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ORIGINAL ARTICLE

Examination of traditional fermented food consumption and product awareness of university students in Istanbul, Turkey

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Abstract

Background: Traditional fermented foods (TFF), which display positive effects on health, constitute a part of the traditions of a region and have continuity over many years. Familiarity with a product and the naturalness of food are positively associated with general attitudes toward traditional food consumption. **Aims:** To determine university students' awareness and consumption of TFF and related factors in Turkey. **Subjects and Methods:** In this descriptive cross-sectional study, the faculties of Marmara University were stratified between January and June 2019, and a questionnaire on TFF consumption and related knowledge and attitudes was administered to 1,233 volunteer students selected using the random sampling method. The normality of data distribution was checked with the Kolmogorov-Smirnov test, and the data were analyzed with the chi-square test. **Results:** The students were familiar with the majority of TFF, with the most common being yoghurt (91.8%) and cheese (88.7%), while *hardaliye* (27.1%) and olives (27.1%) were less known TFF products. The majority of the students (60.7-99.2%) consumed cheese, yoghurt, pickled olives, pickle, *soudjouk*, *tarhana*, vinegar, and butter. The TFF were habitually consumed as industrial products, except *tarhana*, pickle, and yoghurt. It was also determined that the TFF consumption did not change according to the season in 76.4% of the students, and it was affected by the consumption of parents, whether they lived with their family or alone ($p < 0.05$). **Conclusions:** The students showed high awareness of TTF consumption, which was influenced by parent's consumption and lifestyles. To ensure the continuity of TFF consumption, positive attitudes and behaviors must be maintained.

Keywords: Consumption, familiarity, fermented foods, industrial products, Turkey.

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1 Introduction

Fermented foods are defined as those obtained by adding a starter culture or through the activity of microorganisms that are present in their natural form of plant and animal foods [1]. Fermentation is one of the oldest food processing methods used since the existence of mankind, and it is also one of the most economical food production and preservation methods [1, 2]. Fermented foods constitute the main component of the nutritional culture of all societies and represent the cultural history of ethnic groups. The color, smell, taste, and texture changes occurring in food, as a result of fermentation, contribute to the formation of food diversity [3]. Different cultures have identical traditional fermented foods (TFF) made from the same raw material. Both in Turkey and across the world, several different TFF are produced based on milk (yoghurt, butter, kefir, *kumys*, and types of cheese), cereal (*boza, mahewu, tarhana, idli, dosa*, *sourdough* bread, bread with chickpea, and beer), meat (*soudjouk* & *pastrami*), fish (*nam pla*), soy (soy sauce, natto, and *tempeh*), vegetable, and fruit (*kimchi, sauerkraut, gundruk, sunki*, pickle, turnip juice, olive, vinegar, *hardaliye*, and wine). Fermented foods contain functional microorganisms and possess health-promoting biological functions, such as increased nutritional value and antioxidant content, which provide therapeutic and immunological effects [2, 4-7]. With these features, in recent years, there has been a growing interest in the consumption of TFF across the world, including Turkey [8].

The term "traditional" means having proven use over a period of time, indicating intergenerational transmission usually for at least 25 years [9]. From the consumers' point of view, traditional food is defined as food that is normally passed from generation to generation, produced in a certain way according to the gastronomic heritage with little or no processing, and often consumed during certain celebrations and/or seasons [10]. Numerous properties of traditional foods have been described, and these foods are associated with a region and represent that region. Traditional foods are also produced as part of the traditions of a particular region and have continuity over many years [10-12]. In addition, people have used traditional foods over time, and their effects have been well observed and accepted. Studies have shown that most fermented foods display positive effects on health [8, 11]. For these reasons, TFF have attracted scientific and commercial interests in recent years, and consumer demand for these products has been increasing [6, 13].

Geography, ethnic origin, customs, traditions, culture, nature, and economic conditions can be effective in the variety of traditional foods according to countries and regions [14]. Turkey is geographically an area of synthesis for the presence of traditional foods. In addition to the Mediterranean culture, throughout the history, Turkey has had interactions with Central Asia, the Caucasus, and the Middle East geography. Furthermore, the influence of a nomadic life culture, Seljuq, Byzantine, and Iran-Abbasid culinary traditions, and a long Ottoman Empire past have resulted in a rich and mature cultural heritage [15]. Turkish traditional foods, which are very abundant, have a base very rich in raw materials used [16].

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The consumption of some TFF has been limited to the regions where they originate [5]. In the last century, the rapid globalization in the world has shown positive effects on the spread of traditional foods, with several traditional products extending from local areas to across the country, and modern food processing technologies have started to be applied [17]. Despite the widespread adoption of the fast-food diet, in recent years, people have started to show more interest in local products, being mostly perceived to have high quality [11, 17]. Consumers have also become more aware of and are in search of healthy and safe food[18]. On the other hand, organic raw materials, used in TFF, with the use of packaging that preserves sensory qualities and their availability throughout the year, have affected the purchasing decisions of new generations, which is a target group in terms of product pricing, practicality and health. New flavors, shapes, and textures are welcomed by young consumers, who actually increasingly consume TFF. These changes have shown effectiveness in product development and marketing of the TFF sector, and several studies are carried out on how foods can be adapted to influence the new generations [19].

Familiarity with a product and the naturalness of food are strongly and positively associated with general attitudes toward traditional food consumption; i.e., people who attach more importance to familiar products are more likely to opt for a traditional food product [20]. Frequently consumed traditional foods have become a part of daily life and are associated with "habits", a strong determinant of nutritional behavior by consumers [21]. This study aimed to determine university students' awareness and consumption of TFF and related factors.

2 Subjects and Methods

This descriptive study was conducted with volunteer students at Marmara University between January and June 2019. All students studying at Marmara University constituted the study population, and the faculties of the university were stratified. The weight of each layer in the population was determined, and students were selected with the simple random sampling from the strata. The sample size was calculated using Epi Info software package. In this calculation, the incidence of the event was taken as 50%, the level of error as 5%, and the pattern effect as 2. The sample of the study consisted of 1,233 students from 18 faculties who provided written consent forms. Approval was obtained from the Ethics Committee of Marmara University Institute of Health Sciences with the protocol number 31 dated 14.01.2019, and necessary permissions were received from each faculty for the application of the questionnaires.

Within the scope of a pilot study, the questionnaire was administered to 30 individuals who represented the target group, met the inclusion criteria, and were not included in the main research sample. After the pilot study, some statements in the questionnaire were simplified, and the response time for the questionnaire was determined as 10–15 minutes. The questionnaire was applied face to face with the participants and consisted of four parts:

- Demographic and self-reported anthropometric characteristics and aims for a better health (lifestyle habits, chronic diseases);
- Level of knowledge and attitudes concerning TFF, product awareness, and health-related reasons for the consumption of TFF;
- The TFF consumption status of the participants and their parents;
- Factors affecting TFF consumption.

TFF commonly consumed in Turkey were determined in light of previous studies [5,22] and are presented in the Supplementary data.

The analysis of the data was performed using the Statistical Package for the Social Sciences (SPSS), v. 16.0. Number and percentages were included in descriptive statistics. The conformance of the data to the normal distribution was checked with the Kolmogorov-Smirnov test. If the data distribution was normal, the chi-square test was applied. A p value of <0.05 was considered statistically significant.

3 Results

The age distribution of the students by gender was 20.9 ± 2.6 years for the females (lower-upper value = 17.0-42.0 years) and 21.8 ± 2.8 years for the males (Lower-upper value = 18.0-48.0 years). It was found that the average body mass index (BMI) was 21.5 ± 3.0 kg/m2 for the female students and 23.7 ± 3.3 kg/m2 for the male students.

Table 1: Sociodemographic characteristics of the study population

	n	%
Sex		
Female	771	62.5
Male	462	37.5
Type of accommodation		
Living with his/her own family	528	42.8
Staying in a dormitory	371	30.1
Living with friends or alone at home	308	25.0
Staying with a relative	26	2.1
Mother's origin		
Black Sea Region	341	27.7
Central Anatolia Region	220	17.8
Eastern Anatolia Region	182	14.8
Southeastern Anatolia Region	124	10.0
Mediterranean Region	114	9.2
Marmara Region	95	7.7
Immigrant	82	6.7
Aegean Region	71	5.8
Foreign national	4	0.3
Father's origin		
Black Sea Region	354	28.7
Central Anatolia Region	189	15.3
Eastern Anatolia Region	184	14.9
Southeastern Anatolia Region	132	10.7
Mediterranean Region	131	10.6
Immigrant	94	7.6
Aegean Region	79	6.4
Marmara Region	67	5.4
Foreign national	3	0.2
Aims for better health		
Preventing cancer	634	51.4
Better sleep/rest	503	40.8
Preventing cardiovascular diseases	414	33.6
Increasing physical activity/exercise	338	27.4
Better diet and nutrition	328	26.6
Preventing diabetes	316	25.6
Better weight control	311	25.2
Healthy aging	305	24.7
Better mental health	305	24.7

Sociodemographic characteristics are summarized in Table 1. Most of the participants were female (62.5%), and the frequency of students living with their own family (42.8%) was higher than those living in a dormitory (30.1%) or living alone/at home with friends (25.0%). According to the origins of the parents, Black Sea, Central Anatolia, and Eastern Anatolia constituted the first three regions. When the health-related aims of consuming TFF were evaluated, cancer (51.4%) ranked first, followed by having better sleep/rest (40.8%), preventing cardiovascular diseases (33.6%), then increasing physical activity/exercise (27.4%).

More than half of the students (58.0%) knew the definition of fermented products, with the most popular sources of information being books (23.5%), internet (18.3%), and television (14.1%). The students stated that they had learned about fermented foods from healthcare workers (25.0%), friends (21.5%), and teachers (15.9%). The surveyed students consume these products because of their health benefits, taste, interesting nature, protective effects against diseases, and long shelf life, or upon the recommendation of others. 89.7% of the students consumed TFF, while among those that did not consume TFF, the reasons were not knowing about these products, finding them expensive, not needing them, or thinking that they were unsavory. The students mostly consumed TFF at home (64.2%), and dormitory/school consumption (6.3%) was very low (Table 2).

Table 2: Knowledge and attitudes of the study population concerning fermented products

	n	%
Knowledge of fermented food description		
Yes	715	58.0
No	363	29.4
Not sure	155	12.6
Source of information on fermented food definition		
Book	290	23.5
Internet	225	18.3
Television	174	14.1
Social media	91	7.4
Popular diet books	47	3.8
Sampling counters in the supermarket	43	3.5
Person providing information about the definition of fermented food		
Healthcare professional	308	35.4
Friend	265	30.5
Teacher	196	22.5
Relative	101	11.6
Fermented food consumption		
Yes	1106	89.7
No	127	10.3
Reason for consuming fermented food		
Health benefit	393	45.2
Taste	209	24.0
Curiosity/interest	87	10.0
Protective effect against diseases	61	7.0
Long shelf life	61	7.0
Advice	59	6.8
Reason for not consuming		
Not knowing about fermented foods	57	44.9
Expensive	21	16.5
Unsavory	19	15.0
Does not need	17	13.4
Not easily accessible	6	4.7
Allergy/Intolerance	4	3.1
Detrimental	3	2.4
Fermented food consumption place		
Family home	791	64.2
At home alone/with friends	122	9.9
Outside	115	9.3
Dormitory/school	78	6.3

The students' knowledge of the definition of fermented foods was compared according to their faculties, gender, BMI, type of accommodation, and parents' origin. The students studying at health-related faculties had more knowledge concerning the definition of fermented foods compared to those studying at non-health faculties ($p < 0.001$), while other factors did not result in a significant difference in the students' knowledge of the TFF definition ($p > 0.05$). In addition, the students studying at health-related faculties consumed more fermented foods ($p < 0.001$).

When the students' familiarity with TFF was assessed, we observed that they were familiar with most products, with the most frequent being yoghurt (91.8%) and cheese (88.7%), while *hardaliye* (27.1%) and olives (27.1%) were least known as TFF (Table 3).

Table 4 presents information on the students' consumption of TFF. The students most consume cheese (99.2%), yoghurt (98.1%), olives (93.0%), pickle (87.3%), *soudjouk* (84.5%), *tarhana* (82.3%), butter (67.6%), and vinegar (60.7%). It was determined that TFF other than *tarhana*, pickle, and yoghurt were preferred to be consumed as industrial products.

When the TFF consumption of the students and that of their parents were examined, it was observed that of the former was affected by the latter ($p < 0.01$).

The majority (76.4%) of the students stated that their consumption of TFF did not change according to the season.

According to the place where the students are living, there was a statistically significant difference in the students' consumption of beer ($p < 0.001$), *boza* ($p = 0.049$), and wine ($p < 0.001$) (Table 5). When comparing the students living with their families and those living alone, a statistically significant difference was underlined only in vinegar consumption ($p = 0.049$), with the vinegar consumption of the former (63.6%) being higher than latter (58.1%).

Table 3: Traditional fermented food familiarity of the study population

Fermented food	Familiar		Not familiar		Not sure	
	n	%	n	%	n	%
Yoghurt	1132	91.8	57	4.6	44	3.6
Cheese	1094	88.7	70	5.7	69	5.6
Kefir	961	78.0	136	11.0	136	11.0
Beer	922	74.8	175	14.2	136	11.0
Vinegar	895	72.6	197	16.0	141	11.4
Wine	893	72.4	194	15.7	146	11.8
Pickle	842	68.3	253	20.5	138	11.2
Boza	729	59.1	250	20.3	254	20.6
Sour cream	695	56.4	288	23.3	250	20.3
Turnip juice	630	51.1	304	24.7	299	24.2
Tarhana	628	50.9	373	30.3	232	18.8
Butter	592	48.0	428	34.7	213	17.3
Kumys	582	47.2	292	23.7	359	29.1
Soudjouk	474	38.4	550	44.6	209	17.0
Pastrami	464	37.6	536	43.5	233	18.9
Olive	377	30.6	640	51.9	216	17.5
Hardaliye	334	27.1	383	31.1	516	41.8

Table 4: Comparison of the students' consumption of traditional fermented foods according to parental consumption

Students consumption n (%)	Parental consumption				x^2	p
	Mother consumes n (%)	Father consumes n (%)	Both consume n (%)	Neither consume n (%)		
Beer						
Consuming 309 (25.1)	9 (90.0)	97 (68.8)	74 (79.6)	122 (12.4)	4.012	<0.001
Not consuming 924 (74.9)	1 (10.0)	44 (31.2)	19 (20.4)	860 (87.6)		
Boza						
Consuming 396 (32.1)	26 (74.3)	51 (71.8)	227 (78.8)	89 (10.7)	5.437	<0.001
Not consuming 837 (67.9)	9 (25.7)	20 (28.2)	61 (21.2)	743 (89.3)		
Sourdough bread						
Consuming 527 (42.7)	37 (75.5)	17 (73.9)	427 (84.2)	43 (6.6)	7.315	<0.001
Not consuming 706 (57.3)	12 (24.5)	6 (26.1)	80 (15.8)	604 (93.4)		
Hardaliye						
Consuming 124 (10.1)	12 (57.1)	9 (100.0)	27 (64.3)	76 (6.6)	2.824	<0.001
Not consuming 1109 (89.9)	9 (42.9)	0 (0.0)	15 (35.7)	1078 (93.4)		
Kefir						
Consuming 462 (37.5)	110 (79.1)	36 (64.3)	172 (79.6)	143 (17.5)	4.215	<0.001
Not consuming 771 (62.5)	29 (20.9)	20 (35.7)	44 (20.4)	672 (82.5)		
Kumys						
Consuming 58 (4.7)	1 (25.0)	1 (50.0)	0 (0.0)	56 (4.6)	13.217	0.004
Not consuming 1175 (95.3)	3 (75.0)	1 (50.0)	9 (100.0)	1156 (95.4)		
Bread with chickpea						
Consuming 159 (12.9)	15 (65.2)	11 (64.7)	74 (70.5)	57 (5.3)	4.653	<0.001
Not consuming 1074 (87.1)	8 (34.8)	6 (35.3)	31 (29.5)	1024 (94.7)		
Butter						
Consuming 834 (67.6)	50 (92.6)	27 (73.0)	698 (89.6)	52 (14.6)	6.430	<0.001
Not consuming 399 (32.4)	4 (7.4)	10 (27.0)	81 (10.4)	304 (85.4)		
Pickle						
Consuming 1076 (87.3)	23 (79.3)	958 (90.6)	18 (29.5)	70 (88.6)	1.947	<0.001
Not consuming 157 (12.7)	6 (20.7)	99 (9.4)	43 (70.5)	9 (11.4)		
Pastrami						
Consuming 598 (48.5)	38 (63.3)	460 (80.0)	61 (11.1)	32 (76.2)	5.540	<0.001
Not consuming 635 (51.5)	22 (36.7)	115 (20.0)	488 (88.9)	10 (23.8)		
Cheese						
Consuming 1223 (99.2)	11 (100.0)	2 (50.0)	1156 (99.3)	47 (100.0)	1.203	<0.001
Not consuming 10 (0.8)	0 (0.0)	2 (50.0)	28(0.7)	0 (0.0)		
Vinegar						
Consuming 749 (60.7)	29 (60.4)	614 (79.3)	30 (9.8)	69 (71.1)	4.501	<0.001
Not consuming 484 (39.3)	19 (39.6)	160 (20.7)	277 (90.2)	28 (28.9)		
Soudjouk						
Consuming 1042 (84.5)	48 (88.9)	889 (93.2)	39 (93.2)	49 (98.0)	4.876	<0.001
Not consuming 191 (15.5)	6 (11.1)	66 (6.8)	118 (75.2)	1 (2.0)		
Turnip juice						
Consuming 477 (38.7)	67 (53.6)	321 (78.1)	57 (8.8)	29 (65.9)	5.377	<0.001
Not consuming 756 (61.3)	58 (46.4)	90 (21.9)	589 (91.2)	15 (34.1)		
Wine						
Consuming 248 (20.1)	38 (55.1)	83 (80.6)	99 (9.6)	21 (80.8)	4.238	<0.001
Not consuming 985 (79.9)	31 (44.9)	20 (19.4)	929 (90.4)	5 (19.2)		
Tarhana						
Consuming 1015 (82.3)	22 (95.7)	902 (92.2)	35 (21.3)	52 (85.2)	4.913	<0.001
Not consuming 218 (17.7)	1 (4.3)	76 (7.8)	129 (78.7)	9 (14.8)		
Yoghurt						
Consuming 1209 (98.1)	13 (100.0)	1137 (98.2)	3 (60.0)	49 (98.0)	38.088	<0.001
Not consuming 24 (1.9)	0 (0.0)	21 (1.8)	2 (40.0)	1 (2.0)		
Olive						
Consuming 1147 (93.0)	22 (78.6)	1053 (95.0)	27 (56.2)	38 (92.7)	1.148	<0.001
Not consuming 86 (7.0)	6 (21.4)	56 (5.0)	21 (43.8)	3 (7.3)		

X^2 test

4 Discussion

To the best of our knowledge, this is the first study to elicit the TFF awareness, consumption status, and consumption related factors of university students in Turkey. It was determined that the majority of the students consumed TFF at home. Studying at health-related faculties was a positively affecting factor for the knowledge and consumption of TFF. The most frequently consumed TFF are yoghurt and cheese, olives, and pickle. While parent's consumption had a significant effect on the TFF consumption of the students, the type of accommodation had a limited effect.

The consumption of fermented foods is increasing worldwide [8], and TFF consumption and reasons for the increased consumption are being investigated. In a Korean study, the authors aimed to determine the superior characteristics of traditional foods over other foods. 744 consumers evaluated traditional foods in terms of nutritional value, habit, content, and taste. The participants under 20 years of age generally preferred traditional foods due to their nutritional value and

taste, while those over 20 years generally preferred traditional foods because of diversity [23]. In another study, it was found that 76.8% of university students studying in the departments of food service and culinary arts were reported to consume Korean traditional foods because they respected traditions, and all considered that traditional foods were superior in terms of nutritional value. In addition, not having enough time (47.2%) was shown as the reason for not preferring traditional foods [24]. In the current study, the university students consumed fermented foods due to their health benefits (31.9%) and taste (17.0%). It was found that 44.9% of the students did not consume fermented foods because they ignored them, 16.5% found them expensive, and 15.0% thought that they were unsavory. Therefore, it is considered that there is a need to support the consumption of TFF among the young population in Turkey to maintain both health benefits and preserve cultural characteristics.

Insufficient knowledge on TFF and increased industrialization have reduced the diversity of TFF and therefore consumers do not benefit from the health effects of these products [25]. It was reported that 61.4% of the consumers who asked for special healthy nutrition and diet advice were not sure whether they had information about functional foods, and 30% did not know about these products [26]. In the current study, it was found that 58.0% of the students knew the definition of TFF. The frequency of students having knowledge of the definition of TFF was higher among those studying in health-related faculties, because their education background. They obtained information about the beneficial effects of these products and importance of including them in their diet to maintain their health.

Many TFF are produced in Turkey and consumed at different frequencies within the framework of the dietary habits of the Turkish society [5]. According to the results of the Turkey Nutrition and Health Survey (TNHS) 2017, most individuals never consumed *tarhana* (27.1%), but in butter (30.9%), yoghurt and *ayran* (51.3%), and cheese (73.9%) which were consumed every day [27]. In the current study, cheese (99.6%), yoghurt (99.4%), olives (95.9%), and pickle (95.1%) were the most frequently consumed TFF. In TNHS 2017, the frequency of individuals who never consumed dairy probiotic products, such as *kefir* was determined to be 90.9% [27]. In our study, beer was consumed at a frequency of 20.4% and wine at 1 6.5%, while the least frequently consumed TFF were *hardaliye* (6.6%) and *kumys* (1.3%). Traditional fermented beverages being consumed at a lower frequency than foods may be due o the fact that these beverages being produced only at homes or by small-scale manufacturers in certain regions in Turkey and the tendency of the young generation to consume other popular beverages, such as industrial fruit juices, carbonated drinks, black tea, and mineral water [27, 28]. Furthermore, the food choices of university students are known to be affected by advertisements, social media, and the internet. Therefore, they tend to eat fast food that reduces TFF consumption [29].

Today, TFF continues to be produced at home with traditional methods and sold in local markets, as well as produced and offered to consumers in the food industry with the advances in food processing technologies [17]. In a study conducted in Korea, the results showed that university students frequently make traditional foods themselves (78.2%) or purchase them from traditional markets (58.6%) [24]. In the current study, we determined that the university students preferred cheese at a frequency of 76.4%, olives at 76.9% as an industrial product, yoghurt at 59.6%, and homemade pickle at 64.1%. These results show that some TFF are consumed at high frequencies in Turkey as homemade products, and the frequency of TFF consumption varies by product.

Family eating habits and the foods they like and dislike are effective in feeding a child from the early years of life through the adolescence period, and children tend to imitate the eating habits of their family members [11]. In a study conducted in Korea to investigate the awareness and satisfaction of traditional foods of primary, secondary, and high school students, the authors stated that primary school students were the most influenced by their parents, while middle school and high school students were the most affected by media and communication tools [30]. In another study conducted, with university students, in Korea to determine the effects of traditional foods on food selection, it was concluded that fast-food meals reduced traditional food consumption due to the popularity and taste of fast food meals[31]. In the same country, it was found that aiming to increase the consumption of TFF, the taste, nutritional value, and recipes of TFF products should be standardized (41.3%), kitchens should be modernized in accordance with the taste of people (56.1%), and the cuisine culture should be protected (61.4%) [24]. Studies conducted with university students in Turkey have shown that the consumption of fast food is elevated, and this is due to the shorter duration of preparation and consumption, taste, and low cost [32-34]. In the current study, it was determined that the TFF consumption of the university students was affected by parental consumption status, and that students' location did not affect their consumption of most TFF. This indicates that parental eating habits have a lasting impact on students' TFF consumption, while type of accommodation is not a related factor.

Awareness and consumption of TFF are affected by the preferences of Generation Z, which has a significant portion of purchasing power today. Generation Z, defined as those born after 1997 by demographers, is of great importance for food producers, but it is also necessary to understand the dietary habits and food preferences of this generation [35]. Generation Z likes a variety of international cuisines and prefers fast and easily prepared foods and is eager to attempt high-quality foods. In addition, the consumption habits of Generation Z include organic, natural, and additive-free foods that can be quickly and easily prepared and have low brand loyalty [36].

The limitation of our study is that it was carried out in a single university in Turkey. Despite this, the large sample size, inclusion of students from all departments of the university, and representation of the population in the most cosmopolitan city in the country constitute the strengths of the study.

Table 5: Comparison of the students' consumption of traditional fermented foods according to their type of accommodation

Fermented food product	Residence				x^2	p
	Living with family	Living with friends or alone at home	Staying in a dormitory	Staying with a relative		
	n (%)	n (%)	n (%)	n (%)		
Beer						
Consuming	130 (24.9)	107 (34.7)	61 (16.5)	4 (15.4)	31.207	<0.001
Not consuming	393 (75.1)	201 (65.3)	308 (83.5)	22 (84.6)		
Boza						
Consuming	185 (35.4)	98 (31.8)	106 (28.7)	4 (15.4)	7.846	0.049
Not consuming	338 (64.6)	210 (68.2)	263 (71.3)	22 (84.6)		
Sourdough bread						
Consuming	224 (42.8)	126 (40.9)	165 (44.7)	9 (34.6)	1.713	0.634
Not consuming	299 (57.2)	182 (59.1)	204 (55.3)	17 (65.4)		
Hardaliye						
Consuming	49 (9.4)	38 (12.3)	36 (9.8)	1 (3.8)	3.170	0.366
Not consuming	474 (90.6)	270 (87.7)	333 (90.2)	25 (96.2)		
Kefir						
Consuming	188 (35.9)	134 (43.5)	128 (34.7)	11 (42.3)	6.768	0.080
Not consuming	335 (64.1)	174 (56.5)	241 (65.3)	15 (57.7)		
Kumys						
Consuming	20 (3.8)	19 (6.2)	18 (4.9)	1 (3.8)	2.430	0.488
Not consuming	503 (96.2)	289 (93.8)	351 (95.1)	25 (96.2)		
Bread with chickpea						
Consuming	56 (10.7)	48 (15.6)	50 (13.6)	3 (11.5)	4.412	0.220
Not consuming	467 (89.3)	260 (84.4)	319 (86.4)	23 (88.5)		
Butter						
Consuming	347 (66.3)	202 (65.6)	264 (71.5)	14 (53.8)	5.799	0.122
Not consuming	176 (33.7)	106 (34.4)	105 (28.5)	12 (46.2)		
Pickle						
Consuming	453 (86.6)	265 (86.0)	330 (89.4)	21 (80.8)	3.139	0.371
Not consuming	70 (13.4)	43 (14.0)	39 (10.6)	5 (19.2)		
Pastrami						
Consuming	225 (48.8)	157 (51.0)	164 (44.4)	15 (57.7)	4.037	0.257
Not consuming	268 (51.2)	151 (49.0)	205 (55.6)	11 (42.3)		
Cheese						
Consuming	521 (99.6)	304 (98.7)	365 (98.9)	26 (100.0)	2.644	0.450
Not consuming	2 (0.4)	4 (1.3)	4 (1.1)	0 (0.0)		
Vinegar						
Consuming	332 (63.5)	170 (55.2)	223 (60.4)	17 (65.4)	5.832	0.120
Not consuming	191 (36.5)	138 (44.8)	146 (39.6)	9 (34.6)		
Soudjouk						
Consuming	442 (84.5)	256 (83.1)	315 (85.4)	22 (84.6)	0.653	0.884
Not consuming	81 (15.5)	52 (16.9)	54 (14.6)	4 (15.4)		
Turnip juice						
Consuming	188 (35.9)	126 (40.9)	149 (40.4)	11 (42.3)	2.887	0.409
Not consuming	335 (64.1)	182 (59.1)	220 (59.6)	15 (57.7)		
Wine						
Consuming	95 (18.2)	88 (28.6)	54 (14.6)	4 (15.4)	22.430	<0.001
Not consuming	428 (81.8)	220 (71.4)	315 (85.4)	22 (84.6)		
Tarhana						
Consuming	441 (84.3)	247 (80.2)	302 (81.8)	21 (80.8)	2.494	0.476
Not consuming	82 (15.7)	61 (19.8)	67 (18.2)	5 (19.2)		
Yoghurt						
Consuming	514 (98.3)	300 (97.4)	362 (98.1)	26 (100.0)	1.336	0.721
Not consuming	9 (1.7)	8 (2.6)	7 (1.9)	0 (0.0)		
Olive						
Consuming	492 (94.1)	284 (92.2)	340 (92.1)	24 (92.3)	1.655	0.647
Not consuming	31 (5.9)	24 (7.8)	29 (7.9)	2 (7.7)		

X^2 test

5 Conclusions

Parents' TFF consumption and lifestyle having a high effect on students' high awareness and consumption status of TFF indicates that the traditional family structure is still preserved. Students mostly consume TFF without any changes according to the season. Studying at health-related facilities positively affects students' awareness and consumption of TFF. In addition, information that will positively affect the awareness and consumption of TFF products in society should be presented through health professionals using written and visual media, as increased knowledge and awareness of the health benefits and

methods of TFF production will ensure the consumption continuity of these products among the upcoming generations.

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