



## MUSHROOM CONSUMPTION HABITS IN TURKIYE

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### ABSTRACT

The per capita mushroom consumption rate in Türkiye is known to be lower compared to developed countries. In this regard, a statistical study aiming to reveal mushroom consumption habits has been conducted. The statistical results of the study were analyzed using the chi-square test. A survey consisting of 17 questions determining socio-demographic information and certain mushroom consumption habits was carried out with 1302 participants collected from all regions. According to the survey results, 1116 individuals consume mushrooms. 47.2% of the participants consume mushrooms several times a month. The most common preference for mushroom consumption was the delicious taste. The highest consumption rate was in the 18-45 age range, with over 50%. Within this age range, mushrooms were mostly consumed as a main course, on pizza, and as a garnish. The reasons for not consuming mushrooms were primarily not liking the taste, not being accustomed to the flavor, and lack of trust.

**Keywords:** Mushroom consumption, consumer behavior, socio-demographics, influencing factors

## TÜRKİYE'DEKİ MANTAR TÜKETİM ALIŞKANLIKLARI

### ÖZ

Türkiye'de kişi başına düşen mantar tüketim oranının gelişmiş ülkelere kıyasla daha düşük olduğu bilinmektedir. Bu bağlamda, mantar tüketim alışkanlıklarını ortaya koymayı amaçlayan istatistiksel bir çalışma yapılmıştır. Çalışmanın istatistiksel sonuçları ki-kare testi kullanılarak analiz edilmiştir. Tüm bölgelerden toplanan 1302 katılımcı ile sosyodemografik bilgileri ve bazı mantar tüketim alışkanlıklarını belirleyen 17 sorudan oluşan bir anket yapılmıştır. Anket sonuçlarına göre 1116 kişi mantar tüketmektedir. Katılımcıların %47.2'si ayda birkaç kez mantar tüketmektedir. Mantar tüketiminde en yaygın tercih nedeni mantarın lezzetli olması olarak tespit edilmiştir. En yüksek tüketim oranı %50'nin üzerinde bir oranla 18-45 yaş aralığında gerçekleşmiştir. Bu yaş aralığındaki tüketiciler mantar en çok ana yemek olarak, pizza üzerinde ve garnitür olarak tükettiklerini belirtmişlerdir. Mantar tüketmeme nedenlerini ise tüketiciler öncelikle tadını beğenmeme, lezzetine alışkın olmama ve güvenmeme olarak sıralamışlardır.

**Anahtar kelimeler:** Mantar tüketimi, tüketici davranışı, sosyodemografik özellikler, etkileyen faktörler

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## INTRODUCTION

Mushrooms are the edible parts (mostly stem and cap) of the fruiting bodies of mushroom and can be collected from the nature or some can be cultivated under controlled conditions (Oguntoye et al., 2022). They belong to another kingdom called Fungus and are mainly classified under Basidiomycota and Ascomycota divisions (Barea-Sepulveda et al., 2022). Mushrooms do not have chlorophyll and they must get their nutrients from the soil, or the production material composed by the manufacturer. They differ from the plant kingdom in this aspect (Oguntoye et al., 2022).

Mushrooms have long been considered beneficial for human nutrition and health because of their easily digestible proteins, and vitamin and mineral content. They are also low in fat and cholesterol and grouped under vegetables (Boin et al., 2016; Boin and Nunes, 2018). Aside from these properties, mushrooms can easily be used in low-calorie diets because of their low-calorie values (Selvi et al., 2007). It has been reported that by consuming the same volume of mushrooms instead of meat or meat-containing meals, more dietary fiber is consumed, and the same level of satiety is obtained (Cheskin et al., 2008). In addition, mushrooms contain essential amino acids, and they are a good alternative for those who prefer vegan/vegetarian diets (Verma et al., 1987). Besides being consumed as a food, mushrooms have beneficial effects on health such as anticancer, antiviral, antitumor, antioxidant, lowering cholesterol levels, etc. (Cohen et al., 2002; Kerrigan, 2016).

According to the FAO data (FAO, 2022), China has the highest production value of mushrooms and truffles in 2020 which is over 40 million tons. This value comprises 93% of the world's production value. Türkiye was the 17th country in production with over 55 tons in 2020 which was 0.13% of the overall production of the world. The production values in Türkiye are quite low when compared to many other countries. The mushrooms that are cultivated in Türkiye are *Agaricus bisporus* (white button mushroom) and *Pleurotus ostreatus* (Oyster mushroom). However, the amount of consumption is not known. The

studies that were performed for the consumption values were local (Kibar, 2015; Yılmaz et al., 2016; Uysal, 2014).

The aim of this study was to investigate the consumption behaviors and influencing factors on the consumption of mushrooms in Türkiye's population. The focus of the study was overall frequency of consumption, and frequency of consumption by type (fresh, canned, frozen, dried). *A. bisporus* and *P. ostreatus* species were selected for the study because these two species are produced in most parts of Türkiye and then transferred to the markets and bazaars all over Türkiye.

## MATERIALS AND METHODS

A survey for mushroom consumption was applied to a sample of Türkiye population (n=1302) through an online questionnaire. The survey results include socio-demographic and mushroom consumption data collected from April 2022 to August 2022. The questionnaire was prepared on Google documents and was available online which was spread through social media and e-mails.

### Structure of the questionnaire

The questionnaire was comprised of 17 questions. The seven questions were socio-demographic questions (age, gender, marital status, education, household size, region, and income). The rest of the questions included mushroom consumption behaviors which are overall mushroom consumption periodicity (often, once a week, more than once a week, more than once a month, rarely), frequency of consumption by species (*A. bisporus*, *P. ostraetus*), frequency of how the mushrooms are consumed (main course, pizza topping, soups, sauce, pickle), how the consumers buy the mushrooms (fresh, canned, frozen, dried), where the consumers choose to buy the mushrooms (Market, bazaar or the producer), whether the consumers know the nutritious value of the mushrooms and for the consumers that do not consume mushroom the reason was questioned.

### Statistical analysis

The statistical analyses were performed with IBM Statistics 23. The statistical analysis was performed using the Chi-square test. Significance was considered for  $P$ -values  $< 0.05$ . In cases where the  $P$ -value is  $< 0.05$ , odds ratios below 1 indicate a negative effect of the explanatory variable on the dependent variable, while odds ratios above 1 indicate a positive effect of the explanatory variable on the dependent variable (Wang and Verbeke, 2016).

## RESULTS

### Socio-demographic results

The socio-demographic results of the participants were shown in Table 1 as frequency and percentage. 1302 people were participated in the questionnaire, 57.1% of the participants were female and 42.9% were male. The majority of the participants were at the age of between 18 and 45 years, predominantly the age range of 36-45 with a rate of 33.1%. Considering the education level of consumers, 40.7% had an undergraduate degree, 32.8% had a graduate degree and 14.25 of the participants had an associate degree. It was seen that the number of individuals in the family of the participants was mainly in the range of 2-4 people with a percentage of 70.4%. When income level was considered, very close distributions were observed, 25.7% of the participants' income level was between 7001-10000 TL. When the distribution of mushroom consumption by region was considered, the Marmara region (29%) and the Mediterranean Region (25.3%) have represented more than 50% of the participants. Marmara region has the highest population in Türkiye, which is over 24 million, and the Mediterranean region is the third most highly populated region according to the Turkish Statistical Institute (TUIK2022). Also, it should be considered almost 70% of the cultivated mushroom production takes place in Korkuteli (Antalya) which is in the Mediterranean region. The population and the production of place were considered the reasons for the high amount of consumption in these regions. Eastern Anatolian Region was the least participated region in the survey with a rate of 6.5%. This region has the lowest population among Türkiye and it has been

noted that the rates are approximately in proportion to the population distribution of the regions.

### Mushroom consumption behavior

It was observed from the results that 85.7% of the participants consume mushrooms (Table 2), and generally, white button mushroom *Agaricus bisporus* was preferred by the participants (Table 3). The number of participants who preferred to consume *Pleurotus ostreatus* with a frequency of often or always was 131 and 40 respectively which was very low when compared to the numbers of *Agaricus bisporus*. 480 of the participants stated that they often consume white button mushrooms and 32 of them stated that they never consume them. Mushrooms were consumed more than once a week by only 5.5% of the participants. Among the participants, 88.8% choose to consume mushrooms primarily because they find them tasty. Additionally, it was believed by 50.5% of the participants that mushrooms are nutritious, and they were consumed predominantly as a main course or as a topping on pizza. Although mushrooms were chosen for consumption by most of the participants the consumption frequency was not often. The results showed that 47.2 and 29.6% of the participants stated that they consume mushrooms a few times a month or very rarely respectively. This was thought to be due to cultural reasons. Consumers in Türkiye tend to prefer vegetables such as legumes, peas, zucchini, and eggplant rather than mushrooms. The reason why consumers do not consume mushrooms was also stated as taste. A small percentage of participants who did not consume mushrooms were allergic (6.7%) or did not consider them nutritious (7.5%). Furthermore, it was mentioned by 25.2% of the participants who did not consume mushrooms that they find them unreliable, suggesting concerns about potential poisoning.

Fig. 1 shows the differences among the consumption behaviors according to the age. It can be seen from the figure that for all ages the main consumption type was as the main course and consumption of mushrooms as pickles was the least.

Table 1. Socio-demographic characteristics of participants

Variable (Type, Range)	Category	Frequency (n =1302)	Percentage (%)
Gender	Female	744	57.1
	Male	558	42.9
Age	18-25	244	18.7
	26-35	301	23.1
	36-45	431	33.1
	46-55	196	15.1
	Over 56	130	10
Education	Primary Education	11	0.8
	Secondary Education	18	1.4
	High School	131	10.1
	Associate Degree	185	14.2
	Undergraduate	530	40.7
	Graduate	427	32.8
Household Size	1	83	6.4
	2-4	916	70.4
	4-6	249	19.1
	6+People	54	4.1
Region	Marmara	377	29
	Mediterranean	329	25.3
	Aegean	107	8.2
	Central Anatolia	194	14.9
	Southeastern Anatolia	92	7.1
	Black Sea	118	9.1
	Eastern Anatolia	85	6.5
Income	0-4300	157	12.1
	4301-7000	261	20
	7001-10000	334	25.7
	100001-13000	238	18.3
	Over 13000	312	24
Marital Status	Married	765	58.8
	Single	537	41.2

Table 2. Mushroom consumption behavior of participants

	Category	Frequency	Percentage (%)
Mushroom consumption	Yes	1116	85.7
	No	186	14.3
How often (n =1302)	Very often	16	1.4
	One day a week	188	16.3
	More than once a week	64	5.5
	A few times a month	546	47.2
	Very rare	342	29.6
Consumption preference (n =1302)	Tasty	1023	88.8
	Easy to find	134	11.6
	Highly nutritious	582	50.5
	Suitable for diet (vegan-vegetarian)	86	7.5
	Suitable for dietary consumption	140	12.2
	Price is affordable	105	9.1
Reasons for not consuming	Dislike the taste	97	38.2
	Unreliable	64	25.2
	Allergic	17	6.7
	Not nutritious	19	7.5
	Not the usual taste	96	37.8
	Expensive	35	13.8

Table 3. Consumption by mushroom species (n =1302)

	Category	Frequency
<i>Agaricus bisporus</i>	Always	175
	Often	480
	Rarely	433
	Never	32
<i>Pleurotus ostreatus</i>	Always	40
	Often	131
	Rarely	516
	Never	169

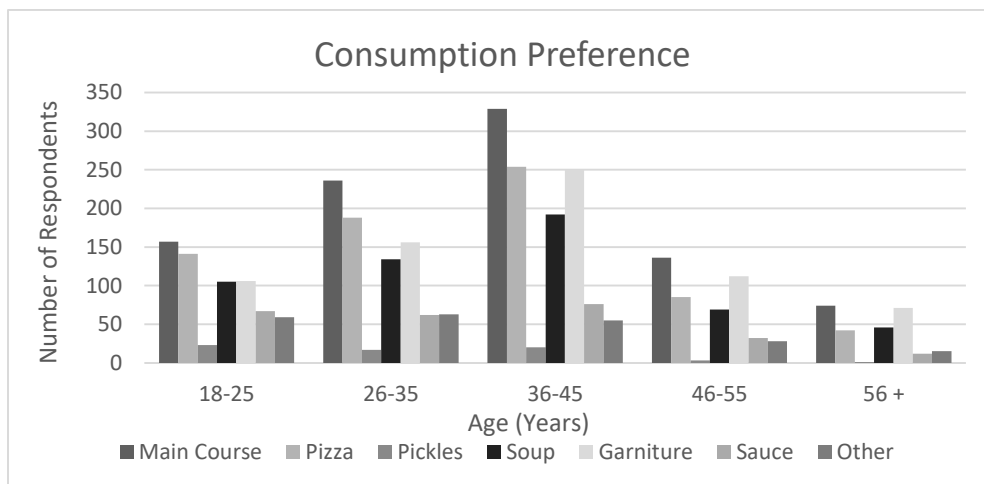


Figure 1. Consumption preferences according to the age

Table 4 provides information regarding how and where the mushrooms were bought and what was considered while purchasing by the consumers. The results showed that mushrooms were bought mostly fresh as packed (77.25%) or unpacked (53.2%) and mainly from the market (78.8%) or bazaar (56.3%). The participants who chose to buy dried, frozen or canned mushrooms were lower than 2%. 90.9% of consumers stated that

color and appearance of the mushrooms were the major criterion when purchasing mushroom. Also, it was determined that 60.2% of the participants checked the production date of the product. It has been observed that the least important thing according to participants was the brand of the product. Only 7.9% of the participants were paying attention to the brand of the mushrooms when purchasing.

Table 4. Mushroom purchasing behavior of the participants

	Category	Frequency	Percentage (%)
How to purchase	Fresh (packed)	891	77.2
	Fresh (outdoor)	614	53.2
	Preserves	20	1.7
	Frozen	15	1.3
	Dried	13	1.1
Place of purchase	Open field	648	56.3
	Market	908	78.8
	Mushroom grower	110	9.5
	Greengrocer	250	21.7
Factors purchase	Color-appearance	1050	90.9
	Size	497	43
	Packaging shape	333	28.8
	Packing date	695	60.2
	Where it is produced	155	13.4
	Brand	91	7.9
	Price	438	37.9
	Amount	240	20.8

### Overall frequency results of mushroom consumption

In the study, the relationship between mushroom consumption and socio-demographic characteristics was analyzed using the Chi-Square test. The "Pearson Chi-Square" value was obtained from the test results table. If the *P*-value associated with this value was less than 0.05, it indicated that there was a statistically significant difference between the variables being compared. On the other hand, if the *p-value* is greater than 0.05, it was suggested that there was no significant difference between the variables, and the relationship was considered non-committal or inconclusive. According to this, when the

relationship between mushroom consumption and socio-demographic characteristics was examined; it was observed that age, education, household size, marital status, region, and income status had a significant effect on mushroom consumption ( $P < 0.001$ ) whereas gender had no significant effect on the overall consumption of the mushrooms ( $P = 0.244$ ) (Table 5).

According to the Chi-Square analysis between socio-demographic characteristics and consumption behaviors, it was found that gender had no significant effect on how often the mushroom was consumed ( $P = 0.533$ ), type of purchase ( $P = 0.172$ ), place it was purchased ( $P =$

0.062) and the reason for consumption ( $P=0.660$ ). However, gender was determined to have a significant effect on considerations when purchasing. Another independent variable was established between the regions and the reason for consumption ( $P=0.264$ ) which had no significant effect. It was confirmed that variables

such as age, education level, household size, region, income level and marital status, have a significant effect on how often the mushrooms are consumed, the place and type of purchase, the considerations when purchasing, and the reason for choosing to consume ( $P<0.05$ ) (Table 6).

Table 5. Socio-demographic characteristics of people consuming and not consuming mushrooms and Chi-Square results

Variable	Chi-Square Value ( $\chi^2$ )	Asymptotic Significance ( $P$ )
Gender	1.360	0.244
Age. Years	49.098	$P<0.001^*$
Education	26.732	$P<0.001^*$
Household Size	31.793	$P<0.001^*$
Region	16.367	0.012
Income	29.662	$P<0.001^*$
Marital Status	32.227	$P<0.001^*$

\* $P=0.000$

Table 6. Chi-Square results of consumption behaviors with socio-demographic characteristics

Variable		How often	How to purchase	Place of Purchase	Factors purchase	Consumption preference
Gender	$\chi^2$	4.112	18.819	22.902	143.837	36.756
	$P$	0.533	0.172	0.062	0.012	0.660
Age	$\chi^2$	60.983	106.742	161.688	509.072	240.795
	$P$	$P<0.001$	$P<0.001$	$P<0.001$	0.006	$P<0.001$
Education	$\chi^2$	48.080	124.777	148.105	625.218	358.033
	$P$	0.004	$P<0.001$	$P<0.001$	0.006	$P<0.001$
Household Size	$\chi^2$	41.465	59.829	79.642	377.278	164.213
	$P$	$P<0.001$	0.036	$P<0.001$	0.022	0.008
Region	$\chi^2$	47.663	186.062	303.311	739.978	260.310
	$P$	0.021	$P<0.001$	$P<0.001$	0.007	0.245
Income	$\chi^2$	44.651	89.362	125.165	512.931	197.639
	$P$	0.001	0.003	$P<0.001$	0.004	0.038
Marital Status	$\chi^2$	38.555	44.738	59.085	177.274	77.630
	$P$	$P<0.001$	$P<0.001$	$P<0.001$	$P<0.001$	$P<0.001$

\* $P=0.000$

Table 7 gives information about the Chi-Square analysis results between socio-demographic characteristics and the way of mushroom consumption (main dish, side dish, pizza, soup, pickles, sauce, and other). Consumption of mushrooms in pizza, soup, sauce, or pickles was

identified as a variable independent of gender. Age and education were seen to be significantly effective in how the mushrooms were consumed. 188 of the participants stated that they always consume mushrooms as a main course and 397 of them often consume as fresh mushrooms. Pickles

was the least preferred type of consumption by the participants. The number of participant that rarely or often consumed mushrooms as pickles

was 65. 353 of the participants stated that they never consume mushrooms as pickles.

Table 7. Chi-square results of the socio-demographic properties and mushroom consumption type

Variable		Main course	Garniture	Pizza	Soup	Pickles	Sauce	Other
Gender	$\chi^2$	22.757	29.594	2.753	4.158	5.029	5.854	27.305
	P	P<0.001	P<0.001	0.600	0.385	0.284	0.210	P<0.001
Age. Years	$\chi^2$	51.596	42.910	75.258	38.546	66.691	63.687	39.992
	P	P<0.001	P<0.001	P<0.001	0.001	P<0.001	P<0.001	0.001
Education	$\chi^2$	55.305	119.435	53.870	81.367	50.234	50.239	46.124
	P	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	P<0.001	0.001
Household Size	$\chi^2$	17.033	22.244	25.228	8.678	10.896	7.350	13.664
	P	0.141	0.035	0.014	0.730	0.538	0.834	0.323
Region	$\chi^2$	38.645	60.785	34.353	54.861	53.281	30.606	34.338
	P	0.030	P<0.001	0.079	P<0.001	0.001	0.165	0.079
Income	$\chi^2$	52.587	76.418	53.165	44.908	18.313	21.579	24.992
	P	P<0.001	P<0.001	P<0.001	P<0.001	0.306	0.157	0.070
Marital Status	$\chi^2$	8.740	5.785	4.371	5.453	19.070	7.803	3.777
	P	0.068	0.216	0.358	0.244	0.001	0.099	0.437

\*P=0.000

Table 8 shows the results of the comparison between socio-demographic characteristics and not consuming mushrooms. According to these results, independence was observed between gender, region, and the behavior of not consuming mushrooms in which the P-value was greater than 0.05. Therefore, gender and region were not significantly effective on mushroom consumption. It was seen that the other characteristics (age, education, household size, income, and marital status) were dependent (P<0.05). According to the pivot tables obtained from Microsoft Excel most of the participants that do not consume mushrooms were between the age of 18-25 and were single. This may be because this single age group was mostly students and mushrooms were seen as an expensive food for students. Also, this effect was seen in the income results because the results showed that as the income of the participants were increased the number of participants that do not consume mushrooms were decreased. Interestingly as the level of education was increased the number of participants that did not consume mushrooms

were increased. Participants with primary and secondary school education stated that they thought mushrooms could be poisonous. On the other hand, most of the highly educated participants stated that they did not consume mushrooms because they did not like the taste and were not used to them.

Table 8. Chi-Square results of socio-demographic characteristics and preferences for not consuming mushrooms

Variable	$\chi^2$	P
Gender	21.030	0.395
Age, Years	56.336	P<0.001
Education	170.017	P<0.001
Household Size	125.013	0.001
Region	141.698	0.086
Income	155.735	P<0.001
Marital Status	123.356	P<0.001

\*P=0.000



53.6% of the participant (698 participants) stated that they had information about the nutritional value of the mushrooms. The statistical analysis results shown in Table 9 give information about the relationship between socio-demographic characteristics and the nutritional value of the mushrooms. The findings indicate that gender, age, education, income, and marital status were significantly effective on knowledge of the nutritional value of mushrooms. The results demonstrate that as the level of education was increased, there was a notable increase in the

number of individuals who possessed knowledge regarding the nutritional value of mushrooms. This suggests that higher levels of education were associated with a greater understanding of the nutritional benefits offered by mushrooms. Also, the knowledge about the nutritive value of the mushrooms was increased until the ages of 36-45 then it was decreased. It was also found that 429 of the 698 participants who stated that they had information about the nutritional value of mushrooms were women.

Table 9. Chi-Square results of the nutritional value of mushrooms

Variable		$\chi^2$	P
Gender		11.458	0.001
Age. Years		57.487	$P<0.001$
Education		27.156	0.006
Household Size		5.126	0.163
Region		9.555	0.145
Income		11.547	0.021
Marital Status		6.674	0.010
Reason for consumption		318.790	$P<0.001$
Consumption frequency		71.922	$P<0.001$
How to Purchase		45.075	$P<0.001$
Consumption Preference	Main course	12.571	0.014
	Garniture	19.873	0.001
	Pizza	2.527	0.640
	Soup	17.600	0.001
	Soauce	8.292	0.081
	Pickles	9.167	0.530
	Other	13.999	0.007

\* $P=0.000$

## DISCUSSION

Until now, studies on mushroom consumption habits in Türkiye were performed at the provincial level, and no study encompassing the entire country was found. According to the previous studies: Paksoy and Aksüt (2012) carried out a study in the province of Kahramanmaraş and found that 56% of the consumers were female and 44% were male, with 73.4% of the participants reported consuming mushrooms. In a survey conducted in Antalya with 300 individuals, it was determined that 73% of them

consumed mushrooms, and 52.1% reported consuming mushrooms once a month. The study in Antalya also revealed that 54.7% of mushroom consumers obtained mushrooms from the market, 36.8% from shopping malls and supermarkets, and 8.4% from gathering them in nature (Uysal, 2014). According to a study of Kibar (2015) in Iğdır with 210 participants it was found that mushroom consumption rate was 68.6%. The main reasons for not consuming mushrooms were reported as not liking the taste (40.7%) and fear of poisoning (33.3%). Among

the mushroom consumers, only cultivated mushrooms were reported to be consumed by 56.6%, both cultivated and wild mushrooms were consumed by 37.2%, and only wild mushrooms were consumed by 6.2%. In a study performed by Yilmaz et al. (2016) with 260 participants in Trabzon, it was determined that 74.6% of the participants consumed cultivated mushrooms. Kaplan and Gözener (2022) conducted a study in Sivas with 384 individuals, and the results indicated that the participants were most familiar with cultivated mushrooms and mostly purchased them from the market. Other studies carried out in different regions also reported that the main reasons for not consuming mushrooms were fear of poisoning, taste preferences, and habits (Paksoy and Aksüt, 2012; Uysal, 2014).

The overall consumption habits showed that 49.4% of the participants consumed mushrooms, while 50.6% did not. According to the study of Wen et al. (2016) in Shanghai, China, and reported that gender, education level, and household size were not significantly effective on the frequency of mushroom purchases. However, the frequency and volume of edible mushroom purchases were significantly influenced consumer behavior. Boin and Nunes (2018) showed in their study that the mushroom consumption rate in Portugal was 81.9% with a participant number of 925. They also found that canned mushrooms were consumed more than fresh mushrooms. Among mushroom species, *Agaricus bisporus* was the most consumed mushroom. The frequency of mushroom consumption was determined to be once a week (41.1%) or once a month (23.7%). Ballesterol et al. (2021) conducted a mushroom consumption survey with 222 participants. It was reported that the majority of participants (99%) were consuming mushrooms due to their taste (71%) and perceived healthiness (26%). However, 76.0% of consumers were consuming mushrooms only once a month or rarely once a year. Oguntoye et al. (2022) performed a study on mushroom consumption in Nigeria with 250 participants. In this study it was found that the majority of participants (66%) were in the age range of 31-60, 68.8% were married, and 52% were with a higher education level. Among the

participants, 87.2% consumed mushrooms, with 50.8% were consuming mushrooms occasionally. Predanócyová et al. (2023) conducted a study in Slovakia with the participation of 1166 individuals to examine mushroom consumption behaviors. They found that 88.5% of the participants were consumers. When looking at the frequency of mushroom consumption, the rate of consuming mushrooms once or twice a month was determined to be 48.7%.

Türkiye mushroom consumption has shown rapid development in recent years; however, it cannot be said that mushroom consumption has reached to a desired level yet. Mushroom consumption in Türkiye is far behind European countries. As the population of Türkiye is rapidly increasing, it is necessary to show the required sensitivity regarding the importance and necessity of mushroom consumption, considering its role in human health and nutrition. Increasing mushroom consumption habits is crucial in reducing the protein gap in our people's diet.

## CONCLUSION

In this study mushroom consumption behaviors in all regions of Türkiye was examined. As a result, it was found that 85% of the participants consumed mushrooms and 14% did not consume mushrooms. When the responses to some socio-demographic questions were examined, it was observed that the consumption rate of mushrooms was higher among women compared to men, and the consumption rate was over 50% in the age range of 26-45. Additionally, for individuals with undergraduate and postgraduate education, the consumption rate was found to be over 70%. According to the survey results on consumption behavior, the highest rates were: mushroom consumption mostly occurring a few times a month, preference for fresh mushrooms, purchasing mushrooms from supermarkets, consideration of color and appearance when buying mushrooms, and the preference for consuming mushrooms due to their delicious taste. Among non-consumers, the main reasons for not consuming mushrooms were the dislike of taste and lack of familiarity. Based on these results, it can be inferred that new activities

focusing on the nutritional content and marketing methods of edible mushrooms could be developed to address the reasons for not consuming mushrooms.

In another study, 53.6% of the participants were found to have knowledge about the nutritional value of mushrooms. Developing solutions to increase the consumption of mushrooms, which are important in terms of nutrition, health, and balanced diet, is crucial. The results of the survey indicated the need for better promotion of mushrooms, which are a protein-rich food (Koopman and Laney, 2010) with various beneficial properties due to their composition (Chang and Miles, 2004; Manz et al., 2001), and raising public awareness in this regard.

Researches performed in different countries emphasizes that more than 80% of participants consume mushrooms; however, the frequency of mushroom consumption was generally occasional. In this study, it was also found that although mushroom consumption was preferred, the frequency or consumption rates were generally occasional or in small quantities, like other studies.

It is important to develop solutions such as appealing and delicious usage options for the younger generation to popularize mushroom consumption among them, more affordable prices for families who are neglected due to low income, and easy-to-use forms for single individuals. Increasing mushroom consumption habits would be beneficial in reducing the protein gap for consumers. According to the survey results, participants believe that to increase the amount of mushroom consumption, consumer awareness about the nutritional value of mushrooms should be improved, mushroom consumption habits should be encouraged, and prices should be reduced to some extent.

Based on this information, it is believed that the research results will contribute significantly to the development of marketing-consumption chains in the mushroom sector, the determination of

marketing strategies, and the target audiences of companies.

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#### **DISCLOSURE STATEMENT**

The study was carried out with the decision of Akdeniz University Science and Engineering Sciences Scientific Research and Publication Ethics Committee (2022). Apart from the authors mentioned, no one or no institution has made any contribution to the preparation and publication of this study. Both authors contributed equally to the writing and editing of the article.

#### **CONFLICT OF INTEREST**

The authors have no competing interests to declare.

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