



## RESEARCH ARTICLE

## Researches on Seafood Consumption Behaviors in Kütahya Province

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## ABSTRACT

Seafood is among the most important recommended foods due to its rich protein, mineral and fat content. In recent years, food has become an extremely important product in terms of maintenance due to increasing food demand and decreasing contractual production. In the current research, face-to-face questions were examined with 128 people living in Kütahya province and its central districts, and the answers given were evaluated with the Chi-square interval test. 76 women (59.4%) and 82 men (40.6%) that participated in this survey. According to the age analysis, 21.8% are under 21; 9.4% are between 21-30; 21.8% were between 31-40; 21.8% were between 41-50; 6.4% were between 51-60 and 18.8% were between 61-70. It was observed that there was a relationship between increasing income and fish meat consumption, and fish meat was preferred at a higher level of income. In addition, it has been an important data that young people in later periods consume more fish.

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## 1. Introduction

Decreasing food resources and increasing world population are considered to be the source of an important nutritional problem for the future. Experts on the subject emphasize that food production should double in parallel with the increase in world population in the 2050s. The sector that can meet this need apart from agricultural production is aquaculture, considering its current potential (Arslan, 2019).

It has been observed that the sector has been growing faster than other food sectors worldwide in recent years. In this sense, it is predicted that the aquaculture sector will continue to increase its importance in terms of food supply in the near future (Arslan & Oğuzhan Yıldız, 2021).

The development of the aquaculture sector and similarly all

sectors is undoubtedly closely related to the balance of supply and demand. In this sense, fish consumption is extremely important for the development of the sector. Many studies have been conducted at different times and regions on fish consumption habits in Türkiye (Atay et al., 2002; Aydın & Karadurmuş, 2012; Beyazbayrak, 2014; Çiçek et al., 2014; Abdikoğlu et al., 2015; Ercan & Şahin, 2016; Gürel et al., 2017; Şen & Şahin, 2017; Arslan, 2019).

These studies show that fish consumption in our country is below the world average. As of 2019, our annual fish consumption per capita in our country was 6.26 kg (TÜİK, 2019). This situation is also important for the development of the sector. A significant part of the consumption took place in coastal areas. For this reason, studies in provinces that do not have a coastline can be data sources regarding low

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consumption.

In this study, fish consumption habits of Kütahya province were examined. Data was collected by asking face-to-face questions to 128 participants, taking into account gender, age, education level, income level and occupational characteristics.

## 2. Materials and Methods

Our study was conducted by asking face-to-face questions to 128 people residing in Kütahya in September and October 2023, and evaluating the data obtained with the Chi-square independence test. Kütahya Province is a province in the Aegean region of Türkiye. Its area is 11,634 km<sup>2</sup> and its population is 580,701 in 2022 (Wikipedia, 2024).

## 3. Results and Discussion

In this part of the study, descriptive statistics of the individuals participating in the survey and findings and comments obtained as a result of data analysis are included.

### 3.1. Demographic Characteristics and Frequency Distributions of the Individuals Participating in the Study

The demographic characteristics of the individuals participating in the study and the frequency distributions of their answers to the questions asked about the study are given in the Table 1.

**Table 1.** Demographic characteristics and frequency distributions of the individuals participating in the study.

<b>Gender</b>	Male	Female				
N	52	76				
%	40.6	59.4				
<b>Age</b>	<21	21-30	31-40	41-50	51-60	61-70
N	28	12	28	28	8	24
%	21.8	9.4	21.8	21.8	6.4	18.8
<b>Educational status</b>	Primary school	High school	University	Postgraduate		
N	40	52	28	8		
%	31.25	40.6	21.8	6.2		
<b>Income level</b>	<4000	4000-6000	6000-8000	8000-10000	10000+	
N	24	4	12	16	72	
%	18.8	3.2	9.4	12.8	56.2	
<b>Occupational</b>	Public	Private sector	Student	Retire	Self-employment	Housewife
N	8	12	32	24	12	40
%	6.4	9.4	25.2	18.8	9.4	31.2

According to the demographic characteristics given in Table 1, 40.6% of the individuals participating in the survey are male and 59.4% are female. In the analysis made according to ages, It was determined 21.8% are under 21; 9.4% are between 21-30; 21.8% were between 31-40; 21.8% were between 41-50; 6.4% were between 51-60 and 18.8% were between 61-70. In the study conducted by Oğuzhan Yıldız and Arslan (2021) in Erzurum, the lowest age group of the participants was determined as the 61-70 age group with 4.92%, while the highest age group was determined as the 21-30 age group with 41.80%.

Considering the answers given by the individuals participating in the survey according to their education level, it was revealed that 31.25% were primary school graduates, 40.6% were secondary school graduates, 21.8% were university graduates and 6.2% were postgraduates. Considering the income levels, 18.8% are below 4000, 3.2% are between 4000-6000, 9.4% are between 6000-8000, 12.8% are between 8000-10000 and 56.2% are It was determined that 2 of them had an

income of 10000 or more. When the occupations of the individuals participating in the study are examined, 6.4% work in the public sector, 9.4% work in the private sector, 25.2% are students, 18.8% are retired, 9.4% are self-employed and 31.2% are self-employed. It was determined that 2 of them were housewives. In the study conducted by Karakaya and Kırıcı (2016) in Bingöl, 6.8% of the consumers are tradesmen, 7.3% are retired, 7.8% are self-employed, 8.3% are workers, 18% are 5% were students, 23.4% were housewives and 27.9% were civil servants.

### 3.2. Analysis of the Answers Given to Questions Related to Demographic Characteristics using the Chi-Square Independence Test

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "Which type of animal product do you consume more" differs depending on gender (P<0.05). While 68.4% of women preferred chicken meat, this rate was found to

be 30.8% for men. Additionally, while 23.1% of men consume fish meat, 5.3% of women consume fish meat. In the study conducted by Olgunoğlu et al. (2014) in Adıyaman, it was

found that the consumption rate of red meat and chicken was higher than the consumption rate of fish.

**Table 2.** Distribution of the question "Which type of animal product do you consume more?" depending on gender.

		Which type of animal product do you consume more?		
		Chicken	Fish	Meat
Gender	Male	16 30.8%	12 23.1%	24 46.2%
	Female	52 68.4%	4 5.3%	20 26.3%

Pearson Chi-Square: 19.612, P= 0.000.

**Table 3.** Distribution of the question "What do you pay attention to when buying fish?" depending on gender.

		What do you pay attention to when buying fish?				
		Price	Taste	Freshness	Small Fishbone	All
Gender	Male	0 0.0%	4 8.3%	24 50.0%	8 16.7%	12 25.0%
	Female	4 5.9%	12 17.6%	16 23.5%	0 0.0%	36 52.9%

Pearson Chi-Square: 26.953, P= 0.000.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "What do you pay attention to when buying fish differs depending on gender?" (P<0.05). While

50% of men pay attention to freshness, this rate was found to be 23.5% for women. Additionally, while 5.9% of women pay attention to the price, 0% of men do not pay attention to the price.

**Table 4.** Distribution of the question "Which type of animal product do you consume more?" depending on age.

		Which type of animal product do you consume more?		
		Chicken	Fish	Meat
Age	<21	20 71.4%	0 0.0%	8 28.6%
	21-30	4 33.3%	0 0.0%	8 66.7%
	31-40	20 71.4%	4 14.3%	4 14.3%
	41-50	12 42.9%	0 0.0%	16 57.1%
	51-60	8 100.0%	0 0.0%	0 0.0%
	61-70	4 16.7%	12 50.0%	8 33.3%

Pearson Chi-Square: 65.039, P= 0.000.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "Which type of animal product do you consume more" varies depending on age (P<0.05). While 100% of the 51-60 age group consumed chicken meat, this rate was

found to be 16.7% in the 61-70 age group. In addition, while 50% of individuals between the ages of 61-70 consumed fish, it was found to be 0% in the age ranges under 21, 21-30, 41-50 and 51-60.

**Table 5.** Distribution of the question "If your answer is no, what is your reason?" depending on age.

	If your answer is no, what is your reason?			
	Taste	Price	Difficulty purchasing	
Age	21-30	4 100.0%	0 0.0%	0 0.0%
	31-40	0 0.0%	4 100.0%	0 0.0%
	41-50	4 100.0%	0 0.0%	0 0.0%
	61-70	0 0.0%	0 0.0%	4 100.0%

Pearson Chi-Square: 32.000, P= 0.000.

If your answer is no, a significant difference emerged as a result of the Chi-square independence test performed to determine whether the question "What is your reason?" varies depending on age (P<0.05). While 100% of individuals between the ages of 21-30 and 41-50 stated that they do not

consume fish due to taste incompatibility, individuals between the ages of 31-40 stated that they do not consume fish due to its price. 100% of individuals between the ages of 61-70 stated that they do not consume fish due to the difficulty of purchasing it.

**Table 6.** Distribution of the question "If your answer is yes, how often do you consume fish" depending on age.

	If your answer is yes, how often do you consume fish			
	Once a week or more	Once a month or more	Once a year or more	
Age	<21	8 28.6%	4 14.3%	16 57.1%
	21-30	0 0.0%	4 50.0%	4 50.0%
	31-40	4 16.7%	12 50.0%	8 33.3%
	41-50	4 16.7%	12 50.0%	8 33.3%
	51-60	0 0.0%	0 0.0%	8 100.0%
	61-70	12 60.0%	4 20.0%	4 20.0%

Pearson Chi-Square: 38.076, P= 0.000.

If your answer is yes, a significant difference emerged as a result of the Chi-square independence test performed to determine whether the question "How often do you consume fish differs depending on age" (P<0.05). While 60% of individuals aged 61-70 consume fish once a week or more, 20%

stated that they consume fish once a year or more. While 100% of individuals aged 51-60 stated that they consumed fish once a year or more, 14.3% of individuals under 21 years of age stated that they consumed fish once a month or more.

**Table 7.** Distribution of the question "What kind of seafood do you consume most?" depending on age.

	What kind of seafood do you consume most?		
	Marine fish	Freshwater fish	
<b>Age</b>	<21	24 85.7%	4 14.3%
	21-30	4 50.0%	4 50.0%
	31-40	24 100.0%	0 0.0%
	41-50	20 83.3%	4 16.7%
	51-60	4 50.0%	4 50.0%
	61-70	20 83.3%	4 16.7%

Pearson Chi-Square: 17.216, P= 0.004.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "What kind of seafood do you consume most" varies depending on age ( $P<0.05$ ). When the individuals participating in the survey were asked about the type of seafood they consume most, 100% of individuals in the 31-40 age group stated that they consumed marine fish, while 50% of individuals in the 21-30 and 51-60 age groups stated that they consumed

marine fish. While the rate of participants consuming freshwater fish is 50% between the ages of 21-30 and 51-60, this rate is 14.3% for participants under 21. In the study conducted by Bolat and Telli (2019) in Denizli, 72% of the individuals participating in the survey preferred marine fish, while the rate of those who preferred both marine fish and freshwater fish was 23%. The rate of those who prefer freshwater fish remained at 5%.

**Table 8.** Distribution of the question "Which of the following fish do you consume more?" depending on age.

	Which of the following fish do you consume more?			
	Trout	Anchvoy	Bonito	
<b>Age</b>	<21	8 28.6%	16 57.1%	4 14.3%
	21-30	4 50.0%	4 50.0%	0 0.0%
	31-40	0 0.0%	24 100.0%	0 0.0%
	41-50	4 16.7%	16 66.7%	4 16.7%
	51-60	4 50.0%	4 50.0%	0 0.0%
	61-70	4 16.7%	20 83.3%	0 0.0%

Pearson Chi-Square: 27.816, P= 0.002.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "Which of the following fish do you consume more?" varies depending on age ( $P<0.05$ ). The proportion of individuals participating in the survey who consume trout is 50% in the 21-30 and 51-60 age range, while it is 0% in the 31-40 age range. While 100% of individuals between the ages of 31-40 consumed anchovies, 14.3% of

individuals under 21 years old stated that they consumed bonito. Gürel et al. (2017) in the study conducted in the central district of Ağrı province, when the fish species most preferred by consumers were examined, it was found that 60.70% consumed anchovy, 13.55% consumed trout and at least 2.71% consumed fish. It was determined that they consumed horse mackerel.

**Table 9.** Distribution of the question "What do you pay attention to when buying fish" depending on age.

	What do you pay attention to when buying fish?					
	Price	Taste	Freshness	Small Fishbone	All	
Age	<21	0 0.0%	4 14.3%	12 42.9%	0 0.0%	12 42.9%
	21-30	0 0.0%	4 50.0%	0 0.0%	4 50.0%	0 0.0%
	31-40	4 16.7%	4 16.7%	4 16.7%	4 16.7%	8 33.3%
	41-50	0 0.0%	0 0.0%	16 66.7%	0 0.0%	8 33.3%
	51-60	0 0.0%	0 0.0%	4 50.0%	0 0.0%	4 50.0%
	61-70	0 0.0%	4 16.7%	4 16.7%	0 0.0%	16 66.7%

Pearson Chi-Square: 81.752, P= 0.000.

A significant difference emerged as a result of the Chi-square independence test, which was performed to determine whether the question "What do you pay attention to when buying fish varies depending on age" (P<0.05). 66.7% of

individuals between the ages of 31-40 stated that they pay attention to freshness when buying fish. 14.3% of the participants under 21 stated that they pay attention to the taste.

**Table 10.** Distribution of the question "What is the most important reason for fish consumption?" depending on age.

	What is the most important reason for fish consumption?			
	Delicious	Healthy	Both of them	
Age	<21	8 28.6%	0 0.0%	20 71.4%
	21-30	8 100.0%	0 0.0%	0 0.0%
	31-40	4 16.7%	12 50.0%	8 33.3%
	41-50	0 0.0%	8 33.3%	16 66.7%
	51-60	0 0.0%	4 50.0%	4 50.0%
	61-70	0 0.0%	4 16.7%	20 83.3%

Pearson Chi-Square: 73.434, P= 0.000.

A significant difference emerged as a result of the Chi-square independence test, which was performed to determine whether the question "What is the most important reason for consuming fish?" varies depending on age (P<0.05). While 100% of the surveyed individuals between the ages of 21-30 stated that they consume fish because it is delicious, 16.7% of

individuals between the ages of 61-70 stated that they consume fish because it is healthy. Yüksel et al. (2011) in their study in Tunceli province, when asked about their reasons for choosing fish, 31% stated that they consumed fish only for a healthy and balanced diet, 7% stated that they consumed fish only for taste, and 62% stated that they consumed fish for both reasons.

**Table 11.** Distribution of the question "Which type of animal product do you consume more?" depending on education level.

	Which type of animal product do you consume more?			
	Chicken	Fish	Meat	
<b>Educational status</b>	Primary school	32 80.0%	4 10.0%	4 10.0%
	High school	32 61.5%	8 15.4%	12 23.1%
	University	4 14.3%	4 14.3%	20 71.4%
	Postgraduate	0 0.0%	0 0.0%	8 100.0%

Pearson Chi-Square: 50.000, P= 0.000.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "Which type of animal product do you consume more" differs depending on education level (P<0.05). While 80% of primary school graduates consume more chicken

meat, 14.3% of university graduates stated that they consume chicken meat. While 100% of postgraduate graduates consumed more red meat, 10% of primary school graduates stated that they consumed fish.

**Table 12.** Distribution of the question "Do you consume fish" depending on education level.

	Do you consume fish?		
	Yes	No	
<b>Educational status</b>	Primary school	32 80.0%	8 20.0%
	High school	52 100.0%	0 0.0%
	University	20 71.4%	8 28.6%
	Postgraduate	8 100.0%	0 0.0%

Pearson Chi-Square: 17.241, P= 0.001.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "Do you consume fish" differs depending on education level (P<0.05). While 100% of the individuals

who participated in the survey with secondary and postgraduate education stated that they consumed fish, 20% of primary school graduates and 28.6% of university graduates stated that they did not consume fish.

**Table 13.** Distribution of the question "If your answer is no, what is your reason?" depending on education level.

	If your answer is no, what is your reason?			
	Taste incompatibility	Price	Difficulty purchasing	
<b>Educational status</b>	Primary school	0 0.0%	4 50.0%	4 50.0%
	University	8 100.0%	0 0.0%	0 0.0%

Pearson Chi-Square: 16.000, P= 0.000.

If your answer is no, a significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "What is your reason?" differs depending on education level (P<0.05).

Although 100% of the participants who were university graduates stated that they did not consume fish due to incompatibility of taste, 50% of the primary school graduates stated that they did not consume fish due to the difficult price

and 50% due to the difficulty of purchasing.

**Table 14.** Distribution of the question "If your answer is yes, how often do you consume fish" depending on education level.

		If your answer is yes, how often do you consume fish?		
		Once a week or more	Once a month or more	Once a year or more
<b>Educational status</b>	Primary school	8 25.0%	4 12.5%	20 62.5%
	High school	8 15.4%	24 46.2%	20 38.5%
	University	12 60.0%	4 20.0%	4 20.0%
	Postgraduate	0 0.0%	4 50.0%	4 50.0%

Pearson Chi-Square: 28.100, P= 0.000.

If your answer is yes, a significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "How often do you consume fish differs depending on education level?" (P<0.05). While 60% of university graduates stated that they

consumed fish once a week or more, 12.5% of primary school graduates stated that they consumed fish once a month or more. 62.5% of primary school graduates and 20% of university graduates stated that they consume fish once or more a year.

**Table 15.** Distribution of the question "Which of the following fish do you consume more?" depending on education level.

		Trout	Anchovy	Bonito
		<b>Educational status</b>	Primary school	12 33.3%
High school	8 15.4%		40 76.9%	4 7.7%
University	4 20.0%		12 60.0%	4 20.0%
Postgraduate	0 0.0%		8 100.0%	0 0.0%

Pearson Chi-Square: 14.787, P = 0.022.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "Which of the following fish do you consume more?" varies depending on educational level (P<0.05). While 33.3% of primary school graduates stated that

they consumed more trout, 100% of postgraduate graduates stated that they consumed more anchovies. In addition, 20% of university graduates stated that they consumed bonito more, while 7.7% of secondary school graduates stated that they consumed bonito more.

**Table 16.** Distribution of the question "What do you pay attention to when buying fish, depending on education level?"

		What do you pay attention to when buying fish, depending on education level?				
		Price	Taste	Freshness	Small Fishbone	All
<b>Educational status</b>	Primary school	4 11.1%	4 11.1%	12 33.3%	0 0.0%	16 44.4%
	High school	0 0.0%	8 15.4%	16 30.8%	8 15.4%	20 38.5%
	University	0 0.0%	4 20.0%	4 20.0%	0 0.0%	12 60.0%
	Postgraduate	0 0.0%	0 0.0%	8 100.0%	0 0.0%	0 0.0%

Pearson Chi-Square: 37.252, P= 0.000.



A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "What do you pay attention to when buying fish varies depending on education level?" ( $P < 0.05$ ). While 11.1% of primary school graduates stated that they pay

attention to the price when buying fish, 100% of postgraduate graduates pay attention to its freshness; While 20% of university graduates stated that they pay attention to whether it is delicious, 15.4% of secondary school graduates stated that they pay attention to whether it has fewer strings.

**Table 17.** Distribution of the question "What is the most important reason for consuming fish?" depending on education level.

	What is the most important reason for consuming fish?			
	Delicious	Healthy	Both of them	
<b>Educational status</b>	Primary school	0 0.0%	8 22.2%	28 77.8%
	High school	16 30.8%	16 30.8%	20 38.5%
	University	4 20.0%	4 20.0%	12 60.0%
	Postgraduate	0 0.0%	0 0.0%	8 100.0%

Pearson Chi-Square: 24.471,  $P = 0.000$ .

A significant difference emerged as a result of the Chi-square independence test, which was performed to determine whether the question "What is the most important reason for consuming fish?" varies depending on education level

( $P < 0.05$ ). While 30.8% of secondary school graduates stated that they consume fish because it is delicious, 30.8% stated that they consume fish because it is healthy. 100% of postgraduate graduates stated that they consume fish for both reasons.

**Table 18.** Distribution of the question "Which type of animal product do you consume more?" depending on income level.

	Which type of animal product do you consume more?			
	Chicken	Fish	Meat	
<b>Income level</b>	<4000	24 100.0%	0 0.0%	0 0.0%
	4000-6000	0 0.0%	0 0.0%	4 100.0%
	6000-8000	0 0.0%	12 100.0%	0 0.0%
	8000-10000	12 75.0%	0 0.0%	4 25.0%
	10000>	32 44.4%	4 5.6%	36 50.0%

Pearson Chi-Square: 125.576,  $P = 0.000$ .

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "Which type of animal product do you consume more" varies depending on income level ( $P < 0.05$ ). Among the respondents, the rate of those who consume chicken meat more is 100% among those with an income of less than

4,000, while it is 44.4% among those with an income of over 10,000. While 100% of the participants between 6000-8000 stated that they consume fish meat more, the rate of those consuming fish meat more is 5.6 among participants over 10000.

**Table 19.** If your answer is yes, distribution of the question "How often do you consume fish" depending on income level.

	If your answer is yes, how often do you consume fish?			
	Once a week or more	Once a month or more	Once a year or more	
<b>Income level</b>	<4000	0 0.0%	4 16.7%	20 83.3%
	4000-6000	0 0.0%	4 100.0%	0 0.0%
	6000-8000	4 33.3%	8 66.7%	0 0.0%
	8000-10000	4 33.3%	4 33.3%	4 33.3%
	10000>	20 33.3%	16 26.7%	24 40.0%

Pearson Chi-Square: 38.267, P= 0.000.

If your answer is yes, a significant difference emerged as a result of the Chi-square independence test performed to determine whether the question "How often do you consume fish differs depending on income level?" ( $P < 0.05$ ). Of the individuals who said they consumed fish, 83.3% of those with an income below 4000 stated that they consumed fish once a year or more, while 33.3% of individuals between 8000-10000 stated that they consumed fish once a month or more. Those

who consume fish once a month or more include 100% of the individuals in the range of 4000-6000. Karakaya et al. (2020) in the study conducted in Erzincan province, when asked about the frequency of fish consumption, the rate of people consuming fish once every five days was found to be 50%, the rate of people consuming fish once a month was 40%, and the rate of people consuming fish once a week was 10%.

**Table 20.** Distribution of the question "What kind of seafood do you consume most?" depending on income level.

	What kind of seafood do you consume most?		
	Marine fish	Freshwater fish	
<b>Income level</b>	<4000	20 83.3%	4 16.7%
	4000-6000	4 100.0%	0 0.0%
	6000-8000	12 100.0%	0 0.0%
	8000-10000	8 50.0%	8 50.0%
	10000>	52 86.7%	8 13.3%

Pearson Chi-Square: 16.014, P = 0.003.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "What kind of seafood do you consume most" varies depending on income level ( $P < 0.05$ ). When the participants were asked about the marine fish they consume most, 100% of individuals with incomes between 4000-6000

and 6000-8000 stated that they consumed marine fish, while 13.3% of individuals with income over 10000 and 16.7% of individuals with incomes between 4000-6000 stated that they consumed freshwater fish. They stated that they consumed more freshwater fish.

**Table 21.** Distribution of the question "Which of the following fish do you consume more?" depending on income level.

	Which of the following fish do you consume more?			
	Trout	Anchovy	Bonito	
<b>Income level</b>	<4000	4 16.7%	16 66.7%	4 16.7%
	4000-6000	0 0.0%	4 100.0%	0 0.0%
	6000-8000	0 0.0%	12 100.0%	0 0.0%
	8000-10000	8 50.0%	8 50.0%	0 0.0%
	10000>	12 20.0%	44 73.3%	4 6.7%

Pearson Chi-Square: 18.597, P = 0.017.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "Which of the following fish do you consume more?" varies depending on income level (P<0.05). While 50% of individuals with income between 8000-100000

stated that they consumed more trout, 50% stated that they consumed more anchovy. While 6.7% of individuals with income over 10000 stated that they consumed bonito more, 100% of individuals with income between 4000-6000 and 6000-8000 stated that they consumed anchovy more.

**Table 22.** Distribution of the question "What do you pay attention to when buying fish?" depending on income level.

	What do you pay attention to when buying fish?					
	Price	Taste	Freshness	Small Fishbone	All	
<b>Income level</b>	<4000	0 0.0%	8 33.3%	12 50.0%	0 0.0%	4 16.7%
	4000-6000	0 0.0%	0 0.0%	0 0.0%	4 100.0%	0 0.0%
	6000-8000	4 33.3%	4 33.3%	0 0.0%	0 0.0%	4 33.3%
	8000-10000	0 0.0%	4 25.0%	0 0.0%	4 25.0%	8 50.0%
	10000>	0 0.0%	0 0.0%	28 46.7%	0 0.0%	32 53.3%

Pearson Chi-Square: 142.454, P= 0.000.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "What do you pay attention to when buying fish varies depending on income level" (P<0.05). When the participants were asked about the features they pay attention to when buying fish, 33.3% of individuals with an income between 6000-8000 said that they pay attention to the price,

while 100% of individuals with an income between 4000-6000 said that they pay attention to whether it has small fishbones. While 50% of individuals with an income below 4000 pay attention to its freshness, 25% of individuals with an income between 8000-10000 stated that they pay attention to its deliciousness. 53.3% of individuals with income over 10,000 stated that they pay attention to all of these features.

**Table 23.** Distribution of the question "What is the most important reason for consuming fish?" depending on income level.

	What is the most important reason for consuming fish?			
	Delicious	Healthy	Both of them	
<b>Income level</b>	<4000	12 50.0%	4 16.7%	8 33.3%
	4000-6000	4 100.0%	0 0.0%	0 0.0%
	6000-8000	0 0.0%	4 33.3%	8 66.7%
	8000-10000	4 25.0%	4 25.0%	8 50.0%
	10000>	0 0.0%	16 26.7%	44 73.3%

Pearson Chi-Square: 53.418, P= 0.000.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "What is the most important reason for consuming fish?" varies depending on income level (P<0.05). While 25% of individuals with income between 8000-10000 stated that the most important reason for consuming fish is its taste, 100% of individuals with income between 4000-6000

stated that they consume fish for its taste. While 16.7% of individuals with incomes between 4000-6000 before while 16.7% of the individuals with an income over 10000 people stated that they consume fish because it is healthy. 73.3% of individuals with income over 10,000 stated that they consume fish for both reasons.

**Table 24.** Distribution of the question "Which type of animal product do you consume more?" depending on the profession.

	Which type of animal product do you consume more?			
	Chicken	Fish	Meat	
<b>Occupational</b>	Public	0 0.0%	0 0.0%	8 100.0%
	Private sector	4 33.3%	0 0.0%	8 66.7%
	Student	24 75.0%	0 0.0%	8 25.0%
	Retire	4 16.7%	12 50.0%	8 33.3%
	Self-employment	8 66.7%	0 0.0%	4 33.3%
	Housewife	28 70.0%	4 10.0%	8 20.0%

Pearson Chi-Square: 68.677, P= 0.000.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "Which type of animal product do you consume more" differs depending on the profession (P<0.05). Among the respondents, 75% of students who were students

stated that they consumed chicken meat more, while 10% of housewives stated that they consumed fish meat more. While 16.7% of retirees stated that they consumed more chicken meat, 50% stated that they consumed more fish meat.

**Table 25.** Distribution of the question "Do you consume fish" depending on profession.

		Do you consume fish?	
		Yes	No
<b>Occupational</b>	Public	8 100.0%	0 0.0%
	Private sector	8 66.7%	4 33.3%
	Student	32 100.0%	0 0.0%
	Retire	24 100.0%	0 0.0%
	Self-employment	12 100.0%	0 0.0%
	Housewife	28 70.0%	12 30.0%

Pearson Chi-Square: 26.819, P= 0.000.

A significant difference emerged as a result of the Chi-square independence test, which was performed to determine whether the question "Do you consume fish" differs depending on the profession (P<0.05). While 100% of public employees,

students, retirees and self-employed people state that they consume fish, this rate is 66.7% for private sector employees. 33.3% of private sector employees and 30% of housewives stated that they do not consume fish.

**Table 26.** If your answer is yes, distribution of the question "How often do you consume fish" depending on your profession.

		How often do you consume fish?		
		Once a week or more	Once a month or more	Once a year or more
<b>Occupational</b>	Public	0 0.0%	8 100.0%	0 0.0%
	Private sector	0 0.0%	4 50.0%	4 50.0%
	Student	8 25.0%	4 12.5%	20 62.5%
	Retire	12 50.0%	4 16.7%	8 33.3%
	Self-employment	4 33.3%	4 33.3%	4 33.3%
	Housewife	4 14.3%	12 42.9%	12 42.9%

Pearson Chi-Square: 37.675, P= 0.000.

If your answer is yes, a significant difference emerged as a result of the Chi-square independence test performed to determine whether the question "How often do you consume fish differs depending on the profession" (P<0.05). While 100% of the participants working in the public sector stated that they

consumed fish once a month or more, 62.5% of the students stated that they consumed fish once a year or more. While 50% of retirees stated that they consumed fish once a week or more, 16.7% stated that they consumed fish once a month or more.

**Table 27.** Distribution of the question "What kind of seafood do you consume most?" depending on profession.

	What kind of seafood do you consume most?		
	Marine fish	Freshwater fish	
<b>Occupational</b>	Public	8 100.0%	0 0.0%
	Private sector	8 100.0%	0 0.0%
	Student	24 75.0%	8 25.0%
	Retire	20 83.3%	4 16.7%
	Self-employment	8 66.7%	4 33.3%
	Housewife	28 87.5%	4 12.5%

Pearson Chi-Square: 7.371, P = 0.0194.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "What kind of seafood do you consume most" differs depending on the profession ( $P < 0.05$ ). Among the participants, 100% of those working in the public and private

sectors stated that they consumed marine fish the most, while 75% of the students stated that they consumed marine fish the most. While 33.3% of self-employed workers stated that they consumed more freshwater fish, 12.5% of housewives stated that they consumed freshwater fish.

**Table 28.** Distribution of the question "Which of the following fish do you consume more?" depending on profession.

	Which of the following fish do you consume more?			
	Trout	Anchovy	Bonito	
<b>Occupational</b>	Public	0 0.0%	4 50.0%	4 50.0%
	Private sector	0 0.0%	8 100.0%	0 0.0%
	Student	12 37.5%	16 50.0%	4 12.5%
	Retire	4 16.7%	20 83.3%	0 0.0%
	Self-employment	4 33.3%	8 66.7%	0 0.0%
	Housewife	4 12.5%	28 87.5%	0 0.0%

Pearson Chi-Square: 43.155, P= 0.000.

A significant difference emerged as a result of the Chi-square independence test, which was conducted to determine whether the question "Which of the following fish do you consume most" differs depending on the profession ( $P < 0.05$ ). 100% of private sector employees stated that they consume more anchovy. While 12.5% of the students stated that they consumed more bonito, 12.5% of the housewives stated that they consumed more trout. While 87.5% of housewives report that they consume more anchovies, this rate is 50% for public employees.

#### 4. Conclusion and Recommendations

According to the results of our study, 76 women (59.4%) and 82 men (40.6%) that participated in this survey of the individuals who participated in our survey were women and 52 were men. When asked which type of animal product they prefer, 68.4% of women answered chicken, while this rate was 30.8% for men. Therefore, it is seen that a significant portion of women living in the region choose chicken meat in their animal product choices. The fact that 50% of men responded to

the question of what do you pay attention to when buying fish, while this rate was 23.5% for women, also supports the previous consumer behavior. In age-related consumption preferences, the increase in fish meat preference as age increases indicates that fish is important for health. When asked which type of fish they consume, a significant portion of the participants answered sea fish, which can be attributed to the region's proximity to the sea. Regarding the relationship between education levels and fish consumption, it has been observed that fish consumption increases as the education level increases. In this sense, it is understood that the health benefits of fish meat are more clearly understood with the education level and thus it is preferred. Another conclusion drawn from the study that income level also affects preferences significantly is that there is a direct relationship between income level and fish consumption preference. In this case, it should be evaluated especially by sector officials. Parameters such as taste, health, and price change fish consumption preferences.

This study we have conducted is about how individuals shape their fish meat preferences; price, freshness and health significantly affect their preferences. The fact that participants with higher education levels know that fish is an important food item for health when it is associated with the level of education has led us to the fact that the health benefits of fish meat should be explained in this region and similar regions. These and similar studies are extremely valuable data sources for the future of our country, which has fish consumption well below the world average.

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## Conflict of Interest

The authors declare that they have no conflict of interest.

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