



Research Article

Turkish Consumers' Purchase Decisions towards Erzurum Stuffed-kadayif with Protected Geographical Indication at Dessert Retailers

Yavuz Topcu^{1*} 

¹Department of Agricultural Economics, Agriculture Faculty, Atatürk University, Erzurum, Türkiye

*Corresponding author: yavuztopcu@atauni.edu.tr

Received Date: 22.07.2023

Accepted Date: 13.12.2023

Abstract

Global climate change has rapidly changed consumers' attitude and behavior toward food products by affecting significantly their supply and demand. In this context, the study was planned to determine the main factors affecting Erzurum Stuffed-kadayif purchasing decisions of Turkish consumers. The main material of the research was obtained from 385 households residing in Erzurum, Turkey in 2019. Exploratory Factor Analysis and Two-step Cluster Analysis were used to explore Turkish consumers' Erzurum Stuffed-kadayif purchase decisions at its retailers. The results of the research highlighted that while consumers consuming this product at the local restaurants or buying from the retailers satisfied fairly high from hedonic quality attributes under the sensory perception, those consuming the product at the local patisseries also provided a higher hedonism satisfaction by focusing on their willingness to consume healthy food. Similarly, consumers purchasing Erzurum Stuffed-kadayif from the local manufacturer stores tried to contribute considerably to sustainable food supply and consumption with entrocenrism approach by considering emotional food perception under food safety and security making possible to consume healthy food. Consequently, it should be improved appropriate positioning and segmentation strategies according to the purchase decisions of each consumer segment, and then they should be also able to implement.

Keywords: Cluster Analysis, Erzurum Stuffed-kadayif, Exploratory Factor Analysis, Hedonic and sensory attributes, Purchase decision

Tatlı Perakendecilerinde Coğrafi İşaretli Erzurum Kadayıf Dolmasına Yönelik Türk Tüketicilerin Satın Alma Kararları

Öz

Global iklim değişiklikleri, gıda ürünlerinin arz ve taleplerini önemli ölçüde etkileyerek, tüketicilerin gıda ürünlerine yönelik tutum ve davranışlarını hızlı bir şekilde değiştirmiştir. Bu kapsamda araştırma, Türk tüketicilerin Erzurum Kadayıf Dolması satın alma kararlarını etkileyen ana faktörleri belirlemek için planlanmıştır. Araştırmanın ana materyali, 2019 yılında Erzurum'da ikamet eden 385 hane halkından elde edilmiştir. Keşfedici Faktör Analizi ve İki Aşamalı Kümeleme Analizi, geleneksel tatlıları arz eden perakendecilerden tüketicilerin Erzurum Kadayıf Dolması satın alma kararlarını etkileyen faktörlerin belirlenmesi için kullanılan araştırma modellerini ifade etmektedir. Araştırmanın sonuçları; yerel restoranlarda bu ürünü tüketen ya da perakendecilerinden satın alan tüketicilerin duyuşsal algıları altında hazcı kalite niteliklerinden daha yüksek memnuniyet sağlarken; yerel pastanelerde bu ürünü tüketen tüketiciler ise sağlıklı gıda tüketme istekliliği üzerine odaklanarak daha yüksek bir hedonizm memnuniyeti sağlamış olduklarına işaret etmiştir. Benzer şekilde, yerel kadayıf dolması imalatçılarının satış mağazalarından bu mamulü satın alan tüketiciler, sağlıklı gıda tüketilmesini olanaklı kılan gıda güvenliği ve güvencesi altında duyuşsal kalite algısını dikkate alarak merkezi milliyetçilik yaklaşımı ile gıda arz ve tüketimini sürekli kılabilmek için anlamlı bir şekilde katkı sağlamaya çalışmışlardır. Sonuç olarak, her bir tüketici gruplarının satın alma kararlarına göre uygun konumlama ve bölümlenme stratejileri geliştirilmeli ve daha sonra bu stratejiler uygulamaya konulmalıdır.

Anahtar Kelimeler: Kümeleme Analizi, Erzurum Kadayıf Dolması, Keşfedici Faktör Analizi, Hazcı ve duyuşsal nitelikler, Satın alma kararı

Introduction

In recent years, there has considerably maintained a change on consumers' food consumption preferences and purchase decisions under the negative effects of global climate change due to lower yield and quality attributes suffered in plant and livestock products, biodiversity losses, possible risk factors on food safety and security at food life cycle from the farms to the retailer shelves, negative consumer perceptions about emotional food quality attributes, as well as negative impacts on human health and the environment (Bernabeu et al., 2023; Bouranta et al., 2023; Mesias et al., 2023).

Under the impact of the Covid-19 pandemic and the Ukraine and Russia war along with the negative effects of climate change, while global wheat production and stocks decreased from 764 and 284 million tons in 2019 to 769 and 271 million tons in 2022, wheat consumption increased from 741 million tons to 782 million tons (TEPGE, 2022). In response to the decreases in both global wheat production and current stocks, a significant increase in global wheat consumption was also observed in view of the trend figures. Consequently, this situation has indicated the existence of a serious problem in meeting consumer demands of wheat supply worldwide and a large supply gap in the future if the necessary preventive and adaptation studies are not carried out to an adequate extent.

Wheat production in Turkey was 19.00, 17.65 and 19.80 million tons in 2019, 2021 and 2022 respectively, whereas domestic wheat consumption was given as 20.00, 19.01 and 19.00 million tons (TEPGE, 2022). In particular, it was abnormally caused the product prices to increase with the effects of the panic buying by narrowing the supplies of wheat and bakery products under the negative impacts of ongoing climate change and the Covid-19 pandemic hitting 2019 (Arafat et al., 2021). Indeed, while the average annual wheat price was $\text{₺}1.5 \text{ kg}^{-1}$ in 2018, it increased to about $\text{₺}5.5 \text{ kg}^{-1}$ in 2022 (PTB, 2022). The dramatic increases in wheat price at commodity markets caused wheat flour prices trading from $\text{₺}1.76 \text{ kg}^{-1}$ in 2018 to increase by $\text{₺}7.7 \text{ kg}^{-1}$ in 2022 (PTB, 2022a). Manufacturing cost increase resulting from excessive rises in the prices of Stuffed-kadayif ingredients such as sugar, walnuts, pistachios and hazelnuts, along with the price of the flour being the main input of Erzurum Stuffed-kadayif, therefore, caused the price per kg to rise from $\text{₺}15$ (\$) in 2019 to $\text{₺}140$ (\$) in 2023.

On the other hand, besides the natural risk factors being of a negative impact on agriculture and agricultural food industry, when the macroeconomic data taken into consideration for 2022-2023 years in Turkey, the consumer price index (CPI) and food price increases (food inflation) were annually realized as 50.51 and 67.89% (TUIK, 2023). The annual increases in the producer price index (PPI) and food input prices were calculated as 62.45% and 88.38%, respectively (TUIK, 2023a). The pressures of these inflationary and natural risk factors caused the food prices to increase dramatically with the contraction in the economy by increasing the production costs, and then the formation of social welfare losses created by the contraction in demand resulting from the real decline in consumer incomes. This situation caused an excessive increase in the share of consumer incomes allocated to mandatory food needs in the expenditure budget and their willingness to pay categorically changed significantly depending on the marketing mix.

It was reported that consumers' psychographic factors on their food purchase decisions had a much greater impact than their socioeconomic ones such as gender, age, education, profession on their attitudes and behaviors patterns (Harguess et al., 2020; Graham and Ambrahamse, 2017). Therefore, consumers' individual factors (attitude and value, knowledge and skill, emotion and cognitive level, taste, demographic factors), their sociocultural attributes (culture and belief, social norm and status), and the external factors (political and economic factors related to food marketing environments) must be assessed rationally their food purchase patterns so that it could be mitigated major impacts of climate change caused by their food consumption (Chen and Antonelli, 2020; Harguess et al., 2020).

Consumers trying to meet their food needs under the effects of climate change have rationally tried to shape their food choices and purchase decisions at retail levels by taking into account not only the extrinsic and intrinsic food attributes but also the negative progressions in Turkish economy in the last years. It was reported in the previous researches that it was firstly attempted to determine consumers' purchase patterns by having been taken into account the extrinsic food attributes, a part of the marketing mix focused on consumers' visual sense (price, brand, labelling, package weight and size, geographical indications, purchase convenience, reaching to retailers, conformity and comfort at retail stores, health claims) (Carvalho and Spence, 2023; Edenbrandt and Nordström, 2023; Fakhreddine and Sanchez, 2023; Petrontino et al., 2023; Yeh and Hirsch, 2023; Zanchini et al., 2023; Zeng et al., 2023), and then the intrinsic food attributes based on a variation of the nutritional

composition at farming and manufacturing process (taste, aroma, flavor, color, texture, appearance, sound, content or ingredient, juiciness, sweetness) (Bejaei and Xu, 2023; Fakreddine and Sanchez, 2023; Giannoutsos et al., 2023; Kleih et al. 2023; Lavui et al., 2023) impacting on their purchase models at retail levels.

Especially, when making consumers' food purchase decisions based on their hedonic experiences or extrinsic food quality perceptions, it was emphasized that they make purchasing decisions to a large extent by taking into account the marketing mix such as the region of origin and prices (Bernabeu et al., 2023; Chaffee and Ross, 2023; Topcu and Çavdar, 2022), the food brands and their communication tolls (Bernabeu et al., 2023), food packaging and label knowledge (Chaffee and Ross, 2023) and the retailers and their positioning strategies (Bytyqi et al., 2023; Curutchet et al., 2023; Seo and Kim, 2023), and thus their willingness to pay was also much higher for the food products providing higher extrinsic quality satisfaction.

In these studies based on consumers' food purchasing decisions, it was pointed out that the extrinsic food attributes were the major determinant of their willingness to buy at food retailers and also provided vital information about their socioeconomic attributes. It was also reported that there were much stronger relationships between the intrinsic food attributes and consumers' willingness to pay for them including product brands, the region of origin, packaging, labelling, and reaching to retailers, store comfort and convenience.

Within the scope of the current research, the extrinsic and intrinsic food attributes impacting on consumers' consumption preferences and purchase decisions towards Erzurum Stuffed-kadayif could shape their purchase patterns. In this context, the aim of the study is to determine the purchase decision indicators based on the intrinsic and extrinsic food attributes for homogeneous consumer segments consuming Erzurum Stuffed-kadayif with protected geographical indication sold at food retailers in Erzurum, and then to create customer-oriented marketing strategies for each consumers cluster.

Materials and Methods

Material

The main material of the study consisted of primary data obtained from face-to-face questionnaires conducted with the households in Erzurum covering Yakutiye, Aziziye and Palandöken Central Districts, consuming Erzurum Stuffed-kadayif with Protected Geographical Indication (PGI) in 2019. In addition to primary data, secondary data were obtained from the data of various statistical institutions and organizations (TUIK, FAO, Erzurum Chamber of Commerce, Commodity Exchanges), as well as domestic and foreign scientific research project reports and article findings and results.

Methods

Method used to determine the sample size

In order to ensure the homogenous participation of the households consuming Erzurum Stuffed-kadayif in Erzurum, the city were divided into three central districts; Yakutiye, Aziziye and Palandöken (44.325, 14.818 and 38.674 households), respectively and then the sample size in Equation 1 was calculated with the Simple Random Sampling Method (Malhotra, 1993).

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

In Equation 1,

n: Sample size

Z: Standardized Z value (at 95% confidence interval, 1.96)

p: Erzurum Stuffed-kadayif consumption probability (0.50)

c: Error term (± 0.05)

The survey numbers under the proportional techniques were calculated as 175 in Yakutiye, 58 in Aziziye and 152 in Palandöken, and totally 385 households in Erzurum by taking into account the sample size and the number of households in each district.

Method used for preparation of questionnaire forms

In order to design the attitude scale related to the intrinsic and extrinsic food attributes that determine consumers' purchase decisions consuming Erzurum Stuffed-kadayif in Erzurum were utilized from the domestic and foreign studies related to the research scope and context. The scale was firstly designed with 57-psychographic items impacting on their Erzurum Stuffed-kadayif purchase decisions, and then it was asked from consumers participated in the survey to mark each statement on the attitude scales with 5-point Likert Scale (1: no important, 3: neutral/undecided, 5: very important).

Methods used in statistics analyses

In the first step, Explanatory Factor Analysis (EFA) was used to determine the main factors impacting on their Erzurum Stuffed-kadayif purchase decisions. The EFA is a multivariate statistical dimension reduction technique trying to create a small number of unrelated, but conceptually meaningful new factors (Civelek, 2020; Bursal, 2019). Hierarchical steps for the EFA were followed to test the suitability of the data, to determine the main factor number, to perform the rotation (transformation) techniques, to identify main factors, to calculate the explained and cumulative variances for each factor dimension, respectively.

In order to investigate the data suitability of the sample mass according to the main population for the EFA, Kaiser-Meyer-Olkin (KMO) and Bartlett's test of Sphericity were used in the research. KMO, the adequacy criterion of the sample size should be in acceptable confidence interval (between 0.50 and 1.00). On the other hand, the correlation matrix should be different from the unit matrix in Bartlett's test of Sphericity explaining the relationship among the variables depending on the correlation matrix calculated between each pair of variables.

Whereas determining the main factor number with the EFA used Maximum Likelihood extraction method in the study, the factors with Eigenvalues greater than 1 or equal to 1 were statistically taken into consideration. Rotation technique was also used to be able to give easily the factor names, and to eliminate the variable overlaps in factor matrices. In the rotation process, the factors in the axes are rotated so that reducing the variable loads to optimal levels. Rotation could be applied in two groups as vertical (orthogonal) and oblique rotation. While it could be minimized the relationships among the factor dimensions at vertical rotation, it could be accepted the relative relations among them at oblique rotation. It is often used the Varimax, Quartimax and Equamax methods for vertical rotation techniques, however, it is generally used direct Oblimin and Promax methods for oblique rotation ones. In this study, therefore, it was applied the vertical rotation technique and Varimax method to minimize the relationships among the factors.

On the other hand, to retain and select the items under each factor dimension on rotated component matrix in the EFA, the factor loads with range 0.30 and 0.50 score are generally accepted for the cut-off threshold of the items depending on number of the items on scaling instrument and sample size reflecting main population (Civelek, 2020; Bursal, 2019). These authors suggested that, thus, if the sample size was more than 300 cases, the cut-off threshold of factor load was accepted as 0.30, also if the sample size was between 300 and 200 cases and between 200 and 150 cases, the cut-off thresholds of factor loads would be considered as 0.40 and 0.50, respectively.

In the second step, it was used the cluster analysis, two-step cluster analysis, dividing a heterogenic target mass into two or more homogeneous segments by taking into account their attributes such as socioeconomic, psychological and individual characteristics (Karagöz, 2019; Topcu and Baran, 2017). Two-step cluster analysis considering the ideal numbers of clusters and yielding the relationships between the main factors obtained and the consumption groups desired to be created is one of the most effective clustering technique. In the present study, the main factors impacting on Turkish consumers' Erzurum Stuffed-kadayif purchase decisions were used in two-step clustering analysis (CA) taking into consideration their retail selling points. It was thus segmented target consumers into three groups consuming at the restaurant (29.1% of overall consumers) and patisserie (30.4% of those) and buying from the manufacturer stores (40.5% of those).

Results and Discussion

Consumers' demographic and socioeconomic profiles

Participants' gender, age and life cycle, education and occupation status, monthly income and expenditure groups at each cluster were presented in Table 1. The results of the study indicated that 59% of the target consumer mass consisted of men, and the consumers with college graduate and white collars concentrated generally at each consumption segment of Erzurum Stuffed-kadayif.

On the other hand, the results also highlighted that the average age of overall consumers was 43.38 years, and the family size consisted of 4.22 individuals, and the middle age group and large families showed intensity at each consumption segment. Similarly, the average income and expenditure levels for all consumption groups were \$1406.30 and \$875.69, and these economic indicators also were of the highest shares at each consumer segment.

Table 1. Consumers’ various demographic and socioeconomic attributes

Consumers’ attributes		Consumption segments of Erzurum Stuffed-kadayif						Overall consumers	
		Patisserie		Manufacturer		Restaurant		n	%
		n	%	n	%	n	%		
Gender	Male	77	66	85	55	65	58	227	59
	Female	40	44	71	45	47	42	158	41
$(Pearson\ Chi - kare) = \chi^2_{(2603;2)} = 24.746 \quad p=0.001$									
Education	Literate	4	4	9	6	3	3	16	4
	First school	20	17	39	25	31	28	90	23
	High school	45	39	39	25	35	31	119	30
	College	48	41	69	44	43	38	160	42
$(Pearson\ Chi - kare) = \chi^2_{(2606;4)} = 77.378 \quad p=0.001$									
Occupation	Businessman	11	9	27	17	13	12	51	13
	White-collar	50	43	49	31	42	38	141	37
	Blue-collar	18	15	12	8	17	15	47	12
	Retailers	27	23	40	36	26	24	93	24
	Pensioners	9	8	15	10	12	11	36	9
	Farmers	1	1	7	5	1	1	9	2
	Housewife	1	1	6	4	1	1	8	2
Total	117	100	156	100	112	100	385	100	
		\bar{x}	n	\bar{x}	n	\bar{x}	n	\bar{x}	n
Age group	+ < 30 years (young)	30.76	37	30.43	30	30.56	16	30.60	83
	30-50 years (mature)	42.23	69	43.33	84	42.59	64	42.76	217
	+ > 50 years (more mat.)	56.64	11	58.05	42	56.94	32	57.45	85
	Group means	39.96	117	44.81	156	44.97	112	43.38	385
$F_{(382,2)} = 10.559 \quad p=0.001$									
Income*	+ < \$400 (low-income)	321.43	14	360.00	24	365.00	12	350.40	50
	\$400-1000 (middle-inc.)	416.04	91	751.56	109	750.91	88	740.14	288
	+ > \$1000 (high-income)	1398.33	12	1421.74	23	1384.67	12	1406.30	47
	Group means	738.80	117	790.13	156	777.46	112	770.85	385
$F_{(382,2)} = 0.903 \quad p=0.406$									
Expenditure*	+<\$400 (low-expend.)	320.00	21	318.60	43	310.00	19	316.99	83
	\$400-700 (middle-exp.)	591.94	62	582.90	69	596.56	61	590.16	192
	+>\$700 (high-expend.)	848.82	34	885.36	44	890.94	32	875.69	110
	Group means	617.78	117	595.36	156	632.05	112	612.85	385
$F_{(382,2)} = 0.903 \quad p=0.404$									
Family size	+<4 person (core family)	2.55	56	2.63	40	2.68	25	2.60	121
	4-6 person (small family)	4.18	57	4.64	108	4.67	75	4.54	240
	+>6 person (large family)	11.00	4	8.50	8	9.17	12	9.25	24
	Group means	3.63	117	4.32	156	4.71	112	4.22	385
$F_{(382,2)} = 10.084 \quad p=0.001$									

\bar{x} : arithmetic means n: sample size %: relative rate *exchange rate is £ \$-1.575 on September 15, 2019

Results of the EFA

The goodness fit statistics results and five factor dimensions that consider 31 items impacting on consumers' Erzurum Stuffed-kadayif purchase decisions in the EFA by being eliminated their load overlap and meaningless loads were given in Table 2. KMO that compares the observation and partial correlation coefficients in the EFA was calculated as a value of 0.923 ($p < 0.001$). The test score was acceptable at an excellent level due to much closer to 0.99 threshold value, thus, providing the confirmation of sampling adequacy for the EFA. Bartlett's test of Sphericity statistics for the main factors related to consumers' purchase decisions, then, was calculated as $\chi^2_{0.05; 465} = 9883.62$ ($p = 0.000$), and unit matrix hypothesis was rejected ($p < 0.001$). Two statistics evaluating the data indicated that the data was at an excellent level for the EFA.

Table 2. The results of the EFA related to consumers' Erzurum Stuffed-kadayif purchase decision factors and their item loads

The items and factors interpretations	The factors and items loads*				
	F ₁	F ₂	F ₃	F ₄	F ₅
<i>Hedonism satisfaction</i>					
Price-quality relation	0.867				
Label with the region of origin	0.835				
Product quality	0.823				
Product price	0.814				
Food retailers	0.814				
Packaging weight	0.809				
Packaging allure	0.804				
Advertising	0.800				
Eco-friendly package material use	0.782				
Discount and promotion	0.705				
Trust to manufacturer	0.649				
Product size	0.629				
Consumer mood	0.623				
Product experience	0.622				
Shelf life of product	0.614				
Reaching to retailers and convenience	0.608				
<i>Food safety and security</i>					
Sustainable food supply		0.900			
Hygiene at manufacturing stage		0.850			
Sanitary at marketing channels		0.841			
Hygiene at retail stores		0.771			
Organic product		0.656			
<i>Entrocentrism approach</i>					
Contribute to regional retailers			0.912		
Contribute to region trading			0.828		
Contribute to regional development			0.807		
Obstructing regional migration			0.657		
<i>Healthy diet willingness</i>					
Product without the synthetic substances				0.906	
Increasing body resistance				0.678	
Balancing blood sugar and providing energy				0.671	
<i>Sensory perception</i>					
Aroma perception					0.837
Taste and flavor perception					0.808
Product image and size					0.682
<i>Eigenvalues</i>	9.373	3.843	3.175	2.067	2.065
<i>Explained share of variance (%)</i>	30.235	12.396	10.242	6.667	6.660
<i>Cumulative share of variance (%)</i>	30.235	42.631	52.872	59.539	66.199
<i>KMO (Kaiser-Meyer-Olkin) statistic</i>					0.923
<i>Bartlett's test of Sphericity</i>					[$\chi^2 - square (\chi^2_{0.05; 465}) = 9883.62 (p = 0.000)$]

*It was suppressed the smaller coefficients than 0.350

The results of the EFA indicated that the five-factor solution with Eigenvalue scores being greater than 1.0 were derived from 31 items impacting on consumers' Erzurum Stuffed-kadayif purchase decisions (Table 2). The five factors were logically identified as the hedonism satisfaction, food safety and security, entrocenrism approach, healthy diet willingness and sensory perception, and their explained total variance found as 66.20%. The first factor referring to hedonism satisfaction explained 30.24% of total variance. It was thus assessed that the hedonism satisfaction consisted of the loaded items measuring a wide range of the hedonic consumption satisfaction based on the relationships between consumers' experimental satisfaction and the marketing mix strengthening consumers' Erzurum Stuffed-kadayif purchase decisions.

Similarly, the second factor explained by 12.40% total variance exposed that the food safety and security making sustainability possible at the food supply chain under the sanitary conditions lasting from farming to the food retailing affected directly consumers' Erzurum Stuffed-kadayif purchase decisions. The third factor contributing to the second factor was named as entrocenrism approach, that is, Erzurum-originated consumers aimed to contribute in order to improve the regional trading and to obstacle regional migration by orientating to the local food retailers to provide the regional developing so that it could be made possible to sustainable food supply.

With the similar requirements, a healthy life and core benefit motives shaping Turkish consumers' Erzurum Stuffed-kadayif purchase decisions leded healthy diet willingness to form the fourth factor. The healthy diet willingness, indeed, also resulted from an interactive health perception between the willingness to meet the healthy and balanced sweet need on the diets and the willingness to have been free of these desserts' artificial substances. Finally, the fifth factor explained with 6.66% of total variance emphasized the sensory quality perception. The sensory perception considering emotional and visual stimulus is also of a major impact on consumers' opinions about the foods due to triggering the first perception of difference between accepting and rejecting a particular food along with their emotional perception about aroma, taste and flavor of the foods.

Results of the CA

The main factors derived from the EFA, and shaping the perception and purchase decisions of Turkish consumers bought Erzurum Stuffed-kadayif from the local food manufacturer ventures, patisseries and restaurants were presented in Table 3. The results of the CA explained that consumers buying from or consuming Erzurum Stuffed-kadayif at the local restaurants focused on the hedonic and sensory perception. This consumer segment either consumed Erzurum Stuffed-kadayif together with meals on days at the local restaurants or purchased it from this local retailer satisfying their consumption hedonism based on its emotional perception. This consumer segment has not only consumed Erzurum Stuffed-kadayif as a traditional dessert together with meals on daily at the local restaurants, indeed, but has also purchased it from the local retailers which satisfy on their consumption hedonism by triggering their emotional perception.

Table 3. The cluster center values related to the consumers' Erzurum Stuffed-kadayif purchase decision factors and the sample sizes in each cluster

The main factors	Consumer segments*					
	Restaurant		Manufacturer		Patisserie	
	\bar{x}	<i>p</i>	\bar{x}	<i>p</i>	\bar{x}	<i>p</i>
Hedonism satisfaction	0.24	0.002	-0.14	0.002	0.27	0.002
Food safety and security	-0.02	0.000	0.01	0.000	-0.01	0.000
Entrocenrism approach	-0.32	0.001	0.12	0.001	-0.11	0.001
Healthy diet willingness	-0.04	0.000	0.02	0.000	0.05	0.000
Sensory perception	0.38	0.000	0.16	0.000	-0.12	0.000
<i>Number of total cases at each cluster (n)</i>	112		156		117	
<i>Population ratio at each cluster (%)</i>	29.1		40.5		30.4	

*Bold values indicate the highest final cluster center scores in each segment.

**Total sample size (n): 385 households

It was informed in prior researches that the sensory and hedonic quality attributes were the most important motivation drivers on consumers' food purchase decision and consumption satisfaction (Giannoutsos et al., 2023; Topcu, 2022). It was also reported that both food intrinsic emotional attributes and food-extrinsic hedonic attributes played a crucial role on consumers' purchase

intentions, and thus these factors were also the main determinates of the other factors, and then were of a strong interaction with the others on their consumption attitudes (Fakreddine and Sanckez, 2023; Magalhaes et al., 2023; Mesías et al., 2023; Topcu, 2022a). It was emphasized that the ingredient information, labels and brands presented on the food packaging, indeed, were considered generally vital determinates on consumers' purchase decisions, and similarly consumers' experimental sensory aspects for the foods impacted directly on their repurchase decisions, as well.

The results of the CA also highlighted that consumers buying Erzurum Stuffed-kadayif from the local manufacturer stores internalized entrocenrism approach to make food supply safety and security sustainable along with their willingness to obtain the health-related core benefits by considering the sensorial satisfaction attributes (Table 3). Indeed, it was reported that consumers not considered only the sensory attributes being one of the most important purchase decision factors but non-sensory attributes gained also more interest, especially health claims indicating the relationships among food safety and nutrients, and health impacts (Arteaga et al., 2023; Fakreddine and Sanckez, 2023; Chen and Antonelli, 2020). The health claims impacting on the food consumption and purchase decisions made consumers attempt to the sustainability of the healthy food choices manufactured by reliable local manufacturers performing under the region of origin registration, and thus this situation also led to consumers drive to entrocenrism current (Siddiqui et al., 2023; Maro et al., 2023)

The CA findings indicated that consumers purchasing Erzurum Stuffed-kadayif from the local patisseries or consuming attributed a much bigger priority to the hedonism satisfaction based on healthy diet willingness (Table 3). Used a dessert after a meal or along with tea serves, Erzurum Stuffed-kadayif are often preferred more than the other desserts by target consumers in Erzurum. Consumers preferring this dessert in their diets believe that is a more healthy dessert compared with the others, and thus it is widely consumed by Erzurum-originated consumers. In similar to consumers bought this product from the local manufacturer stores, the consumer masses provided consumption hedonism satisfaction under their health claims at the local patisseries (Arteaga et al., 2023; Fakreddine and Sanckez, 2023; Fernando and Aw, 2023; Kleih et al., 2023; Lavuri et al., 2022; Chen and Antonelli, 2020).

Conclusions

The results of the study revealed that the main factors impacting on Turkish consumers' Erzurum Stuffed-kadayif purchase decisions were the hedonism satisfaction, food safety and security, entrocenrism approach, healthy diet willingness and sensorial perception. The results of the research highlighted that while mature middle-income consumers consuming or buying the product at the local restaurants satisfied fairly high from the hedonic quality attributes under the emotional perception, younger low-income consumers consuming Erzurum Stuffed-kadayif at the local patisseries also attributed a big importance hedonism satisfaction by focusing on their willingness to consume healthy diet with health claims. On the other hand, more mature high-income consumers purchasing Erzurum Stuffed-kadayif from the local manufacturer ventures tried to contribute considerably to sustainable food supply and consumption with entrocenrism approach of those considering emotional food perception under food safety and security making possible to consume healthy food.

Therefore, it should be implemented the positioning strategies prioritizing hedonic quality attributes along with the manufacturing and processing strategies improving the sensorial perceptions strengthen at the local restaurants and willingness to consume healthy food at the local patisseries, respectively. Similarly, it should be applied the intensified multi-segmented marketing strategies for Erzurum-originated consumers at the local manufacturer stores by considering improved sensory quality attributes under food supply safety and security making healthy food consumption possible.

Although this study was one of the first researches conducted on consumers' Erzurum Stuffed-kadayif purchase decisions satisfaction in the economics literature, there was also its some limitations. In the study, thus, these limitations could be addressed for the next researches. Firstly, the study focused on only consumers in Erzurum due to funding and time constrains. The future researches, hence, could be planned for larger sample sizes accounting consumers residing at more important trade and consumption centers. Secondly, it was applied the EFA as the research model in the study, but it could be utilized from Confirmatory Factor Analysis for the next researches, as well.

Statement Contribution of the Authors

The author has declared that he provided all contribution.

Statement of Conflict of Interest

The author has declared no conflict of interest.

References

- Arafat, S.M.Y., Kar, S.K., Kabir, R., 2021. Possible controlling measures of panic buying during COVID-19. *Int. J. Men. Heal. Add.* 19: 2289-2291.
- Arteaga, A., Krell, J., Gibis, M., Heinz, V., Terjung, N., 2023. Intrinsic and extrinsic factors affecting the color of fresh beef meat-Comprehensive review. *Appl. Sci.* 13: 4382.
- Bejaei, M., Xu, H., 2023. Internal quality attributes and sensory characteristics of ambrosia apples with different dry matter content after a two-week and a ten-week air storage at 10C. *Foods.* 12: 219.
- Bernabeu, R., Brugarolas, M., Martínez-Carrasco, L., Nieto-Villegas, R., Rabadán, A., 2023. The price of organic foods as a limiting factor of the European green deal: the case of tomatoes in Spain. *Sustainability.* 15: 3238.
- Bouranta, N., Psomas, E., Casolani, N., Carmen, J., Liberatore, L., 2022. Consumers' food safety perceptions in Three Mediterranean Countries. *NewMed.* 21(4): 71-84.
- Bursal, M., 2019. *Basic Data Analyses with SPSS (Extended Second Pressing)*. Ankara: Anı Publishing.
- Bytyqi, N., Bai, A., Peter, B., Mehaj, E., Sertolli, A., 2023. Analysis of consumers' preferences for local cheese in Kosovo applying Conjoint Choice Analysis. *J. Hyg. Eng. Desg. UDC* 658.89:637.3(497.115): 203-210.
- Carvalho, F.M., Spence, C., 2023. Methods for studying multisensory perception in consumer research. In: Gómez-Corona, C., Rodrigues, H. (Eds) *Consumer research methods in food science. Methods and protocols in food science.* Humana, New York, NY (Online ISBN: 978-1-0716-3000-6).
- Chaffee, O., Ross, C.F., 2023. Older adults' acceptance of ready-to-eat meals in relation to food choice and sensory ability. *J. Food Sci.* 5: 1-18.
- Chen, P.J., Antonelli, M., 2020. Conceptual models of food choice: influential factors related to foods, individual differences, and society. *Foods.* 9(12): 1-21.
- Civelek, M.E., 2020. *Methodology of Structura Equation Model*. Istanbul: Beta Printing and Publishing Inc.
- Curutchet, A., Tarrega, A., Arcia, P., 2023. Changes in consumers interest on cheeses with health benefits and different manufacture types over the last decade. *CyTA-J. Food.* 21(1): 72-81.
- Edenbrandt, A.K., Nordström, J., 2023. The future of carbon labeling: Factors to consider. *Agric. Res. Econ. Rev.* 52: 151-167.
- Fakkreddine, L.B., Sanchez, M., 2023. The interplay between health claims and sensory attributes in determining consumers' purchase intentions for extra virgin olive oil. *Food Qual. Pref.* 106: 1048119.
- Fernando, A.G., Aw, E.C., 2023. What do consumers want? A methodological framework to identify determinant product attributes from consumers' online questions. *J. Retail. Con. Serv.* 73: 103335.
- Fiorentini, M., Kinchla, A.J., Nolden, A.A., 2020. Role of sensory evaluation in consumer acceptance of plant-based meat analogs and meat extenders: A scoping review. *Foods.* 9(9): 1334.
- Giannoutsos, K., Koukoumaki, D.I., Panagiotou, M., Gkatzionis, K., 2023. The effect of modern claim related to packaging sustainability on the sensory perception of traditional Greek rusks (paximathi). *Food Qual. Pref.* 106: 104817.
- Godde, C.M., Cruz, D.M., Mayberry, D.E., Thornton, P.K., Herrero, M., 2021. Impacts of climate change on the livestock food supply chain; a review of the evidence. *Global Food Sec.* 28: 100488.
- Graham, T., Abrahamse, W., 2017. Communicating the climate impacts of meat consumption: The effect of values and message framing. *Environment Change.* 44: 98-108.
- Harguess, J.M., Crespo, N.C., Hong, M.Y., 2020. Strategies to reduce meat consumption: A systematic literature review of experimental studies. *Appetite.* 144: 104478.
- Karagöz, Y., 2019. *Statistical Analyses with SPSS and AMOS Application*. Ankara: Nobel Academic Publishing.
- Kleih, A., Lahberge, M., Sparke, K., 2023. Preference for branded fresh produce and consumers' need for uniqueness: A mixed-methods investigation of consumer choice and thought process. *Appetite.* 180: 106232.
- Lavuri, R., Jaiswal, D., Thaichon, P., 2023. Extrinsic and intrinsic motives: panic buying and impulsive buying during a pandemic. *Int. J. Retail Distr. Man.* 51(2): 190-204.
- Magalhaes, D.R., Çakmakçı, C., Campo, M., Çakmakçı, Y., Makishi, F., Silva, V.L., Trindade, M.A., 2023. Changes in the current patterns of beef consumption and consumer behavior trends-cross-cultural study Brazil-Spain-Turkey. *Foods.* 12: 475.
- Malhotra, N.K., 1993. *Marketing Research: An Applied Orientation (International Edit)*. New Jersey: Prentice Hall Inc.

- Maro, Z.M., Balogh, P., Czine, P., Török, A., 2023. The roles of geographic indication and ethnocentrism in the preferences of Central European spirit consumers: The case of Palinka. *Food Qual. Pref.* 108: 104878.
- Mesías, J.F., Fernández, J.A., Horrillo, A., Escribano, A.J., 2023. An Approach to the perceptions of Spanish consumers on food sustainability through the use of projective techniques. *NewMed.* 22(1): 35-52.
- Petrontino, A., Frem, M., Fucilli, V., Labbete, A., Tria, E. and Bozzo, F., 2023. The influence of nutritional ingredients and labelling claims in Italian consumers' choice and willingness-to-pay. *Nutrients.* 15: 1799.
- PTB, 2022. Polatlı Ticaret Borsası buğday fiyatları endeksi. <https://www.polatliborsa.org.tr/fiyat-endeksleri/bugday/bugday-fiyat-endeksi>, (Access data: 15.05.2023).
- PTB, 2022a. Polatlı Ticaret Borsası un fiyatları endeksi. <https://www.polatliborsa.org.tr/fiyat-endeksleri/un/un-fiyat-endeksi>, (Access date: 15.05.2023).
- Seo, S., Kim, M.K., 2023. Consumers' neophobic and variety-seeking tendency in food choices according to their fashion involvement status: An exploratory study of Korean consumers. *Foods.* 12: 1278.
- TEPGE, 2022. Durum ve Tahmin, Buğday. TEPGE Yayın No: 362, ISBN: 978-625-8451-57-3. <http://arastirma.tarimorman.gov.te/tepge>, (Access date: 20.05.2023).
- Topcu, Y., 2022. Evaluating veal consumption hedonism of consumers by mediating effect model with risk factor. *TURJAF.* 10(3): 394-403
- Topcu, Y., 2022a. Consumers' veal consumption preferences under climate changes and Covid-19 pandemic: the case of Erzurum province. *GOP Sci. Res. J.* 13(1): 1-13.
- Topcu, Y., Çavdar, M., 2022. Consumers' consumption preferences towards homemade type Gümüşhane mulberry products with PGI: Gümüşhane case. *Harran Agric. Food Sci. J.* 26(2): 214-227.
- Topcu, Y., Baran, D., 2017. Marketing strategies based on consumer preferences of Karnavas mulberry molasses with protected designation of origin (PDO). *TURJAF.* 5(7): 822-831.
- TÜİK, 2023. Tüketici Fiyat Endeksleri (TÜFE). <https://data.tuik.gov.tr/Bulten/Index?p=Tuketici-Fiyat-Endeksi-Nisan-2023-49653>, (Access date: 25.05.2023).
- TÜİK, 2023a. Üretici Fiyat Endeksleri (ÜFE). <https://data.tuik.gov.tr/Bulten/Index?p=Yurt-Ici-Uretici-Fiyat-Endeksi-Nisan-2023-49396>, (Access date: 25.05.2023).
- Yeh, C.H., Hirsch, S., 2023. A meta-regression analysis on the willingness-to-pay for country-of-origin labelling. *J. Agric. Econ.*, 01: 1-25.
- Zanchini, R., Vita, G., Panzone, L., Brun, F., 2023. What is the value of a mountain product claim? A ranking CA on goat's milk yoghurt. *Foods.* 12: 2059.
- Zeng, M., Yan, W.Y., Zeng, Z.J., 2023. Analysis of consumers' willingness to pay for honey in China. *Sustainability.* 15: 1500.