The Effect of COVID-19 Pandemic on the Consumption Habits of Processed Meat and Dairy Products in Tekirdağ Province

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Abstract: Since the beginning of the Covid-19 pandemic, consumer attitudes and behaviour have changed worldwide and in Turkey. Many different studies have been conducted to understand these changes. Consumers sometimes experienced difficulties in meeting their required food consumption during this period. During this period, the biggest burden on the sector was marketing. In this study, the consumption habits of processed meat and dairy products in Tekirdağ were examined. A face-to-face survey was conducted with consumers in Süleymanpaşa district of Tekirdağ province. The number of sample (n) to be surveyed was calculated to be 268 people, according to the 99% significance level and 10% margin of error predicted for the research. The survey was conducted with 300 consumers. Chi-square analysis, best worst method, cluster analysis and factor analysis were used in the statistical processing of the results. In this study, in the light of the questions asked to consumers and the analysis applied, shopping frequencies, preferred shopping methods, health perspectives, purchasing behaviors and consumption habits were revealed according to appropriate demographic characteristics. As a result of the analyzes, it was determined that the rate of consumers purchasing processed dairy products was higher than the rate of consumers purchasing processed meat products. According to the best-worst analysis, the most preferred processed meat products by consumers were meatballs, roasts and doner kebabs, while processed dairy products were feta cheese, kashar cheese and yogurt. The result of the clustering analysis performed to understand the importance levels of the features of the items, showed that 19 features were grouped into 5 clusters. According to the results of the factor analysis, 5 factors have been determined. The analysis showed that there is no clear change in consumer behaviour, shopping habits and preferences for 26 products.

Key Words: Covid-19 pandemic, Consumer, Preference, Purchasing habit, Marketting

1. INTRODUCTION

Manuscripts should be prepared using Microsoft he SARS Coronavirus (SARS-CoV), first identified in China in February 2003, is a coronavirus that causes severe acute respiratory syndrome (Anonymous, 2018; Kuru & Asrat, 2004). The novel Coronavirus Disease is caused by the SARS-CoV-2 virus. The onset of the COVID-19 pandemic has impacted all populations (Mehmet & Özlem, 2020). During the initial quarantine period, shifts in consumption habits and changes in nutritional quality occurred due to increased consumption of processed foods such as ready-to-eat meals, snacks, and convenience cereals (Fanelli, 2021). Individuals need to meet their biological, psychological, social, and cultural needs to sustain their lives (Baysal et al., 2011). Economic factors that fluctuated during this period also played a role in altering dietary behaviors. Particularly in the early stages of the COVID-19 pandemic, there were adverse effects on food and nutrition security (Uyanık & Ghiasee, 2022). Nutrition ranks among the most fundamental human needs (Demir, 2021). Consequently, the Food Industry emerged to meet the demand generated by nutrition. The food sector operates across a broad spectrum in the production field, holding a significant share in the economy. Consumer behaviors underwent rapid and substantial changes with the onset of the pandemic (Baltacı & Akaydın, 2020). During the COVID-19 period, consumers showed increased attention to nutrition compared to the pre-COVID-19 era. However, conflicting expert opinions and misinformation on widely used communication platforms contributed to societal confusion (Kılıç & Eryılmaz, 2022). Processed dairy products emerged as preferred items for health during this period, with products like cheese, yogurt, kefir, ayran, and butter being consumed to boost the immune system. Advertising campaigns highlighted these products' marketing elements. The food sector processes and packages various food industry products, with meat and dairy products being among the most processed items. Particularly in the processing of meat products, even minimal use of food additives can pose various health risks. Processed meat products include sausages, meatballs, salam, ratary, veal ham, smoked meat, beef bacon, beef roast, smoked tongue, canned meats, jelly tripe, fermented sucuk and heat-treated sucuk. Among breakfast meat products, salam, sausages, sucuk, beef bacon, and roasts are prominently favored (Azabağaoğlu et al., 2006). These products are followed by consumption of salam and beef bacon (Vural & Yıldırım, 1995). A study on food additives identified sausages and salam as the most risky processed products

(Cebioğlu & Önal, 2018). Processed dairy products include ayran, old cheddar, cream, cream cheese, kefir, various types of cheese (white, cottage, labne, strained, kasar), butter, and yogurt. Based on the survey data gathered for this thesis study, we examined how consumer consumption habits of processed meat and dairy products changed during the Covid-19 pandemic. The study aimed to measure how consumers' purchasing behaviors and decisions were influenced by various factors such as which processed products were predominantly purchased, where consumers shopped for these products, which products were perceived as healthy by consumers, which products consumers preferred to purchase during the pandemic, which products they gave up on, and how consumption habits changed before and after the pandemic. Additionally, the study explored the importance consumers placed on product characteristics when making purchasing decisions. The data collected was analyzed in relation to consumers' demographic characteristics to understand their relevance.

2. MATERIAL AND METHODS

2.1 Materials

The primary materials for this research consist of original (primary) data obtained from face-to-face surveys conducted with consumers residing in Süleymanpaşa district of Tekirdağ province and its neighborhoods.Detailed information regarding the consumption habits of processed meat and dairy products before and after the Covid-19 period was collected from individuals living in the region. Data included insights into consumers' shopping behaviors and the costs associated with their consumption. Additionally, secondary data sources from domestic and foreign literature previously conducted on the topic were utilized.

2.2 Methodology Used in Data Collection

In the data collection phase, the TÜİK (Turkish Statistical Institute) 2022 data was consulted, revealing that there are 52,636 households in Süleymanpaşa district of Tekirdağ province. To determine the sample size that could best represent the main population, the Cochran formula for sampling (Balcı, 2015) was employed. The formula used is as follows:

$$n=\frac{z^2\times\frac{p\times q}{d^2}}{1+\left[\left(\frac{1}{N}\right)\times z^2\times\frac{p\times q}{d^2}\right]} \quad (1.1)$$

n = Sample size

N = Population size

p = Estimated proportion

q = Complement of estimated proportion

d = Margin of error

z = z-table value corresponding to 90% confidence level (1.645 in this study)

Since the characteristics of the consumer population that formed the main sample were initially unknown, a survey was conducted with a sample size nnn calculated to maximize the sample volume, assuming p=0.5p = 0.5p=0.5 (maximum uncertainty) for a 99% confidence level and 5% margin of error. Accordingly, the sample size was calculated as 268 consumers. However, for this study, face-to-face surveys were conducted with 300 consumers.

2.3 Methods Used in Data Analysis

2.3.1 Best Worst Method

The Best Worst Method used in criterion weighting is based on the idea of comparing between two criteria. It involves a systematic comparison rather than random pairwise comparisons. The number of pairwise comparisons conducted is 2n−32n - 32n−3, where nnn is the number of criteria. This method was introduced to the literature by Jafar Rezaei in 2015 and has been used in many decision-making problems requiring criterion weighting.

Steps of the Model (Rezaei, 2015):

Step 1: Identification of Criteria

Step 2: Determination of Best (most preferred, most important) and Worst (least preferred, least important) CriteriaThe identification is based on the decision maker's perspective, and values of the criteria are not considered at this stage; no comparisons are made yet.

Step 3: Determination of the Priority of the Best Criterion

$$A_{best} = (a_{(best(1))}, a_{(best(2))}, \ldots . a_{(best(n))}) : \quad (2.1)$$

Using a scale from 1 to 9, the priority of the best criterion relative to all other criteria is determined.

Step 4: Determination of the Priority of the Worst Criterion

$$A_{(worst)} = (a_{(worst(1))}, a_{(worst(2))}, \dots a_{(worst(n))}: \quad (2.2)$$

Using a pairwise comparison scale from 1 to 9, the priority of the worst criterion relative to all other criteria is determined. The pairwise comparison scale and verbal descriptions are provided in Table 2.1.

Step 5: Determining the most appropriate weights So that;

minξ

$$\left|w_{(best)} - a_{(best(j)}.w_j\right| \leq \xi_L \; ve \forall_j, \quad (2.3)$$

$$\left|w_j - a_{jw}.w_{(worst(j))}\right| \leq \xi_L \; ve \; \forall_j, \quad (2.4)$$

$$\sum_{j=1}^{n} wj = 1 \quad (2.5)$$

$$w_j \geq 0 \quad (2.6)$$

Table 2.1: Scale Used for Pairwise Comparisons in BMW

Importance Level	Verbal Description for Comparing Criteria
1	Equally important
2	Equally moderately important
3	Moderately more important
4	Moderately much more important
5	Strongly important
6	Strongly much important
7	Very strongly important
8	Very strongly more important
9	Quite important

2.3.2. Chi-Square Independence Test (x^2)

The chi-square independence test is used to examine whether there is a relationship between two or more groups of variables.

2.3.3. Cluster Analysis

Cluster analysis is a set of methods used to make predictions about the population in cases where natural classifications are not clearly known. Therefore, in populations where natural groupings are not explicitly known, subset examinations are carried out using Discriminant Analysis. Cluster analysis is used to separate mixed populations where subpopulations are not definitively known, make new classifications, determine new prototypes for units, define profiles for populations or subpopulations, and establish taxonomic classification profiles for biological materials. Cluster analysis aims to divide units or variables into homogeneous groups based on measures of similarity or dissimilarity calculated between variables.

3.ANALYSIS STUDIES

3.1. Frequency of Purchasing Processed Meat and Dairy Products

Table 3.1: Frequency of purchasing processed meat and dairy products among consumers in Tekirdağ province

	Frequency of Purchasing Processed Meat Products		Frequency of Purchasing Processed Dairy Products	
	Frequency	Percentage(%)	Frequency	Percentage(%)
Everyday	11	3,7	27	9,0
Once a week	123	41,0	205	68,3
Once a month	132	44,0	53	17,7
Other	34	41,0	15	5,0
Total	300	100,0	300	100,0

Based on the survey conducted with 300 consumers face-to-face, participants were asked to indicate their frequency of purchasing processed meat and dairy products. The data was coded in SPSS as "Every day," "Once a week," "Once a month," and "Other." According to the survey results: For processed meat products, 11 consumers reported purchasing them "Every day," 123 once "Once a

week," 132 once "Once a month," and 34 reported "Other" frequencies. For processed dairy products, 27 consumers reported purchasing them "Every day," 205 once "Once a week," 53 once "Once a month," and 15 reported "Other" frequencies. Through analysis in SPSS, it was determined that: 3.7% of consumers purchase processed meat products daily, 41.0% weekly, 44.0% monthly, and 11.3% in other frequencies. 9.0% of consumers purchase processed dairy products daily, 68.3% weekly, 17.7% monthly, and 5.0% in other frequencies. Accordingly, the majority of consumers purchase processed meat products once a month, while processed dairy products are mostly purchased once a week, based on the findings of the survey and SPSS analysis presented in Table 3.1.

3.2. Monthly Household Expenditures on Food, Processed Meat, and Dairy Products

Table 3.2: Consumer expenditures on food, processed meat, and dairy products in Tekirdağ province

	Monthly Food Expenditure		Monthly Processed Meat Expenditure		Monthly Processed Dairy Product Expenditure	
	Frequency	Percentage(%)	Frequency	Percentage(%)	Frequency	Percentage(%)
0-1000	12	4,0	135	45,0	137	45,7
1001-2000	43	14,3	101	33,7	103	34,3
2001-3000	108	36,0	35	11,7	39	13,0
3001-5000	89	29,7	25	8,3	19	6,3
5001 and over	48	16,0	4	1,3	2	0,7
Total	300	100	135	45,0	300	100

300 consumers were surveyed face-to-face in Süleymanpaşa district of Tekirdağ province to report their monthly expenditures on groceries, processed meat, and dairy products. Data were coded in SPSS as "0-1000", "1001-2000", "2001-3000", "3001-5000", and "5001 and above" and frequency tables were generated for categorical variables to obtain results. Table 3.2 shows the outcomes. According to the responses from the survey: 12 consumers allocated their money in the range of 0-1000 TL for grocery shopping. 43 consumers allocated their money in the range of 1001-2000 TL for grocery shopping. 108 consumers allocated their money in the range of 2001-3000 TL for grocery shopping. 89 consumers allocated their money in the range of 3001-5000 TL for grocery shopping. 48 consumers allocated their money in the range of 5001 TL and above for grocery shopping. Based on the analysis conducted in SPSS from the survey data: 36% of consumers spent between 2001-3000 TL on groceries. 29.7% of consumers spent between 3001-5000 TL on groceries. 16% of consumers spent 5001 TL and above on groceries. 14.3% of consumers spent between 1001-2000 TL on groceries. 4% of consumers spent between 0-1000 TL on groceries. Regarding processed meat product expenditures: 135 consumers allocated their money in the range of 0-750 TL. 101 consumers allocated their money in the range of 751-1500 TL.35 consumers allocated their money in the range of 1501-2250 TL. 25 consumers allocated their money in the range of 2251-3000 TL. 4 consumers allocated their money in 3001 TL and above.

Analysis from SPSS revealed that: 45% of consumers spent between 0-750 TL on processed meat products. 33.7% of consumers spent between 751-1500 TL. 11.7% of consumers spent between 1501-2250 TL. 8.3% of consumers spent between 2251-3000 TL. 4% of consumers spent 3001 TL and above on processed meat products. For processed dairy product expenditures: 137 consumers allocated their money in the range of 0-750 TL. 103 consumers allocated their money in the range of 751-1500 TL. 39 consumers allocated their money in the range of 1501-2250 TL. 19 consumers allocated their money in the range of 2251-3000 TL. 2 consumers allocated their money in 3001 TL and above. SPSS analysis showed that: 45.7% of consumers spent between 0-750 TL on processed dairy products. 34.3% of consumers spent between 751-1500 TL. 13% of consumers spent between 1501-2250 TL. 6.3% of consumers spent between 2251-3000 TL. 0.7% of consumers spent 3001 TL and above on processed dairy products.

3.3. Shopping Habits Table

Table 3.3: Shopping habits of consumers in Tekirdağ province

		Grocery shopping		Processed Meat Products Shopping		Processed Dairy Products Shopping	
	Total	Mean (%)	Standard Deviation	Mean (%)	Standard Deviation	Mean (%)	Standard Deviation
Grocery store	300	6,21	12,81	3,77	14,23	7,06	18,18
Delicatessen	300	6,43	12,33	27,88	33,39	9,86	20,83
Local market	300	9,75	16,56	9,08	19,89	9,18	19,76
Chain supermarket	300	29,49	24,44	30,12	31,18	33,73	30,69
Discount store	300	32,17	24,30	22,92	26,71	35,63	29,56
Neighborhood market	300	10,69	14,16	2,48	10,29	1,37	5,79
Internet	300	5,76	11,75	3,15	10,05	3,14	10,11

In a survey conducted with 300 consumers in Tekirdağ province, consumers were asked to indicate where they predominantly shop for food, processed meat products, and processed dairy products as percentages. After entering the data into SPSS, descriptive statistics revealed that consumers in Tekirdağ mostly shop for food at discount supermarkets (32.17%), chain supermarkets (29.49%), neighborhood markets (10.69%), local markets (9.75%), delicatessens (6.43%), convenience stores (6.21%), and online platforms (5.76%). The analysis indicated that consumers in Tekirdağ prefer discount supermarkets, chain supermarkets, and neighborhood markets for their food shopping, while convenience stores and delicatessens are less favored. Regarding processed meat product shopping, consumers responded as follows: chain supermarkets (30.12%), delicatessens (27.88%), discount supermarkets (22.92%), local markets (9.08%), convenience stores (3.77%), online platforms (3.15%), and neighborhood markets (2.48%). The analysis showed that consumers in Tekirdağ predominantly purchase processed meat products from chain supermarkets, delicatessens, and discount supermarkets, with less preference for online platforms and neighborhood markets. For processed dairy product shopping, consumers responded: discount supermarkets (35.65%), chain supermarkets (33.73%), delicatessens (9.86%), local markets (9.18%), convenience stores (7.06%), online platforms (3.14%), and neighborhood markets (1.37%). The analysis indicated that consumers in Tekirdağ mostly buy processed dairy products from discount supermarkets, chain supermarkets, and delicatessens, while online platforms and neighborhood markets are less frequented.

3.4. Do you consider processed meat and dairy products to have natural ingredients?

In a face-to-face survey conducted with 300 consumers in Süleymanpaşa district of Tekirdağ province, consumers were asked the question 'Do you find processed dairy products to be natural?' The data was entered into SPSS with responses coded as 'Yes', 'No', and 'I have no idea'. Chi-square independence test was applied based on gender, marital status, educational level, occupation, and monthly household income. The analysis revealed that there is a difference based on gender regarding whether consumers perceive processed dairy products as natural, while no significant differences were found based on marital status, educational level, occupation, and monthly household income. Similarly, in the same survey, consumers were asked 'Do you find processed meat products to be natural?' The data was coded as 'Yes', 'No', and 'I have no idea' and analyzed using chi-square independence test based on gender, marital status, educational level, occupation, and monthly household income. The analysis indicated that there is a difference based on gender regarding whether consumers perceive processed meat products as natural, while no significant differences were found based on marital status, educational level, occupation, and monthly household income.

3.5. During the COVID-19 period, purchasing behavior for processed meat and dairy products

Table 3.4: Purchasing Behavior of Consumers for Processed Meat Products in Tekirdağ Province

Products	B	W	none	Total	B-W	Mean
Sausage	107	193	0	300	-86	-0,286

Meatball	203	97	0	300	106	0,353
Salam	136	164	0	300	-28	-0,093
Rotary	179	121	0	300	58	0,193
Beef Ham	91	209	0	300	-118	-0,393
Smoked meat	113	187	0	300	-74	-0,246
Beef Bacon	156	144	0	300	12	0,040
Beef Roast	188	112	0	300	76	0,253
Smoked Tongue	41	259	0	300	-218	-0,726
Canned	86	214	0	300	-128	-0,426
Jelly Tripe	22	278	0	300	-256	-0,853
Fermented sucuk	168	131	0	300	37	0,123
Heat-treated sucuk	140	160	0	300	-20	-0,066

In a face-to-face survey conducted with 300 consumers in Süleymanpaşa district of Tekirdağ province, consumers were asked the question 'During the COVID-19 period, which processed meat and dairy products did you purchase the most out of necessity and which ones did you abstain from?' The processed meat and dairy products were listed in order from top to bottom, with options 'Purchased' on the right side and 'Abstained' on the left side, forming a scaled survey question. In response to this question, 300 consumers indicated their preferences as follows: 107 purchased sausages, 203 purchased meatballs, 136 purchased salam, 179 purchased rotary, 91 purchased beef ham, 113 purchased smoked meat, 156 purchased beef bacon, 188 purchased beef roast, 41 purchased smoked tongue, 86 purchased canned food, 22 purchased jelly tripe, 168 purchased fermented sucuk, and 140 purchased heat-treated sucuk. Based on the results obtained, the Best Worst Method was applied to this question in the survey. 'B' represents the total number of consumers choosing the most important product option, while 'W' represents the total number of consumers choosing the least important product option. After calculating the B-W value, average results were obtained by dividing it by the total number of consumers.

According to this analysis, the top 3 products that consumers preferred to purchase the most were meatballs (0.353), beef roast (0.253), and rotary (0.193). The top 3 products that consumers preferred to abstain from purchasing the most were jellied tripe (-0.853), smoked tongue (-0.726), and canned food (-0.426). The analysis results are shown in Table 3.4.

Table 3.5: Purchasing Behavior of Consumers for Processed Dairy Products in Tekirdağ Province

Products	B	W	none	Total	B-W	Mean
Ayran	248	52	0	300	196	0,653
Old cheddar	190	110	0	300	80	0,266
Kaymak	208	92	0	300	116	0,386
Cream cheese	199	101	0	300	98	0,326
Kefir	177	123	0	300	54	0,180
White cheese	276	24	0	300	252	0,840
Kasar	274	26	0	300	248	0,826
Labne cheese	202	98	0	300	104	0,346
Butter	263	37	0	300	226	0,753
Curd cheese	179	121	0	300	58	0,193
Yogurt	269	31	0	300	238	0,793
Fruit yogurt	112	188	0	300	-76	-0,253
Yogurt similar to Activia	112	188	0	300	-76	-0,253

In a face-to-face survey conducted with 300 consumers in Süleymanpaşa district of Tekirdağ province, consumers were asked the question 'During the Covid-19 period, which processed meat and dairy products did you purchase the most out of necessity and which ones did you abstain from?' The processed meat and dairy products were listed in order from top to bottom, with options 'Purchased' on the right side and 'Abstained' on the left side, forming a scaled survey question. In response to this question, 300 consumers indicated their preferences as follows: 248 consumers purchased ayran, 190 consumers purchased old cheddar, 208 consumers purchased kaymak, 199

consumers purchased cream cheese, 177 consumers purchased kefir, 276 consumers purchased white cheese, 274 consumers purchased kaşar cheese, 202 consumers purchased labne chhese, 263 consumers purchased butter, 179 consumers purchased curd cheese, 269 consumers purchased yogurt, 112 consumers purchased fruit yogurt, and 112 consumers purchased yogurt similar to Activia.The Best Worst Method was applied to analyze these responses. 'B' represents the total number of consumers choosing the most important product option, while 'W' represents the total number of consumers choosing the least important product option. After calculating the B-W value, average results were obtained by dividing it by the total number of consumers.

According to this analysis, the top 3 products that consumers preferred to purchase the most were white cheese (0.84), kaşar cheese (0.826), and yogurt (0.793). The top 3 products that consumers preferred to abstain from purchasing the most were fruit yogurt (-0.253), yogurt similar to Activia (-0.253), and kefir (0.18). The analysis results are shown in Table 3.5.

3.6. Changes in Purchasing Behavior for Processed Meat and Dairy Products Before and After the Covid-19 Pandemic

In a face-to-face survey conducted with 300 consumers in Süleymanpaşa district of Tekirdağ province, consumers were asked about changes in their consumption of processed meat and dairy products before and after the Covid-19 pandemic. The products inquired about included ayran, old cheddar, kaymak, cream cheese, kefir, white cheese, kaşar cheese, labne, butter, curd cheese, yogurt, fruit yogurt, and yogurt similar to Activia. Data in SPSS was coded as 'Remained the same', 'Decreased', and 'Increased'. Chi-square independence tests were applied based on gender, marital status, education level, occupation, and household monthly income. According to the chi-square analysis: Education level showed significant differences for aged kasar cheese, Household monthly income showed significant differences for kaymak, Occupation showed significant differences for kefir, Household monthly income showed significant differences for white cheese, Education level and household monthly income showed significant differences for kaşar cheese, Marital status and occupation showed significant differences for labne chesee, Household monthly income showed significant differences for butter, Occupation and household monthly income showed significant differences for curd cheese, Marital status showed significant differences for yogurt, Marital status and occupation showed significant differences for fruit yogurt, Marital status and household monthly income showed significant differences for yogurt similar to Activia. These results indicate varying changes in purchasing behavior before and after the Covid-19 pandemic based on consumer preferences for these products. In the same survey, consumers were also asked about changes in consumption of products such as sausages, meatballs, salam, rotary, beef ham, smoked meat, beef bacon, beef roast, smoked tongue, canned food, jelly tripe, fermented sucuk, and heat-treated sucuk before and after Covid-19. Similarly, data in SPSS was coded as 'Remained the same', 'Decreased', and 'Increased', and chi-square tests were applied based on gender, marital status, education level, occupation, and household monthly income. According to the chi-square analysis: Marital status showed significant differences for meatballs, Occupation showed significant differences for beefham, Marital status showed significant differences for smoked meat, Household monthly income showed significant differences for beef bacon, Marital status showed significant differences for fermented sucuk. These findings indicate changes in purchasing behavior for these processed meat products before and after the Covid-19 pandemic based on consumer preferences.

3.7. The consumption frequencies of processed dairy products before and after the Covid-19 pandemic

Table 3.6 Significance value of the frequency of consumption of processed dairy products before and after the Covid-19 period

Processed Dairy Products - x^2values	Before the Covid-19 Pandemic					After the Covid-19 Pandemic				
	Gender	Marital Status	Education Level	Occupation	Household Monthly Income	Gender	Marital Status	Education Level	Occupation	Household Monthly Income
Ayran	0,850	0,942	0,519	0,272	0,641	0,950	0,893	0,387	0,939	0,542

Old cheddar	0,713	0,522	0,623	0,306	0,365	0,423	0,995	0,082	0,641	0,124
Kaymak	0,579	0,221	0,319	0,480	0,666	0,443	0,018	0,116	0,701	0,524
Cream cheese	0,946	0,176	0,284	0,221	0,813	0,520	0,083	0,132	0,896	0,917
Kefir	0,917	0,087	0,077	0,264	0,611	0,329	0,955	0,046	0,315	0,442
White cheese	0,681	-	-	0,379		0,026	0,747	0,748	0,644	0,301
Kasar	0,985	0,471	0,277	0,947	0,987	0,920	0,447	0,043	0,563	0,332
Labne cheese	0,523	0,548	0,215	0,825	0,736	0,024	0,839	0,256	0,789	0,290
Butter	0,940	0,091	0,682	0,885	0,227	0,608	0,025	0,588	0,298	0,205
Curd cheese	0,998	0,577	0,018	0,786	0,228	0,809	0,449	0,058	0,705	0,388
Yogurt	0,624	0,673	0,572	0,643	0,101	0,944	0,058	0,276	0,349	0,158
Fruit yogurt	0,044	0,003	0,085	0,728	0,535	0,102	0,008	0,789	0,906	0,470
Yogurt similar to Activia	0,005	0,004	0,934	0,674	0,833	0,012	0,006	0,922	0,679	0,195

According to the chi-square analysis applied to understand the frequency of consumption of processed dairy products, a significant difference was found in curd according to educational status before the covid-19 period, and in fruit yogurt and activia-like yogurt according to gender and marital status. No significant difference was found in the remaining products according to demographic criteria. After the Covid-19 period, a significant difference was found in the consumption frequency of feta cheese, labne cheese, activia-like yogurts according to gender; kaymak, butter, fruit yogurt and activia-like yogurts according to marital status; and kasar cheese according to educational status. Considering the result, it can be said that there is no general change in consumption frequencies before and after the covid-19 period.

3.8. The consumption frequencies of processed meat products before and after the Covid-19 pandemic

Table 3.7 Significance value of the frequency of consumption of processed meat products before and after the Covid-19 period

Processed Meat Products-x^2values	Before the Covid-19 Pandemic					After the Covid-19 Pandemic				
	Gender	Marital Status	Education Level	Occupation	Household Monthly Income	Gender	Marital Status	Education Level	Occupation	Household Monthly Income
Sausage	0,926	0,084	0,307	0,105	0,748	0,602	0,601	0,149	0,080	0,248
Meatball	0,491	0,017	0,238	0,763	0,491	0,754	0,002	0,219	0,655	0,790
Salam	0,956	0,083	0,114	0,384	0,092	0,255	0,038	0,441	0,409	0,230
Rotary	0,338	0,472	0,251	0,743	0,163	0,171	0,342	0,537	0,823	0,374
Beef Ham	0,831	0,012	0,601	0,311	0,994	0,746	0,004	0,674	0,106	0,982
Smoked meat	0,567	0,001	0,560	0,106	0,968	0,546	0,003	0,093	0,049	0,865
Beef Bacon	0,840	0,300	0,858	0,530	0,114	0,307	0,112	0,498	0,382	0,079
Beef Roast	0,309	0,341	0,212	0,602	0,044	0,498	0,156	0,409	0,117	0,139
Smoked Tongue	-	-	-	-	-	0,065	-	-	0,617	-
Canned	0,111	0,015	0,691	0,091	0,046	0,229	0,007	0,051	0,112	0,195

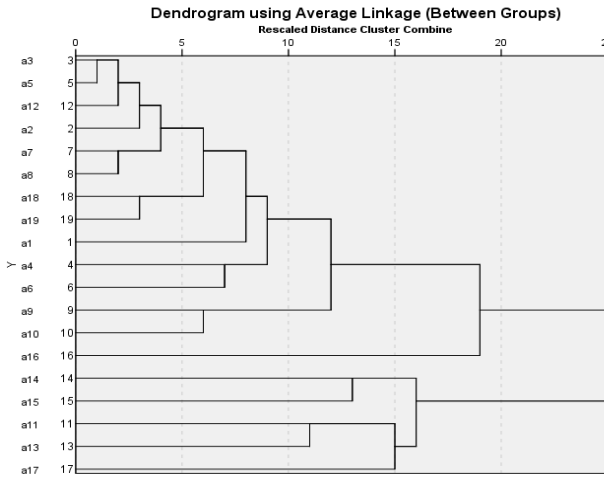
Jelly Tripe	0,118	-	-	0,449	-	-	-	-	-	-
Fermented sucuk	0,288	0,215	0,819	0,740	0,617	0,894	0,170	0,404	0,518	0,263
Heat-treated sucuk	0,112	0,453	0,099	0,187	0,295	0,266	0,706	0,287	0,456	0,153

According to the results of the chi-square analysis applied to understand the frequency of consumption of processed meat products, a significant difference was found in meatballs, veal ham, smoked meat and canned meat according to marital status before the covid-19 period, and in beef roast and canned meat according to monthly household income. No significant difference was found in the remaining products according to demographic criteria. After the Covid-19 period, a significant difference was found in meatballs, salam, beef ham, smoked meat and canned meat according to marital status and in smoked meat according to occupation. Considering the result, it can be said that there is no general change in consumption frequencies before and after the Covid-19 period.

3.9. How important are the following characteristics of the product for you when purchasing processed dairy and meat products?

Not at all important(1), Not important(2), No opinion(3), Important(4), Very important(5)

Figure 3.1 Dendrogram graph in SPSS



a1= Price of the product

a2= Trust in the brand

a3= Freshness

a4= Packaging in which it is presented

a5= Flavor, taste

a6= View

a7= Product Quality certificate (TSE, ISO, HACCP etc.)

a8=Content of the product

a9= Producing company or person

a10= The trademark is well-known

a11= Recommendations of nutritionists

a12= Expiration date

a13= Friend/relative recommendation

a14= Ads

a15= The fact that there is a campaign

a16= Hygiene conditions

a17=Production region

a18= Good health

a19=Additive content rate

As a result of the analysis, it is seen in Figure 3.1 that 19 attributes are grouped in 5 clusters. Freshness, Flavor, taste, Expiration date, Confidence in the brand constitute the first cluster, Product Quality certificate (TSE, ISO, HACCP, etc.), Product content, Being healthy, Additive content rate constitute the second cluster, Product price, Packaging, Appearance, Producing company or person constitute the third cluster, The brand is well-known, Hygiene conditions constitute the fourth cluster, Advertisements, Campaigns, Recommendations of nutritionists, Recommendations of friends/relatives, Production region constitute the fifth cluster.

4. CONCLUSIONS AND RECOMMENDATIONS

As in the whole world, various changes have occurred in our country during the Covid-19 pandemic period. In particular, there were various difficulties in accessing food, which is our most basic need, and in some periods, prices were increased more than they were, and consumers were victimized. According to the researches, it is seen that consumers preferred long-lasting foods (frozen, canned, etc.) to fresh foods during the pandemic. It can be said that as the experience of

consumers who prefer long-lasting foods over fresh foods increases, their demand for these products will increase in the future (Richards and Richard, 2020). Products such as cheese, yogurt, ayran, which are the processed dairy products that we consume the most as a society, have been products whose prices have increased considerably due to the increase in the price of raw milk, the increase in input costs, and the increase in the processing costs applied for processing. Likewise, the prices of processed meat products, which are preferred by the society, have also increased due to the increase in input costs. Here, the significant increase in inflation has brought along all price increases, and the purchasing power of consumers has decreased.

In the study, in line with the questions asked to consumers, it was determined that the frequency of consumers buying processed dairy products during the covid-19 period was higher than the frequency of buying processed meat products, as we expected. In general, according to the results of our analysis, consumers use approximately 20% of their monthly food shopping expenditures for processed meat and dairy products. This situation did not change much during the Covid-19 period. Consumers do their general food shopping mostly from discount markets, while they shop for processed meat and dairy products mostly from chain markets on average. With the impact of the pandemic conditions, situations such as curfews and markets being open at limited times have also directed people to online shopping, but according to the data we obtained from the chi-square analysis we conducted, discount markets and chain markets remained at the forefront in general food shopping after the pandemic process, and according to the result of the test, it was statistically significant. While chain markets and delicatessens were statistically at the forefront in the shopping habits of processed meat products, chain markets and discount markets remained statistically at the forefront in the shopping habits of processed dairy products, as in general food shopping. Since neighborhood butchers and delicatessens remain in the background in this regard, they should increase their advertisements and privileges such as discounts. In addition, there is a need for consumer awareness in societies in every subject. In order to create a conscious and responsible consumer mass, importance and priority should be given to educating every consumer on this issue starting from an early age (Kızılaslan & Kızılaslan, 2008).

When we asked consumers whether they found natural ingredients or not, it was understood that consumers residing in Süleymanpaşa district of Tekirdağ province did not have much information on the subject. It can be said that women are more knowledgeable and careful about this issue than men. It has been determined that consumers do not have the habit of reading labels and do not know the exact meaning of the word processed product. Advertisements and awareness-raising activities by official institutions should be increased and a difference in perception should be created by using healthy products in advertisements. Our conclusion is supported by the result obtained in the master's thesis titled "Meat Consumption Habits of Households in the Central District of Amasya Province and Factors Affecting Meat Consumption". According to Kızılaslan and Nalinci, (2013), a quality and balanced nutrition is important in becoming and raising a healthy society. Therefore, consumers should be directed to healthy and conscious nutrition with effective extension and education programs.

According to the results of the best worst analysis conducted to understand the purchasing behavior of consumers during the covid-19 period; the 3 processed meat products that consumers chose to purchase the most according to their preferences were determined as meatballs, roasting and doner, respectively. According to the preferences of the consumers, the 3 products that they gave up buying the most were determined as jelly tripe, smoked tongue and canned meat, respectively. According to the preferences of the consumers, the 3 processed dairy products that they chose to purchase the most during the covid-19 period were determined as feta white cheese, kasar and yogurt, respectively. According to the preferences of the consumers, the 3 products that they gave up buying the most were determined as fruit yogurt, activia-like yogurts and kefir, respectively. This proved that yogurt consumption, which is important for immunity, is sufficient. Our other hypothesis that kefir consumption increased was invalid. It should be aimed to raise awareness of consumers about kefir, which is claimed to be very important for immunity. Advertisements can be increased and incentive studies can be carried out with the help of campaigns.

According to the result of the chi-square analysis applied to look at the purchasing behavior of consumers before and after the pandemic, no significant difference was found in processed meat and dairy products according to demographic criteria. Since processed meat products are products with less health benefits, we expected that purchasing behavior would decrease in the post-pandemic period, and since processed dairy products are generally more health beneficial products, we expected that purchasing behavior

would increase in the post-pandemic period. In order to raise people's awareness, we suggest that reliable institutions such as the Ministry of Health, the Meat and Milk Board, the Ministry of Agriculture and Forestry should implement awareness-raising behaviors such as seminars, advertisements, awareness-raising activities and carry out studies to protect public health. Cooperatives also have an important place in these efforts to raise consumer awareness.

According to the chi-square analysis applied to understand the shopping frequency of consumers before and after the pandemic, no significant difference was found in processed meat and dairy products. It was possible that there was a significant difference due to the increase in the price of the products during the pandemic period and the stock problem in the products, but no significant difference was found in our hypothesis test. It can be said that the pandemic does not have a valid effect on consumers residing in Süleymanpaşa district of Tekirdağ province.

In general, according to gender and marital status, it was found that convenience products such as fruit yogurt, activia-like yogurts, meatballs, salam, beef ham and smoked meat were preferred. This situation revealed that women are more conscious than men and single people are less conscious than married people.

In a recent study, it was concluded that "The social and economic status and consumption habits of consumers, who are the last link in food safety practices, are closely related to the hygiene of animal products, and as a result, the consumer factor is extremely important for the safe consumption of any food. In addition, it is thought that addressing the issue by the official institutions of the state and providing sustainable personal hygiene and food safety trainings, especially to consumers with relatively low socio-economic level, will be extremely effective in terms of public health, prevention of foodborne diseases, and prevention of possible life and economic losses (Sezgin et al., 2023)." Likewise, during our study;

During the face-to-face surveys, it was understood that some consumers usually ferment their yogurt consumption by taking raw milk at home. In terms of health, correct information should be conveyed to consumers by official institutions against microorganism growth.

In the light of these findings; in general terms, our study revealed that there was no significant difference in the consumption habits of processed meat and dairy products of people living in Süleymanpaşa district of Tekirdağ province before and after the covid-19 pandemic. The reasons for this may be that ready-to-eat foods were in demand during the pandemic period, consumers were not adequately informed about health, people turned to processed products because they spent more time at home due to curfews and did not change their consumption habits. In order to change consumption habits and to reveal the concept of conscious consumer, it can be suggested that reliable institutions should carry out awareness-raising activities. In line with this information, we can suggest that companies that produce and sell-market these products, as well as raising awareness of consumers, should provide complete label information more clearly to consumers, organize consumption models by increasing their campaigns, prepare their advertisements with accurate information at an interesting level, better introduce their mission and vision, and care about the opinions of consumers by conducting field studies. It would also be beneficial to cooperate with reliable companies.

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