# Serbian, Croatian and Spanish consumers' beliefs towards artisan cheese

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Abstract

**Purpose**

In the past two decades the popularity of artisan cheese emerged. The present study aimed to investigate similarities and differences in beliefs toward artisan cheeses among participants from Serbia, Croatia and Spain, and to determine consumer profiles. Better understanding of their behaviours and beliefs could serve as the basis for the development of appropriate production and marketing strategies, and for further popularisation of artisan cheeses.

**Design/methodology/approach**

The data on demographic structure, behaviours and beliefs of 947 participants in total were obtained via questionnaire collected online. In order to identify consumer profiles and to define their specific beliefs, a cross-country cluster analysis has been conducted. Four clusters were identified: "highly educated men", "highly educated women", "millennials" and "educated senior women". Mann-Whitney U test was used to identify statistically significant differences between countries and clusters.

**Findings**

Respondents from different countries had different preferences for cheese types, and different ways of consumption. All participants valued artisan cheeses more than industrial cheeses in terms of healthiness and quality, but they believe that there is still much to be done in terms of proper packaging, labelling, branding, widening of assortment and providing better availability. The results of the present study revealed that participants had no clear opinion regarding trust in artisan cheese safety.

**Originality**

Up to date, no study investigated beliefs of consumers from Serbia and Croatia towards artisan cheese. Original consumer pool has unique characteristics: they are far more oriented towards open markets and purchasing cheese directly from producers; they have a different preferences towards cheese types, and different consuming habits. Unique consumer characteristic provided original findings considering their beliefs.

Key words: small scale, artisan cheese, consumer preferences, cluster analysis, food safety

## 1. Introduction

Interest in artisan and local food emerged during the 1990s. This branch of food production caught both scientific and consumer’s attention and is still growing (Lahne and Trubek, 2014; Maceín*, et al.*, 2020). It became clear that the promotion and the value enhancement of local food products and the development of small scale food businesses could be of great importance to rural communities and could contribute significantly to the state economy (Barrionuevo*, et al.*, 2019).

As with any product, the popularity of artisan cheeses and hence their success on the market depends on understanding and meeting consumer preferences (Akpinar-Bayizit*, et al.*, 2017). In the past two decades consumer studies have been conducted in several countries: in Scotland (UK) (Kupiec and Revell, 1998), Portugal (de Souza Monteiro and Ventura Lucas, 2001), Ireland (McCarthy*, et al.*, 2001; Murphy*, et al.*, 2004), Mexico (Hidalgo-Milpa*, et al.*, 2016), Vermont (USA) (Lahne and Trubek, 2014) and central Spain (Maceín*, et al.*, 2020). The aim of these studies was to provide a proper marketing strategy for artisan cheeses based on an understanding of consumers‘ preferences. So far, no consumer study has been conducted involving Serbian and Croatian consumers.

In general, there are two aspects of food quality that drive consumers' purchase choice. The first one is related to the intrinsic quality of the food characterised by its physical, chemical or sensorial attributes (de Souza Monteiro and Ventura Lucas, 2001; Lahne and Trubek, 2014). The inevitable uniqueness of the sensory characteristics of artisan cheeses results from different climate conditions, animal breeds and feeds, autochthonous microbiota, specific ingredients, handling, and other varying factors. This uniqueness gives artisan cheeses a potential to be superior to industrial cheeses (Barling*, et al.*, 2009; Kupiec and Revell, 1998; Scott*, et al.*, 1998). The second aspect is extrinsic quality (Lahne and Trubek, 2014). The contemporary consumer is increasingly interested in nutritional value and healthy diet, but also in food origin, the ingredients used and the way food is produced. With regard to this aspect of quality, artisan cheeses are considered to be more natural, more healthy and wholesome than cheeses produced in large scale dairies (Akpinar-Bayizit*, et al.*, 2017; Olsen*, et al.*, 2021; Simmons*, et al.*, 2007; Skuras and Vakrou, 2002) The superiority in both quality aspects gives artisan cheeses great potential to be produced, promoted and accepted by consumers as *premium quality cheeses* or *speciality cheeses.* But along with "premiumisation" of products comes a rise in price, with consumers having to pay more for artisan cheeses (Kupiec and Revell, 1998; Licitra, 2010; Martinez*, et al.*, 2010; Olsen*, et al.*, 2021; Wright and Annes, 2014). Price increase is a very sensitive issue. In several studies price has been identified as among the few most important criteria in artisan cheese purchasing decisions (de Souza Monteiro and Ventura Lucas, 2001; Maceín*, et al.*, 2020) .

Direct marketing of artisan food is becoming an even more popular strategy compared to food premiumisation. Despite the advantages, there are some challenges that have to be considered. When consumers are buying artisan food directly from producers, they can get to know the producers, they can learn about the product and its ingredients, about animal treatment, production procedures and hygiene practices. All of this engenders consumer trust in artisan food safety and quality. Introducing urban consumers to rural communities could be a useful tool in the development of rural economy, and especially rural tourism, and could help the preservation of small farms (Brain, 2012; Paxon, 2013). Main barriers for the consumers are the inaccessibility of local markets, inconvenience, the seasonal character of artisan food and difficulties finding information about the product on offer (Martinez*, et al.*, 2010).

Worldwide, most cheese making is still done in small scale facilities (Carrascosa*, et al.*, 2016). Southern European countries have a large number of small artisan food (including cheese) producing companies. There is also widespread availability of these products (Jordana, 2000). Not surprisingly, these same countries are leading the programs for local food promotion and value enhancement. One of the "instruments" for value enhancement of artisan food is, for example, its marking at international level by labels of Protected Geographical Indication (PGI) (Barrionuevo*, et al.*, 2019).

In Serbia, 56% of the total milk produced is being sold to the dairy industry for further processing, while the rest is in hands of small scale producers (Veljković*, et al.*, 2018). Out of all milk processed in dairy industry, only 6% is used for cheese production. Soft cheese types account for 70% of the total amount (Vlahović*, et al.*, 2017). It was estimated that one third of all the cheese has been produced in small scale dairy plants. Out of the total annual cheese production, 25.1% is exported (8.3 thousand tonnes), with the highest share of soft cheese types (58.1%). An average amount of cheese imported annually is 2.8 thousand tonnes. The types of imported cheeses are: semi hard (49.1%) processed (22.3%), fresh (5.1%), blue and white molded (4.9%), grinded (3.6%), hard (1.5%) and other types of cheeses (13.5%). It has been observed that significant share belongs to the category of specialty products: famous brands or cheeses with PGI labels (Mugoša, 2017).

In Croatian dairy sector cheese is the largest of the four main dairy categories, with an overall value share of 36%, with hard cheese as a predominant type in terms of sales value (Čeljo and Čatlak, 2016). Most of cheeses that exist on Croatian market are produced in large industrial dairy plants, from which significant amount is imported (Matijević*, et al.*, 2015). An average annual import accounts for 22 thousand tonnes (44% of which is from Germany), while only about 600 tonnes is exported (Vlahović*, et al.*, 2017).

However in both regions, considerable amount of milk is processed in small scale facilities and family farms. This branch of dairy production has been recognized as an "underutilized potential", while traditional artisan cheeses are considered to be "a real treasure of dairy products" (Matijević*, et al.*, 2015; Veljković*, et al.*, 2018). They are becoming more and more popular nowadays, and there is an indication that consumers see them as highly valued products (Barukčić and Tudor Kalit, 2019). Still, in Serbia and in Croatia, this segment depends greatly on the abilities of craftsmen, so the quality of the final product is not always uniform and there is much room for improvement in the field of quality, promotion and value enhancement (Barukčić and Tudor Kalit, 2019; Miocinovic and Moiloradovic, 2019). As a support, special attention should be paid to consumer needs and to the culture of artisan cheese consumption (Maceín*, et al.*, 2020).

Spain, however, is one of the leaders in the world for traditional artisan cheeses with Protected Geographical Indications (SWG, 2020). In Spain, the share of goat and sheep milk out of the entire milk production is very high: 13.3% (compared to the EU average 1.5%). Most of goat milk (98.2%) and sheep milk (92.5%) is processed into cheeses, of which a considerable number has PGI protection (Martinez*, et al.*, 2013). In order to boost the value of artisan food, the "Centre de Promoció de la Cultura Populari Tradicional Catalana" was established. The project "Artisan Cheeses of Catalonia" is another good example of efforts to improve and promote the quality of local cheeses (Barrionuevo*, et al.*, 2019).

The aim of the present study was to test the hypothesis of whether behaviour, beliefs and perception of artisan cheese quality differed considerably among participants from three countries that have such a different cheese market characteristics. The aim of the study was also to contribute to a better understanding of consumer segments with similar beliefs, which could serve as the basis for the development of an appropriate production and marketing strategies, and enhancement of the artisan cheese popularity.

## 2. Material and methods

### 2.1. Survey and participants

The survey was conducted through an online questionnaire, from March till September 2019, initially involving 970 citizens of Serbia, Croatia and Spain. From each country, it was looked for a minimum of 250 respondents. They were collected by convenience sampling via social media and e-mail using an online platform (Slido®), by volunteers, aged over 18, not financially rewarded, and randomly recruited through networks of families, friends, relatives and their networks. All study procedures were conducted in line with Codex of professional ethics of the University of Belgrade (Kodeks profesionalne etike Univerziteta u Beogradu 193/2016).

In order to make data more meaningful, the target favoured 1) female participants - since women are overwhelmingly responsible for choosing and purchasing food (Lancashire*, et al.*, 2002) and

2) highly educated participants – because they recognise the added value of artisan cheeses (Maceín*, et al.*, 2019).

The questionnaire was initially developed in English and then translated into Serbian, Croatian and Spanish, using the procedure of back-translation (Maneesriwongul and Dixon, 2004). At the beginning of the questionnaire, as in the study of Kupiec andRevell (1998), a definition of artisan cheese was provided to ensure that all the respondents understood the meaning in the same way. The definition was as follows: "artisan cheese is non-industrial cheese, produced in small scale, mostly manually, following the traditional procedure".

Only the questionnaires that were fully completed were considered representative. Also, as in the study of Olsen*, et al.* (2021), participants who claimed that they did not eat cheese at all were declared not relevant and omitted from further analysis. With these considerations, the number of questionnaires that were further processed was reduced from an initial 970 to 947: (97.6%): Serbia (346), Croatia (320) and Spain (281).

In spite of its relatively limited number of respondent per country, the sample used in the present study is comparable to similar published consumer surveys related to dairy product consumption, ranging from 239 consumers in France and Norway (Almli*, et al.*, 2011), 541 Iranian consumers (Moodi*, et al.*, 2021) up to 1111 consumers from Spain (Maceín*, et al.*, 2019). While recognizing the potential limitations, a certain dose of caution could be taken for the results of this survey.

## 2.2. Questionnaire

The questionnaire consisted of three sections. The first section included questions on demographic characteristics including: gender, age, level of education, and number of family members. The second section was related to information about consumer behaviour towards cheese in general: frequency of consumption and place of purchase, type of cheese preferentially consumed and the way it was consumed. The option of multiple choices was given for answers to questions regarding place of cheese purchase, and manner of consuming. In order to distinguish between artisan cheese buyers and non-buyers, the respondents were asked if they purchased artisan cheese in the past month (McCarthy*, et al.*, 2001; Murphy*, et al.*, 2004).

The third part of the questionnaire included statements that were given to help participants to best describe their beliefs towards the quality of artisan cheeses, their willingness to pay, the characteristics of the artisan cheese market and their concern for rural community and cheese makers. The five point Likert scale was used to measure the degree of agreement with each statement: 1) disagree strongly; 2) disagree; 3) no opinion; 4) agree; 5) agree strongly.

### 2.3. Statistical analysis

Grouping consumers with similar wants and needs is an important marketing activity. In order to form profiles of consumers objectively, cluster analysis has often been used for market segmentation (Mooi and Sarstedt, 2010). Different methods of cluster analysis have been used in consumer studies (Tomasevic*, et al.*, 2020a; Walthouwer*, et al.*, 2014; Yakın*, et al.*, 2021). Two-step cluster analysis was considered to be more accurate and reliable comparing to other clustering methods and was utilised increasingly in a variety of scientific fields (Adanacioglu and Albayram, 2012; Tkaczynski, 2017).

In the present study, two-step cluster analysis was conducted. Consumers were classified using education, gender and age as categorical variables. The four cluster solution was determined automatically by Schwarz's Bayesian clustering criterion with 15 clusters set as maximum. Log-likelihood distance measure was used. Silhouette measure of cohesion and separation (0.5), and the ratio of largest to smallest cluster size (1.55) confirmed that having four clusters was the acceptable and optimal solution.

The average Likert scale scores for consumer beliefs and the standard deviations were both calculated. The Mann-Whitney U test was used to identify statistically significant differences between countries and clusters, with the level of significance at 0.05. All the tests were done using SPSS Statistics 21 software.

## 3. Results and discussion

### 3.1 Demographic characteristics

In the overall pool of respondents, and in each country, females prevailed (69.1%) (Table 1). Also, there was an excessively large group of highly educated participants (MSc and PhD degrees) and of young participants (≤24 years, secondary school education), especially among the Serbian and the Croatian respondents, since the survey in those countries started with academic staff and students. As a consequence, only 5% and 16.2% respectively of the Croatian and Serbian samples were aged over 55 years while the corresponding figure for Spanish respondents was 38.4%. There was a significantly higher number of two-member households among Spanish (32.7%) than among Serbian (21.1%) or Croatian (18.1%) respondents. On the other hand, there were significantly more households with more than four members among Serbian (21.4%) and Croatian (21.6%) than among Spanish participants (8.2%).

***Table 1. near here***

Specific demographic picture of survey respondents shows the existing bias. Table 2 points out the real bias between selected sample characteristics and the data from the official statistics. Thus, it can be considered that the results shown in the present study could be regarded as an exploratory approximation, as described by Tomasevic*, et al.* (2020b).

***Table 2. near here***

### 3.2 Behaviour towards general cheese consumption and purchase

The results obtained in this study showed a high level of cheese consumption among respondents, in line with previous findings for European consumers in general (Maceín*, et al.*, 2019). Out of 970 initial respondents only 3 answered that they did not eat cheese at all. The most common frequency of consumption was 2-3 times per week (50.6%), followed by at least once per day (23.0%) (Table 1).

Differences in food choices across Europe are due to cultural variations. Local gastronomic customs and habits are the most important influences on food selection, cheeses including (Guerrero*, et al.*, 2009; Maceín*, et al.*, 2019). The present survey revealed the differences in cheese type preferences. More than half of the respondents favoured the semi hard/hard ripened cheese (56.1%). However, only 0.7% of Spanish and 9.7% of Croatian respondents preferred the white brined cheese, while it was the first choice for almost half (47.7%) of the respondents from Serbia, where it is the most widely consumed type (Miloradovic*, et al.*, 2017).

Consequently, the manner of cheese consumption differed significantly between countries. A great majority of participants (89.1%) replied that they eat cheese with salad or in sandwiches, and almost half of them with pizza or spaghetti (48.9%). However, Serbian respondents consumed cheese as an ingredient in bakery products (60.4%), significantly more than Croatian (44.1%) or Spanish respondents (22.4%). This could be explained by the high popularity in Serbia of traditional bakery products “Cheese pie” and “Burek” (Kalenjuk*, et al.*, 2015).

Almost the entire sample of Spanish participants (97.1%) and 86.4% of all respondents purchase cheese in markets or supermarkets. The fact that cheese is consumed in sandwiches, salads and pizzas, and purchased in markets/supermarkets reveals that for the great majority of respondents cheese is not perceived as a differentiated product, consumed as a part of some ritual or on special occasions. The same conclusion was reached by Maceín*, et al.* (2020) for respondents coming from the Madrid region of Spain. On the other hand, the consumption of cheese as a dessert, with wine, discussed by Kupiec andRevell (1998), was found to be a “high quality use”, a “luxury for special occasions”, done by “speciality cheese consumers”. The results of this study showed that less than 15% of *artisan cheese buyers* consumed cheese as a dessert. On the basis of the former assumption, that group could be regarded as “artisan speciality cheese consumers”. However, 8.8% of the respondents were *speciality cheese consumers* but *artisan cheese non-buyers*. It is apparent that this group chose to purchase “industrial speciality cheeses”, which, as already stated more than two decades ago (Kupiec & Revell, 1998), represents very threatening competition to their artisan speciality counterparts.

It was interesting to note that almost nobody (0.21%) was buying cheese online. One should bear in mind that the present survey was conducted before the start of the Coronavirus pandemic (Covid-19) and it could be expected that online cheese purchasing would become much more common in the future, due to the increase in online shopping in general (NetcommSuisse, 2020).

Significant differences appeared among respondents from different countries regarding cheese purchasing at open markets, with the highest percentage registered in Serbia (48.3%), followed by Croatia (39.1%) and Spain (28.1%). The differences are even more pronounced regarding cheese purchasing directly from cheese producers: this option was chosen by only 8.5% of Spanish respondents, but was significantly more popular among Serbian (25.7%) and Croatian (44.1%) respondents.

### 3.3 Beliefs towards the artisan cheese quality

In general, the respondents considered cheese a healthy food (4.11). They agreed on the superiority of artisan cheese over industrial cheese in terms of healthiness (3.77) and quality (3.83) (Table 3), and it could be well used as a differentiation tool in artisan cheese marketing strategies. However, it is concerning that there was only moderate agreement among Croatian (3.66) and Spanish (3.73), and no clear opinion among Serbian participants (3.48) regarding trust in artisan cheese safety. In order to promote and sustain the viability of small businesses, maximum efforts should be made to increase consumer confidence in the safety of artisan cheeses (Machado and Cutter, 2017). With that in mind, direct marketing was suggested, since by dealing face to face with producers and by learning more about the production process, consumers gain confidence and trust in food safety (Brain, 2012; Nygård and Storstad, 2002).

***Table 3. near hear***

Apart from food safety concerns, contemporary consumers are also becoming more and more interested in ingredients that are used in food production (Skuras and Vakrou, 2002). Serbian (4.00) and Croatian (4.00) participants were very positive about the possibility for artisan cheeses being packed in individual packages with a label, instead of being sold in bulk. While the packaging contributes to the extrinsic perception of quality (Kupiec & Revell, 1998), labels provide verification of product quality, making it easier to recognize the product and to arrive at a purchasing choice (Korthals, 2014; Oostenbach*, et al.*, 2019; Skuras and Vakrou, 2002). It was reported that artisan food producers, well skilled to produce food of high intrinsic quality, often lack the expertise and commitment to pack and label the product in a commercially acceptable way (Beamer, 1999). This study suggests that it is still an issue in the countries examined, and that efforts should be made to overcome this challenge.

Another advantage of food labelling is the possibility of using nutritional claims in order to inform consumers about functional characteristics of food. It has been reported that consumers were more willing to purchase cheeses labelled with the nutritional claim “low sodium” (Maceín*, et al.*, 2020). The amount of salt is a compromise between health and taste. For the purpose of preservation, certain traditional products tend to have higher salt content in comparison to conventional products (Vitale*, et al.*, 2020). White brined cheeses (the most consumed type in Serbia) are often characterised by excessive salt content (Miloradovic*, et al.*, 2018). The present study showed that only Croatian respondents clearly do not agree (2.27) that ‘artisan cheeses are often too salty', while the others were neutral but close to disagreement. Only 13.3% of all respondents agreed (4) and strongly agreed (5) on that statement. Participants in that particular group were mainly over 55 years of age (29.4%) and from Serbia (45.2%) or Spain (34.1%). It suggested that the higher the age, the more caution is paid to excessive saltiness, as a consequence of health status vulnerability. Nevertheless, the majority of Serbian participants are still buying white brined cheese in bulk at the open market (Miloradovic*, et al.*, 2018) and, by consuming it, are taking an excessive amount of salt, unaware of the associated health risks.

The efforts made in the development of artisan cheeses were clearly recognized by respondents in the Spanish niche: they did not seek the improvement of cheese quality (3.21), nor did they ask for more artisan cheeses to be packaged and labelled (3.27).

3.4 Beliefs towards artisan cheese markets and purchasing

On average, participants would pay more for artisan cheeses than for industrial cheeses (3.76). However, they were not positive about giving any extra money for either organic artisan cheese (3.49) or goat artisan cheese (3.44). The exception were Spanish respondents who, following their country’s tradition, were prepared to pay more for goat cheese (3.54), (Martinez*, et al.*, 2013), although it has been reported that for their compatriots from central Spain price was the main criterion when deciding which cheese to buy (Maceín*, et al.*, 2020). In line with the previous discussion about artisan cheese quality, Spanish respondents also showed higher satisfaction with artisan cheese market availability (3.40) and assortment (3.55). However, they would like to see an improvement in artisan cheese availability at their preferred purchase places – markets/supermarkets (3.96). This could be understood as a call for more purchase venues, already pointed out as one of the main challenges for artisan cheese marketing (Martinez*, et al.*, 2010). That call was significantly stronger among Serbian (4.25) and Croatian (4.22) respondents. As previously mentioned, compared to Spanish respondents, they were far more oriented towards open markets and purchasing cheese directly from producers.

Beliefs on the statements that it would be good if '*more artisan cheeses from our country should be branded*' and if '*our markets had a better offer of artisan cheeses*' were positive everywhere. They leaned from *agree* to *strongly agree* among respondents from Serbia (4.15 and 4.25, respectively) and from Croatia (4.13 and 4.22, respectively), which shows that branding, as part of the strategy for artisan cheese promotion, would be more than welcome by consumers from these countries.

### 3.5 Beliefs towards artisan cheese producers and rural community

Respondents were supportive towards cheese producers and rural community. They thought that it was important to know who produced artisan cheese (4.31), that it was important to support cheese makers by buying the cheese (4.23), and that, by purchasing it, we preserve tradition (4.27) and contribute to rural development (4.26). Differences among countries in these aspects were significant but not relevant.

### 3.6 Cluster analysis

In order to identify the profiles of consumers and to define their beliefs, a cross-country cluster analysis was conducted involving the whole sample of participants. Four clusters were identified and their demographic characteristics, their cheese consumption and purchase behaviour are presented in Table 4.

***Table 4. near hear***

Cluster 1 (N=199, 21.0%) consisted only of male participants (100%), predominantly from Serbia (49.75%) and less but over-the-average from Spain (30.65%), highly educated (58.29% with MSc or PhD degree), aged between 35-54 (64.83%). This cluster would be labelled *„Highly educated men*”. Their first-choice cheese was hard/semi hard ripened cheese (56.28%). They consumed cheese in bakery products (40.7%) less than all other clusters, and they consumed it as a dessert with wine more than the average sample (24.12%).

Cluster 2 (N= 296, 31.2%) encompassed female/male participants and nationalities at about the level of the average sample. They were distinguished from other clusters on the basis of low educational level (primary and secondary school). A notable number of these participants were people of the age 24 and younger (36.52%). This group will be called “*Millennials*”*,* since almost all the millennials belonged to this group. This cluster consisted mainly of participants who had four and more-than-four household members (59.08%). They preferred hard/semi hard ripened cheese (58.36%), but consumed cheese as a dessert with wine less than the average (19.45%).

Cluster 3 (N=191, 20.1%) included only highly educated (MSc or PhD) female participants, predominantly of the age 25 to 44 years (68.62%), in the average ratios of participating countries. This group will be called "*Highly educated women*". They had mainly up to three household members (65.43%). They ate high percentages of cheese in each offered form, however, among all the clusters, this one had the highest number of artisan cheese non-buyers (47.94%).

Cluster 4 (N=261, 27.6%) consisted almost entirely of female participants (98.44%), with a high percentage of the age 45 and more (41.0%), all having high school education (BSc degrees). This group will be labelled "*Educated senior women*". They chose fresh cheese as preferred in ratio (23.05%) higher than other groups and above the average, but hard/semi hard ripened cheese was still their first choice (50.78%).

*Highly educated men and women* had quite similar beliefs (Table 5). *Highly educated men* were not confident of artisan cheese safety (3.46), and not satisfied with its market availability (2.95) and assortment (3.02). According to them, one could assume that they were *'demanding speciality cheese consumers'*.

***Table 5. near hear***

*Highly educated women* were more demanding than men. They did not believe that artisan cheese was healthier than industrial (3.38), they did not agree that it was safer (3.38) and did not tolerate variations in quality (3.61). But, compared with all the other clusters, they stood out as the strongest supporters of the rural community, wanting to know (4.45) and to support the producer (4.24), recognizing the importance of rural development (4.38) and of country tradition (4.35). This is why it could be suggested that *Highly educated women* were *'highly demanding speciality cheese consumers, strongly valuing artisanal production'.* Interestingly, although they were the strongest supporters of artisan cheese producers, they had the highest number of artisan cheese non-buyers (47.87%). It would be useful to ascertain the main reason for this: lack of confidence in safety, dissatisfaction with quality, poor availability of artisan cheese or some other reason.

Both *Highly educated men and women* would pay more for goat artisan cheese (3.57 and 3.53, respectively). This particular attitude has already been attributed to *speciality cheese consumers* for whom cheese consumption is a hedonic experience (Maceín, *et al.*, 2020). Having high education, these consumers are, generally, likely to belong to a higher economic group (McCarthy*, et al.*, 2001; Skuras and Vakrou, 2002) and be more ready to spend money.

As it has been discussed by Barrionuevo*, et al.* (2019), speciality cheese consumers could be characterised as *involved* and *innovative*, open to new cheese experiences and strongly interested in learning about cheese. For that reason, these are people who should be addressed for speciality artisan cheese market boosting, and in artisan cheese premiumisation.

Compared with the other two groups, *Millennials* and *Educated senior women* appeared much more trusting and satisfied. They agreed that artisan cheeses were healthier (4.07 and 3.90, respectively) and of higher quality than industrial cheeses (4.08 and 3.92, respectively). They also believed that artisan cheeses were safe (3.83 and 3.67, respectively), quite the opposite to the rest of participants

Out of all clusters, *Millennials* comprised the highest number of artisan cheese buyers (61.43%). Taking into account, again, their level of education, it could be assumed that they also had the lowest economic status compared to other clusters. One could argue that this was at least one of the reasons why they were not willing to pay more for either goat (3.33) or organic cheese (3.49). Although they did not complain about variations in artisan cheese quality, they were still positive about the need for quality improvement, increase in market offer and assortment, artisan cheese packaging, labelling and branding. On the basis of these beliefs, it could be assumed that *Millennials* were *'consumers confident in artisan cheese safety and quality, but seeking for improvements'.* In previous studies, millennials were found to be open minded and highly interconnected. A study of their attitudes towards craft beer discovered that they liked to consider themselves as "craft consumers" (Rivaroli*, et al.*, 2019). Another study revealed that young people were the critical target market for traditional cheese from Turkey (Adanacioglu and Albayram, 2012). The present study marked millennials as artisan cheese buyers and appreciators. It is essential therefore to further stimulate the interest, knowledge and culture of young people towards craft, artisan, and traditional food products in general.

*Educated senior women* were the only group not convinced of the statement that the quality of artisan cheese should be improved (3.47). Although all clusters would pay more for artisan cheeses than for industrial cheeses, only *Educated senior women* would pay more for organic artisan cheese as well (3.63). Therefore it could be said that they were *'consumers valuing organic artisan cheese and satisfied with artisan cheese quality'.* In general, consumers who value organic food are willing to subordinate the attention to taste and pleasure of food to healthy diet and, also, to animal welfare, environmental issues and rural development (Becker and Staus, 2008; Schösler and de Boer, 2018). Therefore, the *Educated senior women* should be targeted for direct marketing of organic artisan cheese niche.

## Conclusion

This survey contributed to general knowledge of consumer beliefs towards artisan cheeses in countries that were not explored before.

The study revealed that the respondents from investigated countries did value artisan cheeses more than industrial cheeses, but there was still much to be done to gain their confidence and fulfil their needs. Proper packaging, labelling, branding, widening of assortment and providing better availability would all enhance the extrinsic quality of artisan cheeses and make them more attractive to consumers. Another very necessary task would be to increase the trust of consumers in the safety of artisan cheeses. Significantly higher level of satisfaction with quality, assortment and availability of artisan cheese was identified among Spanish respondents. It confirmed the hypothesis that the different cheese market implied different beliefs among respondents. Country of origin also distinguished respondents by the different behaviours towards cheese consumption (preferred type of cheese, place of purchase, manner of cheese consumption).

The cluster analysis provided different profiles of the consumers. This study could help to visualize intrinsic or extrinsic attributes in artisan cheese that may or may not be preferred by consumers, and that when extrapolated to other countries or more representative territorial areas could be an important input to promote local consumption of cheeses with a label of origin, practices that today are promoted by large institutions linked to the world of food, such as the FAO. This, on the public policy side, but also on the business side, can guide the strategies and decision-making of entrepreneurs of dairy products such as cheese.

## Limitations and future research

The limitation of the present study is that it included a relatively small number of respondents per country. Also, the bias existed between selected sample characteristics and the data from the official statistics. Thus, the obtained results could be regarded as an exploratory approximation, and conclusions could not be generalized to a whole country population.

Considering the limitations, future research is required, having representative samples of consumers, so that conclusions could be extrapolated to a whole country population. The present study findings and conclusions could serve as the basis for the survey development.

Furthermore, a follow-up study could be conducted, for collecting more in-depth customer feedback information from focus groups identified in the present study by cluster analysis.

And finally, more research should be done to better understand how the consumer sees the differences between artisan and industrial cheeses. That knowledge could be used for promoting artisan speciality cheeses, a necessary campaign given that industrial speciality cheeses are becoming serious competition for their artisan counterparts.

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Conflict of interest

None

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Table 1.
Demographic characteristics and behaviour towards cheese consumption and purchase among respondents from Serbia, Croatia and Spain

| | Overall (N=947) | Serbia (N=346) | Croatia (N=320) | Spain (N=281) |
|---|---|---|---|---|
| Gender (%) | | | | |
| Female | 69.1 | 60.7 | 78.5 | 68.7 |
| Male | 30.9 | 39.3 | 21.5 | 31.3 |
| Age (%) | | | | |
| ≤24 | 13.0 | 10.7 | 24.4 | 2.8 |
| 25-34 | 17.3 | 16.5 | 23.4 | 11.4 |
| 35-44 | 30.5 | 34.4 | 33.7 | 22.1 |
| 45-54 | 20.2 | 22.2 | 13.5 | 25.3 |
| ≥55 | 19.0 | 16.2 | 5.0 | 38.4 |
| Education (%) | | | | |
| Primary/secondary school | 31.3 | 27.7 | 38.2 | 27.8 |
| BSc | 36.3 | 36.5 | 33.4 | 39.5 |
| MSc/PhD | 32.4 | 35.8 | 28.4 | 32.7 |
| Household members (%) | | | | |
| 1 | 7.3 | 8.1 | 6.6 | 7.1 |
| 2 | 23.5 | 21.1 | 18.1 | 32.7 |
| 3 | 23.2 | 21.1 | 27.5 | 20.6 |
| 4 | 28.5 | 28.3 | 26.2 | 31.3 |
| >4 | 17.5 | 21.4 | 21.6 | 8.3 |
| Frequency of consumption (%) | | | | |
| Once a month | 4.1 | 2.9 | 5.1 | 4.6 |
| 2-3 times a month | 8.1 | 6.9 | 9.4 | 8.2 |
| Once a week | 14.2 | 11.56 | 15.1 | 16.4 |
| 2-3 times a week | 50.6 | 54.9 | 51.9 | 43.8 |
| At least once a day | 23.0 | 23.7 | 18.7 | 27.0 |
| Type of cheese preferred (%) | | | | |
| Cream/fresh | 15.1 | 6.9 | 20.9 | 18.5 |
| Grinded | 4.4 | 4.4 | 6.3 | 2.5 |
| Hard/semi hard ripened | 56.1 | 38.7 | 57.2 | 76.1 |
| Processed | 3.5 | 2.3 | 5.9 | 2.2 |
| White brined | 20.9 | 47.7 | 9.7 | 0.7 |
| Place of purchase (MCR)* (%) | | | | |
| Market/supermarket | 86.4 | 80.9 | 82.5 | 97.1 |
| Internet | 0.21 | 0.31 | 0.0 | 0.0 |
| Open market | 39.7 | 48.3 | 39.1 | 28.1 |
| Directly from producer | 25.6 | 25.7 | 44.1 | 8.5 |
| Manner of eating (MCR)* (%) | | | | |
| With meal (salad, sandwich) | 89.1 | 90.9 | 89.7 | 85.0 |
| In pizza/spaghetti | 48.9 | 46.5 | 52.2 | 48.0 |
| In bakery products | 41.8 | 60.4 | 44.1 | 22.4 |
| As a dessert, with wine | 23.1 | 20.2 | 24.06 | 25.9 |
| Artisan cheese purchase (%) | | | | |
| Buyers | 57.1 | 56.6 | 64.7 | 49.1 |
| Non-buyers | 42.9 | 43.4 | 35.3 | 50.9 |

Table 2.
Official statistics and survey sample by gender, age group, education level and number of household members for Serbia, Croatia and Spain

| | Overall | Serbia | | Croatia | | Spain | |
|---|---|---|---|---|---|---|---|
| | | Survey | Official statistics | Survey | Official statistics | Survey | Official statistics |
| Number of people | 947 | 346 | 6 974 289 | 320 | 4 208 973 | 281 | 47 260 584 |
| Gender (%) | | | | | | | |
| Female | 69.1 | 60.7 | 51.0 | 78.5 | 51.5 | 68.7 | 52.3 |
| Male | 30.9 | 39.3 | 49.0 | 21.5 | 48.5 | 31.3 | 47.7 |
| Age (%) | | | | | | | |
| ≤24 | 13.0 | 10.7 | 25.1 | 24.4 | 24.9 | 2.8 | 24.9 |
| 25-54 | 68.0 | 73.1 | 41.2 | 70.6 | 39.8 | 58.8 | 43.6 |
| ≥55 | 19.0 | 16.2 | 33.7 | 5.0 | 35.3 | 38.4 | 31.5 |
| Education (%) | | | | | | | |
| Elementary/higher | 31.3 | 27.7 | 80.2 | 38.2 | 79.4 | 27.8 | 68.0 |
| University | 68.7 | 72.3 | 19.8 | 61.8 | 20.6 | 72.2 | 32.0 |
| Household members (%) | | | | | | | |
| 1 | 7.3 | 8.1 | 22.0 | 6.6 | 25.0 | 7.1 | 23.0 |
| 2-3 | 46.7 | 42.2 | 45.0 | 45.6 | 44.0 | 53.3 | 52.0 |
| ≥4 | 46.0 | 49.7 | 33.0 | 47.8 | 31.0 | 39.6 | 25.0 |

The data about the gender and age was adopted from :
The World Factbook 2020-21. Washington, DC: Central Intelligence Agency.
https://www.cia.gov/the-world-factbook/countries
The data about educational attendance level was adopted from The World Bank group 2020
https://data.worldbank.org/indicator/SP.POP.TOTL?locations=ES
The data about the number of household members was adopted from
United Nations booklet ‘Household Size and Composition Around the World 2017’
https://www.un.org/en/development/desa/population

Table 3.
Beliefs towards artisan cheese among respondents from Serbia, Croatia and Spain

| Statements | Overall (N=947) | Serbia (N=346) | Croatia (N=320) | Spain (N=281) |
|---|---|---|---|---|
| I consider cheese a healthy food | 4.11±0.80 | 4.19±0.72[b] | 4.21±0.73[b] | 3.92±0.90[a] |
| Artisan cheese is healthier than industrial cheese | 3.77±1.02 | 3.72±0.91[a] | 3.85±1.06[b] | 3.74±1.08[ab] |
| Artisan cheese has better quality than industrial cheese | 3.83±0.98 | 3.74±0.88[a] | 3.93±1.00[b] | 3.82±1.04[b] |
| Artisan cheeses are often too salty | 2.48±0.83 | 2.58±0.84[b] | 2.27±0.80[a] | 2.59±0.82[b] |
| I have confidence in the safety of artisan cheeses | 3.61±0.91 | 3.48±0.90[a] | 3.66±0.92[b] | 3.73±0.88[b] |
| Quality of artisan cheeses often varies too much | 3.43±0.87 | 3.48±0.87[b] | 3.33±0.88[a] | 3.48±0.85[b] |
| Quality of artisan cheeses from our country should be improved | 3.54±0.85 | 3.81±0.71[c] | 3.54±0.86[b] | 3.21±0.88[a] |
| All artisan cheeses should have an individual package and label | 3.78±0.98 | 4.00±0.82[b] | 4.00±0.89[b] | 3.27±1.06[a] |
| I would pay more for artisan cheese than for industrial cheese | 3.76±0.88 | 3.68±0.86[a] | 3.82±0.93[b] | 3.79±0.83[b] |
| I would pay more for organic artisan cheese | 3.49±1.05 | 3.51±1.03 | 3.53±1.03 | 3.41±1.07 |
| I would pay more for goat artisan cheese | 3.44±1.08 | 3.46±1.13[ab] | 3.34±1.11[a] | 3.54±0.96[b] |
| In my country, availability of artisan cheeses on the market is satisfactory | 3.04±0.99 | 2.85±0.94[a] | 2.94±1.00[a] | 3.40±0.93[b] |
| In my country assortment of artisan cheeses is satisfactory | 3.24±1.00 | 2.96±0.98[a] | 3.29±1.01[b] | 3.55±0.90[c] |
| It would be good if more artisan cheeses from our country were branded | 3.97±0.84 | 4.15±0.76[b] | 4.13±0.76[b] | 3.56±0.87[a] |
| It would be good if our markets had a better offer of artisan cheeses | 4.15±0.69 | 4.25±0.56[b] | 4.22±0.74[b] | 3.96±0.72[a] |
| When buying artisan cheese it is important to know who produced it | 4.31±0.71 | 4.38±0.65[b] | 4.32±0.71[ab] | 4.23±0.76[a] |
| It is important to support artisan cheese makers by buying artisan cheese | 4.23±0.70 | 4.19±0.70[a] | 4.35±0.65[b] | 4.13±0.71[a] |
| Artisan cheeses are important for preserving tradition | 4.27±0.71 | 4.28±0.69[ab] | 4.34±0.69[b] | 4.21±0.73[a] |
| Artisan cheeses are important for rural development | 4.26±0.73 | 4.27±0.69 | 4.26±0.75 | 4.28±0.72 |

Values in the table represent mean values (± standard deviation) of Likert scale: 1- disagree strongly; 2 - disagree; 3 - no opinion; 4 - agree; 5 - agree strongly;
a,b,c Values within a row with identical letters were significantly different ($p < 0.05$), as determined by Mann Whitney U test

Table 4.
Demographic characteristics and behaviour towards cheese consumption and purchase among cluster membership

| | Highly educated men (N=199) | Millennials (N=296) | Highly educated women (N=191) | Educated senior women (N=261) |
|---|---|---|---|---|
| Country (%) | | | | |
| Serbia | 49.75 | 32.76 | 36.17 | 32.42 |
| Croatia | 19.60 | 41.64 | 36.70 | 35.16 |
| Spain | 30.65 | 25.60 | 27.13 | 32.42 |
| Gender (%) | | | | |
| Female | 0.00 | 69.62 | 100.00 | 98.44 |
| Male | 100.00 | 30.38 | 0.00 | 1.56 |
| Age (%) | | | | |
| ≤24 | 0.00 | 36.52 | 1.06 | 5.08 |
| 25-34 | 18.09 | 12.63 | 27.13 | 15.63 |
| 35-44 | 35.68 | 12.63 | 41.49 | 38.28 |
| 45-54 | 29.15 | 16.38 | 19.15 | 18.75 |
| ≥55 | 17.09 | 21.84 | 11.17 | 22.27 |
| Education (%) | | | | |
| prim/sec | 0.00 | 100.00 | 0.00 | 0.00 |
| BSc | 41.71 | 0.00 | 0.00 | 100.00 |
| MSc/PhD | 58.29 | 0.00 | 100.00 | 0.00 |
| Household members (%) | | | | |
| 1 | 7.54 | 4.44 | 13.30 | 6.25 |
| 2 | 26.63 | 20.14 | 21.28 | 26.17 |
| 3 | 23.12 | 16.04 | 30.85 | 25.00 |
| 4 | 29.65 | 30.03 | 23.40 | 30.47 |
| >4 | 13.07 | 29.35 | 11.17 | 12.11 |
| Frequency of consumption (%) | | | | |
| Once a month | 5.03 | 6.14 | 2.13 | 2.73 |
| 2-3 times a month | 10.05 | 8.87 | 4.79 | 8.20 |
| Once a week | 11.06 | 16.72 | 15.43 | 12.11 |
| 2-3 times a week | 50.75 | 47.44 | 58.51 | 48.83 |
| At least once a day | 23.12 | 20.82 | 19.15 | 28.13 |
| Type of cheese preferred (%) | | | | |
| cream/fresh | 11.56 | 11.26 | 13.30 | 23.05 |
| grinded | 4.52 | 3.41 | 5.32 | 5.08 |
| hard/semi hard ripened | 56.28 | 58.36 | 58.51 | 50.78 |
| processed | 4.02 | 5.80 | 2.13 | 1.56 |
| white brined | 23.62 | 21.16 | 20.74 | 19.53 |
| Place of purchase (MCR)* (%) | | | | |
| market/supermarket (**) | 86.43 | 81.91 | 89.36 | 88.28 |
| internet | 0.50 | 0.34 | / | / |
| open market | 39.7 | 36.86 | 42.55 | 40.63 |
| from cheese producer | 25.63 | 29.69 | 25.00 | 26.56 |
| Manner of eating (MCR)* (%) | | | | |
| With meal (salad, sandwich) | 89.45 | 88.74 | 93.09 | 87.50 |

| | | | | |
|---|---|---|---|---|
| In pizza/spaghetti | 45.23 | 50.85 | 52.13 | 47.66 |
| In bakery products | 40.70 | 46.42 | 47.34 | 41.41 |
| As a dessert, with wine | 24.12 | 19.45 | 23.94 | 25.00 |
| Artisan cheese purchase (%) | | | | |
| Buyers | 54.27 | 61.43 | 52.13 | 59.38 |
| Non-buyers | 45.73 | 38.57 | 47.87 | 40.63 |

Table 5.
Beliefs towards artisan cheese among respondents. Comparison between clusters

| Statements | Higly educated men (N=199) | Millennials (N=296) | Higly educated women (N=191) | Educated senior women (N=261) |
|---|---|---|---|---|
| I consider cheese a healthy food | 4.06±0.89 | 4.12±0.79 | 4.12±0.74 | 4.16±0.75 |
| Artisan cheese is healthier than industrial cheese | 3.51±1.14[a] | 4.07±0.88[c] | 3.38±1.11[a] | 3.90±0.84[b] |
| Artisan cheese has better quality than industrial cheese | 3.65±1.05[a] | 4.08±0.91[c] | 3.51±1.06[a] | 3.92±0.81[b] |
| Artisan cheeses are often too salty | 2.51±0.82 | 2.56±0.89 | 2.43±0.83 | 2.39±0.78 |
| I have confidence in the safety of artisan cheeses | 3.46±0.99[ab] | 3.83±0.83[c] | 3.38±0.99[a] | 3.67±0.80[b] |
| Quality of artisan cheeses often varies too much | 3.46±0.91[ab] | 3.32±0.88[a] | 3.61±0.84[b] | 3.38±0.83[a] |
| Quality of artisan cheeses from our country should be improved | 3.65±0.80[b] | 3.52±0.90[ab] | 3.57±0.84[ab] | 3.47±0.83[a] |
| All artisan cheeses should have an individual package and label | 3.81±0.97 | 3.69±1.05 | 3.88±0.92 | 3.79±0.93 |
| I would pay more for artisan cheese than for industrial cheese | 3.67±1.02 | 3.82±0.86 | 3.64±0.88 | 3.84±0.76 |
| I would pay more for organic artisan cheese | 3.48±1.08[ab] | 3.49±1.00[a] | 3.30±1.15[a] | 3.63±0.97[b] |
| I would pay more for goat artisan cheese | 3.57±1.05[b] | 3.33±1.10[a] | 3.53±1.02[b] | 3.41±1.11[ab] |
| In my country, availability of artisan cheeses on the market is satisfactory | 2.95±0.99[ac] | 3.13±0.99[bc] | 2.92±0.97[a] | 3.10±0.98[bc] |
| In my country assortment of artisan cheeses is satisfactory | 3.02±1.07[ab] | 3.35±0.99[c] | 3.17±0.94[b] | 3.34±0.96[bc] |
| It would be good if more artisan cheeses from our country were branded | 3.93±0.88 | 3.95±0.86 | 4.05±0.82 | 3.96±0.80 |
| It would be good if our markets had a better offer of artisan cheeses | 4.14±0.71 | 4.14±0.75 | 4.21±0.59 | 4.14±0.66 |
| When buying artisan cheese it is important to know who produced it | 4.30±0.74[a] | 4.25±0.74[a] | 4.45±0.66[b] | 4.30±0.67[a] |
| It is important to support artisan cheese makers by buying artisan cheese | 4.20±0.77 | 4.23±0.73 | 4.24±0.68 | 4.25±0.62 |
| Artisan cheeses are important for preserving tradition | 4.20±0.82 | 4.26±0.75 | 4.35±0.61 | 4.31±0.58 |
| Artisan cheeses are important for rural development | 4.29±0.76[ab] | 4.18±0.81[a] | 4.38±0.62[b] | 4.26±0.63[a] |

Values in the table represent mean values (± standard deviation) of Likert scale: 1- disagree strongly; 2 - disagree; 3 - no opinion; 4 - agree; 5 - agree strongly
a,b,c Values within a row with identical letters were significantly different ($p < 0.05$), as determined by Mann Whitney U test