PJN
ISSN 1680-5194

PAKISTAN JOURNAL OF NUTRITION

ANSInet
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan
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E-mail: editorpjn@gmail.com

Pakistan Journal of Nutrition 10 (3): 241-248, 2011
ISSN 1680-5194

An Analysis of Consumers' Food Purchasing Attitudes and Habits in Relation to Food Safety

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Abstract: Through the recent developments in food industry, natural and synthetic additive substances are being used in food production to increase the quality and taste of food, to prolong their shelf life and to decrease costs. Despite their many benefits, these applications can sometimes cause allergy, chronic or acute food poisonings, deaths and labor force loss. Therefore, it is crucial that consumers perceive risks stemming from food and learn how to manage them when purchasing and thereby decide whether the food is safe or not. The aim of this study is to examine consumers' attitudes pertaining to food safety when buying food and their habits of taking precautions against this matter. The sample of the study was composed of 546 civil servants and teachers residing in the city center of Konya. It was found out that the subjects in the sample group had correct habits in terms of paying attention to food safety but their attitudes in this issue were inadequate. Teachers were found to be more sensitive to the risks stemming from the food additives than civil servants ($p<0.01$). As for the attitudes to precautions taken in food purchase, teachers were found to be less careless ($p<0.05$). Contrary to our expectations, it was found out that those with lower educational levels were found to display more conscious consumer attitudes ($p<0.05$). In terms of habits, women were seen to observe the precautions to be taken when purchasing food more carefully compared to men ($p<0.001$). Younger consumers were found to pay more attention to the precautions mentioned than older ones ($p<0.05$).

Key words: Food purchasing, food safety, risk factors in ready, semi-ready food products

INTRODUCTION

Today, the relations between food production and consumption made it a technological obligation to use food additives. The increase in food production and procession together with the advancements in industry led to an increase in the use of food additive substances. The increase in the number of people working in places other than homes, changes in eating habits, little time left for food preparation or the desire to spare less time for preparing food encouraged commercial production of ready and semi-ready foodstuffs, which made it inevitable to use food additive substances (Yurttagul and Ayaz, 2008). Being conscious about the fact that eating habits can lead to various diseases, customers are becoming more anxious and their expectations about food are changing; their interest in safe and qualified food is increasing as well (Turrell *et al*., 2002).

Because of consumers' demand for more delicious, nutritious, natural and easily available food, food industry has started to investigate new protection methods besides traditional ones (heating process, curing, fermentation, drying and chemical protection) (Ensoy and Kolsarici, 2005). Food additives that are added to food for various reasons are used either as protectors or colorants or as sweeteners. Food additives are antioxidants, flavorings, food colorings, preservers, sweeteners and others (Kepekci, 2009).

Historical development of food additive substances can be said to have been shaped by two effects. The first of these is the need for the development of food preservation methods in parallel with advancements in technology. The second effect is to boost the perceived quality of food in the eye of consumers. When the international food trade is considered, the first of these effects reveals the necessity for these substances. The world market for food additive substances in the world reached up to 10 billion dollar in the 1900s and it now involves higher amounts (Altug, 2001).

Additive food substances are defined in detail in the Official Gazette published on 16 November 1997 as " the substances that are not used as food or as raw material or auxiliary product, the substances which have or do not have a nourishing value, whose residual derivates can be found in the end item as a result of the chosen technology during processing or production, they are the substances which are used to protect, correct and prevent undesired changes in taste, smell, appearance structure and other qualities of food substances during the production, classification, procession, preparation, packaging, transportation, storage of food."

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It can simply be defined as follows: the substances which are naturally found in the composition of food or which are obtained from foods in its pure form with various methods or chemically composed substances are called as "food additive" (Ozkaya, 2004).

Thanks to additive substances the spoiling of food by microorganisms is prevented and its shelf life is prolonged and the losses are minimized, the perceptual features of food are being developed with emulsifiers, colorants, flavorers, flavorings, sweeteners, bulking agents and antioxidants are used to protect substances including easily spoiling substances like vitamin C. Thus, the taste, smell, appearance, structure and other qualities of the food are preserved, improved and undesired changes are prevented during the preparation, classification, procession, packaging, transportation and distribution (Ozkan, 2005).

On the packages of the food which include these additives are generally codes in E (Kepekci, 2009). All the food additives in the safe additives list have the "E" code and are toxicologically safe. The letter "E" is a safety assurance for consumers (Atman, 2004). "E" means that this substance was affirmed by European Union. Protective agents, antioxidants and acid regulators range between E200-321, coloring agents range between E100 and 180 and thickeners take the code between E322-495. Although there are many campaigns carried out against these substances, it is very difficult to preserve healthy food in today's consumption society without these substances. Generally, in healthy human beings negative reactions to these additive substances are very rare, being about one in a thousand or even fewer (Kepekci, 2009).

However, among these food additives, sulfites being allergic to asthma patients, monosodium glutamate's causing headache and vomiting, toxic effect of synthetic antioxidants brought up the issue of limiting them (Orman and Bagdatlioglu, 2005; Kepekci, 2009). Because chemical assignation with food substances leading to acute effects, the chronic effects of exposure to low amount of toxins are generally noticed late and can lead to cancer (Cerit *et al*., 2001). According to a study in the USA, 72% of the consumers buy their food from supermarkets (Carlson *et al*., 2002). Food related diseases mostly stem from unsafe food substances in retailer sellers (Kuttschreuter, 2006).

However, safe foods are the ones which are edible in terms of their physical, chemical and biological characteristics and which have not lost their nutritional value (Topuzoglu *et al*., 2007). In this case, knowledge about risks many consumers get through various methods will remove uncertainties and ease risk perception and will motive them to assess the situation better and to find better solutions (Kuttschreuter, 2006). This information about risks can be acquired through the labels on ready and semi-ready food packages. Information about the ingredients, additives used, re-heating, self life, storage and cooking methods are to be given clearly on the labels of ready and semi-ready food. This study was planned with an aim to find out the perception levels of civil servants working at various public institutions and teachers teaching in various primary schools and high schools in Konya city center, pertaining to risk factors in food safety and to make valid suggestions that will help both consumers and institutions that produce and sell food.

MATERIALS AND METHODS

The universe and sample of the study: The universe of the study is composed of civil servants from various institutions and teachers teaching in different primary schools and high schools in Konya city center. The sample of the study is composed of 546 randomly assigned individuals who volunteered to participate in the study.

Means of data collection: The study was designed with a general survey model. During the data collection process of the study survey technique was used. In the survey, besides a section seeking demographic data, there is an assessment form which measures the attitudes of individuals to food safety and their habits of taking precaution in this issue.

The items of the attitude scale which include 12 statements prepared to discover the level of perception of risk factors related to food safety when purchasing food are designed in the form of a five-point Likert scale: "I completely agree" = 5 points, "I agree" = 4 points, "I have no idea" = 3 points, "I disagree" = 2 points and "I strongly disagree" = 1 point. Nine attitude statements, being conversely worded statements, were scored in the reverse way. As for 14-item habit scale which measures individuals habits of taking precautions for food safety when purchasing food was scaled as "Always" = 3 points, "Sometimes" = 2 points, "Never" = 1 point and as one statement of habit was conversely worded item, it was scaled as "Never" = 3 points, "Sometimes" = 2 points, "Always" = 1 point.

The validity and reliability of the attitude items: As a result of the statistical analysis on the reliability of attitude statements, the reliability coefficient related to attitude scale was calculated as Alpha = 0.642. This indicates that attitude scale had moderate reliability.

Factor analysis was carried out to test the validity of attitude items and to determine their sub-dimensions. To test the suitability of the data set for factor analysis, Kaiser-Meyer-Olkin (KMO) sampling adequacy test was applied. As the KMO value of the attitude scale was over 0.50 and as Bartlett test result was significant at the level of 0.05, data set was rendered to be suitable for factor analysis (KMO = 0.746; $Chi^2_{Bartlett\ test}$ (28) = 814.208; p = 0.0001).

Table 1: Factor analysis result table of consumers' food purchasing attitude in terms of food safety

Factor name	Attitude statements	Factor load	Factor explainability (%)	Reliability
Risks stemming from	All food additives are harmful to human health (-).	0.736	31.634	0.752
Additive substances	All food additive substances are artificial (-).	0.732		
	Using food additives is not necessary (-).	0.696		
	Food additives cause cancer (-).	0.683		
	If additives are not used food will be healthier (-).	0.615		
Precautions observed when	Food products sold in big markets and shopping	0.757	21.870	0.638
Purchasing food products	centers are good quality (-).			
	Brand name products are always qualified (-).	0.747		
	E code additive substances are not harmful to health.	0.667		
Total			53.504	
	Kaiser meyer olkin scale validity	0.746		
Bartlett globosity test	Chi-square	814.208		
	sd	28		

(-) Opposite statement, p-value = 0.0001

Attitude items were analyzed by using essential components method and varimax orthogonal rotation. The items whose sampling adequacy were lower than 0.50, which were left alone under a factor, which have close factor weights and whose factor weight is lower than 0.30 were omitted from analysis. Principal components method and varimax vertical rotation method were used to analyze the attitude items. The items whose sampling adequacy scale was below 0.50, those which are left alone under one factor, the items which have close factor load and whose factor load was 0.30 were omitted from the analysis. In the factor analysis repeated with the remaining items 3 attitude factors with eigen value of 1 and over. When the reliability analyses of the factor load values were carried out, it was found out that one attitude factor had a reliability level below 0.60. As this factor would not be used, the items that make up this factor were excluded from analysis and factor analysis was carried out for the last time. As a result of this factor analysis two attitude factors with 8 items were obtained. Total explained variance was found to be 53.504%. The factors are named as "Risks Stemming from Additive Substances" and "Precautions Observed When Purchasing Food Substances", respectively (Table 1). In the calculation of internal reliability, Cronbach Alpha values were used (these values were 0.752; 0.638).

The reliability and validity of habit items: As a result of statistical analysis on the reliability of habit sentences, the reliability coefficient of habit scale was calculated to be Alpha = 0.646. This value indicates that habit scale has moderate reliability. Factor analysis was carried out to test the validity of habit items and to find out sub-dimensions. To test the compatibility of data set with factor analysis Kaiser-Meyer-Olkin (KMO) sampling adequacy test was administrated. It was found out that the validity of habit scale KMO value was above 0.50 and Bartlett test value was meaningful at 0.05 significance level (KMO=0.707; $Chi^2_{Bartlett\ test}$ (6) = 317.819; p = 0.0001).

The habit items were analyzed by using principal components and varimax vertical rotation method. The items whose sampling adequacy is below 0.50, which are left alone under one factor and the items with close factor weight and the items whose factor weight is below 0.30 were omitted from the analysis. In the factor analysis repeated with the remaining items, 4 habit factors with eigen value of 1 and above were gained. When the reliability analyses of factor load values were carried out, it was found out that the reliability level of three habit factors were lower than 0.60. As these factors will not be used, the items which make up these factors were omitted from analysis and a final factor analysis was applied. As a result of this factor analysis a habit factor composed of 4 items was obtained. The total explained variance of habit scale was found to be 50.568 %. This factor was called as "Precautions Observed When Purchasing Food Products" (Table 2). In the calculation of internal reliability of this factor Cronbach Alpha value was used, too (this value is 0.663).

Data analysis: In the attitude and habit assessment of individuals' perception level of risk factors pertaining to food safety, t-test was carried out to profession and gender variables and one way variance was applied to age, education and monthly food expenditure independent variables to find out whether there are significant differences between groups. In one-way analysis of variance Sheffe test was applied to find out from which group difference stemmed. However, while applying one-way variance analysis whether sub-groups have equal variance or not was determined with Levene test (p value of the variance which is not equal is lower than 0.05). In this case, when the pre-condition of one way could not be fulfilled, Welch and Bown-Forsythe test were carried out. When there found a difference between groups, Tamhane T^2 test was administrated to find out which group the difference stemmed from (Sipahi *et al*., 2008).

Table 2: Factor analysis result table pertaining to food purchasing habits of consumers in terms of food safety

The name of the factor	Habit statements	Factor weights	Explainability of factor's (%)	Reliability
Precautions observed when purchasing food products	I pay attention to production and expiry dates of packaged products.	0.758	50.568	0.663
	I research production and preservation conditions when purchasing food.	0.735		
	I carefully examine label information and the packages when purchasing food.	0.678		
	I pay attention to food brands when purchasing	0.669		
Total			50.568	
	Kaiser meyer olkin scale validity	0.707		
Bartlett globosity test	Chi-square	317.819		
	sd	6		

p-value = 0.0001

Table 3: Demographic features of individuals (n = 546)

Profession	f	%
Teacher	301	55.1
Civil servant	245	44.9
Gender		
Female	199	36.4
Male	347	63.6
Age		
34 and below	188	34.4
Between 35 and 40	149	27.3
41 and above	209	38.3
Education		
Primary school	30	5.5
High school	87	15.9
University	396	72.5
Master of arts	33	6.1
Number of persons in family		
3 persons and fewer	169	31.0
4 persons	195	35.7
5 persons and more	182	33.3
Monthly food expenditures (TL)		
350 and below	166	30.4
Between 351-500	225	41.2
501 and above	155	28.4

RESULTS AND DISCUSSION

Demographic features of sampling group: 55.1% of the participants are teachers and 44.9% are civil servants; 63.6% are males and 36.4% are females. 38.3% of the individuals are 41 and above, 34.4% are 34 and below, 27.3% are between 35 and 40. Most of the individuals (72.5%) are university graduates, 15.9% high school graduates or have an equal degree, 6.1% have an M.A degree; 5.5% are primary school graduates. 35.7% of them have 4 people in their family; 33.3% have 5 people or more in their family and 31.0% have 3 persons or fewer. It was found out that 41.2% of them spend between 351-500 TL; 30.4% spend 350 TL or less and 28.4% spend 501 TL or more (Table 3).

Attitude and habit levels of consumers when purchasing in relation to food safety: It was found out that only 57.3% of the adults participated in the study approved the attitude statements related to food safety when purchasing food ($\bar{X}$ = 3.55). Besides, while 76.7% of the adults in the study stated that they agreed with "Risks Caused by Additives, one of the sub-dimensions of food safety ($\bar{X}$ = 3.92), 30.0% of them stated that they had no idea what "The Precautions Observed When Purchasing Food products" are ($\bar{X}$ = 2.95). This data indicates that the sampling group does not have adequate knowledge about food safety regarding food purchasing (Table 4). Contrary to the results of this study, in a study by Topuzoglu *et al.* (2007) while 77.2% of the participants agreed to "It is important that food products do not have additives"; they supported the statements "Brand name products are always more qualified" (55.7%) and "The food products sold in supermarkets and shopping centers are of good quality" (46.7%) at quite low rates.

It was determined that participants always acted based on their habits about food safety when purchasing food ($\bar{X}$ = 2.65) (Table 5). Therefore, it can be concluded that sample group have conscious consumption habits rather than conscious consumption attitudes in terms of food safety.

In a study by Yurttagul (1991), it was found out that 22.8% of the participants paid attention to price; 17.6% paid attention to expiry date, 7.3% did to nutrient value, 5.4% to cooking and storing instructions and 3.3% paid attention to additives.

According to research findings by Cerit *et al.* (2001), "Examining production and storage conditions" (48.9%) behavior was reported to be high, which was followed by "Buying Food products from places which they thought to be safe" (44.4%) and "Trying to purchase food products without additives" (34.4%). "Paying attention to the brands of food products" (10.0%) and "Examining the label information and packages carefully when purchasing food" (8.9%) behaviors were reported to be realized at lower rates. In line with this study, in Ozgen's (2006) study, it was reported that 87.3% of consumers stated that expiry date must be found on the label. In a study by Topuzoglu *et al.* (2007) it was found out that while the attitude of "Paying attention to whether product package is intact when purchasing food products" is high (92.8%), contrary to the findings of this study,

Table 4: The means of consumers' attitude score (n = 546)

The name of the factor	Item number	Min.	Max.	$\bar{X}$	$S_{\bar{x}}$	Sum	$\bar{X}$ = 3.40 and above f	%
Risks stemming from additives	5	1.20	5.00	3.92	0.80	2139.00	419	76.74
Precautions observed when purchasing food products	3	1.00	5.00	2.95	0.95	1609.00	164	30.04
Total attitude score	8	1.62	5.00	3.55	0.64	1940.25	313	57.33

Min. = Minimum; Max. = Maximum

Table 5: Consumers' habit score means (n = 546)

The name of the factor	Item number	Minimum	Maximum	$\bar{X}$	$S_{\bar{x}}$
Precautions observed when purchasing food products	4	1.00	3.00	2.65	0.38

Table 6: T-test results of consumers attitude and habit scores by professions (n = 546)

Factor's dimension	The name of the factor	Occupation	N	$\bar{X} \pm S_{\bar{X}}$	$S_{\bar{x}}$	T	P
Attitude dimension	Risks stemming from additives	Civil servant	245	3.80±0.05	0.79	-3.062	0.002**
		Teacher	301	4.01±0.05	0.79		
	Precautions observed when purchasing food products	Civil servant	245	3.05±0.06	0.94	2.299	0.022*
		Teacher	301	2.86±0.05	0.95		
	Total attitude score	Civil servant	245	3.52±0.04	0.64	-1.088	0.277
		Teacher	301	3.58±0.04	0.64		
Habit dimension	Precautions observed when purchasing food products	Civil servant	245	2.64±0.03	0.40	-0.876	0.381
		Teacher	301	2.67±0.02	0.36		

*p<0.05; *p<0.01; *p<0.001

"Paying attention to expiry dates of products" (39.6%) is low. In a study by Basar (2006), it was found out that 78.2% of consumers pay attention to expiry dates, 72.6% pay attention to production date, 61.6% to the price of the product, 59.0% pay attention to whether product has package or not, 57.3% pay attention to producer firm, 25.4% paid attention to package durability', 20.3% paid attention to package quality.

In a study by Yilmaz *et al*. (2007), it was found out that 53% of the participants looked at the expiry date and labels of food products, 14% only looked at expiry date but not the label. In a study by Bosi *et al*. (2007) it was found out that 98.0% of the participants paid attention to expiry date of products; 88.0% paid attention to the brand of the product. In their study, Aktas *et al*. (2009) determined that 91.6% of the consumers paid attention to production and expiry dates when purchasing food products; 73.2% paid attention to the price; 69.3% paid attention to the brand; 68.4% paid attention to the package of the product. In a study by Boodhu *et al*. (2008) it was found out that most of the consumers (87.9%) do not consume canned food products with damaged package.

The analysis of consumers' food safety attitude and habit levels when purchasing according to the independent variables: While consumers' attitudes about food safety when purchasing show significant difference in terms of their professions, their habits did not show significant difference (p>0.05). As it can be seen in Table 6, while teachers ($\bar{X}$ = 4.01) are more sensitive to risks stemming from additives in food products compared to civil servants ($\bar{X}$ = 3.80) (p<0.01); civil servants ($\bar{X}$ = 3.05) paid more attention to precautions to be taken when purchasing food products compared to teachers ($\bar{X}$ = 2.86) (p<0.05).

Consumers' attitudes and habits about food safety during food purchasing were examined in terms of gender. While there was no significant difference between genders in terms of attitude (p>0.05), there emerged a significant difference in the habit dimension (p<0.001). In Table 7, it is seen that females ($\bar{X}$ = 2.73) observe precautions to be taken when purchasing food products more than man do ($\bar{X}$ = 2.61). Contrary to the results of this study, in Ozgen's (2006) study, it was found out that while there was not found any significant differences between genders in terms of looking at expiry date (p>0.05); males attached more importance to production date on the package compared to females (p<0.05).

When attitude and habits of consumers during purchasing food about food safety in terms of age groups are examined; there found no statistical difference in terms of attitude (p>0.05). As for the habit dimension; it was found out that those at the age of 34 and below ($\bar{X}$ = 2.71) paid more attention to precautions necessary when purchasing food products compared to those at 41 and over ($\bar{X}$ = 2.60) (p<0.05) (Table 8).

While consumer's food safety habits do not show statistically significant differences according to

Table 7: T-test results of attitude and habit scores by gender (n = 546)

Factor's dimension	The name of the factor	Gender	N	$\bar{X} \pm S_{\bar{X}}$	S_x	T	P
Attitude dimension	Risks stemming from additives	Female	199	3.98±0.06	0.82	1.471	0.142
		Male	347	3.87±0.04	0.79		
	Precautions observed when purchasing food products	Female	199	2.89±0.06	0.90	-1.036	0.300
		Male	347	2.98±0.05	0.98		
	Total attitude score	Female	199	3.57±0.04	0.64	0.566	0.572
		Male	347	3.54±0.03	0.65		
Habit dimension		Female	199	2.73±0.03	0.34	3.657	0.0001***
		Male	347	2.61±0.02	0.39		

*p<0.05; *p<0.01; *p<0.001

Table 8: Attitude and habit scores of consumers by age groups based on the one way Variance Analysis (ANOVA), welch and brown-forsythe tests results (n = 546)

Factor dimension	The name of factor	f	$\bar{X} \pm S_{\bar{X}}$	S_x	One-Way ANOVA		Welch	Brown-forsythe	Inter-group difference
Attitude dimension	Risks stemming from additives	188	3.91±0.06	0.84	F-value	0.200			-
		149	3.89±0.07	0.80	sd	543			
		209	3.94±0.05	0.77	p-value	0.819			
	Precautions observed when purchasing food products	188	3.01±0.07	0.96	F-value	1.288			-
		149	2.85±0.07	0.91	sd	543			
		209	2.96±0.07	0.97	p-value	0.277			
	Total attitude score	188	3.57±0.05	0.67	F-value	0.712			-
		149	3.50±0.05	0.61	sd	543			
		209	3.57±0.04	0.64	p-value	0.491			
Habit dimension	Precautions observed when purchasing food products	188	2.71±0.02	0.32	F-value		4.357	3.958	1-3
		149	2.65±0.03	0.40	sd		339.939	491.897	
		209	2.60±0.03	0.40	p-value		0.014*	0.020*	

Age Groups: 1) 34 and under; 2) between 35-40; 3) 41 and above. *p<0.05; **p<0.01; ***p<0.001

Table 9: Attitude and habit scores of consumers by educational levels based on the one way Variance Analysis (ANOVA) test results

Factor dimension	The name of the factor	f	$\bar{X} \pm S_{\bar{X}}$	S_x	F	P	Inter-group difference
Attitude dimension	Risks stemming from additive substance	30	3.86±0.13	0.74	0.930	0.426	-
		87	3.94±0.08	0.79			
		396	3.93±0.04	0.81			
		33	3.70±0.13	0.76			
	Precautions observed when purchasing food substances	30	3.40±0.18	0.97	5.905	0.001**	1-4
		87	3.18±0.10	0.95			2-4
		396	2.89±0.05	0.95			1-3
		33	2.62±0.13	0.77			
	Total attitude score	30	3.69±0.11	0.61	2.983	0.031*	1-4
		87	3.65±0.07	0.66			2-4
		396	3.54±0.03	0.64			
		33	3.30±0.10	0.57			
Habit dimension	Precautions observed when purchasing food substances	30	2.55±0.08	0.44	2.260	0.081	-
		87	2.58±0.04	0.36			
		396	2.67±0.02	0.37			
		33	2.69±0.07	0.41			

Education Levels: 1) Primary School; 2) High school; 3) University; 4) M.A. *p<0.05; **p<0.01; ***p<0.001

education levels when purchasing food (p>0.05), it showed a difference in terms of their attitudes (p<0.05). As it can be seen in Table 9, primary school ($\bar{X}$ = 3.69) and high school graduates ($\bar{X}$ = 3.65) displayed more conscious consumer attitudes compared to those with a Master's Degree ($\bar{X}$ = 3.30). In particular, primary school ($\bar{X}$ = 3.40) and high school graduates ($\bar{X}$ = 3.18) were found to be more sensitive in terms of taking necessary precautions when purchasing food products compared to university ($\bar{X}$ = 2.89) and MA graduates ($\bar{X}$ = 2.62) (p<0.01). This result does not support the view that individuals level of awareness increases as their level of education does.

When Table 10 is examined, it is seen that food safety attitude (p>0.05) and habits (p>0.05) of consumers did not show significant differences in terms of monthly food expenditure totals.

Conclusion: While more than half of the participants (57.3%) stated that they agreed with the attitude

Table 10: Attitude and habit scores of consumers by monthly food expenditure totals based on the one way Variance Analysis (ANOVA), test results (n = 546)

Dimension of the factor	The name of the factor	f	$\bar{X} \pm S_{\bar{x}}$	S_x	F	P	Inter-group differences
Attitude dimension	Risk posed by additive substances	166	3.91±0.06	0.82	0.081	0.922	-
		225	3.91±0.05	0.82			
		155	3.94±0.06	0.76			
	Precautions observed when purchasing food substances	166	3.04±0.07	0.94	1.588	0.205	-
		225	2.94±0.07	1.00			
		155	2.86±0.07	0.89			
	Total attitude score	166	3.59±0.05	0.67	0.313	0.731	-
		225	3.54±0.04	0.66			
		155	3.53±0.05	0.59			
Habit dimension	Precautions observed when purchasing food substances	166	2.63±0.03	0.36	1.275	0.280	-
		225	2.65±0.03	0.39			
		155	2.69±0.03	0.36			

Monthly Food Expenditure Totals: 1) 350 TL and lower; 2) between 351-500 TL; 3) 501 TL and above. *p<0.05; **p<0.01; ***p<0.001

statements about food purchasing ($\bar{X}$ = 3.55), it was determined that they always applied food safety habits ($\bar{X}$ = 2.65). Therefore, it was concluded that while the sample group has correct habits related to food safety, their attitudes on this issue is less sufficient.

The habits of the consumers during food purchasing did not show significant differences in terms of their professions (p>0.05). However, teachers were found to be more sensitive to the risks pertaining to additives in food compared to civil servants (p<0.01). On the other hand, they had a less sensitive attitude to the precautions to be observed when buying food (p<0.05). While food safety attitudes did not show significant differences in terms of gender (p>0.05), it was found out that females observe food purchasing precautions more than males do (p<0.001). While there found no significant difference in terms of age (p>0.05); it was found out that compared to older ones, younger consumers observe food purchasing precautions more carefully (p<0.05). While there was not found any significant difference in food safety habits terms of educational level (p>0.05); contrary to expectations, individuals with a lower educational level were found to display more conscious consumer manners compared to the ones with higher one (p<0.05). There found no significant difference in participants' attitudes (p>0.05) and habits (p>0.05) related to food safety when purchasing food in terms of individuals monthly food expenses.

The following suggestions can be made according to the data obtained from the study:

- Producers are to clearly state the ingredients, additives used, consumer instructions, production and expiry dates of their products on the packages of products so that consumers with any level of education can understand.
- Consumers are to examine label information carefully when purchasing food and to find out about production and preservation conditions. Furthermore, they are to take risk factors into consideration when purchasing food and to follow publications about additive substances.

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