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THE EFFECT OF THE PANDEMIC ON THE CONSUMPTION OF ANIMAL PRODUCTS: THE CASE OF KAFKAS UNIVERSITY OF TURKEY

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ABSTRACT: The COVID-19 pandemic has brought about some changes in consumption preferences and nutritional habits as well as lifestyles of individuals, such as education, working system, and social relationships, especially due to having to stay at home. In this study, the change in animal food consumption dispositions of students who had to stay at home during the pandemic and received online education was examined compared to the pre-pandemic period. In the study, since face-to-face teaching-learning activities were suspended, an online questionnaire was used to collect the study data from a total of 380 students registered at Kafkas University. The average monthly income of the participants and the share they allocated to the total food and animal products expenditures in the budget were determined as 539.64±21.00$, 132.73±5.08$, and 62.18±2.67$, respectively. Although the annual chicken meat consumption amount did not change according to the income levels of the students, it was determined that the consumption of animal products, such as beef, mutton-lamb, milk-yogurt, cheese, and eggs increased as the income level increased. During the pandemic period, the food consumption of 55.3% of the participants and the animal products consumption of 35.8% increased. On the other hand, it was determined that the consumption of food and animal products increased as the income level increased during the pandemic compared to the pre-pandemic period. During the pandemic period, it was determined that red meat and salami-sausages consumption of 31.8% of the students decreased by 37.90% and 42.15%, respectively, but that the chicken meat consumption of 31.3% of the students and milk and dairy products consumption of 37.9% increased by 31.02% and 39.17%, respectively. As a result, it was determined that there were significant changes in the nutritional habits of the students during the COVID-19 pandemic, and it was determined that there were significant increases in the consumption of animal products other than red meat. The primary reason why red meat consumption did not increase is thought to be due to the high price of the product compared to consumers' income levels.

Keywords: Animal Products, Consumption, COVID-19, Meat, Pandemic.

INTRODUCTION

The pandemic, which was caused by the coronavirus and called the COVID-19 pandemic, was first seen in December 2019. The World Health Organization (WHO) declared COVID-19 as a high-risk global pandemic across the world on March 12, 2020 (Andrews et al., 2020). The first case in Turkey was reported on March 11, 2020, and measures were taken across the country gradually due to the increase in the number of cases. The most important measure taken was lockdowns. In this context, a partial and/or full closure was put into effect across the country as of April 29, 2020 (TR Ministry of Health, 2020).

The COVID-19 pandemic has brought about several changes in consumption preferences and nutritional habits as well as lifestyles of individuals, such as education, working system, and social relationships, especially due to having to stay at home (Dilber and Dilber, 2020; Ersoy and Yardimci, 2020; Taskin et al., 2020). The concept of healthy eating has come to the fore in society to protect against COVID-19 and improve the immune system (Andrews et al., 2020; Saul, 2020; Zhang and Liu, 2020). A healthy diet can be achieved by an adequate and balanced intake of nutrients that meet the energy needs of the body. When nutrients are not taken adequately or taken more or less than necessary, growth and development will stop and the health of the person will gradually deteriorate (Dilber and Dilber, 2020). Nutrition does not only relate to health, but it is also a strategic issue. As a matter of fact, a country needs physically and mentally strong, healthy, and talented individuals to reach the desired social and economic level of civilization, which is closely related to balanced and healthy nutrition (Akin et al., 2019; Dilber and Dilber, 2020; Saul, 2020; Demir Ayvazoglu and Aydin, 2021). In this context, university students are at a critical age period, when their future eating habits are settled. In the study, the change in animal food consumption dispositions of students who had to stay at home during the pandemic and received online education was examined compared to the pre-pandemic period. The study was conducted to evaluate the nutritional habits of individuals in society during the pandemic period through the students of Kafkas University.

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MATERIALS AND METHODS

Materials

A total of 20.850 students were registered at Kafkas University in Kars, Turkey as of January 2021. It was not possible to reach the entire population; therefore, we decided to take a sample. The sample size was determined as at least 378 individuals based on a 5% margin of error and 95% confidence interval. Since face-to-face education was suspended due to the COVID-19 pandemic, the study data were collected by using an online questionnaire form created on docs.google.com. The questionnaire was applied to a total of 400 students between February 7 and March 31, 2021, considering that there may be reasons limiting the study, such as missing data. Eventually, 380 questionnaires were included in the study due to missing data on some questionnaires.

Methods

Research methods consist of research design, data access, data analysis, and evaluation.

Data analysis

The analysis of the study data was conducted on the SPSS software package (Version: 23.0; IBM, USA). Descriptive statistics of variables, such as demographic information and nutritional habits of the research group, were performed and presented in tables. While doing the analysis and interpretation of the data, the Chi-square test was used to analyze categorical data, and the One Way ANOVA test (one-way analysis of variance) was employed to determine the relationships between monthly household income and animal products expenditures and consumption amounts. Tukey test was used to determine the differences between the groups, and $P<0.05$ was taken as the level of significance.

RESULTS AND DISCUSSION

Consumption of animal products is one of the basic needs for a balanced and healthy diet and is indispensable for the development of society and economy and the sustainability of development. In this respect, easy access to animal products at affordable prices and quality is the most important goal of developed and developing countries, but access to such healthy foods by all segments of society cannot be provided at an affordable price and in adequate quantity (Akin et al., 2020). Some demographic data of the students participating in the study are given in Table 1.

As seen in Table 1, 46.6% of the participants were male, 53.4% were female, 52.9% came from the provinces in the Eastern and Southeastern Anatolia Regions, the fathers of the 58.9% were illiterate or primary/secondary school graduates. The data about the monthly household income level of the students and their monthly animal product expenditures are given in Table 2.

As seen in Table 2, the expenditures of the participants on milk and dairy products did not change significantly according to their income level, whereas the share allocated to animal products, namely red meat, chicken meat, and fish, especially by those with a monthly income level above $900, increased, which was statistically significant ($P<0.001$). This situation can be explained by “Engel's Law”. As a matter of fact, red meat is characterized by high production costs and high output prices compared to other food products and can be considered a luxury food item (Charlebois et al., 2016; Aktas, 2020). In this context, as the income level increases, the demand for red meat increases, as well. Parallel to the results of the current study, many studies have reported that there is a significant relationship between the average monthly household income groups and the quantity of animal products purchased (Celik and Sengul, 2001; Sengul, 2002; Seker et al., 2011).

It was determined that the average monthly income level of the participants was 539.64±21.00$ (X±SEM), they spent 25% (132.73±5.08$) of their budget on food, and that 46.85% (62.18±2.67$) of their food expenditure was allocated to animal products. According to the data obtained from the survey, of the monthly animal product expenditures, 19.99% was allocated to red meat, 13.30% to chicken meat, 6.76% to fish, and 6.79% to milk and dairy products.

The household income levels of the students and their annual consumption of animal products are given in Table 3. As seen in Table , the students participating in the study consumed an average of 9.31 kg of beef, 5.89 kg of mutton-lamb, 16.94 kg of chicken meat, 37.38 kg of milk-yogurt, 20.84 kg of cheese, and 168.27 eggs per capita per year. In the study, it was determined that 75% of the students did not consume milk regularly, so the quantity of milk and yogurt consumption was evaluated together. In addition, the students’ annual consumption of chicken meat did not change significantly according to their income levels; however, the annual consumption amount of animal products, namely, beef, mutton ($P<0.05$), milk-yogurt and eggs, was lower in those with a monthly income of ≤300$ than the average and higher in those with a monthly income of ≥900$ than the average, and this difference was statistically significant ($P<0.001$). This situation can be explained by the high "Income Elasticity of Demand" in animal products, especially red meat, in all economic strata in Turkey. As a matter of fact, it can be said that the consumption shows a tendency towards red meat with the increase in income. In parallel with the results of the study, some studies have shown that there is a positive relationship between income level and red meat consumption (Aktas and Hatirli, 2010; Uzunoz and Karakas, 2014; Aktas, 2020).

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Table 1 - Some demographic data of the participants in present study.

Parameter		Frequency	Percent
Gender	Male	177	46.6
	Female	203	53.4
	Total	380	100.0
Geographical region where the student lives	Mediterranean	32	8.4
	Eastern Anatolia	138	36.3
	Aegean	33	8.7
	Southeast	63	16.6
	Central Anatolia	41	10.8
	Black Sea	26	6.8
	Marmara	34	8.9
	Abroad	13	3.4
	Total	380	100.0
Education level of the father	Primary school	144	37.9
	Middle school	72	18.9
	High school	88	23.2
	University	68	17.9
	Not literate	8	2.1
	Total	380	100.0

Table 2 - Students' monthly household income levels and their monthly food and animal product expenditures ($)

Product expenditures	Income level*	N	Mean	Std. Error	Minimum	Maximum	F/P value
Total food expenditures	≤300 $	112	81.44[a]	3.73	12.03	240.67	F=99.403 P=0.000 P<0.001
	301-600 $	136	109.87[b]	4.71	12.03	240.67	
	601-900 $	80	141.65[c]	9.38	24.07	421.18	
	≥901 $	52	289.25[d]	18.79	18.05	722.02	
	Total	380	132.73	5.08	12.03	722.02	
Red meat expenditures	≤300 $	112	16.42[a]	1.45	.00	72.20	F=21.614 P=0.000 P<0.001
	301-600 $	136	22.75[a]	2.317	.00	180.51	
	601-900 $	80	23.92[a]	1.764	.00	60.17	
	≥901 $	52	63.72[b]	11.59	6.02	601.68	
	Total	380	26.53	2.01	.00	601.68	
Chicken meat expenditures	≤300 $	112	14.74[a]	1.28	.00	60.17	F=8.390 P=0.000 P<0.001
	301-600 $	136	16.94[a]	1.26	.00	60.17	
	601-900 $	80	17.40[a]	1.30	.00	84.24	
	≥901 $	52	26.19[b]	2.07	4.81	90.25	
	Total	380	17.66	0.73	.00	90.25	
Fish expenditures	≤300 $	112	5.94[a]	0.57	.00	36.10	F=22.158 P=0.000 P<0.001
	301-600 $	136	7.44[a]	0.75	.00	60.17	
	601-900 $	80	9.92[b]	0.88	.00	36.10	
	≥901 $	52	18.03[c]	2.16	.00	60.17	
	Total	380	8.97	0.51	.00	60.17	
Milk and dairy products expenditures	≤300 $	112	8.97[a]	0.56	.00	24.07	F=0.33 P=0.804 P>0.05
	301-600 $	136	9.08[a]	0.44	1.20	30.08	
	601-900 $	80	8.61[a]	0.50	2.41	18.05	
	≥901 $	52	9.51[a]	0.64	3.01	24.07	
	Total	380	9.01	0.26	.00	30.08	

*1 $= 8.31 TL (Date: September 07, 2021/TCMB [The Central Bank of the Republic of Turkey], 2021), [a,b,c,d]: The difference between the mean values shown with different letters according to income groups for the same parameter is statistically significant.

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Table 3 - Monthly household income level of the students and the annual consumption of animal products per capita (kg/piece)

The animal products consumed*	Income level	Mean	Std. Error	F/P value
Beef	≤300 $	6.03[a]	0.89	F=16.740 P=0.000 P<0.001
	301-600 $	9.35[a]	1.08	
	601-900 $	11.20[b]	1.40	
	≥901 $	15.59[c]	2.29	
	Total	9.31	0.67	
Mutton-lamb	≤300 $	4.25[a]	0.66	F=2.809 P=0.049 P<0.05
	301-600 $	5.88[a]	0.88	
	601-900 $	4.78[a]	0.86	
	≥901 $	9.00[b]	1.57	
	Total	5.89	0.46	
Chicken meat	≤300 $	15.59[a]	1.60	F=0.114 P=0.952 P>0.05
	301-600 $	16.37[a]	1.45	
	601-900 $	16.27[a]	1.72	
	≥901 $	19.57[a]	2.43	
	Total	16.94	0.85	
Milk-yogurt	≤300 $	29.55[a]	2.01	F=12.320 P=0.000 P<0.001
	301-600 $	38.82[b]	1.72	
	601-900 $	38.27[b]	2.00	
	≥901 $	48.94[c]	2.19	
	Total	37.38	1.04	
Cheese	≤300 $	15.34[a]	1.19	F=12.493 P=0.000 P<0.001
	301-600 $	22.27[b]	1.07	
	601-900 $	22.49[b]	1.21	
	≥901 $	26.23[b]	1.50	
	Total	20.84	0.64	
Eggs (unit)	≤300 $	82.15[a]	18.36	F=7.949 P=0.000 P<0.001
	301-600 $	180.52[b]	19.25	
	601-900 $	188.12[b]	19.93	
	≥901 $	217.32[b]	25.20	
	Total	168.27	10.60	

*: The data of the participants who stated that they never consumed the product were not included in the calculation of the average value. [a,b,c]: The difference between the mean values shown with different letters according to income groups for the same parameter is statistically significant.

According to the Agricultural Products Market Report, 13.3 kg of beef is consumed per capita in Turkey (TEPGE, 2021). Although Turkey is above the world average (6.4 kg) in beef consumption, it falls behind many countries, such as Argentina, Australia, the US, European Union, Russia, Israel, in total red meat consumption due to the high consumption of pork in many developed and developing countries (OECD, 2021). One of the main reasons for the low consumption of red meat in Turkey is the high production costs and price compared to other foods (Taskin et al., 2020).

It was determined that the students in the study consumed an average of 15.20 kg of red meat (9.31 kg of beef and 5.89 kg of mutton-lamb) annually. It is thought that one of the most important reasons why this finding was lower than beef consumption (13.3 kg) and higher than mutton-lamb consumption (1.5 kg) per capita in Turkey is that 52.9% of the students in the study lived in provinces in the Eastern and Southeastern Anatolia Regions (TEPGE, 2021). As a matter of fact, considering the geographical location of the provinces, some studies have indicated that people in the provinces of the Eastern and Southeastern Anatolia Regions often consume red meat and that they mostly prefer mutton (Karakus et al., 2008; Tosun and Hatirli, 2009; Seker et al., 2011; Kara et al., 2020).

In the study, it was found that the students' annual consumption of chicken meat and mutton did not change significantly, except for those with a monthly income of ≥$900. Similarly, a study conducted in Gaziantep showed that regardless of the difference between income levels, income subgroups also consumed mutton at rates close to each other (Karakus et al., 2008).

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Chicken meat is widely consumed in Turkey due to its cooking time, ease of cooking, and more affordable price than red meat (BESD-BIR, 2021). According to the 2020 data of BESD-BIR (2021) compared to the total world poultry meat production of 132 million tons, Turkey ranks in the top 10 countries in the world with a production of 2 million 194 thousand tons, and the annual per capita consumption of poultry meat is 21.10 kg. In the study, it was evaluated that the students consumed chicken meat below the Turkey average with an annual average consumption of 16.94 kg of chicken meat. The amount of chicken meat consumption in the study was found to be higher than the findings of the studies conducted in Kırşehir, Amasya, and Sivas provinces (Kizilaslan and Nalinci, 2013; Karadavut and Taskin, 2014; Bircan et al., 2017) and lower than the findings of the studies conducted in Kahramanmaraş, Bingöl, and Yozgat provinces (Karakaya and Inci 2014; Tumer et al., 2016; Eleroglu et al., 2018). This can be explained by the fact that the students consumed relatively more mutton than the Turkey average (TEPGE, 2021).

In the study, it was calculated that the students consumed an average of 168 eggs per year, and this value remained at a lower level than the overall average of Turkey, which was reported as 214 eggs per year (YUM-BIR, 2018). The difference between the average annual egg consumption per capita in Turkey and the research data is thought to be due to the inclusion of indirect consumption (cake, biscuit, etc.) in the average annual consumption value in Turkey. On the other hand, the average annual egg consumption per capita reported in the studies conducted in Yozgat (Eleroglu et al., 2018), Bingöl (Inci et al., 2014), Sivas (Bircan et al., 2017), and Uşak (Parlakay et al., 2017) provinces as 130.49, 146.3, 123.4, and 102, respectively, was lower than the average annual egg consumption per capita calculated in the present study. In line with these findings, it can be said that the egg, which is known as the cheapest protein source, is widely consumed among students.

Today, there is an increase in the demand for milk and dairy products due to the increase in awareness and income level. However, in the study, it was determined that the majority of the students (about 75%) did not consume milk regularly and preferred yogurt and cheese more. Similarly, some studies in the literature have reported that students do not have regular milk consumption habits (Engindeniz et al., 2021).

In the study, it was determined that the students consumed an average of 37.38 kg of milk and yogurt per capita per year. The annual per capita consumption of yogurt was found as 32.84 kg by Engindeniz et al. (2021), 31.96 kg by Karakaya and Akbay (2013), and 27.66 kg by Andic et al. (2002). It is thought that the finding of the present study was high due to the inclusion of milk consumption in the average annual consumption per capita in the study. On the other hand, Savran et al. (2011) reported average milk consumption as 64 l/year and yogurt consumption as 55 kg/year.

In the study, the average annual cheese consumption of the participants was determined as 20.84 kg. This value was above the average annual cheese consumption amount (17.5 kg) per capita in Turkey in 2019 (USK, 2020). Although this difference is thought to be regional, it can be said that cheese and yogurt consumption is common in the provinces in the Eastern and Southeastern Anatolia Regions. On the other hand, the average annual cheese consumption per capita was reported as 18.48 kg by Engindeniz et al. (2021), 23 kg by Savran et al. (2011), 14.65 kg by Karakaya and Akbay (2013), and 17.63 kg by Andic et al. (2002).

The reasons for consuming red meat and chicken meat by the students are given in Table 4. As seen in Table 4, being healthy-nutritious ranks first among the reasons why the participants consumed red meat. This is followed by being tasty, habit, and availability, respectively. Among the reasons for consumption of chicken meat, being healthy and tasty rank first and second place, respectively, and low price ranks the third place. Similar to the results of this study, Karakus et al. (2008) found being nutritious as the first ranking characteristic, and Seker et al. (2011) determined being tasty as the most prominent parameter. In line with these data, it can be said that the participants had an awareness of consuming animal products in that they found them both healthy and tasty.

The ranking of the participants' preference for some animal products is given in Table 5.

As seen in Table 5, the red meat products that students preferred most were minced, flaked, and bony and the most preferred three chicken products were whole chicken, breast meat, and chicken legs, respectively. In addition, the most preferred milk types were organic milk, pasteurized, and long-life milk, and the most preferred egg types or common reasons for buying eggs included affordable price, organic eggs, and cage-free chicken eggs, respectively.

According to the findings, the primary red meat products that students preferred were minced meat, flaked meat, and meat with bones. In parallel with this research finding, Taskin et al. (2020) reported similar product rankings. In the study, it can be said that the consumption of minced meat as a red meat product more than other red meat preparations was because minced meat was used in various types of food and its price was affordable. In the study, it was found that the chicken products that students preferred most were whole chicken and breast meat and that the findings were similar to those of other studies (Iskender et al., 2015; Kara et al., 2020). It is thought that the tendency of the participants towards cheap products in chicken meat was related to their income level.

In the study, it was determined that 7.10% of the participants did not consume red meat, 2.37% did not consume chicken meat, 1.58% did not consume milk, and that 2.37% did not consume eggs. In parallel with the results of the study, Sancak and Basat Dereli (2019) determined that 7.6% of their participants did not consume meat, and this rate was found as 6% by Kusat and Sahan (2021). On the other hand, according to a report of the Ministry of Health of the Republic of Turkey and Hacettepe University (2014), 20.2% of the population does not consume red meat. Differences in red meat consumption can be explained by the change of consumption habits according to regions and urban-rural settlements. The rate of those who do not consume other animal products is between 1-3%, which is considered as a positive development in terms of health.

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Table 4 - Reasons for consuming red meat and chicken meat

Parameter	Reasons for consuming red meat		Reasons for consuming chicken meat	
	Frequency	Ranking	Frequency	Ranking
Healthy- nutritious	276	1	194	1
Tasty	170	2	140	2
Habit	75	3	76	5
Availability	34	4	109	4
Low price	0.0	-	136	3
Easy to cook	0.0	-	58	6

Table 5 - The ranking of the participants' preference for some animal products

The most preferred products when buying red meat			The most preferred products when buying chicken meat		
Product	**Frequency**	**Ranking**	**Product**	**Frequency**	**Ranking**
Minced	225	1	Whole chicken	158	1
Flaked	154	2	Breast meat	144	2
Bony	94	3	Chicken legs	124	3
Sausages-salami	76	4	Wings	111	4
Tenderloin, chops	72	5	Drumsticks	52	5
Lamb neck	24	6	Chops	42	6
No consumption	27	7.10%	No consumption	9	2.37%
The most preferred milk type or common reasons for buying milk			**The most common reasons for buying eggs**		
Product	**Frequency**	**Ranking**	**Product**	**Frequency**	**Ranking**
Organic milk	221	1	Affordable	122	1
Pasteurized	129	2	Organic	114	2
Long life (UHT)	113	3	Cage-free chicken eggs	66	3
Milkman delivery	79	4	Size	20	4
Affordable	64	5	Color	10	5
Any type	12	6	Any type	81	6
No consumption	6	1.58%	No consumption	9	2.37%

The rate of change in food and animal product consumption during the pandemic compared to the pre-pandemic period is given in Table 6.

As seen in Table 6, the total food consumption of 55.3% of the participants and the animal products consumption of 35.8% of them increased during the pandemic. In the study, it was observed that the consumption of food and animal products increased as the income level of the participants increased during the pandemic compared to the pre-pandemic period, and the difference between the terms was statistically significant ($P<0.001$). In line with the research findings, Naja and Hamadeh (2020) stated that a protein-rich diet that is also rich in fresh fruits and vegetables was necessary to keep the infection away and support the immune system.

In the study, those who stated that their consumption of animal products increased attributed this increase to regular and balanced nutrition at home (47.06%), additional eating to increase body resistance (41.18%), and restaurants that were closed during lockdowns (11.76%). Those who stated that their consumption of animal products decreased attributed this decrease to the decrease in household income level (64.71%) and other reasons (35.29%).

The changes and rates of consumption of some animal products during the pandemic are given in Table 7.

As can be seen in Table 7, there was no change in the amount of animal products consumption between 42.1% and 49.2%, although it varied according to the participants' parameters. In the study, it was determined that the red meat and salami-sausages consumption of 31.8% of the students decreased by 37.90% and 42.15%, respectively. Similarly, Taskin et al. (2020) reported that students' red meat consumption decreased by 56.4% compared to the previous year. Ersoy and Yardimci (2020) reported that the COVID-19 pandemic negatively affected nutrition, especially in low- and middle-income groups.

It was determined in the current study that the chicken meat consumption of 31.3% of the participants and milk and dairy products consumption of 37.9% increased by 31.02% and 39.17%, respectively, during the pandemic. This result was close to the results of Unal et al. (2020) who reported that more food was cooked during quarantine times and that the time allocated for cooking and the types of food that were cooked increased. Similarly, Dilber and Dilber (2020) found that the number of snacks and main meals that individuals consumed increased and that the most consumed foods were pastries and meat and meat products. On the other hand, in his study in which students' eating habits during the pandemic were evaluated, Erdoğan (2021) reported that 45.5% of the students had changes in their eating habits, 50.6% consumed two main meals a day, and 63.6% had breakfast regularly. Kriaucioniene et al. (2020) found that during the

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COVID-19 quarantine period in Lithuania, participants ate more food than usual at home, snacked more, and cooked at home more often.

It can be said that the new normal lifestyle and rules have emerged in Turkey during the coronavirus pandemic, along with the structural and social changes that include education, working life, social relationships, and consumption preferences (Unal et al., 2020). During the lockdowns in the pandemic, authorities in the broadcasts and television programs recommended paying attention to adequate and balanced nutrition, consuming animal proteins such as meat and fish at least twice a week, and preferring healthy foods to reduce the sensitivity and long-term complications caused by the coronavirus (Butler and Barrientos, 2020; Unal et al., 2020).

Table 6 - Change in food and animal product consumption during the pandemic compared to the pre-pandemic period

Income groups	Food consumption in the pandemic			Animal product consumption in the pandemic			Total
	Increased	Decreased	No change	Increased	Decreased	No change	
≤300 $	55	35	22	24	50	38	112
	49.1%	31.2%	19.6%	21.4%	44.6%	33.9%	100.0%
301-600 $	71	36	29	52	34	50	136
	52.2%	26.5%	21.3%	38.2%	25.0%	36.8%	100.0%
601-900 $	47	7	26	38	14	28	80
	58.8%	8.8%	32.5%	47.5%	17.5%	35.0%	100.0%
≥901 $	37	3	12	22	4	26	52
	71.2%	5.8%	23.1%	42.3%	7.7%	50.0%	100.0%
Total	210	81	89	136	102	142	380
	55.3%	21.3%	23.4%	35.8%	26.8%	37.4%	100.0%
X^2/P value	X^2= 26.009 P=0.000 P<0.001			X^2= 36.171 P=0.000 P<0.001			

Table 7 - The effect of the pandemic on the consumption level of some animal products

Status of change	Red Meat Consumption during the Pandemic			Chicken Meat Consumption during the Pandemic		
	Frequency	Percentage	% Variance	Frequency	Percent	% Variance
Increased	99	26.1	30.55	119	31.3	31.02
Decreased	121	31.8	37.90	98	25.8	29.05
No change	160	42.1	-	163	42.9	-
Status of change	**Consumption of Milk and Dairy Products during the Pandemic**			**Consumption of Sausages and Salami during the Pandemic**		
	Frequency	Percentage	% Variance	Frequency	Percentage	% Variance
Increased	144	37.9	39.17	72	18.9	28.62
Decreased	64	16.8	21.94	121	31.8	42.15
No change	172	45.3	-	187	49.2	-

CONCLUSION

In conclusion, it was determined that there were significant changes in the nutritional habits of the students during the COVID-19 pandemic and that there were significant increases in the consumption of animal products other than red meat. The main reason why red meat consumption did not increase is thought to be due to the high price of the product compared to the income of the consumers. In this context, consumption of red meat, not as a luxury product but as a basic need, in every part of society seems possible only if the prices are brought to an affordable level. It is necessary to reduce producer input costs and the number of dealers in the marketing chain so that prices can go down and consumers can buy red meat as much as they want.

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DECLARATIONS

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Authors' collaboration
E. Aydin and P. Ayvazoglu Demir planned and designed the research and contributed to the collection of online data. P. Ayvazoglu Demir analyzed the data. E. Aydin wrote the manuscript. All authors discussed the results and contributed to the final manuscript.

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