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PAPER

TURKISH CONSUMER ATTITUDES TOWARD FOOD PRODUCTS: THE CASE OF ERZURUM

LE ATTITUDINI DEI CONSUMATORI TURCHI NEI CONFRONTI DEI PRODOTTI ALIMENTARI: IL CASO DI ERZURUM

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ABSTRACT

Increasing global interactions and improvements in the Turkish economy in recent years have led to significant changes in the overall marketing sector and in the purchasing behaviour of Turkish consumers. The aim of this study was to determine the most salient food attributes that influence consumer food choices using factor analysis and then to identify consumer group profiles by k-means cluster analysis. The results showed that price was the most prominent food attribute that in-

RIASSUNTO

L'incremento delle interazioni globali e il miglioramento dell'economia turca negli ultimi anni hanno condotto ha significativi cambiamenti nel settore del mercato mondiale e nel comportamento d'acquisto dei consumatori turchi. Lo scopo di questo studio era quello di determinare, utilizzando un fattore d'analisi, i principali attributi degli alimenti che influenzano la scelta del consumatore e quello di identificare profili di gruppi di consumatori attraverso l'analisi dell'algoritmo di clustering. I risul-

- Key words: factor analysis, food attribute, k-means cluster analysis, market segmentation, Turkish consumer attitude -

fluenced the buying decisions of consumers in all groups. Consumer satisfaction with food products, brand loyalty and price were the most effective factors in cluster 1(C1), C2 and C3, respectively. The results of this study show the interrelationships among product attributes, consumption, preference values and attitudes of Turkish consumers. This information could be used to develop predominant strategies and policies for marketing food products in Turkey.

tati mostravano che il prezzo era l'attributo più importante degli alimenti che influenzava le decisioni d'acquisto dei consumatori di tutti i gruppi. La soddisfazione del consumatore riguardo i prodotti alimentari, la fedeltà al marchio e il prezzo erano i fattori più importanti nel cluster 1(C1), C2 e C3, rispettivamente. I risultati di questo studio mostrano l'interrelazione fra gli attributi del prodotto, il consumo, la preferenza e le attitudini dei consumatori turchi. Queste informazioni potrebbero essere utilizzate per lo sviluppo di strategie predominanti e politiche del mercato di prodotti alimentari in Turchia.

INTRODUCTION

Consumer food choice and purchasing are complex phenomena that are influenced by a myriad of factors. These factors can be roughly classified into three groups (BABICZ-ZIELINSKA, 1999): product-related (physical, chemical, sensory, functional and nutritional), consumer-related (personal, psychological and physiological) and environment-related (economical, cultural and social) factors. In this dynamic world, all of these factors are changing constantly, as are consumer attitudes and preferences.

Consumer behaviour in Turkey is also changing due to technological and socioeconomic advances. The average gross domestic product (GDP) per capita has increased in the last decade in Turkey. While the average GDP per capita was $2,888 in 1996, it reached $5,482 in 2006. The consumer price index (CPI) for food products, on the other hand, did not increase significantly during this same time period. Although the annual CPI for food products increased about 80% in 1996, the increase in 2006 was only about 10% (TUIK, 1996; 2006). These positive changes have led to better social welfare and higher standards of living. Therefore, consumer food choices and preferences are very different today than they were in the 1990s.

In today's consumer-based marketing, manufacturers and marketers must meet consumer expectations in order to maintain or increase their market share. To do this, they must first keep track of changes in consumer attitudes and preferences via detailed individual customer-based data and up-to-date marketing research. Based on this feedback, they can develop new marketing tactics and strategies, and design new products (TOPCU *et al.*, 2007). To design a new product, the manufacturers must consider both the intrinsic and extrinsic attributes of the product.

The effects of these two attributes on consumer attitudes have been widely studied (MALDONADO and VILLALBI, 1993; KOHYAMA, 1995; SHENG *et al.*,

1996; SHEPHERD and DENNISON, 1996; LENNERNÄS *et al.,* 1997; DELIZA *et al.,* 1999; MURRAY and DELAHUNTY, 2000; WĄDOŁOWSKA *et al.,* 2002; NEWBY *et al.,* 2006; HADDAD *et al.,* 2007), reflecting the role they play on consumer expectation. Studies on food-choice factors have shown that quality, freshness, taste, healthy diet, price, household preferences and habits are some of the most important choice factors.

Few studies have been conducted in Turkey regarding the effects that the intrinsic and extrinsic attributes of a product have on consumer purchasing decisions. TUZCUOGLU (1999), YURTTUT (2001) and AKPINAR (2004) examined store-brand food products in different regions, using descriptive analyses. They found that brand, price, packaging, food safety and hygiene of a food product highly influenced consumer choices and buying decisions. ARIKAN (2000), TOPCU (2006) and TOPCU and ISIK (2008), on the other hand, analyzed the most important factors affecting consumer purchasing decisions for dairy products such as brand, price, packaging, health concerns and product content, using conjoint models.

The aim of this study was to explore the factors influencing consumer food choices and purchasing decisions in Turkey. Factor and k-means cluster analyses were used to determine the salient attributes of the products and the clusters of consumers based on the relative homogeneity of their attitudes regarding food attributes. Very few marketing research studies in Turkey have used factor and cluster analyses. This paper has scientific merit in that both factor and cluster analyses were used for the different Turkish regions. Knowing the most important product attributes and consumer profiles for successful product design and innovation provides invaluable information for marketers, manufacturers, policy makers and academicians.

MATERIAL AND METHODS

The preliminary data of the present research were obtained from a survey conducted in the city centre of Erzurum[1], Turkey. In order to determine the sample size, while minimizing sample bias and representing the population correctly, the city centre was divided into four districts: the east-side Kazimkarabekir district with 17,976 households, the west-side Dadaskent district with 6,562 households, the north-side Palandoken district with 30,022 households, and the south-side Yakutiye district with 26,099 with households (ANONYMOUS, 2007).

To determine the sample size for each district, the following formula was used (YILDIZ *et al.,* 2006):

$$n = \frac{Z^2 * p * (1 - p)}{c^2} = 385$$

Where,
n = sample size;
Z = Z value (1.96 used for 95% confidence level);
p = percentage picking a choice, (0.5 used for sample size needed);
c = confidence interval, (0.05 = ±5 used).

Based on the population of each district, the weighted sample size and distribution of the surveys for each district were determined on a proportional basis. Out of 385, the number of questionnaires allocated to the Dadaskent, Kazimkarabekir, Yakutiye and Palandoken districts were 32, 89, 122 and 142, respectively.

Using information obtained from food science and marketing literature and based on the prior experience of the re-

[1] Erzurum has the geographic coordinates of 39°45'N latitude and 41°15'E longitude. It is on the Silk Road, and located at the north-east region of Turkey. Erzurum is one of the biggest provinces in the region with a population of 962,000 total and 402,000 in the city centre.

searchers, a draft questionnaire was prepared. In order to check for non-sampling error which occurs due to ambiguous definitions, unclear_instructions, questionnaire wording, format and length, a pre-test was carried out on 18 randomly selected (3, 4, 5 and 6) consumers in the target regions. The flow and naturalness of the questionnaire were tested, and the order and timing of the questions were re-arranged. The questionnaire was then modified and refined before starting the fieldwork.

To select consumer households in each district for this final questionnaire, a simple random sampling method (i.e., each member of the population has an equal chance of being chosen) was used. Each district was divided into sub-districts and then a face-to-face survey method was used with randomly selected heads of households (this could be either the wife or husband) in various parts of the sub-districts in order to represent the population adequately. The survey was conducted either in their home or at shopping centres.

Table 1 - Food attributes affecting consumer buying decisions, based on the 5-Likert scale.

Variables	Mean	Std. Deviation
Appearance of package	3.14	1.28
Advertising	3.07	1.28
Packaging material	4.06	1.03
Promotion and price discount	3.50	1.18
Product weight (kg)	3.46	1.18
New-design product	3.36	1.29
Product origin	3.70	1.17
Popularity of brand name	4.12	0.81
Natural/organic product	4.24	0.87
Brand penetration	3.83	1.05
Product quality	4.65	0.53
Price-quality (perceived value) relation	4.50	0.61
Prior experiences of consumers	4.50	0.72
Shelf life of product	4.77	0.59
Hygiene	4.73	0.55
Taste and freshness of food	4.59	0.64
Product price	4.12	0.94

Participants in the survey were asked to respond to each statement, indicating the significance level of the food attributes for them. A Likert-format 1-5 scale (where 1 refers to the least important and 5 refers to the most important attributes) was used. Of the 17 attributes (Table 1), 7 are related to physical attributes (packaging material and appearance, product weight (kg), organic product, shelf life, taste and freshness, hygiene), 5 are related to the sale-increasing activities (advertisement, promotion, price, brand diffusion, new design) and 5 are related to individual preferences (quality, price-quality relation (perceived value for food product), product origin, brand name, consumers' prior experiences).

Each question was reduced to a single statement to which responses were collected using the Likert scale described above. Demographic and socioeconomic information was also gathered (gender, age and occupation group, education, consumer food expenditure and income level) in the survey. Food expenditure and income were grouped into three levels.

After editing and coding, the data were first analyzed by factor analysis to determine the main factors affecting consumer food preferences, and then by cluster analysis to classify the consumer mass using their demographic and socioeconomic characteristics. SPSS statistical software was used to perform these two analyses.

These techniques have been used widely in many marketing studies on food attributes, including food products such as beef (OLIVER *et al.,* 2006), cheese (MURRAY and DELAHUNTY, 2000), conventional food (WADOLOWSKA *et. al.,* 2007), pasteurized milk (TOPCU, 2006), soft drinks (ENNEKING *et al.,* 2007) and yogurt (O'CONNOR *et al.,* 2006; HADDAD *et al.,* 2007).

Factor analysis is a data reduction technique that reduces the number of

Table 2 - Factors and correlated variable loadings.

Variables	Factor loadings*				
	F1	F2	F3	F4	F5
Appearance of package	**0.72**	0.22	-0.01	-0.03	-0.01
Advertising	**0.68**	0.19	0.09	-0.05	0.00
Packaging material	**0.68**	-0.05	0.00	0.33	-0.06
Promotion and price discount	**0.68**	-0.03	-0.11	-0.11	0.29
Product weight (kg)	**0.60**	0.10	0.24	0.06	0.04
New-design product	0.21	**0.77**	-0.11	0.06	0.03
Product origin	0.03	**0.75**	0.14	0.05	0.09
Popularity of brand name	0.15	**0.54**	0.33	-0.05	-0.34
Natural/organic product	0.08	**0.51**	0.06	0.45	0.25
Brand penetration	0.34	**0.50**	0.42	-0.05	-0.30
Product quality	-0.03	0.12	**0.72**	0.08	-0.04
Price-quality (perceived value) relation	0.01	-0.04	**0.67**	0.02	0.16
Prior experiences of consumers	0.17	0.09	**0.55**	0.20	0.02
Shelf life of product	0.01	0.10	-0.05	**0.74**	0.04
Hygiene	0.05	-0.14	0.24	**0.64**	-0.30
Taste and freshness of food	-0.04	0.08	0.38	**0.56**	0.20
Product price	0.17	0.06	0.19	0.03	**0.79**
Eigen-value	***3.48***	***1.94***	***1.45***	***1.18***	***1.09***
Share of explained variance (%)	***20.50***	***11.40***	***8.56***	***6.91***	***6.43***
Cumulative share of explained variance (%)	***20.50***	***31.90***	***40.46***	***47.37***	***53.80***
KMO (Kaiser-Meyer-Olkin) Statistic					**0.73**

* Bold numbers indicate the largest loading for each variable.

variables used in an analysis by creating new variables (called factors) that combine redundancy in the data (SPSS 15.0, 2006).

The first step in factor analysis is to determine the number of relevant factors. Therefore, the factor analysis conducted in this study reduced the number of food attributes from seventeen to five factors, having eigen-values greater than 1.0; this was done by Principal Component Analysis[2] using the Varimax rotation method[3]. Factor analysis was used initially to identify underlying aspects that could explain a correlation among a set of food attributes and the associated consumption values. The purpose of factor analysis in this study was to identify those attributes that accounted for a relatively large proportion of the variance in the sample. This subset could then be used for consumer segmentation.

In the second step of the analysis, a k-means cluster analysis was used. Clustering algorithms can be classified into two categories: hierarchical and non-hierarchical. Hierarchical clustering algorithms start with *n* clusters, equal to the

[2] A factor extraction method used to form uncorrelated linear combinations of the observed variables. The first component has the maximum variance. Successive components explain progressively smaller portions of the variance and are all uncorrelated with each other. Principal component analysis is used to obtain the initial factor solution. It can be used when there is a single correlation matrix.

[3] This method is an orthogonal rotation method that minimizes the number of variables that have high loading on each factor. It simplifies the interpretation of the factors.

number of observations, and then proceed until all observations are in one cluster. In non-hierarchical clustering, the researcher specifies the number of clusters in the data set *a priori.* In this study five consumption/preference value categories was identified (Table 3). Therefore the number of classes could be specified, thus non-hierarchical k-means clustering was used. The k-means procedure selects "m" random points from the data set. These are used as cluster seeds and all other points are assigned to the nearest cluster seed. Successive iterations involve replacing the current cluster seed by the cluster mean, and then reassigning all points to the nearest new cluster seed. The process continues until there is no change in cluster means from the previous interaction or the difference is very small. Hence, the consumer clusters were generated on the basis of a relative homogeneity of their attitudes towards food attributes based on consumer food expenditure and income levels. The pattern of consumption values associated with these attributes was identified by examining the outcome of the segments.

The final step was to use cross-tabulations to examine the distribution of the clusters in relation to the three food expenditure and income levels, and demographic and socioeconomic attitudes. Chi-square (χ^2) Goodness of Fit Tests (GFT) were conducted for each of the variables (gender, age, education, occupation, monthly food expenditure and income) in each group in order to measure whether each variable is different from each other or not. In order to measure if there is a relationship personal characteristics and their positions, a chi-square test of independence was used. If the p-value was not less than 0.05, the null hypothesis was accepted, which means that the demographic characteristics and their position levels were statistically independent (YILDIZ *et al.*, 2006).

RESULTS

Food attributes and their associated consumption/preference values

Kaiser normalization, which compares partial correlation coefficients with observed ones, was calculated as 0.73, which means that the data sets are at

Table 3 - Final cluster centres and the number of cases in each cluster.

Factor interpretation	Clusters[4]*		
	C1	C2	C3
Involvement (F1)	-0.57	**0.07**	-0.76
Brand satisfaction (F2)	-1.29	**0.51**	0.08
Satisfaction with food quality (F3)	**0.80**	0.27	-0.52
Food safety (F4)	**0.76**	-0.02	-2.55
Price (F5)	**1.49**	**0.85**	**1.50**
Number of cases in each cluster	***70***	***177***	***138***
% of total cases in each cluster	***18***	***46***	***36***

* Final cluster centre scores are at 0.01 significance levels.
* Bold numbers indicate the largest final cluster centre scores for each factor.
The total number of cases (n): 385.

[4] The numbers in this table indicate final cluster centres. The final cluster assignment and Euclidian distance between the case and cluster centre used to classify the case are given for each case.

the perfect level for factor analysis since the test score is greater than 0.50.

The results of principal component analysis for the first five factors are presented in Table 2. These first five factors accounted for 53.80% of the total variance. Factor 1, which accounted for 20.50% of the total variance, was dominated by attributes related to packaging, advertisement, promotion and product weight. Hence, Factor 1 is associated with involvement. Factor 2 accounted for 11.40% of total variance, and was dominated by new design, product origin, brand name and penetration, natural/organic product. Factor 2, therefore, is more associated with brand satisfaction.

Factor 3 accounted for 8.56% of the total variance, and was dominated by three attributes, quality, price-quality relation, and prior consumer experiences. Therefore, this factor includes consumer satisfaction with food quality. Factor 4 accounted for 6.91% of the total variance. Factor 4 was dominated by the attributes of shelf life, taste-freshness and hygiene. Factor 4, therefore, deals more with food safety. Factor 5 is only related to product price and accounted for 6.43% of the total variance.

These factors demonstrate different consumption and preference values in the decision to purchase food products. The question arises as to whether distinct consumer segments are associated with these values. If so, how many consumers are in each segment and how are these segments related to the consumption/preference values listed above? These questions are addressed in the following section of this paper, on the basis of the findings from the factor analysis above.

K-means clustering and consumer segmentations

Three clusters had group means that could be explained reasonably. The final cluster centres and the number of cases in each cluster are presented in Table 3. The total number of cases was 385. Cluster 1 (C1) was the smallest group with 70 consumers. Consumers in this group were more concerned about food quality satisfaction (F3) and food safety (F4). Cluster 2 (C2) was the largest group, containing 177 consumers. Involvement (F1) and brand satisfaction (F2) were the most dominant factors for consumers in this group. As for Cluster 3 (C3), there were 138 consumers in this group, and the price of the product was the most important factor in their purchasing decision, while it was also an important factor for the other two clusters.

Table 4 shows a cross-tabulation between the consumer demographic and socioeconomic characteristics and the three cluster groups. The results show that the ratio of male consumers in each group was higher than that of females. C2 had the highest male ratio (71%) while C1 had the highest female ratio (37%). One of the main reasons why the males were dominant could be due to their lifestyle and social activities practiced by those of the Islamic religion and oriental cultures. The females play a secondary role in social activities and personal interactions.

The distribution of consumers based on age indicates that the 35-54 age group and that over 55 had the highest and lowest portions in all of the clusters, respectively. While C2 had the largest ratio of the 15-24 age group (29%), C1 had the largest ratio of the 25-34 age group (36%).

As for the education levels of the consumers, the lowest ratio was made up of literate people (those who can read and write but do not have a diploma). Consumers with college degrees dominated in C1 (44%), while the ratio of high school graduates was the highest ratio in the other two clusters.

The distribution of occupation of the respondents among the clusters was as

Table 4 - Demographic characteristic and cluster number of cross-tabulation cases.

Demographical characteristics	Cluster number of cases							
	C1 Young high-income		C2 Mature low-income		C3 Mature mid-income		Total Consumer	
	Number	%	Number	%	Number	%	Number	%
Gender								
Male	44	**63**	126	**71**	94	**68**	264	**69**
Female	*26*	*37*	*51*	*29*	*44*	*32*	*121*	*31*
χ^2 GFT	***4.629***		***31.870****		***18.116****		***15.000****	
χ^2 test of independence	***(χ^2 = 1.636, df = 2, p: 0.441)***							
Age Groups								
15-24 age	16	23	52	29	21	15	89	23
25-34 age	*26*	***37***	*47*	*26*	*42*	*30*	*115*	*30*
35-54 age	25	36	69	**39**	63	**46**	157	**41**
55- + age	*3*	*4*	*9*	*6*	*12*	*9*	*24*	*6*
χ^2 GFT	***19.486****		***41.870****		***45.130****		***29.474****	
χ^2 test of independence	***(χ^2 = 12.020, df = 6, p: 0.062)***							
Education								
Literate	3	4	2	1	5	4	10	3
First school	*13*	*19*	*47*	*27*	*39*	*28*	*99*	*26*
High school	23	33	69	**39**	51	**37**	143	**37**
College	*31*	***44***	*59*	*33*	*43*	*31*	*133*	*34*
χ^2 GFT	***25.314****		***59.271****		***35.797****		***36.941****	
χ^2 test of independence	***(χ^2 = 7.545, d f= 6, p: 0.273)***							
Occupation								
White-collar state employ	21	**30**	61	**34**	53	**38**	135	**35**
Blue-collar state workers	6	*9*	10	*6*	9	*7*	25	6
Businessman	*18*	*25*	*35*	*20*	*27*	*20*	*80*	*21*
Pensioner	*3*	*4*	*14*	*8*	*11*	*8*	*28*	*7*
Housewife	9	13	38	20	24	17	71	19
Student	*13*	*19*	*19*	*11*	*14*	*10*	*46*	*12*
χ^2 GFT	***28.718****		***173.798****		***176.058****		***125.815****	
χ^2 test of independence	***(χ^2 = 8.994, df = 10, p: 0.533)***							
Food Expenditure								
Less than €73.5*	0	0	3	2	4	3	7	2
Between €74 and €103	*22*	*31*	*55*	*31*	*51*	*37*	*128*	*33*
More than €103	48	**69**	119	**67**	83	**60**	250	**65**
χ^2 GFT	***46.845****		***115.841****		***68.652****		***92.311****	
χ^2 test of independence	***(χ^2 = 3.840, df = 4, p: 0.428)***							
Income Groups								
*Less than €442****	*21*	*30*	*66*	***37***	*30*	*22*	*117*	*30*
Between €443 and €882	14	20	58	33	66	**48**	138	**36**
More than €882	*35*	***50***	*53*	*30*	*42*	*30*	*130*	*34*
χ^2 GFT	***46.963****		***109.881****		***89.237****		***74.741****	
χ^2 test of independence	***(χ^2 = 23.753, df = 4, p: 0.000)****							

*** The prices of the products were converted from New Turkish Lira (NTL) to Euro (€) using the exchange rate on November 15, 2007. The conversion rate used was 1.70 NTL/€;
** p<0.05; * p<0.01.

follows: the white-collar state employees made up the highest ratio in all of the clusters, blue-collar state workers and pensioners had the lowest. Businessmen had the second highest ratio in all of the clusters. Finally, the ratios of housewives and students were the lowest and highest in C1 (13% and 19%, respectively).

The results related to household food expenditures show that families whose monthly food expenditures exceed €103 dominate in all of the clusters (all have over 60% ratio). As for income levels, the highest ratio in C1, C2 and C3 correspond to more than €882 (50%), less than €442 (37%) and between €443 and €882 (48%), respectively.

With respect to chi-square GFT, the differences in relation to the distributions of demographic characteristics in C1, C2 and C3 are statistically significant. For example, the differences in the distribution of males and females in C1 (χ^2 = 19.49, $p<0.01$) are statistically significant. In the contrast, in accord with the chi-square test of independence, in which the variables in all the groups are more than p=0.05, all of the demographic characteristics (except for income) and their positions are statistically independent.

Characteristics of cluster groups

Based on the final cluster centres of the factors and demographic characteristics of the consumers in each cluster, the cluster profiles were determined. The main demographic characteristics of C1 are younger people (25-34 age group) with higher income (more than €882) and education (college degree) levels. This cluster is called "young high-income professionals". Food quality satisfaction, food safety and price were the most influential factors on purchasing decisions of respondents in C1. This means that the highest significance was ascribed to consumer satisfaction with the food product; a blend of food quality satisfaction, food safety and price influenced their food choice and buying decisions (FORBES *et al.*, 1986; PATTERSON *et al.*, 1997; HOMBURG and GIERING, 2001).

The dominant demographic characteristics of group C2 were mature (35-54 age group), high school graduates with a low income level (less than €442). C2 can be called "mature low-income professionals". The most important factors in group C2 were involvement, brand satisfaction and price. These factors indicate that respondents in C2 took into consideration brand loyalty connected with brand satisfaction, involvement and price. Involvement and brand satisfaction could cause the target customers to become the cognitive and affective loyalty approach toward food products (SIROHI *et al.,* 1998; YI and LA, 2004; OLSEN, 2007).

Finally, respondents in C3 were mostly mature (35-54 age group), high school graduates with a mid-income level (between €443 and €882). This group was called "mature mid-income professionals". Price was the most important factor in this cluster.

DISCUSSION

The results show that there are systematic cognitive and affective patterns among consumers in terms of their attitudes towards food product attributes. The consumption/preference values underlying these patterns clearly show that price plays the most important role in all clusters, but particularly in C3. On the other hand, consumer satisfaction with food products had the second greatest influence on food choice and buying decision for consumers in C1. It is believed that food satisfaction influences choice and the more willing is the consumer to pay for this food. When a consumer is very satisfied with a food product, she/he will increase her/his food expenditure share for this food. For example, participants in C1 had the highest income lev-

el; therefore, they took into consideration food satisfaction that includes safer and higher quality food products.

DREWNOWSKI and SPECTER (2004) stated that the effect of price and quality on food consumption is more complex. Many studies have found that price is the one of the most important factor affecting the choice of food (REICHHELD and TEAL, 1996; DRANSFIELD *et al.,* 1998; SIROHI *et al.,* 1998; REINARTZ and KUMAR, 1999; YI and JEON, 2003; WADOŁOWSKA *et al.,* 2007). Similarly, consumer satisfaction with higher quality, perceived value and safer foods has a positive effect on buying behaviour and food choice motivation. Consumer demand could, therefore, be increased considerably by these food products and consumers could allocate an important share of their expendable incomes to these foods (FORNELL and WERNERFELT, 1987; WESTBROOK and OLİVER, 1991; MARR and CROSBY, 1992; OLSEN, 2007).

In their evaluations of food attributes, consumers mainly check the factors that affect their satisfaction under effective cognitive involvement since they have limited processing capacity (LAROCHE *et al.*, 2001). The focal point of this decision-making mechanism constitutes their cognitive loyalty and this could turn into cumulative/action loyalty due to a positive relationship between the two constructs (ANDERSON *et al.,* 1994; OLIVER, 1993 and 1997; FAGERLI and WANDEL, 1999; ANDERSON and SIRINIVASAN, 2003; YI and LA, 2004; OLSEN, 2007).

In this study, even though brand loyalty including brand satisfaction and involvement based on visual food attributes had the lowest overall impact level on consumer purchasing decisions, the significance level of these factors was the highest in group C2. This could have been due to the consumer income levels. Group C2 had the lowest income level and consumers in this group tend to pay more attention to lower-price local-brand, organic products. Choosing of local-brand, organic foods could be due to cultural values, beliefs and tastes. Local-brand foods tend to be cheaper and meet the expectations (tastes) of more conservative people. In addition, knowing the origin leads consumers to trust the local brands more. As a result, the local people believe that the more people demand local-brand products, the more their local economy will grow. To develop the local economy, the people in the region should become intensively involved in supporting local-brand foods.

Traditionally, local consumers focus on moral criteria regarded as being basic to the norms of local economic improvement and on Turkish family dependability, such as filial submission, caring for the aged, righteousness, humility, good faith and loyalty. These values have begun to be affected by food satisfaction values due to recent socioeconomic and cultural changes in Erzurum have begun to reshape the norms of individual consumer behaviour.

In many situations, the motivation for food choice focuses on food attributes but depends mostly on the socioeconomic and demographic characteristics of the consumer. The demographic characteristic of the consumer affects and reflects his psychological state, cultural values and behaviour (DICKERSON and GENTRY, 1983; ARENI *et al.,* 1998; KALYANAM and PUTLER, 1997; REINARTZ and KUMAR, 1999; TOPCU, 2006). These characteristics, therefore, cause target consumer masses to behave differently toward food products.

The impact of gender on buying behaviour has been the topic of some research (SLAMA and TASHLIAN, 1985). The purchasing behaviour of women has been found to be strongly influenced by their evaluation of personal interaction processes. Compared to men, women are more involved in purchasing activities (SLAMA and TASHLIAN, 1985), and pay more attention to the consulting services of the sales personnel (GILBERT and

WARREN, 1995). In this study, however, fewer females participated in the purchasing activities due to local cultural norms, but those who participated paid more attention to food satisfaction. In contrast, the males were more involved in the buying activities and focused on food price and local-brand loyalty. These findings suggest that gender could influence the association between the dimensions of satisfaction and loyalty.

Age is another demographic characteristic that has attracted the attention of many researchers. Researchers have compared differences in the ability of young and elderly customers to process information needed to evaluate a product (ROEDDER and COLE, 1986; SMITH and BALTES, 1990). Most of these studies concluded that information processing declines with age (GILLY and ZEITHAML, 1985). Older people have restricted information-processing capabilities; therefore, they pay more attention to local-brands and prices. Hence, their reactions to satisfaction shifts might also change. On the other hand, younger participants take food satisfaction into more consideration since they have wider information-processing capabilities.

The income of a person is assumed to have a strong impact on choice decisions (LAROCHE and TOFFOLI, 1999; TOPCU and ISIK, 2008). In a general sense, it is assumed that people with higher income have achieved a higher level of education and better jobs. Thus, they usually engage more in information processing prior to the decision making process, and their choice is essentially based on the evaluation of the information given to them. Due to their cognitive capacities, they are supposed to feel more comfortable when dealing with and relying on new information inputs. In this study, consumers with higher income, better education and occupation pay more attention to food satisfaction on buying decisions. On the other hand, local-brand loyalty and food prices have important effects on the choices of the others.

Consequently, food satisfaction and local-brand loyalty, once measured by scholarly activity, has become more or less associated with socioeconomic and demographic characteristics. With the use of multiple group causal analysis, significant differences were found across subgroups concerning the relationship between satisfaction and loyalty for each of the moderators (demographic and socioeconomic characteristics). Thus, this research makes a significant contribution to a better understanding of the role of the link between main factors (i.e., food satisfaction, local-brand loyalty and price) and personal characteristics.

This research also indicates that the existing moral values of the oriental culture in Erzurum, i.e. educating youth and caring for the aged, affect the behaviour that is consonant with social identity. Instead of symbolizing the moral standards of a particular class, behaviour represents the wealth and privileges of the people. Many studies have attributed these changes in cultural values to an increased exposure of consumers in Erzurum to western cultural values that are materialistic (ALPMAN, 2005; MURGAN, 2006; BATI, 2007). Thus, consumer satisfaction with food products and local store brand loyalty could be the consequence of the gradual intermingling of local and western cultural values.

CONCLUSIONS

This paper estimates the major factors affecting food choices and buying decisions of consumers in Erzurum city, Turkey. Factor and k-means cluster analyses were used to determine the prominent attributes of the products and the clusters of consumers based on the relative homogeneity of attitudes towards food attributes. The results show

that among the factors influencing food choice for Turkish consumers, price is the most significant factor in all clusters. C3 has a strong correlation with consumer satisfaction including food quality and food safety attributes. Consumer satisfaction with food products was derived from a blend of these factors and was the second most important factor in C1 due to interactions among them. Thirdly, local-brand loyalty had a moderate affect but was not an important factor in food choice in C2.

The results of the study indicate that the moderating impacts of selected personal characteristics on consumer satisfaction, local store brand loyalty and price played a statistically significant role. Hence, this study makes a significant contribution to a better understanding of the association between main factors and personal characteristics. It also shows that the effectiveness of the nutritional policy in Turkey is currently related to various factors that influence food satisfaction and brand loyalty. The greatest interest of consumers in Erzurum is aroused by high quality and local-brand foods that are tasty, fresh, healthy, safe, and cheap.

The results also show there could be increased food satisfaction by choosing a local store brand, which could lead to the desired changes in Turkish nutrition. However, it is much more difficult to influence consumers who are not interested in food quality. Negative or neutral attitudes toward food quality were found more frequently in men, adults with elementary school education and individuals who described their economic condition as bad. Their nutritional habits could be improved through the influence of their families and the role played by women, and in the future, by improving their economic situation and through education, including an increased nutritional awareness. Policy makers, food manufacturers and marketers, on the other hand, could improve marketing policies, (i.e., marketing tactics and strategies) by basing them on food attributes and the attitudes of the Turkish consumer masses.

Even though this study has some scientific merit for the academician, policy maker and the food manufacturing community, there are some limitations. One limitation is that the survey was conducted in only one city. While the study does not represent all Turkish consumers of food products, it may give some indication of current trends.

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