



Analysis of Factors Affecting Consumers in UHT Milk Consumption: The Case Study of Erzurum

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ABSTRACT

The primary purpose of this study was to determine factors influencing consumer preferences for UHT milk consumption in Erzurum province. The primary data used in this research was derived from Palandoken, Yakutiye and Aziziye districts of Erzurum province in 2010. The factor analysis was used to find out the factors affecting consumer preferences for UHT milk and to reduce these factors. As for the segmentation of consumers and bringing out the profile of each segment, cluster analysis was used. According to the results, 95.00% of households consumed UHT milk. 18 factors that are affecting the consumption of UHT milk were reduced to five main factors with factor analysis. The factor scores which determined with factor analysis were divided into three clusters by cluster analysis. UHT milk for consumers entering the first cluster has because of homogenous and packaging as well as intrinsic and extrinsic properties for advertising and price advantage is preferred. UHT milk for consumers entering the second cluster has ease of preparation and transportation, and confidential properties are preferred by reason. On the contrary, consumers entering the third cluster prefer to UHT milk for a good diet product.

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ÖZ

Çalışmanın amacı Erzurum ilindeki hanelerin UHT sütü tercih etmesinde onları etkileyen faktörleri belirlemektir. Araştırmada kullanılan birincil veriler 2010 yılında Palandöken, Yakutiye ve Aziziye ilçelerinden sağlanmıştır. Tüketicilerin UHT süt tercih etmesinde etkili olan faktörlerin belirlenmesinde ve bu faktörlerin indirgenmesinde faktör analizi kullanılmıştır. Tüketicilerin segmentlere ayrılması ve her bir segment profilinin ortaya çıkarılmasında, kümeleme analizi kullanılmıştır. Araştırma sonuçlarına göre; hane halkının%95,00'ı UHT süt tüketimi yapmaktadır. UHT süt tüketimi üzerine etkili olan 18 faktör, faktör analizi ile 5 ana faktöre indirgenmiştir. Faktör analizi ile elde edilen faktör skorları kümeleme analizinde 3 kümeye ayrılmıştır. Birinci kümeye giren tüketiciler için UHT süt, homojen olması ve ambalajı gibi içsel ve dışsal özelliklerinin yanısıra reklam ve fiyat cazibesi nedeniyle tercih edilmektedir. İkinci kümeye giren tüketiciler için hazırlanma ve ulaşım kolaylığı ve UHT süte olan güven nedeniyle UHT süt tüketilirken, aksine üçüncü kümeye giren tüketiciler için iyi bir diyet ürünü olması nedeniyle tercih edilmektedir.

Introduction

Nutrition is taking of human nutritional elements required for growth, development, and living healthily for a long time at the extent of the need, during the day regularly. In meeting the nutritional needs of people, milk and dairy products are the leading (Altun et al., 2002; Baysal, 2004). In studies today, it is put forth that the possibilities of getting ill of individuals of all ages who have a weakened immune system due to poor nutrition have been increasing (Chandra, 1977).

The cow's milk, which is as old as human history, has become a source of protein and energy for humans. Babies and adults have started to drink cow milk easily by making changes in the lactase gene (Burger et al., 2007; Loss et al., 2015). Cow's milk, like breast milk, strengthens the immune system of people and increases the resistance of people to the infections they meet (Labbok et al., 2004).

Milk and dairy products have a rather prominent place in foods of animal origin in the sense of human health. Milk is a nutrient which contains all essential amino-acids and quality proteins, and it is rich in calcium, phosphorus, and riboflavin (Petti et al., 1997; Tekinsen, 2000; Metin, 2001; Seker et al., 2012; Sahni et al., 2013). The calcium contained in milk is quite crucial for bone health and healthy nutrition with other minerals it includes (Demirci, 1981; Chapman and Boor, 2001; Wham and Worsley, 2003; Hatirli et al., 2004).

According to the 2016 year data, in Turkey 18.1 million milk has been producing, and 92.7% of this milk is cow's milk, 5.1% is ewe, 1.9% is a goat, and 0.3% is water buffalo milk (FAO, 2018). Also, according to 2017 data, there are 1.62 million tonnes processed milk, and it was obtained as a percentage from cattle, goats, sheep, and buffalos 95.59, 2.62, 1.69 and 0.10, respectively (TURKSTAT, 2018). If it is assumed that milk which is produced in Turkey does not be converted to milk product, when the performed rate of milk to Turkey population, milk consumption per capita is nearly 223 kg. If it is assumed that milk is converted to dairy products half-and-half, it can clarify that individuals consume milk approximately over 100 kg. Milk is an available nutrient for settling of microorganisms from the production phase to reaching to the consumer. The probability of getting diseases like Brucella, Tuberculosis, Typhoid, Paratyphoid, Foot-and-mouth disease, Charbon, and Jaundice increases for people who drink milk not subjected to heat treatment. Moreover, milking should be in the sterile and scentless environment and boiling or processing to heat treatment should be made after a little while of milking (Wham and Worsley, 2003; Demircan et al., 2011; Uzundumlu, 2011).

In Turkey-Specific Nutrition Guide which is published by National Council of Milk and Dairy Products, it is offered for adults to consume 2 medium-sized water glass of (200×2 ml), for children, teenagers, pregnant and breastfeeding and in postmenopause women to consume 3-4 medium-sized water glass of (600-800 ml) milk (Unal and Besler, 2006).

In studies, beside the statement of that in general milk and dairy products affect positively to human health and especially milk is an vital calcium source; some consumers think that milk fattens up, and other some

consumers think that in order to increase shelf life of packaged milk, detrimental chemicals are used (Bus and Worsley, 2003; Simsek et al., 2005; Akbay and Tiryaki, 2007). The reason for preferring processed milk is that it is quality, guaranteed, and hygienic, also its shelf-life is long, and it can be stocked readily (Akbay and Tiryaki, 2008).

While in daily nutrition milk is generally drunk hot or cold, also it is consumed through foods like yogurt, buttermilk, cheese, butter, rice pudding, etc. (Uzundumlu, 2011).

The purpose of this study is to determine how many houses in Erzurum are consuming UHT milk and to construct a general profile of consumer preferences; in that way, to determine factors affecting consumers in preferring UHT milk. The results obtained, will help retailers who produce and market UHT milk and products to determine marketing strategies.

Material and Method

Material

Information provided from surveys which were made with households consuming drinking milk in Erzurum has constituted the primary data of the study. As for, secondary data have been provided from relevant public institutions, domestic and foreign scientific studies, journal and various publications.

Method

In order to provide participating of consumers who represent Erzurum in the sample homogeneously, by caring the central districts (Palandoken, Yakutiye, and Aziziye) and all households in these districts, the research area has been divided into three groups. By stating some households in each district, their sample sizes were specified coincidentally according to the sampling (Collins, 1986; Topcu and Uzundumlu, 2009; Uzundumlu, 2011).

$$n = \frac{N \times t^2 \times p \times q}{d^2 \times (N-1) + t^2 \times p \times q}$$

- n : The desired sample size (384 people),
- N : Population size of Erzurum province (381 804 people),
- p : As a result, there is no information about the type of milk consumed, P-value has been taken fifty percent to reach maximum sampling (0.50),
- q : The proportion of non-occurrence of the event (0.50),
- t : the calculated value in the t table at the 95% confidence level (1.96) and
- d : absolute precision (deviation level) (±0.05)

UHT milk is used in 95% of household. Therefore, the study was conducted with 365 surveys.

It is wanted from producers participated in the survey to answer beside economic and demographic questions, also 5 point likert questions about UHT milk consuming (1. It is nothing, 2. Unimportant, 3. I have no idea, 4. Important and 5. Very important).

In evaluating data Factor and Clustering analysis have been used. Factor Analysis has been used in determining factors affecting consumers to prefer UHT milk and in reducibility of these factors, as for Clustering Analysis has been used in splitting consumers into segments and in finding out of each segment profile.

Results

In Table 1, criteria that household takes into consideration while they consume UHT milk has been shown.

According to a total of the first three choices, households take into consideration expiration date with 82.19%, brand with 79.45%, price with 49.59%, and nutrient content with 41.64%. In the purchase of UHT milk, according to first choices, 43.01% of them take into

consideration the expiration date, 27.12% of them consider the brand and 14.79% of them pay attention to the price. For households packing, basis weight and aroma are not taken into consideration in first choices generally.

A significance level of factors affecting consumers to prefer UHT milk has been given in Table 2. The most essential factors in preferences of UHT milk are that taste of milk, it is beneficial to health, there is not any doubt about hygiene, the probability of being spoiled milk is so low, its nutrient content is preserved, reliance for brands on these milk, the fact that experts and its shelf life offered it is long. As for the least significant factors in consumers' choice of UHT milk are that there is promotion, and there are kinds of them whose oil rate is low.

Variances used in factor analysis concerning UHT milk and their explanation have been given in Table 3.

Table 1 Criteria considered in the purchase of UHT milk

The factors	1. Preference		2. Preference		3. Preference		Total preferences	
	Number	%	Number	%	Number	%	Number	%
Expiration date	157	43.01	92	25.21	51	13.97	300	82.19
Brand	99	27.12	138	37.81	53	14.52	290	79.45
Price	54	14.79	51	13.97	76	20.82	181	49.59
Nutrient content	42	11.51	36	9.86	74	20.27	152	41.64
Packing	3	0.82	26	7.12	58	15.89	87	23.84
Weight	6	1.64	12	3.29	41	11.23	59	16.16
Flavoured	4	1.10	10	2.74	12	3.29	26	7.12

Table 2 The factors affecting consumers at UHT milk consumption

The factors	Mean	Standard deviation
Taste	4.43	0.82
Be beneficial regarding health	4.39	0.92
For there is no doubt about hygiene	4.38	0.99
Likely to corrupt of the milk is too low	4.26	0.99
The preservation of the food content	4.25	0.92
Brand	4.11	1.00
Have been proposed by experts	4.08	1.10
Have a long shelf life	4.07	1.05
Having tagged	3.94	1.11
Not practical (no need to boil)	3.92	1.12
Ease of transportation	3.78	1.18
To be homogeneous	3.68	1.17
Be full-fat	3.42	1.23
Price	3.28	1.29
The grammage of the product	3.28	1.24
Packaging and appeal	3.21	1.32
Advertising / promotions	2.93	1.31
Appropriate for diet (light)	2.60	1.38

Table 3 Variances effective in UHT milk consumption for factor analysis, and their explanations

Variables	Description	Variables	Description
PRICE	The price of the product	LABEL	Having labeled
BRAND	The brand of the product	SHELF	Have a long shelf life
TASTE	The product flavor	WEIGHT	The grammage of the product
HYGIENE	There is no doubt about hygiene	ADVPROM	Advertising and promotion
LOWFAT	To comply with the diet Types	DONTCORRUPT	Milk is not corrupted
FULLFAT	Be full-fat	EXPERT	Experts have suggested
HOMOGEN	To be homogeneous	HEALTH	The fact that healthy products
PACKING	Packaging and appeal	TRANSPORT	Ease of Transportation
NUTRIENT	The nutrient content of the product	PRACTICAL	I do not need to boil.

Results of factor analysis relevant to UHT milk have been given in Table 4. Chi-square value of the Bartlett test has been calculated as 1644.1 (P:0.000), and the unit matrix hypothesis is refused (P<0.000). Also, the rate of Kaiser-Meyer-Olkin (KMO) is 0.811, and it shows that data are appropriate for factor analysis.

In Table 4, the 18 active factors on UHT milk consumption have been reduced to 5 main factors that explain 55.52% of the variance with the factor analysis. By benefiting from rotated factor loads by looking meanings that items in factor carried; by taking into consideration that it is beneficial to health, its probability to be spoiled milk is low, is offered by experts, there are no doubts about hygiene, taste, and nutrition content of the product, 1st factor is named as “Confidence in UHT Milk”. Due to reasons like that component forming the 2nd factor are homogeneous, its packaging and attraction, it is labeled, full-fat, and its shelf-life is long, the 2nd factor is named as “Internal and External Features.” Due to components forming 3rd factor, the price of the product, being advertisement and promotion, the 3rd factor is named as “Price Attraction.”

Due to components forming the 4th factor are being accessed and practical, the 4th factor is named as “Easiness.” The component forming the 5th factor is that the product is low-fat. For this reason, the 5th factor is named as “Dietary Product.” Moreover, the two components did not enter into any category. These components are brand and basis weight of the product. In general UHT milk is in similar features and basis weight and it can be shown as the reason of that these

components do not take part in any factor group.

By taking into consideration that consumer masses' adoption levels of these factors to factor scores obtained with factor analysis have been divided into 3 clusters with clustering analysis which is not hierarchic. In the first cluster 193, in the second cluster 139, and in the third cluster 33 households took part.

In Table 5, the importance given by consumers who took part in these three clusters for active factors in UHT milk purchase has been lined up.

In the first cluster, while Internal and External Feature (F2) has been taking positive value in UHT milk purchase, Price Attraction (F3) and Dietary Product (F5) followed this. In other words, at households taking part in this group, consumers give most importance to its external features like being long shelf life, packaged product, and labeled; besides internal features of milk like being full-fat, and homogeneous. Besides this when price attraction at UHT milk increased, UHT milk preference of consumers taking part in the first cluster also increases. Another important reason is that there are dietary kinds of UHT milk.

In the second cluster, Easiness (F4) and Confidence in UHT Milk (F1) took the highest positive values in UHT milk purchase. In other words, households taking part in this group have been consuming UHT milk due to that they can reach them in markets, which are the smallest units of its sale is made, at all hours of the day and also its advantages of presenting to use without the need for boiling.

Table 4 Rotated factor loads for UHT milk (Rotated Component Matrix)

The factors	F1	F2	F3	F4	F5
F1 (Confidence in UHT Milk)					
HEALTH	0.742	0.093	0.053	0.103	-0.080
DONTCORRUPT	0.686	0.145	0.042	-0.007	0.224
EXPERT	0.651	0.015	0.344	0.186	0.058
HYGIENE	0.643	0.187	0.023	0.049	-0.004
TASTE	0.566	0.243	0.146	0.132	-0.464
NUTRIENT	0.496	0.450	-0.181	0.072	-0.227
F2 (Internal and External Features)					
HOMOGEN	0.229	0.734	0.043	0.045	-0.002
PACKING	-0.008	0.580	0.099	0.144	0.212
LABEL	0.334	0.569	0.034	0.232	0.071
FULLFAT	0.061	0.546	0.275	-0.047	-0.150
SHELF	0.452	0.500	-0.079	0.071	0.067
WEIGHT	0.106	0.453	0.431	0.062	0.161
F3 (Price Attraction)					
PRICE	0.028	0.122	0.768	0.037	-0.179
ADVPROM	0.115	0.050	0.660	0.203	0.289
F4 (Easiness)					
TRANSPORT	0.078	0.108	0.093	0.837	-0.007
PRACTICAL	0.157	0.121	0.111	0.812	0.036
F5 (Dietary Product)					
LOWFAT	0.142	0.247	0.129	0.090	0.747
BRAND	0.351	0.393	0.273	0.160	-0.407
Eigen-value	2.997	2.537	1.595	1.595	1.27
Share of explained variance	16.649	14.094	8.864	8.861	7.055
Cumulative share of explained variance	16.649	30.744	39.607	48.468	55.522

Bartlett's test of Sphericity Chi-square df: 1644.1 (P: 0.000), KMO (Kaiser-Meyer-Olkin) Statistic: 0.811

Table 5 Effects of effective factors in UHT milk purchase in the clusters

Main variables	Clusters		
	1	2	3
F1 (Confidence in UHT Milk)	0.13	0.30	-2.04
F2 (Internal and External Features)	0.41	-0.44	-0.49
F3 (Price Attraction)	0.39	-0.49	-0.25
F4 (Easiness)	-0.27	0.44	-0.26
F5 (Dietary Product)	0.28	-0.53	0.57
Number of observations	193.00	139.00	33.00
Share the main mass (%)	52.88	38.08	9.04

In the third cluster, Dietary Product (F5) took only positive value in UHT milk purchase. The only positive aspect of the UHT milk according to households in this group is that they see it as a dietary product.

In Table 6, demographic, social, and economic features of producers in three clusters are given.

When looking from the point of income status, 30.13% of households making UHT milk consumption are low-income, 36.99% of them are middle income, and 32.88% of them are high income. 70.42% of households in the first cluster take part in a low and middle-income group. 65.47% of households in the second cluster take part in a middle and high-income group. 75.76% of households in the third cluster take part in a middle and high-income group.

When looking from the point of age groups, 32.60% of households making UHT milk consumption are young, 38.63% of them are middle-aged, and 28.77% of them are high income. 70.47% of households in the first cluster are young and middle-aged. 68.35% of households in the second cluster are adults and elders. 75.76% of households in the third cluster are young and adult.

When looking from the point of education groups, 32.33% of households making UHT milk consumption are poorly educated, 35.34% of them are middle, and 32.33% of them are well-educated. 68.39% of households in the first cluster are middle and well educated. 71.94% of households in the second cluster are poorly and middle educated. 75.76% of households in the third cluster are middle and well-educated people.

Discussion

The study has been conducted with 384 surveys. Percentage of household making UHT milk consumption is 95%. This rate determined as 87.0 percent by Cevger et al., (2008) and as 87.7 percent by Karakaya and Akbay (2013). Also, Para et al. (2018), researching of university students' fresh milk consumption in this study, they determined that 57.2% of the students prefer pasteurized milk, 27.3% preferred UHT milk and 15.5% preferred raw milk.

The fluid milk in this study consists of all cow's milk in liquid available in the grocer, market and supermarket including UHT milk. Other studies percentage between 75.0 Hu et al. (2004), 91.3 Andic et al. (2002), 83.7 Cevger et al. (2008) and by Para et al. (2018), 81.3 percent of person or households in purchase milk from supermarkets.

In the Turkey daily per capita, total fluid milk consumption is 0.37 liters. While milk consumption was

64% less than developed countries, and 38% higher than developing countries (Gonenc and Tanrivermis 2008). In our, this study, daily per capita fluid milk consumption in Erzurum province, total fluid milk consumption and UHT milk consumption is 0.15 liters and 0.08 liters respectively. Consumer consumed 1.62 million tonnes of processed milk in 2017 (TURKSTAT, 2018). If it is assumed that this value proportioned to the Turkey population, processed milk consumption per capita will 20 liters.

In scientific studies, it is stated that adult individuals should consume in average 0.4-liter milk per day (Unal and Besler, 2006). This expression shows that households consume very little milk. Researchers have reported essential trends in beverage consumption during the past few decades, most notably an increase in per capita regular carbonated soft drink consumption and a decrease in per capita fluid milk consumption (Nielsen and Popkin 2004; Storey et al., 2006).

According to the results of the study, while households are purchasing UHT milk, according to the total of the first three choices, 82.19% of them take expiration date into consideration, 79.45% of them consider the brand, 49.59% of them pay attention to price, and 41.64% of them take nutrition content into consideration. In UHT milk purchase, according to the first choices, 43.01% of them consider expiration date, 27.12% of them consider the brand, and 14.79% of them consider the price. Generally, for households, packaging, basis weight, and aroma at UHT milk are not taken into consideration among the first choices. Andic et al., (2002), in this study, households are purchasing UHT milk, according to a total of the first three choices expiration date, brand and price is 52.9%, 1.0% and 13.7% respectively.

The most critical factors on consumers to prefer the UHT milk are its taste, being beneficial to health, being non-doubted about hygiene, the facts that probability of being soiled milk is quite low, its nutrition content is preserved, there is confidence in brands which produce this milk, experts and its shelf life suggest it is long.

Active 18 factors on UHT milk consumption have been reduced five main factors which explain 55.52% of the variance with the factor analysis. 365 households which purchased UHT milk, by considering their adoption levels to these factors, through scores obtained, have been divided into 3 clusters with clustering analysis which is not hierarchical. In the first cluster 193, in the second cluster 139, and in the third cluster 33 households take part.

Table 6 Demographic, social, and economic features of producers in the clusters

			Clusters			Total
			1	2	3	
Income groups	Low income group (TRY 500-1100)	N	54	48	8	110
		%	14.79	13.15	2.19	30.13
	Middle income group (TRY 1101-1800)	N	82	41	12	135
		%	22.47	11.23	3.29	36.99
	High income group (TRY 2000+)	N	57	50	13	120
		%	15.62	13.70	3.56	32.88
Age groups	Young (22-38 years)	N	63	44	12	119
		%	17.26	12.05	3.29	32.60
	Mature (39-50 years)	N	73	55	13	141
		%	20.00	15.07	3.56	38.63
	Old (51+ years)	N	57	40	8	105
		%	15.62	10.96	2.19	28.77
Education groups	Low (0-8 years)	N	61	49	8	118
		%	16.71	13.42	2.19	32.33
	Middle (9-12 years)	N	65	51	13	129
		%	17.81	13.97	3.56	35.34
	High (13+ years)	N	67	39	12	118
		%	18.36	10.68	3.29	32.33
Total		N	193	139	33	365
		%	52.88	38.08	9.04	100.00

The socioeconomic and demographic characteristics of the households and their heads in Turkey play an essential role in fluid milk consumption choices (Akbay and Tiryaki, 2007; Akbay and Tiryaki, 2008). Results reveal that better-educated household heads, higher income households, and households with children under 14 years of age consume more sterilized milk than others (Akbay and Tiryaki, 2007; Fuller et al., 2007). Also, Bhaskaran (2018) said that the consumption of milk in people of middle and advanced age group is also gradually decreasing. People prefer raw milk to UHT milk through it has some problems concerning health and hygiene and has a short shelf life. For this reason, there are need to informed about UHT milk of consumer.

In the first cluster 70.42% of households which forms approximately 53% of the main mass are low and middle income, 70.47% of them are young and adults, and 68.39% of them are middle and well-educated people. In the first cluster, while Internal and External Feature (F2) has been taking positive value in UHT milk purchase, Price Attraction (F3) and Dietary Product (F5) followed this. In other words, most of the households taking part in this group have the head of household that has income below 1800, is younger than 50, and has nine years and above education. The households taking part in the first cluster, consumers give most importance to its external features like being long shelf life, packaged product, and labeled; besides internal features of milk like being full-fat, and homogeneous. When price attraction occurs at UHT milk, UHT milk preference of consumers taking part in the first cluster also increases, and due to that there are dietary kinds of UHT milk, they prefer it. Milk marketing firms, according to the first cluster consumer profile, should inform the consumer about their full or low-fat kinds, should give complete information about shelf life and content of the milk on labels, and should let the consumer have it with promotion or price reduction.

In the second cluster 65.47% of households which forms approximately 38% of the central mass are middle and high-income families, 68.35% of them are adult and elders, and 71.94% of them are poor and middle educated people. Easiness (F4) and Confidence in UHT Milk (F1) took the highest positive values in UHT milk purchase. In other words, the households of this group have over 1100 TRY income, 39 and above aged father of the family, and 13 and below year educated head of household. Households taking part in the second group have been consuming UHT milk due to that they can reach them in markets, which are the smallest units of its sale is made, at all hours of the day and also its advantages of presenting to use without the need for boiling. When milk marketing firms remove troubles of the second cluster consumer profile to reach these milk, they will already contribute more consumption of milk by these mass that considers ease of use of the UHT milk.

In the third cluster 75.76% of households which forms approximately 9% of the main mass are a middle and high-income group, 75.76% of them are a young and adult group, and 75.76% of them is a middle and well-educated group. In the third cluster, Dietary Product (F5) took only positive value in UHT milk purchase. In other words, households of this group have over 1100 TRY income, below 50 aged father of the family, and 9 and above year educated head of household. The only positive aspect of the UHT milk according to households in this group is that they see it as a dietary product. Milk marketing firms, by considering preferences of the third cluster consumer profile, besides only seeing as a dietary product, should make informative advertising in order to break their lack of confidence in UHT milk.

When the marketer removes troubles in features of UHT milk that these consumers give importance, producers, mediators and consumers will be profitable.

Conclusions

This paper estimates the significant factors affecting UHT milk choices and buying decisions of consumers in Erzurum city, Turkey. Factor and cluster analyses were used to determine the extended attributes of UHT milk and the clusters of consumers based on the relative homogeneity of attitudes towards UHT milk attributes. As a result, only 5% of households are making the consumption of UHT milk. The most important feature for UHT milk consumption in households is an expiration date. 82.19% of the households look to the expiration date when UHT milk is buying. Other than this, 79.45% of the households prefer brands and 49.59% of the households prefer price when UHT milk is buying. Scores of factors analyze have been divided into 3 clusters with clustering analysis which is not hierarchical. 91% of the household make up first and second clusters. The most significant interest of UHT milk consumers in Erzurum demand features like being long shelf life, packaged product, and labeled, full-fat, and homogeneous, to reach them in markets, which are the smallest units of its sale is made, at all hours of the day and also its advantages of presenting to use without need for boiling.

Even though this study has some scientific merit for the academicians, policy maker, and the milk 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 milk, it may give some indication of current trends.

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