Analyzing consumer perceptions about food safety by applying the food-related lifestyle approach

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Abstract

Food safety standards remain a major concern for consumers, especially in developing and emerging economies, due to gaps in the capacities of food safety enforcement institutions and limited investments from private sector actors. This study analyzes consumer behavior and food safety-related lifestyles in Kosovo, a post-communist emerging economy. Consumer groups were identified according to their food-related lifestyle using the classical 2-stage segmentation approach of factor analysis as well as cluster analysis. The study findings indicate that almost two-thirds of the surveyed consumers are fairly or very concerned about food safety. The results reveal that highly educated female consumers are more concerned about personal health risks, food safety-related content, and related diseases. This study provides interesting insights for food safety policymakers and the agroindustry on how to promote food safety consumer awareness effectively with targeted communication strategies.

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Introduction

Food safety is one of the human rights recognized in the United Nations Universal Declaration of Human Rights, and it is a determinant factor for human health. Lack of compliance with food safety standards leads to negative externalities such as people getting sick and the associated health costs, *etc*. (Henson and Traill, 1993). Food safety is one of the main concerns of consumers in both developed and developing countries, especially in the latter (Zhllima *et al.*, 2015). Public agencies are tasked with ensuring food safety enforcement; however, their ability to do so in developing or emerging economies is often constrained by weak institutional frameworks and elevated levels of corruption (Imami *et al.*, 2021).

Since the 1990s, numerous food safety crises, especially in the meat and dairy sectors, have evoked consumers' concerns about the food safety and food chain globally and especially in developing and emerging economies, including the Western Balkan region where Kosovo is located (Zhllima *et al.*, 2015; Zeqiri *et al*., 2015; Gjeci *et al.*, 2016; Udovicki *et al.*, 2019). Similar to other countries in the Western Balkans, Kosovo is also experiencing numerous disease outbreaks and endemic problems. Brucellosis, which can be transmitted to humans through the consumption of agricultural products from infected animals, poses a threat to public health (Tolaj *et al.*, 2014; Zeqiri *et al.*, 2015; Hamidi *et al.*, 2016). Furthermore, the presence of mycotoxins and aflatoxins in maize for animal feed (Bhat and Vasanthi, 2003; Schatzmayr and Streit, 2013; van Asselt *et al.*, 2017) has been a serious concern for small dairy farmers in Kosovo.

In addition to animal diseases, soil contamination is also a cause for concern, affecting both plant and animal by-product safety standards. Zogaj *et al.* (2014) found that crop production in some areas of Kosovo could be at risk due to higher metal concentrations, potentially resulting in residuals in the plants cultivated in such areas.

Similar to other Western Balkan countries, Kosovo has been characterized by political conflict, elevated levels of corruption, and ineffective law enforcement. It has encountered significant challenges with its national food safety control systems (Haas *et al.*, 2016). In addition to weak law enforcement (concerning food safety), low producer awareness is another major concern; most of the producers across the agri-food value chain have limited information and awareness of food safety standards. Previous research

has shown that most cattle farmers have limited knowledge about the basic food safety (and animal welfare) standards and the institutions responsible for them, leading to non-compliance (Zeqiri *et al*., 2015). As a result, Kosovo cannot export livestock products to markets with high standards, such as those in the European Union. On the other hand, the abovementioned challenges have given rise to local (Kosovo) consumer concerns about food safety and quality in general and specifically about livestock products, as highlighted by previous studies (Wongprawmas *et al.*, 2018; Haas *et al.*, 2019).

Inadequate enforcement of food safety and quality standards within institutions and systems can inherently undermine consumers' confidence in the quality and safety of domestically available food products. This, in turn, shapes consumer purchasing behavior and influences market dynamics. Hence, it is crucial to comprehend consumer awareness and perceptions concerning food safety, along with the determining factors.

The primary goal of this study is to assess consumer perceptions regarding issues and attributes related to food safety. Additionally, we aim to pinpoint the factors significantly impacting consumers' views on food safety, incorporating socio-demographic variables into the analysis.

Our methodology relies on the use of the food-related lifestyle (FRL) instrument, which inspired the data collection instrument and allowed us to gather data from a sample of Kosovo consumers. Data analysis was based on the classical 2-stage segmentation approach: first, principal component analysis (PCA) was performed to define the factors and the grouping of the items in each factor, and second, cluster analysis was used to group food consumers with similar characteristics.

The study provides recommendations for food safety policymakers and adds value to the literature related to consumer perception and behavior regarding food safety and the literature related to FRL. The paper is structured as follows: the following part consists of the literature review; the third section describes the data and methodology; and, in the end, follows the results, discussion, and conclusions.

Literature review

Food safety is considered to be one of the key consumer requirements (*e.g.,* safety requirements, conformity to commodity standards, nutritional and sensory requirements, certification, traceability, *etc.),* and it is strongly linked to food quality (Röhr *et al*., 2005; Peri, 2006). In developed countries, food safety is often perceived as a non-negotiable requirement and is not a primary consideration for consumers, given the stringent enforcement of standards by state authorities and supermarkets. In contrast, in developing or emerging economies, where trust in food safety is lower, consumers may consider it a significant aspect of food quality in their decision-making process. In this context, there is a high demand for credible food safety certifications (Wang *et al.*, 2008; Wongprawmas and Canavari, 2017), while food quality certifications, such as organic certifications, are often perceived as an important indicator of food safety (Imami *et al*., 2017; Kokthi *et al*., 2021; Haas *et al.*, 2021).

Over time, there has been growing consumer awareness about food safety. Recent research findings suggest that food safety concerns have become more important following the COVID-19 pandemic (Meixner and Katt, 2020; Borsellino *et al*., 2020).

Consumers use quality attributes, which are often a bundle of information, to reduce the complexity of their food choices. Food safety is a credence attribute because consumers cannot know if the food is safe before or after purchase unless they become sick, which can be attributed to food safety (Grunert, 2005).

In the case of countries with a weak institutional framework, such as Kosovo, the level of trust in public institutions to guarantee food safety is low (Sopi, 2016). Origin (domestic and local origin) and brand reputation are important attributes to guarantee food safety for Kosovo consumers (Haas *et al*., 2016; Haas *et al*., 2021; Miftari *et al*., 2021; Ahmadi Kaliji *et al*., 2022).

Behavior and perception are also influenced by socio-demographic variables. Gender and education level are related to perceptions of food safety; female and educated consumers show a higher awareness of food safety issues (Nganje and Kaitibie, 2003). A study conducted by Yu *et al.* (2018) showed that female consumers had a higher perception of risk compared to other demographic groups. A recent comparative study on Albania and Kosovo also found that women and more educated consumers paid more attention to food safety; more specifically, they checked food safety and quality information more often than men or those with less education. Higher levels of education and access to food information through digital technologies enable consumers to be better informed about food safety (Zhllima *et al.*, 2015) and ultimately help to reduce food safety risk (exposure).

Among the food products, meat tends to be the most hazardous, as most foodborne diseases come from the meat industry (Fegan and Jenson, 2018). The increasing levels of income, especially in emerging economies, are expected to be associated with a higher demand for meat products as well as an increase in demand for higher quality and safety standards (Britwum and Yiannaka, 2019). A similar pattern is expected for fruits and vegetables; most consumers are willing to pay a premium for fruits and vegetables that meet safety standards (Yu *et al.*, 2018).

Different methods used in different studies on consumer behavior segmentation techniques are quite common in the literature. The FRL has been widely used in consumer segmentation and marketing, especially for advertising strategies and product development. The FRL segmentation instrument was first developed by Brunsø and Grunert (1995). The application of the FRL model aims to describe people according to the role that food plays in their lives (Pérez-Cueto *et al.*, 2010) by linking generic food-related attitudes to achieving desired consequences (Brunsø *et al.*, 2004). The FRL cognitive approach allows researchers to explain and predict consumers' behavior and link products to their life values.

Materials and Methods

The FRL approach is a useful general method for food consumer segmentation (Brunsø and Grunert, 1995; Brunsø *et al.*, 2021) based on the assumption that significantly different groups exist among consumers based on their FRL profile. These FRL-based homogeneous groups (clusters) can also be used to verify whether belonging to a specific group may matter in terms of preferences or behavior regarding specific aspects, such as awareness or perceptions about food safety issues.

Consumer groups were identified according to their FRL using the classical 2-stage segmentation approach: i) factor analysis (in this case, PCA) aimed at defining specific useful ways to describe consumers and their FRL profiles; ii) cluster analysis, aimed at grouping the individuals according to these specifications.

The resulting consumer groups were finally profiled using socio-demographic and consumption habits variables.

The study is based on a structured face-to-face survey of 300 Kosovar consumers, in which food safety perception and aware-

ness were analyzed. Initially, expert interviews and consumer focus groups were conducted to provide background information for the design of the structured questionnaire based on insights into the development of the agri-food sector and consumer preferences in Kosovo in particular, as well as an extensive literature review. The structured survey was conducted in the period December 2013-January 2014. The survey took place in the three largest cities of Kosovo: Prishtina (the capital city), Prizren, and Gjilan. From a marketing perspective, these three markets are the main ones in terms of size and purchasing power. The sample size was determined taking into account the available resources and was based on a confidence level of 95% (a=0.05) and a confidence interval of about 6% for binary options that are equally distributed in the population. The sample was divided proportionally between the three cities according to the population size reported by the Kosovo Agency of Statistics (2013) population census.

The initial framework of FRL was used, and a modified version was presented according to the purpose of the study. Consumer perceptions towards food safety were assessed with 7 constructs and 28 items measured on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). These constructs consisted of i) shopping habits - information search (5 items); ii) perception of the food health risk-disease transmission (5 items); iii) price-consciousness (4 items); iv) shopping habits-labels, origin (4 items); v) perception of the food health risk-food contents (5 items); vi) price-consciousness-sales (3 items); vi) hygiene (2 items).

PCA with Varimax rotation and Kaiser normalization was used for the initial analysis and determination of factors in the research. In the PCA, items with a factor loading of less than 0.40 and an eigen value of less than or equal to 1 were removed (Yeo *et al.*, 2020), and after internal reliability testing using Cronbach's a>0.70 (Cronbach, 1951), the final factors were determined for clustering. A hierarchical cluster analysis with a Ward linkage method and K-means clustering technique (Hair *et al.*, 2010) was used for cluster analysis, and a one-way analysis of variance (Kruskal-Wallis test) was used to investigate the socio-demographic differences among the clusters.

The sample results revealed that the average age of the respondents is 44 years, and the gender structure of the sample was almost balanced (46% male and 54% female). Most respondents have higher education/university (about 52%) and high school (about 40%) (Table 1) (data regarding Kosovo obtained from the Kosovo Agency of Statistics). The sampled consumers exhibit a relatively younger demographic and higher educational qualifications. It is crucial to note that while official statistics encompass the entire population, which is predominantly rural, our survey specifically targeted urban areas, focusing on the largest cities (as highlighted above). These urban locales are home to major academic and public institutions, resulting in a greater concentration of individuals with advanced education. Similar trends have been identified in other studies in the region (Haas *et al.*, 2021; Miftari *et al.*, 2022). Specifically, Pristina has a high level of university-educated citizens by default since the capital hosts Kosovo's key academic and public institutions (Table 1) (data regarding Kosovo obtained from the Kosovo Agency of Statistics).

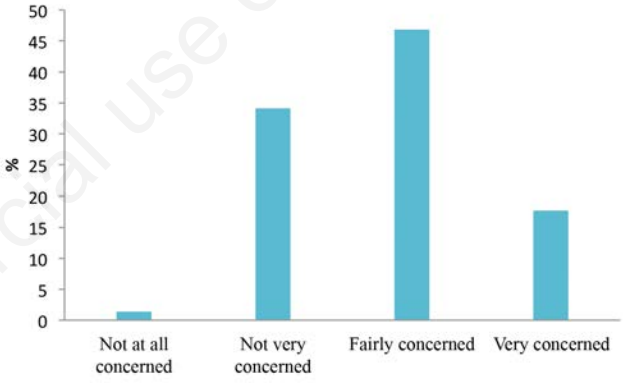

Figure 1. Consumer perceptions about food safety.

Table 1. Socio-demographic variables of the sample and population.

	Category	Sample %	Kosovo %[1]
Age Average=44.41	19-30 years old	43.1	15.0
	31-40 years old	22.7	36.8
	41-50 years old	14.6	26.3
	51-60 years old	13.6	11.0
	More than 60 years old	6.1	10.8
Gender	Male	46.3	50.3
	Female	53.7	49.7
Education	Basic to middle school 1, 2	9.3	66.5
	High school 3	39.5	20.6
	Higher education, university 4	51.2	12.9
Household size Average=6.17	1-2 people	2.0	9.3
	3-4	18.0	24.1
	5 people or more	80.0	66.6
Monthly income	150-250 EUR	8.7	370
	251-500 EUR	32.0	
	501-800 EUR	34.7	
	801-1200 EUR	14.0	
	Over 1201 EUR	10.6	

[1]data from Kosovo Agency of Statistics.

Results

Data reveal that almost two-thirds of the surveyed consumers are fairly or very concerned about food safety (Figure 1). This is not surprising, and it is reasonable to expect consumers to be worried about food safety, given the food safety situation in Kosovo (highlighted in the introduction).

The majority (66%) of interviewed consumers stated that provided food within its expiration date is safe to eat, while more than 50% agreed with the statement that standards of hygiene in food processing are higher than they used to be. The percentage of consumers who trust the government as the responsible authority to ensure the safety level of agrochemical residues was fairly low (25%). Most consumers (51%) agreed that they are not provided with enough information to judge properly whether food is safe. About 40% of the surveyed consumers disagreed with the statement that food is not as safe as it used to be, and less than 30% of consumers are satisfied with the level of safety of the food they consume today (Figure 2).

Surveyed consumers view that central government/public institutions, such as the Ministry of Agriculture (full name: Ministry of Agriculture, Forestry and Rural Development) and its dependent institutions (most notably food safety inspectors/veterinarians) and the Ministry of Health, have the primary responsibility to assure food safety (Figure 3). Expectations are high also for processors (food industry).

PCA was performed to assess consumer perceptions and behaviors towards food safety. The main aim of using this method was to explore which items hold together and measure the same construct. Seven factors were structured based on: i) shopping habits-information search; ii) perception of the food health risk-disease transmission; iii) price-consciousness; iv) shopping habits-labels, origin; v) perception of the food health risk-food contents; vi) price-consciousness-sales; vii) hygiene (Table 2). PCA was performed with the Varimax rotation method and Kaiser normalization (Kaiser-Meyer-Olkin 0.829), which exceeded the recommended value of 0.6 (Kaiser, 1974).

Bartlett's test of sphericity is statistically significant (0.000), supporting the factorability of the correlation matrix (Bartlett, 1954). The loadings of all items are greater than 0.40, the eigenvalue for each factor is greater than 1, and Chronbach's a is greater than 0.7, which is an acceptable level. Seven factors of the PCA explain 69% of the total variance.

Factor 1 items relate to the presence of vitamins, minerals, fiber, energy values, artificial additives, ingredients, and whether the food is stored in a refrigerator at the optimal temperature. Factor 2 consists of items relating to pesticide residues, mad cow disease, genetically modified organisms, microbial contamination of food, and the use of hormones in animal husbandry. Factor 3 contains items related to convincing consumers to save money by shopping around for bargains, checking prices, and shopping around to get the best prices. Items of factor 4 are associated with the country where the food has been produced, local products, the producer/manufacturer, and whether the food is organic. Factor 5 contains items associated with food allergies, foodborne parasites, high cholesterol content in food, preservatives, and other food additives. Items in factor 6 were associated with consumers' waiting to purchase items that are on sale, watching advertisements for sales announcements, and looking for special offers. Factor 7 consists of items related to hygiene, such as washing hands before cooking and eating.

Cluster analysis was used to explore the number of clusters formed from the seven factors obtained in the PCA. Initially, a hierarchical cluster analysis using the Ward linkage method and Euclidean distance was performed to find out the optimum number of clusters. Secondly, the non-hierarchical K-means clustering method was to group consumers into different clusters.

Cluster analysis resulted in three clusters based on the factors obtained from the PCA (Table 3). About 30% of consumers belong to the first cluster. This group of consumers showed the highest level of care in terms of food hygiene (hand washing) and had the highest average purchasing behavior in terms of the presence of vitamins, minerals, energy value, the list of ingredients, and artificial additives. Consumers in the first cluster also had the highest average perception of the health risks of food in terms of disease transmission and food ingredients. This group of consumers can be described as "concerned food safety consumers". In contrast to consumers in the first cluster, consumers in the third cluster had the lowest average perception of the food health risk related to disease transmission and food content. This group of consumers accounts for 37% of the total sample and can be called "non-concerned consumers" about food health risks. This group of consumers paid more attention to saving money by looking for bargains, shopping around for the best prices, checking alternative prices before buying, waiting to purchase items on special offers, following advertisements for special offers, and looking for special offers. In comparison to clusters 1 and 2, consumers of cluster 3 had the highest average shopping behavior related to labels and country of origin, *e.g.*, in which country a foodstuff has been produced, which region

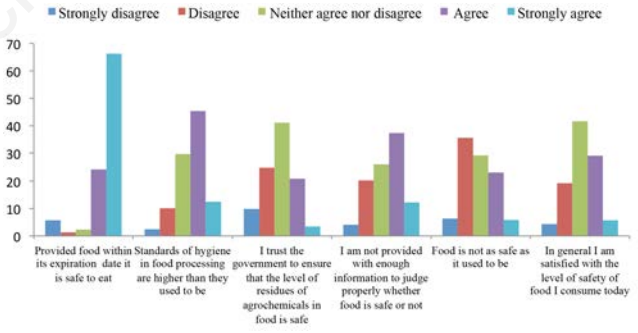

Figure 2. Consumers' statements on food safety confidence.

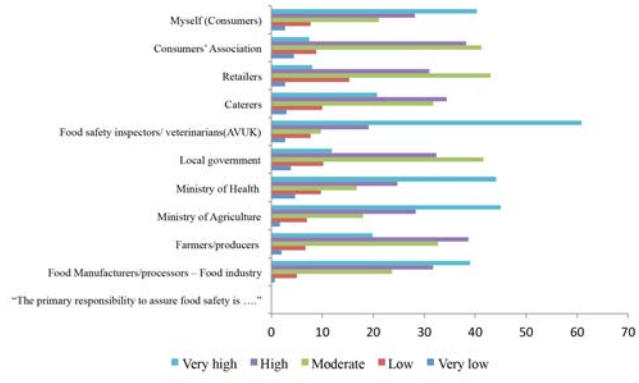

Figure 3. Consumers' opinion about the primary responsibility to assure food safety.

within Kosovo, and knowing the name of the grower/manufacturer. Consumers in the second cluster had the lowest average of information searches related to the presence of vitamins, minerals, energy value, the list of ingredients, and artificial additives, as well as information related to labels and the country of origin of the foodstuff. This group of consumers comprised 34% of the total sample.

The results of socio-demographic characteristics among the clusters are shown in Table 4. In terms of the respondent's age, gender, education, and household size, the test results do not prove statistically significant differences among the clusters regarding these characteristics. A significant difference among the clusters was observed only for the family income variable (Kruskal-Wallis test=10.60, p=0.005).

Table 2. Exploratory and confirmatory factor analysis of food safety-related lifestyle.

Factors and items	Factor loading	Eigen value	Cronbach's α
Factor 1: shopping habits-information search	5.755	0.917	
- Presence of vitamins, minerals, fibres, etc.	0.881		
- energy value	0.878		
- presence of artificial additives	0.840		
- the list of ingredients	0.797		
- the refrigerator temperature in a store	0.749		
Factor 2: perception of the food health risk-disease transmission	5.659	0.845	
- Pesticide residues	0.804		
- BSE/mad cow disease	0.774		
- Eating food containing genetically modified organisms	0.734		
- Microbial contaminations of food	0.725		
- Use of hormones in animal husbandry	0.697		
Factor 3: price-consciousness	2.817	0.797	
- I believe a person can save a lot of money by shopping around for bargains	0.797		
- In a store, I check the prices, even when I am buying inexpensive items	0.785		
- When I am in a shop I always check prices on alternatives before I buy	0.693		
- Clothing, furniture or appliances ... whatever I buy, I shop around to get the best prices	0.655		
Factor 4: shopping habits-labels, origin	1.755	0.840	
- In which country a foodstuff has been produced	0.756		
- In which region within Kosovo the foodstuff has been produced (for domestic products)	0.735		
- The name of the grower/manufacturer	0.726		
- If a foodstuff is organic	0.583		
Factor 5: perception of the food health risk-food contents	1.201	0.771	
- Smoking tobacco	0.776		
- Food-related allergies	0.770		
- Food borne parasites	0.641		
- High cholesterol content in food	0.516		
- Preservatives and other food additives	0.493		
Factor 6: price-consciousness-sales	1.172	0.757	
- I often wait to purchase items, so I can get them on sale	0.797		
- I usually watch advertisements for announcements of sales	0.753		
- When I buy or shop, I really look for special offers	0.651		
Factor 7: hygiene	1.067	0.814	
- It is important for me to wash hands before I eat	0.897		
- It is important for me to wash hands before I cook	0.882		

BSE, bovine spongiform encephalopathy.

Table 3. Cluster analysis for consumers' food safety-related lifestyle.

Factors	Clusters total=241				
	Cluster 1 29.5% (n=71)	Cluster 2 34.0% (n=82)	Cluster 3 36.5% (n=88)	F	p
Factor 1: shopping habits-information search	4.12 (0. 61)	1.96 (0.60)	3.83 (0.59)	298.63	0.000
Factor 2: perception of the food health risk-disease transmission	3.65 (0.37)	3.05 (0.66)	2.40 (0.69)	82.90	0.000
Factor 3: price-consciousness	2.91 (0.88)	3.28 (0.71)	4.01 (0.57)	49.07	0.000
Factor 4: shopping habits-labels, origin	3.28 (0.79)	2.21 (0.56)	3.75 (0.82)	95.48	0.000
Factor 5: perception of the food health risk-food contents	3.53 (0.39)	3.00 (0.71)	2.72 (0.60)	36.61	0.000
Factor 6: price-consciousness-sales	2.91 (0.79)	3.19 (0.76)	3.69 (0.70)	22.25	0.000
Factor 7: hygiene	4.91 (0.28)	4.82 (0.44)	4.67 (0.66)	4.62	0.011

Discussion and Conclusions

Food safety remains a major concern, especially in developing or transition economies. This challenge is evident in Kosovo, as well as other Western Balkan and emerging economies, as numerous diseases and problems caused by unsafe food consumption have been observed (Bhat and Vasanthi, 2003; Schatzmayr and Streit, 2013; van Asselt *et al.*, 2017). In addition, there is a low awareness of food safety among producers/farmers, which results in non-compliance with standards (Zeqiri *et al.*, 2015). To overcome such a problem, it is important to improve consumer (as well as producer and trader) awareness, along with enhancing institutional capacity and investments from private sector actors. In this context, it is important to have insight into consumer and value chain actors' awareness and behaviors toward food safety. This can be done through community programs, informational campaigns, and an increase in support for accessible resources for producers and traders.

The results reveal that the group of consumers labeled as "concerned food safety consumers" consists mainly of young, highly educated female consumers. Consumers who were most concerned about food hygiene showed the highest average buying behavior in terms of the presence of vitamins, minerals, energy values, list of ingredients, and artificial additives, as well as the highest average perception of the food health risks related to disease transmission and food contents. This result is consistent with findings from Liu and Grunert (2020), who found that such a consumer cluster was mostly concerned about food safety and paid attention to general health and food freshness beliefs but paid less attention to food taste. Research on health-related behaviors has shown that consumers behave rationally if they are aware of health benefits (Prochaska, 2008). However, acquiring knowledge does not automatically lead to appropriate behavior. Improving knowledge enables people to consciously make informed choices about their actions (Losasso *et al.*, 2012).

The Yeo *et al.* (2020) study highlighted the significance of food safety information, such as product labels and uses, particularly among the "rational" consumer group. This demographic, predominantly comprised of educated and high-income women, demonstrated a keen interest in such details. Conversely, the "careless" consumer group, characterized by lower income and education levels with a male majority, showed lesser concern for safety aspects. This pattern aligns with findings from the Nie and Zepeda (2011) study. Similarly, Yang *et al.* (2021) underscored the importance of seeking information about food among the nutrition and food safety groups.

Results also revealed that the concerned food safety consumers had average price-consciousness. The results of the Montero-Vicente *et al.* (2019) study also confirmed that consumers who are interested in nutrition and health are less sensitive to the price of products.

The largest identified consumer group, labeled as "non-concerned consumers" about food safety/health risks, showed the lowest average perception of the food health risks related to disease transmission and food contents. Price-consciousness was more important than the previous two groups. They were more concerned about saving money by shopping around for bargains to get

Table 4. Dependency test of socio-demographic characteristics among the clusters. Results are presented as frequencies, figures in parentheses are percentages.

Socio-demographic characteristics	Clusters total=241			Kruskal-Wallis test
	Cluster 1 29.5% (n=71)	Cluster 2 34.0% (n=82)	Cluster 3 36.5% (n=88)	
Age (in years)				4.573 (0.102)
19-30	28	31	46	
31-40	17	19	17	
41-50	12	16	8	
51-60	12	11	10	
Over 60	2	5	4	
Gender				5.517 (0.063)
Female	46	39	43	
Male	25	43	45	
Education				4.512 (0.105)
Basic/middle	6	8	5	
High school	30	36	29	
University	35	38	54	
Household size (members)				1.781 (0.411)
2	2	1	2	
3-4	16	11	21	
5-6	26	41	39	
7-8	15	21	16	
More than 8	12	8	10	
Monthly income				10.606** (0.005)
150-250	5	2	12	
251-500	16	25	39	
501-800	32	33	18	
801-1200	10	12	11	
More than 1200	8	10	8	

**p<0.01.

the best prices, checking alternative prices before buying, waiting to purchase items on sale, following sales advertisements, and searching for special offers. Unlike the first group, most of the consumer population of this group was made up of men. This type of consumers is also found in the study of Liu and Grunert (2020), while Tan *et al.* (2021) found that health consciousness, food safety concerns, and a healthy lifestyle were positively associated with a higher propensity to purchase organic products; this class of consumers does not appear to be very sensitive to price.

To conclude, consumers who were most concerned about personal health risks were concerned about food safety related to the contents of the food, as consuming such food can result in nutritional deficiencies and health problems and diseases that could be transmitted to humans and lead to foodborne illnesses caused by bacteria, viruses, parasites, or toxins. Most of the people in this cluster were young consumers, women, and university-educated. Many factors can influence the higher concerns about food safety among younger consumers; they tend to seek higher transparency and accountability from food producers and suppliers due to greater access to information. They are growing up in a time when access to information, news, research, and data is easily accessible. Moreover, younger consumers are more present on social media, which nowadays plays an important role in influencing the attitudes and behaviors of younger consumers as well as safety concerns. Younger consumer generations tend to have a stronger connection to the environment and animal welfare, which is associated with higher food safety standards.

On the other hand, women are key influencers in household food choices and dietary habits. Women are often involved in food production, processing, and particularly household food handling; hence, their knowledge, practices, and advocacy can significantly contribute to improvements in food safety standards, initially for their families but also for communities and society in general.

Educated consumers tend to make informed choices when purchasing food products; higher-educated consumers might better understand and adhere to proper food handling, hygiene, proper cooking temperatures, storage methods, and cross-contamination. Thus, reaching out to less educated consumers through various communication means and food safety awareness campaigns is important.

This study provides interesting insights for public health and food safety authorities. Those who can promote the importance of food safety and community health with targeted advertising. Regardless of the progress in terms of legislation due to the European Union integration process, there is still a lack of capacity in public/private institutions that guarantee food safety. Agribusinesses and policymakers can focus on young and lower-income consumers by educating and increasing awareness and knowledge concerning food safety and quality standards. An increase in consumer awareness and education on food safety can decrease the workload of the healthcare system from foodborne illnesses and minimize economic losses due to medical treatment costs and other losses related to work absence. In this regard, understanding consumer behavior, preferences, and perceptions of food safety helps better tailor safety measures. Education of consumers about their rights, information search for product safety, and best practices help them make informed choices and better buying decisions. The study has several limitations related to timing and sampling. First, the results are related to one specific country, and more specifically, three major cities in Kosovo. The sampled consumers exhibit a relatively younger demographic and higher educational qualifications. Consequently, the analysis may not yield entirely transferable results due to the demographic skew towards urban, educated individuals. While not the primary objective of our study, it is imperative to consider this demographic bias when interpreting the ensuing findings. Although the results reflect the case of urban Kosovo, they are relevant to other developing or emerging economies, which are characterized by serious food safety standards.

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