
Research Article**Comparison of the functional food knowledge-awareness levels and consumption frequencies of university students****Hulya Demir^{1*}, Başak Karakaya²**^{1,2}Yeditepe University, Faculty of Health Science, Department of Nutrition and Dietetic, 34755, İstanbul/Turkey**Abstract:**

Aim: The increase in the level of education brings with it many behavioral changes such as healthy nutrition in food purchasing behavior, flexibility against new products. The aim of this study is to create a perspective on whether nutrition and dietetics students' knowledge and awareness levels and functional frequencies are changed with theoretical knowledge.

Material and Method: The study consists of 1st and 4th year students in Nutrition and Dietetics Department studying in Private University. The number of students willing to participate voluntarily is 99. 55 (55.6%) of the students were in the 1st grade and 44 (44.4%) were in the 4th grade. The questionnaire used in the study was composed of parts such as demographic characteristics of the students and questions about functional food, functional food sections and the section on measuring the consumption frequency, judgments about functional foods, opinions about whether to prefer functional foods.

Results: When the study is examined according to educational level, 16,4% of 1st year students and 77.3% of 4th grade students have previously heard and are familiar with the term functional food. In this case, the rate of hearing the term functional food of 4th grade students was found to be statistically significantly higher than the first year students who have not yet received sufficient academic education. When the percentages of the 1st grade students were not aware of the functional foods and they did not know enough about the function of the product, the rate of not choosing was significantly higher than the 4th grade students.

Keywords: Nutrition education, food preference, functional foods**Introduction**

In recent years, due to reasons such as globalization, commercialization, population growth and urbanization, it has paved the way for significant changes in consumer demand for food products [1]. Increasing healthy lifestyles, health problems and high treatment costs for this purpose to turn to natural food sources every day in the food industry to provide new products to the market [2]. Functional foods are one of the fastest in the market in this new product chain. Functional foods, as well as the nutritional requirements of the components they contain, as well as health, including biological elements, which can be effective in protecting the disease, which can have a negative impact on the life function of the items that are free of quality and improve the quality of food [3]. The concept of functional food first emerged in order to overcome the problems caused by the inadequate natural resources of Japan and to provide sustainable and good nutrition. The functional nutrients that the Japanese called FOSHU (Foods For Specific Health Use) began to be discussed in the USA in the early 1990s and in Europe in the mid-1990s. The US, Japan and EU countries both produce and consume approximately half of the functional food market.

There is no complete consensus on the definition of functional food. Because all foods are considered functional food because of the energy and nutrients they contain(4). While the functional food market in the world is expanding, the most remarkable market area has been the probiotic products market. functional food industry in Turkey; milk and milk

products, margarines, fruit juices and nectars, biscuits / crackers and herbal teas, food groups come forward [5]. Recently, companies have been developing new products at a great speed and launching functional food products one after the other. The area covered by this category on the market shelves is rapidly expanding and product variety is increasing [4]. There are many reasons why consumers have a positive approach and buy into functional foods. Consumers no longer treat a disease rather than taking measures to prevent it more important than in the past. In addition, consumers have begun to become more aware of the relationship between functional nutrients and their health, with the scientific evidence of the multifaceted benefits of functional nutrients [2].

The aim of this study is to create a perspective on whether or not nutrition and dietetics students' knowledge and awareness levels and functional frequencies are changed with theoretical knowledge.

Material and Method

The research was conducted at Foundation University Faculty of Nutrition and Dietetic Department, which is studying between January 2018 and February 2018. The number of students willing to participate voluntarily is 99. 91 of the 99 participants were female and 8 were male. In the study, the stratified random sampling method was used. Participants are between the ages of 17-25. Approval of the Ethics Committee of the institution was taken. KAEK Resolution No: 22481095-020-1916. Data Form was prepared after searching with

related keywords of this research. Science Direct, PubMed databases and the Turkish and international journals were used as sources. That form including information on “awareness survey for the functional foods.” was used to collect the data of the study. The informed Volunteer Consent Form has been read and signed before filling out. A statistical data analysis program called IBM SPSS Statistics 24 is used [6]. Frequency tables and descriptive statistics were also used in the interpretation of findings. In the analysis of the relations between two qualitative variables, "χ²-cross tables" were used according to the expected value levels (Pearson, Yates-

continuity correction). Significance in the study was accepted as p <0.05.

Findings

The research was conducted on 99 students studying at Nutrition and Dietetic Department. The ages of the students ranged from 17 to 25, with an average of 20.88±2.21 years. While 8.1% of the students were male, 91.9% were female. 55.6% of the students were first grade and 44.4% of them were 4th grade. It was stated in the Table 1.

Table 1. General characteristics distribution

		n	%
Age <i>Min-Max, Ort±SS</i>		17-25	20,88±2,21
Gender	Male	8	8,1
	Female	91	91,9
Grade	1st grade	55	55,6
	4th grade	44	44,4
Marital Status	Single	97	98
	Married	2	2
Residence	With my family	44	44,4
	Student house	37	37,4
	Dormitory	18	18,2
Monthly earning	<800 TL	16	16,2
	800 TL-2500 TL	35	35,4
	2500-5000 TL	26	26,3
	>5000 TL	22	22,2
Control over health	Very	36	36,4
	Middle	60	60,6
	Low	3	3
Hear the term functional food	Yes	43	43,4
	No	28	28,3
	I'm not sure	28	28,3
The first place where the term functional food is heard (n=43)	TV	1	2,3
	Newspapers and magazines	2	4,7
	Internet	2	4,7
	Health workers	1	2,3
	Neighborhood / Friends	2	4,7
	School/University	32	74,4
	Shopping at the market	1	2,3
	I dont remember	2	4,7
	Making food products beneficial to the body		
by various methods	22	51,2	
How do you define functional foods (n=43)	Functional products	16	37,2
	Useful products for the body	3	7
	Natural products	2	4,7

The distribution of food consumption frequencies of students is shown in Table 2.

Table 2. Distribution of Funtional Food Consumption Frequencies

	I've never heard of it and never used it	I heard, but never used	I've tried a few times but I don't use	I rarely use / occasionally	I use it often
	n (%)	n (%)	n (%)	n (%)	n (%)
Energy Reduced Milk	31 (%31,3)	33 (%33,3)	9 (%9,1)	16 (%16,2)	10 (%10,1)
High Protein Milk	5 (%5,1)	51 (%51,5)	16 (%16,2)	16 (%16,2)	11 (%11,1)
Vitamin, mineral supplemented milk	18 (%18,2)	54 (%54,5)	13 (%13,1)	9 (%9,1)	5 (%5,1)
Dietary fiber biscuits with increased fiber content	5 (%5,1)	11 (%11,1)	24 (%24,2)	33 (%33,3)	26 (%26,3)
Energy-reduced cheese	36 (%36,4)	35 (%35,4)	9 (%9,1)	15 (%15,2)	4 (%4)
Energy-reduced yogurt	39 (%39,4)	31 (%31,3)	10 (%10,1)	15 (%15,2)	4 (%4)
Sports foods	7 (%7,1)	65 (%65,7)	11 (%11,1)	10 (%10,1)	6 (%6,1)
Yoghurt to help digestion (probiotic yoghurt)	5 (%5,1)	25 (%25,3)	17 (%17,2)	32 (%32,3)	20 (%20,2)
Probiotic milk	14 (%14,1)	35 (%35,4)	20 (%20,2)	20 (%20,2)	10 (%10,1)
Green tea	1 (%1)	6 (%6,1)	7 (%7,1)	35 (%35,4)	50 (%50,5)
Digestive teas (laxative)	12 (%12,1)	33 (%33,3)	22 (%22,2)	17 (%17,2)	15 (%15,2)
Omega 3-added oil	10 (%10,1)	44 (%44,4)	24 (%24,2)	13 (%13,1)	8 (%8,1)
Energy drinks	4 (%4)	46 (%46,5)	31 (%31,3)	11 (%11,1)	7 (%7,1)
Whole-grain cereals, muesli	1 (%1)	6 (%6,1)	15 (%15,2)	46 (%46,5)	31 (%31,3)
Dark chocolate	3 (%3)	4 (%4)	17 (%17,2)	41 (%41,4)	34 (%34,3)
Soybean	4 (%4)	49 (%49,5)	35 (%35,4)	10 (%10,1)	1 (%1)
Ginseng	17 (%17,2)	55 (%55,6)	18 (%18,2)	4 (%4)	5 (%5,1)
Mineral water	1 (%1)	5 (%5,1)	13 (%13,1)	38 (%38,4)	42 (%42,4)
Teeth whitening chewing gum	27 (%27,3)	52 (%52,5)	10 (%10,1)	6 (%6,1)	4 (%4)
Bread enriched with vitamins and minerals	17 (%17,2)	25 (%25,3)	18 (%18,2)	24 (%24,2)	15 (%15,2)
Sodium Reduced Salt	13 (%13,1)	46 (%46,5)	19 (%19,2)	15 (%15,2)	6 (%6,1)
Cholesterol-lowering margarines	42 (%42,4)	48 (%48,5)	5 (%5,1)	3 (%3)	1 (%1)
Omega 3 / selenium enriched eggs	42 (%42,4)	33 (%33,3)	8 (%8,1)	6 (%6,1)	10 (%10,1)

Salmon	2 (%2)	15 (%15,2)	18 (%18,2)	39 (%39,4)	25 (%25,3)
Tomato	2 (%2)	3 (%3)	2 (%2)	12 (%12,1)	80 (%80,8)
Red berries (blackberry, raspberry, strawberry, raspberry)	1 (%1)	2 (%2)	6 (%6,1)	35 (%35,4)	55 (%55,6)
Garlic	1 (%1)	7 (%7,1)	10 (%10,1)	40 (%40,4)	41 (%41,4)
Ginger	2 (%2)	8 (%8,1)	24 (%24,2)	44 (%44,4)	21 (%21,2)

Table 3. Evaluation of functional food terms between classes and defining functional foods

		1st grade n (%)	4th grade n (%)	p
Hearing Functional Food Term	Yes	9 (%16,4)	34 (%77,3)	¹ 0,000*
	No	24 (%43,6)	4 (%9,1)	
	I am not sure	22 (%40)	6 (%13,6)	
Making food products beneficial to the body by various methods		5 (%55,6)	17 (%50)	² 0,635
How do you define functional foods	Functional products	3 (%33,3)	13 (%38,2)	
	Useful products for the body	0 (%0)	3 (%8,8)	
	Natural products	1 (%11,1)	1 (%2,9)	

¹Ki-kare test ²Fisher freeman halton test *p<0.05

As seen in Table 3, the rate of hearing the functional food term of 4th grade students (77.3%) was found to be significantly higher than the 1st grade students (16.4%) (p: 0.000; p <0.05). There was no statistically significant difference between the classes in terms of distribution rates of functional foods (p> 0.05).

Table 4: Evaluation of consumption frequencies of functional foods among classes

	1st grade Ort±SS (median)	4th grade Ort±SS (median)	p
Energy Reduced Milk	1,96±1,14 (2)	2,95±1,4 (3)	0,000*
High Protein Milk	2,38±0,91 (2)	3,25±1,2 (3)	0,000*
Vitamin, mineral added milk	1,98±0,78 (2)	2,66±1,18 (2)	0,003*
Dietary fiber biscuits with increased fiber content	3,76±1,09 (4)	3,5±1,19 (3)	0,218
Energy-reduced cheese	2±1,25 (2)	2,34±1,1 (2)	0,047*
Energy-reduced yoghurt	1,84±1,1 (1)	2,5±1,25 (2)	0,003*
Sports foods	2,25±0,8 (2)	2,64±1,14 (2)	0,095
Yoghurt to help digestion(probiotic)	3,04±1,19 (3)	3,8±1,11 (4)	0,002*
Probiotic milk	2,25±0,99 (2)	3,41±1,19 (4)	0,000*
Green tea	4,33±0,84 (5)	4,23±1,01 (5)	0,795
Digestive teas(laxative)	3,02±1,3 (3)	2,75±1,22 (2)	0,281
Omega 3-added oil	2,65±1,02 (2)	2,64±1,18 (2)	0,806

Energy drink	2,73±0,89 (3)	2,68±1,07 (2)	0,626
Whole-grain cereals, muesli	4,13±0,84 (4)	3,86±0,95 (4)	0,159
Dark chocolate	4,13±0,82 (4)	3,84±1,14 (4)	0,317
Soybean	2,51±0,74 (2)	2,59±0,82 (3)	0,616
Ginseng	2,13±0,92 (2)	2,39±0,99 (2)	0,162
Mineral Water	4,31±0,77 (4)	3,98±1,05 (4)	0,141
Teeth whitening chewing gum	1,93±0,86 (2)	2,25±1,12 (2)	0,187
Bread enriched with vitamins and minerals	2,98±1,38 (3)	2,91±1,31 (3)	0,787
Sodium reduced salt	2,71±1,13 (2)	2,34±1,01 (2)	0,096
Cholesterol-lowering margarines	1,67±0,67 (2)	1,77±0,91 (2)	0,891
Omega 3 / selenium enriched eggs	1,95±1,3 (2)	2,25±1,28 (2)	0,119
Salmon	3,78±1,03 (4)	3,61±1,13 (4)	0,491
Tomato	4,73±0,73 (5)	4,59±0,95 (5)	0,412
Red berries	4,51±0,69 (5)	4,32±0,88 (5)	0,287
Garlic	4,24±0,77 (4)	4,02±1,11 (4)	0,609
Ginger	3,55±0,88 (4)	4±0,99 (4)	0,010*

Mann Whitney U Test **p*<0.05

As seen in Table 4, energy-reduced milk consumption ratio of 4th grade students was found to be statistically higher than 1st grade students(*p*:0.000; *p*<0.05). High Protein milk consumption ratio of 4th grade students was found to be statistically higher than 1st grade students(*p*:0.000; *p*<0.05). Vitamin, mineral added milk consumption ratio of 4th grade students was found to be statistically higher than 1st grade students(*p*:0.003; *p*<0.05). Energy-reduced cheese consumption ratio of 4th grade students was found to be statistically higher than 1st grade students(*p*:0.047; *p*<0.05). Energy-reduced yoghurt consumption ratio of 4th grade students was found to be statistically higher than 1st grade students(*p*:0.003; *p*<0.05). Probiotic yoghurt consumption ratio of 4th grade students was found to be statistically higher than 1st grade students(*p*:0.002; *p*<0.05). Probiotic milk consumption ratio of 4th grade students was found to be statistically higher than 1st grade students(*p*:0.002; *p*<0.05). Ginger consumption ratio of 4th grade students was found to be statistically higher than 1st grade students(*p*:0.010; *p*<0.05). There was no statistically significant difference between the classes in terms of the use of other nutrients (*p*>0.05).

Table 5. Evaluation of participation status among classrooms related to functional foods

		1st grade	4th grade	<i>p</i>
		<i>n</i> (%)	<i>n</i> (%)	
Functional foods are healthy foods	I agree	31 (%56,4)	37 (%84,1)	¹ 0,006*
	I dont agree	24 (%43,6)	7 (%15,9)	
People become healthier if they consume functional food	I agree	26 (%47,3)	24 (%54,5)	² 0,472
	I dont agree	29 (%52,7)	20 (%45,5)	
Regular use of functional foods improves quality of life	I agree	28 (%50,9)	37 (%84,1)	¹ 0,001*
	I dont agree	27 (%49,1)	7 (%15,9)	
Functional foods are low calorie	I agree	28 (%50,9)	12 (%27,3)	¹ 0,030*
	I dont agree	27 (%49,1)	32 (%72,7)	
Functional foods reduce the risk of obesity	I agree	24 (%43,6)	24 (%54,5)	² 0,280
	I dont agree	31 (%56,4)	20 (%45,5)	
Functional foods have a debilitating effect	I agree	14 (%25,5)	18 (%40,9)	¹ 0,156
	I dont agree	41 (%74,5)	26 (%59,1)	

The food should be used if the taste is poor but functional	I agree	15 (%27,3)	18 (%40,9)	¹ 0,224
	I dont agree	40 (%72,7)	26 (%59,1)	
Functional foods are superior products based on the foundations of science	I agree	30 (%54,5)	26 (%59,1)	¹ 0,803
	I dont agree	25 (%45,5)	18 (%40,9)	
Functional food consumption can significantly protect people from diseases	I agree	29 (%52,7)	21 (%47,7)	² 0,621
	I dont agree	26 (%47,3)	23 (%52,3)	
It is safe to consume functional foods	I agree	28 (%50,9)	29 (%65,9)	¹ 0,195
	I dont agree	27 (%49,1)	15 (%34,1)	
Functional foods fulfill what they promise	I agree	25 (%45,5)	24 (%54,5)	² 0,369
	I dont agree	30 (%54,5)	20 (%45,5)	
I don't think the benefits of functional food products are overrated	I agree	21 (%38,2)	27 (%61,4)	¹ 0,037*
	I dont agree	34 (%61,8)	17 (%38,6)	
Development of functional food market should be supported by the authorities	I agree	27 (%49,1)	25 (%56,8)	¹ 0,574
	I dont agree	28 (%50,9)	19 (%43,2)	
I find functional foods delicious	I agree	22 (%40)	26 (%59,1)	¹ 0,092
	I dont agree	33 (%60)	18 (%40,9)	
I find functional food prices too expensive	I agree	41 (%74,5)	30 (%68,2)	¹ 0,635
	I dont agree	14 (%25,5)	14 (%31,8)	
I'm not bothered to pay more money to functional foods than to other foods	I agree	7 (%12,7)	21 (%47,7)	¹ 0,000*
	I dont agree	48 (%87,3)	23 (%52,3)	
It is not appropriate for children to consume functional foods	I agree	30 (%54,5)	10 (%22,7)	¹ 0,003*
	I dont agree	25 (%45,5)	34 (%77,3)	
Functional foods can be harmful to health when over-consumed	I agree	50 (%90,9)	28 (%65,1)	¹ 0,004*
	I dont agree	5 (%9,1)	15 (%34,9)	

¹Continuity (yates)correction ²Ki-kare test *p<0.05

As seen in Table 5, the rate of participation of 1st grade students in the claim that functional foods are healthy foods (56.4%) was found to be statistically lower than the 4th grade students (84.1%) (p: 0.006; p <0.05). 1st grade students regular use of functional foods improves quality of life (50,9%) was found to be statistically lower than 4th grade students (84.1%) (p: 0.001; p <0.05). The participation rate of the 1st grade to the claim that functional foods are low calorie (50,9%) was found to be significantly higher than the 4th grade students (27,3%) (p: 0.030; p <0.05). The rate of participation of the 1st grade students in the claim that (I do not think that the benefit of functional food products is overestimated rate was found to be significantly lower (38,2%) than the 4th grade students (61,4%) (p: 0.037; p <0.05). The participation rate of the 1st grade students to the claim that I am not bothered to pay more food to the functional foods than other foods (12,7%) was found to be statistically lower than the 4th grade students (47,7%) (p: 0.000; p <0.05). The 1st grade students' participation rate was 54,5% and 4th grade students (22,7%) were found to be statistically significant (p: 0.003; p <0.05). The rate of participation of 1st grade students in the claim that (Functional foods can be harmful to health when over-consumed. 1 was found to be statistically significant (90,9%) and 4th grade (65,1%) was statistically significantly higher (p: 0.004; p <0.05). There was no statistically significant difference between the classes in terms of the rates of participation in functional foods related to other claims (p> 0.05).

Table 6. Evaluation of reasons to prefer functional foods among classes

	1st grade	4th grade	p
	n (%)	n (%)	
Doctor or nutritionist for advice	8 (%14,5)	13 (%30,2)	¹ 0,103

I'm curious / interested	14 (%25,5)	25 (%58,1)	¹ 0,002*
Because they are popular	3 (%5,5)	7 (%16,3)	² 0,100
I like the taste	9 (%16,4)	9 (%20,9)	¹ 0,752
I received advice about my environment	7 (%12,7)	12 (%27,9)	¹ 0,103
To delay aging	1 (%1,8)	5 (%11,6)	² 0,084
To improve my physical performance	7 (%12,7)	12 (%27,9)	¹ 0,103
To avoid medical treatment	6 (%10,9)	11 (%25,6)	¹ 0,102
To help weaken	6 (%10,9)	8 (%18,6)	¹ 0,430
Cholesterol, blood pressure, heart disease, diabetes, cancer to prevent diseases such as	3 (%5,5)	17 (%39,5)	¹ 0,000*
To strengthen my digestive system	11 (%20)	23 (%53,5)	¹ 0,001*
To improve my mental state	4 (%7,3)	9 (%20,9)	¹ 0,093
For bone health	8 (%14,5)	10 (%23,3)	¹ 0,400

¹Continuity (yates) correction ²Fisher's exact test *p<0.05

As seen in Table 6, as the first year students wondered / interested in functional foods (25,5%), grade 4 students (58,1%) were found to be statistically significant (p: 0.002; p <0.05). The rate of preference of 1st grade students for protection of functional foods from diseases such as cholesterol, blood pressure, heart diseases, diabetes and cancer was found to be statistically lower (5,5%) and lower than 4th grade students (39,5%) (p: 0.000; p <0.05).).

Discussion and Conclusion

Of the 99 participants who agreed to participate in the study voluntarily, 8 (8.1%) were male and 91 (91.9%) were female. It was found that the age of the students varied between 17-25 and the average age was 20.88±2.21. This numerical difference between female participants and male participants is related to the higher number of female students studying at Nutrition and Dietetics Department than male students. 55 (55.6%) of the students were in the 1st grade and 44 (44.4%) were in the 4th grade.

In the studies conducted in many different countries and consumer demographics, the majority of consumers were found to be foreign to the concept of functional food. In a study conducted in Germany, the UK, Poland and Spain; 20.7% of consumers in Germany, 19.1% of consumers in Poland, 33% of Spain and 10.7% of those in the UK stated that they heard the term functional food [7]. Besides, some of the consumers who know that they know the functional foods have not been able to give examples towards functional food products and brands. In a study conducted in Adana, 50,7% of the participants stated that they knew the foods in the questionnaire, but they did not know that they were called functional food and 18.9% did not know the functional foods [2]. In a study conducted in Italy by Vicentini et al. More than 75% of consumers in the UK, Germany and France have never

heard of the term " functional food ", but more than 50% of them have been fed to products in the functional food category even if they don't know it. given. In addition, studies show the existence of a relationship between functional food consumption and education [8].

In a US study, it was found that functional food consumers were highly educated; It has been seen that the richness of information about functional foods is related to education. In another study conducted in Finland, there are findings that consumers with higher education levels are more positive towards functional foods and are looking for more nutrients that benefit health. The increase in the level of education brings with it many behavioral changes such as healthy nutrition in food purchasing behavior, flexibility against new products and tendency to ready food consumption [2,5]. When the study is examined according to educational level, 16,4% of 1st grade student and 77.3% of 4th grade students have previously heard and are familiar with the term functional food. In this case, the rate of hearing the functional food term of the 4th grade students was found to be statistically higher than the 1st grade students who have not yet received sufficient academic education. At the same time, 74,4% of the students who stated that they had heard of the definition of functional food stated that they heard this definition for the first time at the school / university.

Dairy products are the most preferred products in the world functional food market with 53%. This category includes yoghurt products, probiotic, prebiotics and fermented milk drinks that relax intestinal functions. In the second place, 40% of all wheat and high-fiber products are included. In the functional food industry in Turkey; food groups such as milk and milk products, biscuits / crackers and herbal teas come to the fore [9]. In a study conducted in Germany, Germany, Poland, Spain and the UK said that three out of four consumers previously used functional food products. Functional milk and milk products, which are the most preferred functional nutrients, are followed by functional baked foods, functional beverages and fiber cereals [2,8]. In the study, the most preferred functional products are natural foods such as tomatoes, ginger, garlic; green tea, mineral water, bitter chocolate, increased biscuit and cereals and probiotic yogurt. 1st students ate 70.9% fiber-enriched biscuits/crackers, 81.8% fiber-enriched breakfast cereals, 41.8% probiotic yogurt, 87.3% green tea, 85.5% mineral water, 81.8% bitter chocolate, 94.5% tomato, 90.9% garlic, 60% ginger. The students stated that 45.5% of the students used fiber-enriched biscuits/crackers, 72.7% fiber-enriched breakfast cereals, 65.9% probiotic yoghurt, 84.1% green tea, 75% mineral water, 68.2% bitter chocolate, 90.9% tomato, 70.5% garlic, 72.7% ginger. The least preferred functional foods were athlete foods, soybeans, ginseng, tooth whitening gums, and cholesterol-lowering margarines. 1st grade students 12.7%, athletes ' food, 10.9%, soy beans, 7.3%, ginseng, 5.5%, tooth whitening gum, 1.8% cholesterol-lowering margarine, they use, 4.20.5% of the class students stated that they were using sports foods, 11.4% soy beans, 1.4% ginseng, 15.9% tooth whitener gum, 6.8% cholesterol-lowering margarine.

The general judgments and perceptions in the society for functional foods are one of the most important factors determining the behaviors of consumers towards functional food products [9]. In this study, the attitudes of some consumers to determine their positive and negative attitudes towards functional foods were examined. Functional foods are healthy foods, regular use of functional foods improves quality of life and it is safe to consume functional foods; the most selected negative judgments find functional foods expensive and functional foods can be detrimental to health if they are over-consumed. 1st grade students 56.4% of the are functional foods, 50.9% of them use functional foods on a regular basis improves the quality of life, 50.9% of them are safe to consume functional foods, 74.5% find functional foods expensive and 90.9% functional foods can be harmful to health when over-consumed and 84.1% of the 4th grade students are healthy foods, 84.1% use of functional foods on a regular basis improves the quality of life, 65.9% are safe to consume functional foods, 68.2% find functional foods expensive and 65.1% stated that they participated in the statement that functional foods could be harmful to health when consumed excessively. In terms of percentages, functional foods of 1st grade students are low calorie, it is not

appropriate for children to consume functional foods and functional foods can be harmful to health when consumed excessively. Percentages of participation in expressions are significantly higher than 4th grade students; functional foods are healthy foods, regular use of functional foods improves quality of life, I don't think the benefit of functional food products is overrated, it is seen that the percentage of participating in the expression of functional foods is not uncomfortable to pay more than other foods and the percentages are significantly lower.

However it is not always easy to understand the level of knowledge gained by the consumer in respect of these foods and the reasons behind the decision to buy/not to buy, generally the driving forces of the consumption of functional foods are; better customer attitudes to wellbeing and health-consciousness, intensive marketing campaigns and the symptoms of obesity and obesity-related diseases [7,10]. In a study conducted in the province of Adana, consumers consumed the most functional foods; among the reasons for not choosing the product are the reasons for not choosing the product, correcting the digestive problems, healthy bone development and energy supply, and the reasons for the high price [11]. Those who tend to prefer functional foods are generally well-educated, well-informed and have high-class material levels [12,13]. In the study, the most preferred reasons for preferring functional foods were the ones I was curious about / interested in. They had options for protection from diseases such as cholesterol, blood pressure, heart disease, diabetes, cancer and to strengthen my digestive system. 25.5% of the first year students wondered / interested in 5.5%, cholesterol, blood pressure, heart disease, diabetes, cancer, such as protection from diseases, 20% of the digestive system to strengthen the functional foods that they prefer, 4th grade 58.1% of the students stated that they were interested / interested and 39.5% of them preferred functional foods in order to protect against cholesterol, blood pressure, heart diseases, diabetes, cancer and 53.5% of them to strengthen the digestive system. . When the percentages were examined, it was observed that the preference ratio of the 1st grade students to the functional foods was significantly lower than the 4th grade students in order to protect from the diseases such as cholesterol, blood pressure, heart diseases, diabetes, cancer and strengthen the digestive system.

Since I am not aware of the product, the most preferred reasons for not opting for functional foods are because I do not know enough about the function of the product, because I think the functions of the products are exaggerated and because they are expensive. 41.8% of the 1st grade students did not know the product, 54.5% did not know enough about the function of the product, 14.5% thought that the functions of the products were exaggerated, 1.8% because they found the products expensive; While the students of the fourth year, 16.3% were not aware of the product, 25.6% did not know enough about the function of the product, 30.2% thought that the functions of the products were exaggerated, and 25.6% of the products were expensive. When the percentages of the 1st

grade students were not aware of the functional foods and they did not know enough about the function of the product, the rate of not choosing was significantly higher than the 4th grade students, It was found that the rate of non-preferred was significantly lower than the 4th grade students, because it was not easy to obtain and expensive.

Functional foods generate one of the most promising and dynamically developing segments of food industry. Although in many countries most of the consumers are still not familiar to “functional food” or similar phrasing, they show a high agreement to the concept because consumers more and more believe that foods contribute directly to their health. The functional food field can develop significantly in the positive direction and contribute to the health of people. In the future, these type of foods can play an important role in the fight against common diseases of today, such as obesity and cancer. The functional food market development is influenced by the degree of culture, education and acceptance of functional food. It is essential to gain a better understanding of the people’s demand and eating habits to buy functional foods before product development. Due to the limited consumers’ knowledge, education and awareness of the health effects of newly developed functional ingredients, there are strong needs for specific information and communication activities to consumers in this respect. In the last years consumer demands in the food consumption has changed considerably and development and commerce of functional food products is complex, expensive and risky therefore demands of the consumers should be taken into consideration in the innovation processes of functional products [14,15].

Functional foods, completely constituted by adding bioactive substances which obtained from natural nutrients and plants, don’t have negative impacts in terms of health. But functional foods mustn’t be considered as miracle foods and should be consumed within a balanced diet that includes a variety of foods in order to benefit from its positive impacts on our health. Claims of functional foods can only be possible if they are consumed in the right scope and quantities. To achieve the goal of food intakes in a context of a healthy diet, to optimize health and to reduce the risk of potentially preventable diseases, consulting services about taking of proper functional foods should be offered to consumers. Otherwise, there is a risk of nutrition disorder emergence. While considering the health utility of a certain food, apart from its macro and micro-nutritional elements we have to consider its physiological active ingredients or herbal additives.

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