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Knowledge of Food Literacy and Food Safety Among Turkish Adults

ORIGINAL ARTICLE

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ABSTRACT

Objective: Having information about food safety and food literacy enables us to access healthy food. Nutrition and food habits are some of the most basic factors that affect human health. It will be a big step forwards in terms of public health to measure and influence consumers' knowledge about accessing safe food and food literacy. The aim of the present study was to measure consumers' knowledge about food safety and food literacy and to determine the factors that affect them.

Materials and Methods: The study was conducted on adults (over the age of 18 years old) in Kayseri City, Turkey between March and April 2016. A sample size of 1600 was calculated. A literature-based questionnaire form method was used to collect data. A chi-square test was used to evaluate and analyze categorical data.

Results: A total of 1592 people participated in the study. The mean age was 36.83 ± 13.67 years. Knowledge of food safety and food literacy was 47.7% and 36.2%, respectively. The more people are educated, the higher the ratio of knowledge on food literacy and food safety is. The highest ratios were 54.0% and 47.7%, respectively, at college educational level. It was determined that scientists, medical personnel, and scientific magazines were the most reliable sources of information about food safety with 78.1%, 69.7%, and 65.9%, respectively.

Conclusion: The present study found that education is an important factor in the access and consumption of healthy food. Since they are the most reliable sources of information, scientists and medical personnel are responsible for raising awareness on how to access healthy food.

Keywords: Food safety, food literacy, consumers' attitude, food preferences

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INTRODUCTION

Nutrition is one of the factors affecting human health. Healthy growth and development is possible with healthy foods (1). Keeping in mind that nutritional status can cause obesity and chronic diseases, food can be considered as a risk factor (2). Currently, most of the foodstuffs that reach consumers are industrially processed. Until the food reaches consumers, which processes are involved, what additives are added, or which nutrients will perish are not known to consumers. This causes them to be suspicious about how these factors will affect their health. To attract conscious consumers' attention and to create new markets, products are presented to the market with different labels such as organic food, natural product, and pure product; this practice is increasing day by day (3).

Food literacy has emerged as a newly developed term that includes all of the knowledge and skills related to the use and production of food (4, 5). The popular definition of food literacy is "the relative ability to basically understand the nature of food and how it is important to you and how able you are to gain information about food, process it, analyze it and act upon it." The components of food literacy are access, planning and management, selection, knowing where food comes from, preparation, eating, nutrition, and language (6, 7). Food literacy has a potential role to well-being and to determine diet quality (1, 8).

Food safety means that food does not lose its unique characteristics in the process from production to consumption and does not create a health risk. Foods with minimal risk are not harmful to one's health; therefore, they can also be described as "safe food" (9). In a research conducted in Turkey, it has been shown that more than 48.39% of the participants in the general population and 61.80% of women in the rural area have not heard of the concept of "food safety" (10, 11).

Table 1. Characteristics of participants

	n = 1592		n = 1592
Gender		Food safety	
Male	690 (43.3)	Know	728 (45.7)
Female	902 (56.7)	Does not know	864 (54.3)
Marital status		Food literacy	
Single	576 (36.2)	Know	557 (36.2)
Married	913 (57.3)	Does not know	1015 (63.8)
Widow	103 (6.5)	Having child	
Age (years)		≥1	931 (58.5)
18–29	600 (37.6)	0	661 (41.5)
30–44	541 (34.0)	Education	
45–59	332 (20.9)	Primary school	275 (17.3)
≥60	119 (7.5)	Secondary and high school	789 (49.5)
		University	528 (33.2)

Table 2. Factors affecting food preferences of participants

	n	%
Family needs	970	60.9
Family economic status	873	54.8
Family wants	755	47.4
Self preferences–self experience	689	43.3
Advertisements	396	24.9
Friend recommendations	321	20.2
TV show	112	7.0
Total	1592	100

Determining adults' levels of knowledge about "food literacy" and "food safety" will lead the way to future research and intervention studies. Community education about food literacy and healthy food preparation and expanding awareness on food safety will be effective in the creation of healthy societies (12). To our knowledge, there has been no study in Turkey about food literacy; therefore, we focus on this topic to describe adults' knowledge on food literacy. Furthermore, diet-related diseases are the most common health problems, and understanding community behaviors must be the first action to make effective policies (13). The aim of the present study was to determine the knowledge, attitude, and behavior of adults about food literacy and food safety.

MATERIALS and METHODS

Setting and Sample Size

The present study was conducted on adults (over 18 years old) in Kayseri, Turkey between March and April 2016. The rate of food safety knowledge was accepted as 20%[10]. Minimum sample size was 1600 individuals by calculating α: 0.05 and a tolerance value ±2%. Participants were selected from individuals registered in family health centers who agreed to participate in the study. The study was approved by the clinical studies ethics committee of the Erciyes University. Written informed consent was obtained from all participants.

Data Analyses

The average expenditure for food in the study was calculated by using the Turkish Statistical Institute data and was evaluated as 570 TL (14). With regard to the answers given to our questions, the knowledge status of participants about food safety, food literacy, genetically modified organisms (GMOs), and organic food was determined by the researchers as "knows" and "does not know." There had been no measurement tool about food safety and food literacy (8). Owing to this, we decided to determine the questions about knowledge of food safety, food literacy, GMOs, and organic food with open-ended questions such as "please define food safety, food literacy, GMOs and organic food." All researchers assessed every answer one by one and determined answers as "true" or "false" with the same criteria. Within the definition of food safety, individuals who use expressions such as "not risky to health" or concepts such as "audited foods" are considered as knowledge about food safety. Within the definition of food literacy, being able to obtain and use information about food, using expressions about understanding the composition of food, and knowing where food comes from are considered as knowledge about food literacy. Finally, researchers estimated these open-ended questions as having knowledge.

RESULTS

A total of 1592 participants completed the research. The mean age was 36.83 ± 13.67 years. The mean expenditure for food was 640.13 ± 422.56 TL. Individuals who identified themselves as conscious consumers comprised 43.2% of the sample. Knowledge of food safety and food literacy was 45.7% and 36.2%, respectively (Table 1).

Family needs affected most participants when making their food preferences. On the other hand, TV shows had the least effect on food preferences (Table 2).

The most noticeable criterion was expiry date with 40.2% (Table 3). Some think that the acceptable level for label information was 33.5% (n = 533), whereas 72.9% of university graduates think that label information was insufficient (n = 385, χ^2: 25.37, p<001).

Table 3. Most noticeable criteria on the label according to participants

Criteria	n	%
Expiry date	640	40.2
Price	498	31.3
Trademark	183	11.5
Nutritional content	141	8.9
In keeping with religious requirements	86	5.4
Manufacturing date	44	2.8

We analyzed participants' attention to purchasing products using a Likert-type scale (never, rarely, sometimes, very often, and always) and according to the answer "always" of the first three ranks consisting of price, expiry date, and trademark with 49.5%, 48.3%, and 37.8%, respectively. The latest rate was salinity with 12%.

Youngest and educated participants had more knowledge about food safety. Those who think that they are conscious consumers had higher rate of food safety knowledge with 53.8%. Table 4 shows the other factors affecting food safety knowledge.

University graduates and conscious consumers had more knowledge about food literacy. Food literacy knowledge was also increasing with educational level. Table 5 shows the factors affecting food literacy knowledge.

The food literacy knowledge rates of those with GMO food and organic food were 45.5% and 45.8%, respectively. Scientists in university, health personnel, and scientific journals/books were the most reliable sources of information about food safety and food literacy. The ratios of reliability were 78.1% for scientists in university, 69.7% for health personnel, and 65.9% for scientific journals and books (Table 6).

Table 4. Factor affecting food safety knowledge

	n	No.	%	χ2	p
Age (years)					
18–29	600	285	47.5	9.56	<0.05
30–44	541	235	43.4		
45–59	332	166	50.0		
≥60	119	42	35.3		
Education					
Primary school	275	82	29.8	42.53	<0.001
Secondary and high school	789	361	45.8		
University	528	285	54.0		
Conscious consumers					
Yes	688	370	53.8	48.80	<0.001
No	293	87	29.7		
Slightly	611	271	44.4		
Food expenditure					
Less than average	843	364	43.2	4.70	<0.05
Above than average	749	364	48.6		
GMO					
Know	1088	599	55.1	120.45	<0.001
Does not know	504	129	25.6		
Organic food					
Know	1113	628	56.4	170.50	<0.001
Does not know	479	100	20.9		

Table 5. Factors affecting food literacy knowledge

	Total	n	%	χ^2	p
Age (years)					
18–29	600	238	39.7	19.53	<0.001
30–44	541	193	35.7		
45–59	332	124	27.3		
≥60	119	22	18.5		
Education					
Primary school	275	51	18.5	68.20	<0.001
Secondary and high school	789	274	34.7		
University	528	252	47.7		
Conscious consumers					
Yes	688	285	41.4	21.67	<0.001
No	293	76	25.9		
Slightly	611	216	35.4		
Food expenditure					
Less than average	843	266	31.6	17.06	<0.001
Above than average	749	311	41.5		
GMO					
Know	1088	495	45.5	127.32	<0.001
Does not know	504	82	16.3		
Organic food					
Know	1113	510	45.8	146.87	<0.001
Does not know	479	67	14.0		

DISCUSSION

Nutrition and food are indispensable parts of human life. People's nutritional habits and eating patterns are changing as the world develops. In our study, we have shown the factors that influence individuals' food choices and their knowledge of food safety and food literacy. We found that the rate of food safety knowledge was 45.7% (Table 1). In a study conducted in Tokat Province, Turkey, the rates were 51.61% of individuals had heard about the concept of food safety and 41% of those defined it correctly. However, the rate of participants who had heard about the concept of "food safety" before and defined it correctly was 79.69% (10). In another study conducted in a university, the rates were 75.0% of students had heard about the concept of "food safety" and 76.2% of those defined and heard "food safety" before. However, the ratio of who defined "food safety" correctly was approximately 57.0% within the total group (16). Furthermore, in our study, the rate of food safety knowledge is 54% among those with a university educational level (Table 4). It has been shown in previous studies that as the educational level increases, knowledge of food safety also increases, and the highest knowledge is at a university level (10, 16, 17).

Food safety knowledge was at the lowest level in the group over 60 years old, owing to the fact that the educational level of this group was the lowest, and 79% of this group graduated from middle school or lower than middle school (Table 4). Food safety knowledge is highest among people aged 45–59 years; this may be owing to the fact that when health problems arise in this age range, people tend to pay more attention to nutrition (Table 4). As expected, conscious consumers who know about GMO foods, organic foods, and food inspectors have more knowledge about food safety. The rate of food safety knowledge was higher in the group that had an above average food expenditure; this may be owing to the high level of education in the over-spending group (Table 4).

There has been no study on food literacy in Turkey. Participants' knowledge of food literacy is similar to that of food safety knowledge, although it is lower than that of food safety knowledge. Food literacy knowledge also increases as the level of education increases (Table 5). In those who think of themselves as conscious consumers and know what to do if they have problems with food, food literacy knowledge is high as expected. Knowledge of food literacy is high in those who think that food safety is not sufficiently realized in Turkey, although Turkey has 99.3 points out of 100 according to the Global Food Safety Index, whereas the world aver-

Table 6. Reliable information sources about "food safety" and "food literacy" of participants

	Reliable		Not reliable		No idea	
Information sources	**n**	**%**	**n**	**%**	**n**	**%**
Scientists in university	1244	78.1	234	14.7	114	7.2
Health personnel	1109	69.7	435	27.3	48	3.0
Scientific journals/books	1049	65.9	391	24.6	152	9.5
Family and friends	813	51.1	728	45.7	51	3.2
Internet	337	21.2	1129	70.9	126	7.9
Herbalist	310	19.4	1203	75.6	79	5.0
TV programs	274	17.2	1245	78.2	73	4.6
Food merchants	199	12.5	1342	84.3	51	3.2
Tabloid magazines	163	10.2	1263	79.4	166	10.4

age is 57.9 (18). University graduate participants had high rate of thinking that food label information is insufficient and food literacy knowledge, with 72.9% and 47.7%, respectively. Our findings are similar to other studies showing that anxiety related to reliable food consumption is higher in those with higher levels of education (19-21). As expected, participants who were able to define GMOs and organic food had more knowledge about food literacy (Table 5). When food preferences and factors that influence consumers are examined, family needs and economic situation are the most influential factors, and this is in accordance with the literature (Table 2) (20, 22). Factors that participants pay most attention to when purchasing products were price, brand, and expiry date, and in a number of studies, it has been shown that people pay particular attention to expiry date (16, 19, 20, 23). However, consumers are keeping food if its expiry date just passed, and expiry date also affects consumer behaviors to food consumption (24).

The first three ranks of the most trusted sources of information about "food safety" and "food literacy" are scientists in university, scientific journals and books, and health personnel (Table 6). It can be said that in order to inform the public properly about nutrition and to raise public awareness, more responsibilities should be given to people in these areas.

CONCLUSION

When we examine the relationship between the concepts of food safety and food literacy and consumer dynamics, it was shown that the most important factor is educational level. Therefore, universities, health personnel, and policy makers who are responsible for food should provide common education programs for people about accessing safe food.

Limitation

To our knowledge, this is the first study on food literacy in Turkey. The factor that participants were selected from those who were registered in family health centers may have caused bias. However, the age and gender distribution of individuals is similar to that of the general population. We hope that the present study will serve as a guide for future research on food literacy.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Erciyes University Clinical Studies.

Informed Consent: Written informed consent was obtained from patients who participated in this study.

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