is needed for every 1000 calories consumed (Ersoy, 1993; Arslan-Mendeş, 2004).

In the study by Karataş and Günay (2013), in which they investigated the effect of behavioral treatment given to 127 obese women aged 30-49 on nutritional behavior, the water consumption, which was 6.20 glasses per day at the beginning, increased to 8.81 at the end of the 3rd month. Their mean BMI value, which was 36.21 at the beginning, decreased to 33.72 at the end of the 3rd month (p<0.001). The study, involving 173 people aged 25-50, tested the associations between absolute and relative increases in drinking water and weight loss over 12 months. Absolute and relative increases in drinking water were associated with a significant loss of body weight and fat over time, independent of covariates (Stookey et al., 2008).

Alptekin (2019) conducted a study to determine the water consumption characteristics of 221 elderly individuals aged 65 and over. As a result of the research, it was determined that all elderly individuals consumed an average of 4.0±2.1 glasses of water, 72.7% of those with a BMI of ≥40 consumed 4.29 glasses of water, and most of those with a BMI of <40 consumed <4 glasses of water. 91% of the participants were consuming insufficient amount of water. Accordingly, it can be said that the amount of water consumption depends on age and BMI.

3.3. The Relationship Between Daily Water Consumption and Stomach Ailments

Ninety-five point twenty-one percent of the participants (1023) stated that they did not have stomach ailments, and 4.79% (49) stated that they had stomach ailments. The majority of the participants, with and without stomach ailments, drank 5-7 glasses of water a day (Table 2). There was no significant relationship between daily water consumption and stomach ailments ($\chi2$: 4.070; P>0.05).

Consumption of plenty of water is of great importance for the body to function in a healthy way and for the proper digestion in the stomach. The digestive process becomes difficult in the dehydrated body, which can cause stomach pain. Therefore, 1.5-2 liters of water should be consumed on average during the day (Medicana, 2022).

In Alptekin's (2019) study to determine the water consumption characteristics of 221 elderly individuals aged 65 and over, 84% of those with diabetes drank approximately 4.2 glasses of water. The rest (16%) drank 8.34 glasses of water. Eighty seven point nine of those with stomach ailments drank 3.28 glasses of water, 12.1% drank 8.75 glasses of water. It was determined that there was no significant difference between these health problems and the distribution of adequate water consumption (p>0.05).

3.4. The Relationship Between Daily Water Consumption and Diabetes

Fifty-five percent of the participants (1023) stated that they had diabetes. Twenty-three of these people (41.8%) stated that they drink 7-10 glasses of water a day. This amount is known to be sufficient. Three hundred thirty-two (34.3%) of 968 people who say they do not have diabetes drink 5-7 glasses of water a day, 257 (26.5%) drink less than 5 glasses of water a day (Table 2).

If the survey had been carried out during the summer period, the daily water consumption could have been higher. Turkish Diabetes Foundation, in people with diabetes and high blood sugar; reported that frequent urination, dry mouth and drinking a lot of water are symptoms of diabetes (Turkish Diabetes Foundation, 2021). The relationship between water consumption and diabetes ($\chi2$: 13.640) was found to be statistically significant ($P<0.05$). However, this situation cannot be interpreted as a diabetes patient who consumes more water or vice versa. A detailed study can be done on this subject.

Table 2. BMI, stomach ailments and diabetes status according to the water drinking status of the participants

Tablo 2. Katılımcıların su içme durumlarına göre BKİ, mide rahatsızlıkları ve diyabet durumları

				Daily water consumption				
				< 5 glasses*	5-7 glasses	7-10 glasses	>10 glasses	Total
BMI	**Group 1**	**Underweight**	n	8	10	5	8	31
			%	3.0%	2.9%	2.2%	4.4%	3.0%
	Group 2	**Normal**	n	138	151	91	115	495
			%	**51.3%**	**44.0%**	39,9%	**62.8%**	48.4%
	Group 3	**Overweight**	n	83	126	100	39	348
			%	30.9%	36.7%	**43.9%**	21.3%	34.0%
	Group 4	**Obese**	n	40	56	32	21	149
			%	14.9%	16.3%	14.0%	11.5%	14.6%
	Total		n	**269**	**343**	**228**	**183**	1023
			%	26.3%	33.5%	22.3%	17.9%	100.0%
				($\chi2$: 33,444; P<0.05)				
Stomach ailments	**Existent**		n	8	21	13	7	49
			%	16.3%	**42.9%**	26.5%	14.3%	100.0%
	Absent		n	261	322	215	176	974
			%	26.8%	**33.1%**	22.1%	18.1%	100.0%
	Total		n	269	343	228	183	**1023**
			%	26.3%	33.5%	22.3%	17.9%	100.0%
				($\chi2$: 4.070; P>0.05)				
Diabetes	**Existent**		n	12	11	23	9	**55**
			%	21.8%	20.0%	**41.8%**	16.4%	100.0%
	Absent		n	257	332	205	174	**968**
			%	**26.5%**	**34.3%**	21.2%	18.0%	100.0%
	Total		n	269	343	228	183	**1023**
			%	26.3%	33.5%	22.3%	17.9%	100.0%
				($\chi2$: 13.640; P<0.05)				

*1 glasses water=200ml

3.5. Chronic Disease Status of the Participants

Sixty-one point ninety-seven percent of the participants do not have a chronic disease. The most common chronic diseases among the participants were iron deficiency (9.7%), thyroid hormone disorders (8.4%), blood pressure (8.2%), migraine (6.3%), diabetes (5.3%) and stomach ailments (4.8%) (Table 3).

Table 3. Chronic disease status of the participants
Tablo 3. Katılımcıların kronik hastalık durumları

	n	(%)		n	(%)
I do not have a chronic illness	634	**61.97**	Hypertension	84	**8.21**
Kidney disease	13	1.27	Migraine	65	**6.35**
Thyroid hormone disorders	86	**8.4**	Diabetes	55	**5.38**
Stomach ailments	49	**4.79**	Food allergy	32	3.13
Cardiovascular disease	43	4.2	Asthma	22	2.15
Calcium deficiency	20	1.96	Genetic anemia	16	1.56
Osteoclasis	20	1.96	Iron deficiency	99	**9.68**
Psoriasis or eczema	33	3.23			

In the study of Dilber and Dilber (2020), the participants stated that chronic diseases were triggered and the number of meals increased during the 2-month period of staying at home during the Coronavirus Pandemia. Over or under nutrition can lead to chronic diseases (Dunn et al., 2020). The population most affected by the pandemic is individuals over 65 years of age with chronic respiratory tract, diabetes, cardiovascular diseases or obesity problems (Muscogiuri et al.,2020).

In the study conducted by Wu et al. (2020) in China, 19.4% of the participants had hypertension, 10.9% had diabetes, and 1% had hormonal disorders during Covid-19 pandemic, and these results differ from the results of our study. The rates of cardiovascular disease (4%) and kidney failure (1%) were similar to the rates in this study. The differences in the countries where the studies were conducted, the social status of the participants, the differences in their nutritional status may be the reason for the difference in the results.

In a study conducted in the USA, it was determined that 89.3% of obese adult patients with a BMI ≥30 infected with Covid-19 had one or more underlying diseases. It was stated that hypertension (49.7%), obesity (48.3%), chronic lung disease (34.6%), diabetes (28.3%) and cardiovascular disease (27.8%) were among the common ones (Garg et al., 2019). The fact that these rates are higher than the rates in our study may be due to the fact that the participants were obese. It is also noteworthy that those who have a high rate of these diseases have caught Covid 19.

In Alptekin (2019)'s study, While suffering 29% of the participants aged 65 and over were diagnosed with heart diseases, 59.7% from hypertension, 23.5% from osteoporosis, 6.8% from stomach diseases, 10.4% from thyroid diseases, in our study, which had a lower average age, 4.2% of the participants had cardiovascular disease, 8.21% had blood pressure, 1.6% had osteoporosis, 4.79% had stomach disease, 8%, 4 of them have a thyroid condition.

3.6. Meal Preferences, Meal Skipping Situations and Reasons of Participants

Fifty one point five percent of the participants were eating 3 meals a day. Thirty seven point four percent of the participants ate 2 meals a day, 8.1% 4 meals a day, 2.8% 5 meals a day or more. Forty-five point five percent of the participants skipped lunch, 6.9% had dinner, and 23.2% skipped breakfast. Twenty three point seventeen percent of them weren't skipping meals. Forty point forty seven percent of those who skip meals because they have no appetite, 28.34%

because they do not have time, 15.15% because they want to lose weight, 8.21% because they forgot, 2.93% because they satisfied with their meals and 2.54% of them reported that they skipped meals due to economic inadequacies.

In order for the metabolism to work regularly, there should be a habit of eating 3 meals a day and each meal should contain food from each group (Baysal, 1993). In this study, the majority of the participants (51.5%) follow the advice stated and eat 3 meals a day.

In the study conducted by Uzdil et al. (2021), it was determined that the participants skipped breakfast and snacks less and lunch more often compared to the pre-pandemic period. The rate of skipping breakfast was 16.90%, skipping lunch 47.70%, skipping dinner 2.30% and skipping snacks 31.60%. In the study of Macit (2020), 53.7% of the participants ate 3 main meals before Covid-19 pandemic, while most of the participants (63.0%) ate 2 main meals after the pandemic. While 13.2% of the participants ate 3 or more snacks before Covid-19 pandemic, this rate increased to 30.8% after Covid-19 pandemic. The change in the frequency of main and snack meals is statistically significant compared to the period before and after Covid-19 pandemic ($p < 0.05$).

In the study of Dilber and Dilber (2020), before the coronavirus pandemic, 29.8% of the participants had 2 meals, 65.8% had 3 meals, 4.3% had 4 meals and 0.3% had 5 meals or more. They reported that they ate. During the coronavirus pandemic (during 2 months), 33.8% of the participants reported that they ate 2 meals, 49.8% 3 meals, 13.5% 4 meals and 3.0% 5 meals and more. Accordingly, during the coronavirus pandemic, there was a decrease in the number of 3 meals, and an increase in the number of 2, 4, 5 and more meals. Presumably, the 4th and 5 or more meals were snack meals.

During the quarantine and working from home periods during the pandemic, most people wake up late and have a late breakfast. Therefore, lunch is skipped. Since the dinner is eaten at an early hour, the need for snacks arises during the period until bedtime.

In the study conducted by Berkel (2011), 40.47% of the participants reported that they had no appetite and 28.34% reported that they did not have time as the reason for skipping meals. This study was similar to our study in terms of these two reasons.

In the study conducted by Erdoğan (2021), during the pandemic, 11.7% of the participants due to changes in their eating habits, 14.3% due to loss of appetite, 13% due to an increase in body weight, 26% due to stress and 20.8% due to the change in their sleep patterns skipped meals. Fourteen point three percent of the participants stated that they did not skip meals.

3.7. The Relationship Between Meal Skipping and Stomach Ailments and Diabetes among Participants

Twenty-three (46.9%) of 49 participants with stomach ailments stated that they skipped lunch the most, and 15 (30.6%) stated that they did not skip meals. Four hundred forty two (45.4%) of 974 participants who did not have stomach problems stated that they skipped lunch. The number of those who skipped lunch was 465, the highest number among all participants (Table 4.)

Table 4. The Relationship between meal skipping and stomach ailments and diabetes
Tablo 4. Öğün atlama ile mide rahatsızlıkları ve diyabet arasındaki ilişki

			Most skipped meal				Total
			I don't skip meals	Breakfast	Lunch	Dinner	
Stomach ailments	**Existent**	**n**	15	10	23	1	**49**
		%	**30.6%**	20.4%	**46.9%**	2.0%	100.0%
	Absent	**n**	235	227	442	70	**974**
		%	24.1%	23.3%	**45.4%**	7.2%	100.0%
Total		**n**	250	237	465	71	**1023**
		%	24.4%	23.2%	45.5%	6.9%	100.0%
			(χ2: 2.777; P>0.05)				
Diabetes	**Existent**	**n**	16	10	21	8	**55**
		%	**29.1%**	18.2%	**38.2%**	14.5%	100.0%
	Absent	**n**	234	227	444	63	**968**
		%	24.2%	23.5%	**45.9%**	6.5%	100.0%
Total		**n**	250	237	465	71	**1023**
		%	24.4%	23.2%	**45.5%**	6.9%	100.0%
			(χ2: 6.659; P>0.05)				

The relationship between stomach ailments and skipping meals (χ2: 2.777) was found to be statistically insignificant (P>0.05).

Etçioğlu and Aydın (2020) advise patients to keep their meals low and eat six meals a day in the presence of didpepsia, which causes stomach problems. Considering the result of the study; stated that 30.6% of the participants with stomach ailments did not skip meals. In addition, it was concluded that the participants with and without stomach ailments skipped lunch. It is seen that 30.6% of the participants with stomach ailments follow the recommendation of Etçioğlu and Aydın (2020).

Fifty five out of 1023 people who participated in the survey stated that they had diabetes. Twenty one (38.2%) of these people stated that they skipped lunch, 16 (29.1%) did not skip meals. Four hundred forty four (45.9%) of 968 participants without diabetes stated that they skipped lunch (Table 4). According to the survey results, the most skipped meal was lunch. Lunch may be skipped due to the intensity of working life, the lack of a suitable place to eat close to the workplace, or the lack of time to eat during the day. In this study, it was observed that some participants skipped meals even if they had diabetes. The relationship between diabetes and skipping meals (χ2: 6.659) was statistically insignificant (P>0.05).

In Yıldırım (2013)'s study, it was determined that 26.3% of elderly diabetic patients skipped main meals and 20.0% skipped snacks. The most frequently skipped main meal is lunch. The meal that men and women skip the most is lunch (81.3% for men, 87.0% for women). It was learned that the reasons for skipping the main meal were the patients' lack of appetite (28.2%), the patients getting up late (25.6%), and the patients' lack of time (25.6%). The majority of patients sometimes skip snacks (59.4% of men, 66.7% of women). It was learned that the most common reasons for skipping snacks were due to lack of appetite (52.2%) and not having habits (23.9%).

3.8. Fast-Food Consumption and Consumption Reasons of Participants

Fast food consumption of the participants once a month, twice a month, once-twice a week, three-four times a week, five-six times a week and every day is 25.3%, 30.8%, 16.2%, 8.9%, 2.4% and 1.7%, respectively. was. 14.6% of the participants did not consume fast food at all.

More than half of the participants (52.98%) preferred fast food because it was delicious. The proportions of the participants who consumed fast food to save time, because the service was fast, because it was satisfying, because it was influenced by advertisements, and because the prices were affordable, were 19.45%, 10.85%, 8.31%, 6.84% and 6.74%, respectively.

In the study of Górnicka et al. (2020) in Poland, it was reported that during Covid-19 pandemic, the consumption of fast food consumption of participants decreased by 36.6%, while the consumption of homemade food increased by 48%.

In the study of Olcay and Akçi (2014), it was seen that the most important factor in people's preference for fast-food restaurants was "Providing the service on time and fast. The second and third most important factors were; to have suitable menus". The prominence of taste in our study shows that over time, the importance that people give to the taste of the people may have increased.

3.9. Healthy Eating Claims of Participants

Forty-three point four percent of the participants stated that they ate a little bit healthy, while 37.9% of them stated that they ate healthy enough. While 14.7% stated that they did not eat healthy, 4% claimed that they had a very healthy diet.

In the study conducted by Di Renzo et al. (2020) in Italy during the Covid-19 quarantine, 37.4% and 35.8% of participants stated that they ate more and less healthy food (fruits, vegetables, nuts and legumes), respectively. The rate of those who declared that they eat healthy enough is quite similar to our study. Those who declared that they consumed less healthy food were more than ours in that study. This may be due to societal differences and the lack of food supply during quarantine.

In the study of Garipoğlu and Bozar (2020), 25.3% of the participants thought that they had an unhealthy diet during the Covid-19 pandemic, 50.3% thought that they had a healthy diet. 24.9% stated that they partially agreed with this.

3.10. Reasons for Participants Not to Have a Healthy Eating

As the reasons for not eating healthy, 32.94%, 32.36%, 17.97%, 14.08% and 11.05% of the participants stated that lack of time, inability to give up some foods, other reasons, forgetfulness and financial inadequacy, respectively.

3.11. Comparison of Participants' Eating Speed and BMI Values

The proportions of participants (1023) who reported that they ate fast, normal speed and slow food were 35.8% (366), 49.3% (504) and 15% (153), respectively. Of the 153 participants whose eating speed was slow, 58.8% were at normal weight and 5.2% were obese. 54.6% of those with a normal eating speed were at normal weight. While 40.4% of the participants who ate their food fast were included in the overweight group, only 1.1% were in the underweight group (Table 5).

Table 5. The relationship between participants' eating speed the and their BMI
Tablo 5. Katılımcıların yeme hızları ile BKİ'leri arasındaki ilişki

				Slow	Normal	Fast	Total
				Eating speed			
BMI	Group 1	(Underweight)	**n**	9	18	4	31
			%	5.9%	3.6%	**1.1%**	3.0%
	Group 2	(Normal)	**n**	90	275	130	495
			%	**58.8%**	**54.6%**	35.5%	48.4%
	Group 3	(Overweight)	**n**	46	154	148	348
			%	30.1%	30.6%	**40.4%**	34.0%
	Group 4	(Obese)	**n**	8	57	84	149
			%	**5.2%**	11.3%	23.0%	14.6%
	Total		**n**	**153**	**504**	**366**	1023
			%	100.0%	100.0%	100.0%	100.0%
(χ2: 66.477; P<0.05) (r=0.246; P<0.05)							

The relationship between eating speed and BMI values of individuals (χ2: 66.477) was found to be statistically significant (P<0.05). In addition, since eating speed and BMI groups are ordinal variables, a correlation test was performed. According to Spearman Correlation test, there was a positive and significant relationship (r=0.246; P<0.05) between eating speed and BMI groups. As the rate of eating increased, the probability of entering the overweight group increased.

Öztayıncı (2019) found that 25.0% of the participants ate fast, 48.8% ate moderately, and 26.9% ate slowly. Müftüoğlu and Karataş (2021) reported in their study that 23.1% of individuals ate fast, 53.2% ate normally, 22.1% ate slowly and 1.4% ate very slowly. Studies contain similar results. Güçlü (2016) worked with obese individuals in his study. Güçlü (2016) reported in his study that 50% of the participants ate fast, 36.4% ate moderately, and 4.5% ate slowly.

In the study of Koruk and Şahin (2005), obesity prevalence and risk factors among housewives aged 15-49 in Konya, obesity was found to be higher in fast food eaters. Researchers have reported that eating fast food causes an increase in the amount of food taken until a feeling of fullness occurs and causes excessive energy intake. Işık et al. (2013), therefore, reported that an increase in the speed of eating may pose a risk in terms of obesity. It has also been reported by Güneş et al. (2000) that obesity is more common in fast eaters. Yuan et al. (2021) stated that while slow eating may be a protective factor for central obesity, fast eating may be a risk factor for central obesity. In a study conducted in Japan, Yamaji et al. (2018) stated that eating speed is associated with obesity. Ohkuma et al. (2015) found a positive relationship between fast food eating and excess body weight in a meta-analysis in their study. It has been mentioned that individuals who eat fast may have more energy intake than individuals who eat slower. It was thought that this situation may be caused by too much energy intake, since the signals of satiety triggered by food intake have not yet reached the brain.

In this study, it was determined that 40.4% of the participants who ate their food fast were included in the overweight group, while only 1.1% were in the underweight group. As a result, it can be said that the speed of eating has an effect on body weight. As the rate of eating increases,

the probability of being included in the overweight group increases. In addition, results consistent with other studies were obtained.

3.12. Factors Affecting Participants' Desire to Eat

When asked about the factors that most affect their desire to eat, 50.34%, 21.6%, 16.03%, 6.94% and 5.57% of the participants said that the food should be delicious, good vision, high nutritional value, price and other reasons, respectively. Thirty point six percentage of the participants stated that all of these affect their desire to eat.

In a study conducted by Prasetyo et al. (2021) in Endonesia, it has been determined that during Covid-19 pandemic, consumers give more importance to the price and promotion of the food rather than the packaging of the food in online food service. The importance given to the price may vary according to the economic conditions at the time of the study or the socio-economic situation of the region where the study is conducted.

According to Ermiş et al. (2015), in their study titled "Examination of University Students' Nutritional Habits: The Example of Ondokuz Mayıs University", among the factors that students pay attention to when choosing food, the be satisfying (32.9%), the be desired food (30.4%) and the price (6.4%) were most important.

Yılmaz and Özkan (2007), in their study with university students, determined that most of the participants (77.7%) attach importance to cooking and serving food in a clean environment. The rate of those who give importance to the price of the meal is 38.3%, and the rate of those who pay attention to the fact that it is satisfying is 50.9%.

3.12. The Situation of Affecting the Eating Desire of Emotional Change

While 40.2% of the participants stated that their mood changes greatly affected their desire to eat, 29.4% stated that they sometimes affect them, 12.6% rarely affected them, and 17.8% did not.

Self-quarantine of people to prevent the spread of Covid -19 has interrupted the daily routine. This situation has caused emotional problems such as boredom and stress in people.

Moynihan et al. (2015) found that boredom was significantly positively associated with energy consumption. Boredom was associated with higher energy intake, as well as higher consumption of fat, carbohydrates, and protein. Çulfa et al. (2021) reported that during the pandemic period, an increase was observed in the consumption of foods high in refined carbohydrates, sugar, and fat due to reasons such as the mental state of the person, increased stress, and decreased physical activity. Since foods with high carbohydrate content increase the secretion of serotonin in the body, it is considered as a way to improve mood and a solution in stress management.

In the study conducted by Di Renzo et al. (2020) in Italy during Covid-19 pandemic, it is seen that more than half of the participants have changes in their perceptions of hunger/fullness regarding their eating habits: 627 (17.7%) and 1214 (% 34.4) of the participants have less and more appetite, respectively. It has been determined that eating habits vary according to age, gender, region and working conditions.

3.13. Cooking Methods Preferred by Participants

In cooking, 52.39% of the participants preferred cooking with little water and low heat by adding oil to the pot, while 35.29% preferred cooking in the oven, 20.63% frying, 18.87% grilling and 7,04% steam cooking method.

Physical and chemical changes in foods that interact with heat cause changes in the taste, color, smell, texture and nutritional values of foods (Eryılmaz, 2004). As a result of these changes, product diversity is provided, and this also paves the way for consumers to prefer the product (Çiftçi-Şeker, 2021). Cooking methods are effective in the preference of foods, especially in children, individuals on a diet, diabetes patients, blood pressure patients and the elderly (Sökmen, 2011). When the watery cooking method is evaluated in terms of healthy nutrition, it is a more preferred method than frying or roasting methods (Türkan, 2012).

In the study of Blauw et al. (1976), it was stated that the least nutrient losses in the methods used in cooking vegetables were the cooking method applied by adding vegetables to hot water with the application of cooking in a saucepan, under pressure, in a short time and in less water.

In the study of Çiftçi and Şeker (2021), it was determined that individuals with coronavirus disease do less correct practices during purchasing, preparation, cooking and storage practices. Misapplications made by individuals towards food lead to vitamin and mineral losses in foods and reduce their nutritional value. Since the intake of food groups with low nutritional quality and low vitamin-mineral levels will not be enough to strengthen the immune system, our body will be vulnerable to other infectious diseases, especially coronavirus. As a matter of fact, according to the results of that study, it was revealed that the rate of catching the coronavirus disease increased as a result of using the wrong methods.

In Armstrong et al. (2021)'s study in England during the Covid-19 pandemic, participants relied on most cooking methods. The majority of participants preferred boiling (98%), roasting (95%), grilled (94%), microwaing (93%), stir-frying (91%), shallow fring (77%), steaming (75%), stewing (72%), barbecue (60%) or poaching (59%) method. Fewer people preferred deep frying (46%), pressure cooker (25%) or sous vide (6%) for cooking. Sous vide was the least known cooking technique (51%). Difference in preference to use certain cooking methods may be due to familiarity with the methods or access to cooking equipment (Miglio et al., 2008).

According to Uggioni et al. (2020), Cardiovascular Diseases, Type 2 Diabetes and obesity are among the risk factors for severe Covid-19. Developing cooking skills can contribute to a healthier diet and help treat and prevent Covid 19 and Type 2 diabetes. In terms of cooking and health, it is not appropriate to use any oil, but it is more suitable to cook using less oil (Duyff, 2003). Reisoğlu (2019) stated that the individuals participating in the survey preferred frying (30%), boiling (33.33%), grilling (24.33%) and steaming (12.33%).

3.14. Factors Participants Consider When Purchasing Ready (Packaged) Food

The proportions of the participants who paid attention to the expiry date, additives, whether it is halal, calorie content and fat ratio while buying ready-made (packaged) food were 64.13%, 29.13%, 19.16%, 16.03%, respectively. Twenty-six point forty-nine percentage of the participants were paying attention to all of these.

In the study of Güler and Özçelik (2002), it was determined that the most important points on the label of the participants were expiry date, production date and price (94.8%, 46.7%, 46.4%, respectively). In the study of Reisoğlu (2019), the rates of paying attention to the expiration date, calorie amount, fat ratio etc., whether it is halal (halal certificate) and additives were 37%, 4%, 9.70% and 10.30 %, respectively. Thirty nine pergentage of the participants answered all of them.

3.15. Behavioral Status of Participants Noticing Any Cheating, Poisoning or Expired Product

It was determined that when the participants realized that the product they purchased was fraudulent, toxic or expired, 63.8% returned the product, 18.7% complained by calling the ALO Food Line and 15.3% threw the product away. Two point two pergentage of the participants also stated that they consume the product.

4. CONCLUSION

Self-quarantine of people to prevent the spread of Covid -19 has interrupted the daily routine. This situation has caused emotional problems such as boredom and stress in people. In this study, it was determined that emotional changes affect the desire to eat quite a lot. Solutions can be sought to be least affected by the stress of the pandemic. More than half of the participants did not consume enough water. Adequate water intake helps to solve obesity, stomach ailments and many other health problems. Nearly half of the participants skipped lunch, followed by those who skipped breakfast. In addition, it was observed that the participants did not attach much importance to the nutritional value of the food. Meals should not be skipped in order to be healthy and resistant to diseases. Consumers should be informed about the importance of meals and water, and the nutritional values of foods. Everyone who wants to be healthy should pay attention to nutrition. It should be kept in mind that this importance should be greater during the pandemic period.

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