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THE IMPACT OF THE COVID-19 PANDEMIC ON THE FREQUENCY OF SHOPPING AND ONLINE SALE OF ORGANIC FOOD AMONG CONSUMERS OF THE FORMER YUGOSLAVIA

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Abstract: The main goal of this research is to determine the impact of the Covid-19 Pandemic on the frequency of buying organic food. It also examines whether the online sale of organic food has increased, and which channels were used for its purchase. The sample in the current research consists of 400 respondents of different demographic characteristics who filled out the questionnaire on two occasions, in 2020 and 2022. Data was processed in the SPSS program, and in addition to descriptive statistics, non-parametric techniques, the Wilcoxon test of equivalent pairs and the Kruskal-Wallis test were used to determine the differences in scores between several groups of respondents. The results showed that due to the impact of the Covid-19 pandemic, the frequency of buying organic food increased as its sale via the Internet. Consumers buy organic food most often in supermarkets and hypermarkets, while only few consumers buy it directly from organic food producers.

Key words: *organic food, consumers, frequency of buying organic food, online shopping, Covid-19*

INTRODUCTION

The organic food market represents one of the most promising markets, considering that there is increased concern among consumers for their health and the environment. The Covid-19 pandemic certainly contributed to this, which had the effect of raising consumer awareness of the importance of health protection. In addition, the way of life itself is very stressful for people, so the adoption of healthy habits related to physical activity and adequate nutrition is of great importance (Čolović, Mitić, Nikolić & Milojković, 2022), especially for elderly who are at high risk of entering a middle-age crisis (Čolović & Mitić, 2022), due to stress and poor health (Chang, 2018) and slow ageing. Consumers who prefer a healthy lifestyle and diet have positive attitudes towards organic food and more often decide to buy it in general (De Magistris & Gracia, 2008). Official data from relevant international agencies (IFOAM, 2022; IFOAM, 2021) show that the demand for organic food is increasing, and the value of this market reaches over 100 billions dollars. Following

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these sources, the highest value of the organic food market is in North America and Europe, that is, in the continents with the highest standard of living. Previously, organic food was mostly produced in the most developed countries, but producers from developing countries have recognized the perspective of the organic food market and are increasingly involved in its production (Yadav, 2016). Considering that making a profit is one of the main goals of the business (Mitić, Kokić, Mizdraković & Tereladze, 2019), it is expected that high profitability makes this sector attractive for large companies as well as smaller producers. Along with the growth of the food market, the number of organic food producers also grows, so the number of organic food producers in the European Union in 2016 was around 260,000, while on the European continent, their number is over 330,000 (Willer & Lernoud, 2016). In 2016, Romania ranked first in the number of organic food producers among the Balkan countries, with over 13,000 producers, while Bosnia was in the last place with less than 50 producers (Vlahović, Užar & Škatarić, 2019).

The Covid-19 pandemic has contributed to the increase in income and profit achieved by organic food producers (Mitić & Čolović, 2022a), with a tendency to increase in the following years. The global increase in organic food sales due to the pandemic is from 25% to 100%, according to many studies (Serbia Organika, 2020). The value of the organic food market in 2021 was 125 billion euros, while the highest purchase value of organic food in the countries of the former Yugoslavia was in Croatia, around 99 million euros (IFOAM, 2023). The value of the organic food market in Serbia is much smaller than in Croatia, given that its value in 2019 was 16.624.673 million euros (Serbia Organika, 2020). During the production of organic food, considering its ecological approach, the preservation of biodiversity is also achieved (Gomiero, Pimentel & Paoletti, 2011), which is favourable for environmental protection. Organic production cannot completely solve the problem of environmental pollution, but it affects the improvement of a large number of ecological indicators (Niggli, 2006). Environmental protection along with health concerns are the main motives for buyers of organic food among consumers in Serbia (Čolović & Mitić, 2022), while the biggest obstacle to buying organic food is the higher price compared to conventional food (Ćendić & Zarić, 2019). According to research conducted in Serbia in 2016, the biggest influence on the decision to buy organic food is its quality and price (Radojević, Simin, Trbić & Milić, 2021).

Organic food producers and sellers invest high amounts of money in marketing and informing consumers, which leads to a higher demand for organic food. Low information among consumers in Serbia is one of the main reasons for the low frequency of buying organic food (Vehapi & Dolicanin, 2016). Due to the increased interest in organic food, an increasing number of researchers are engaged in research related to the market and consumers of organic food. Better knowledge of organic food consumers allows them and the sellers to design appropriate marketing strategies to attract more consumers and increase sales value. There is a lot of space to increase the sales value of organic food, considering that many consumers still do not buy organic food. Thus, the results of some studies indicate that more than half of consumers in Serbia never or rarely buy organic food (Mitić and Čolović 2022b; Mitić and Čolović 2022c; Dašić, Radosavac, Knežević & Đervida, 2019; Kranjac, Vapa-Tankosić & Knežević, 2017; Đokić, Đokić, Pavlović & Znidersić-Kovač, 2014), while only about 13% of consumers buy organic food every day (Vlahović, Puškarić & Jeločnik, 2011). According to the results of research conducted in Serbia on a sample of 433 respondents (Tankosić, Hanić & Bugarčić, 2022), 43.6% regularly buy organic food (at least once a week), while 54.6% of consumers do so irregularly.

LITERATURE REVIEW

The results of research in Poland conducted in the period from February to August 2020 on a sample of 1.108 showed that the factors of health care, product composition, price and shelf life of the purchased product are the most important factors when deciding to buy organic food (Smiglak-Krajevska & Vojčehovska-Solis, 2021). According to the same survey, the use of the Internet as a channel for the distribution of organic products has increased, and during that period, about 17% of respondents bought organic products online. Perić, Vasić-Nikcević and Vujić (2017) exa-

mined the frequency of buying organic food among consumers in Serbia and Croatia, as well as their socio-demographic characterristics. The study revealed that consumers in Croatia buy more organic food than consumers in Serbia, owing to better consumer information and greater trust in the media. Nevertheless, the frequency of buying organic food in Croatia has been on the low side, given that about half of the respondents (50.1%) never buy organic food, while only 12.4% of respondents are regular buyers of organic food (Brčić-Stipčević & Petljak, 2011). Similar were the findings from Montenegro, where about 35% of consumers never buy organic food, while only about 11% do so regularly (Melović, Ćirović, Dudić, Vulić & Gregus, 2020). Considering the organic food market in Republika Srpska, 58.73% of consumers only occasionally buy organic food, while 31.04% of consumers are regular buyers (Galić, 2022).

Organic food consumers in Serbia are predominantly female, older, university educated, live in urban areas and have above-average incomes (Mitić & Čolović, 2022b). Similar consumer demographic characteristics were reported from a study in North Macedonia, according to which organic food consumers were predominantly of a higher level of education, with average or above-average incomes, but were younger than 50 years of age (Sekovska, Branislav & Bunevski, 2013). Knowledge of the demographic characteristics of buyers of organic food helps anticipate consumers' expectations in the purchase, which can be of great importance for producers and sellers of organic food to adapt it to buyers (Končar, Grubor, Marić, Vukmirović & Đokić, 2019). A study conducted in Serbia in April 2020, conducted online in the form of a survey on a sample of 1.275 respondents, showed that consumers who buy organic food are usually women aged between 25 and 40 years with higher education and income above average (Ćirić, Ilić, Ignjatijević & Brkanlić, 2020). The study showed that before the COVID-19 pandemic, about 5.28% of consumers purchased organic food online, which increased by 3.53, i.e. by 66.67% due to the impact of the global pandemic. This trend was confirmed in another study conducted in Serbia in 2020 (Dašić et al., 2019), according to which about 6.6% of consumers in Serbia buy organic food online. The results of a survey conducted among buyers of organic food in Bosnia showed that due to the impact of the COVID-19 pandemic, 12.67% of consumers buy organic food more than usual, while 78.04% have not changed their behaviour and buy organic food as before the outbreak of the Coronavirus disease (Hassen et al., 2021).

According to research by Vehapi (2015), consumers in Serbia most often buy organic food in supermarkets (29.3%), markets (15.5%) and directly from producers (14.4%). Similar findings were reported by Kranjac et al. 2017), according to whom most consumers buy organic food in markets and supermarkets, then in health food stores and directly from producers, while the smallest number of consumers purchase organic food in specialized stores. As for consumers in Kosovo, most of them buy organic food in supermarkets (21.5%) and markets (21%), and only 10% in health food stores (Maksimović, Milošević & Jovanović, 2017). According to Stojić and Dimitrijević (2020), consumers dominantly buy organic food in markets and supermarkets, approximately 38%, followed by health food stores and farms. Moreover, according to the same authors, gender affects the decision-making about the place of purchase since men buy organic food mostly in supermarkets, unlike women, who prefer markets. The type of organic food influences the choice of place of purchase, so when it comes to buying organic fruit and vegetables, consumers in Serbia most often buy it in supermarkets (33%) and markets (22.7%), as well as organic milk and milk products which are purchased in supermarkets (40.7%) at a greater frequency (Vehapi & Dolicanin, 2016).

MTERIALS AND METHODS

This research aimed to determine whether the frequency of buying organic food has increased during the pandemic. Also, it examined the distribution channels through which consumers most often purchase organic food and whether online sales of organic food have increased due to the impact of the Covid-19 pandemic. Based on this, the research hypotheses were derived:

1. The frequency of buying organic food increased during the Covid-19 pandemic (H1);
2. Consumers most often buy organic food in specialized stores (H2);

3. The Covid-19 pandemic affected the increase in online sales of organic food (H3).

The sample in this research consisted of 400 respondents from the countries of former Yugoslavia who filled out the questionnaire twice in 2020 and 2022. Respondents were predominantly from Serbia, considering it was the largest ex-Yugoslavian republic with the highest number of citizens. In addition, a large number of respondents outside Serbia did not fill out the questionnaire or did not fill it out completely. However, no statistically signify-cant differences were obtained concerning the nationality of the respondents ($\chi 2=9.452$; $p>0.05$). The research was conducted with the help of Google questionnaires online or by filling out questionnaires by the respondents personally. The sample in the current research consisted of respondents of different gender, nationality, age, level of education, level of incomes and place of residence (Table 1). The disparity in the sample between male and female respondents might not affect the results in different consumption behaviour and characteristics because non- parametric techniques were applied in data analysis that are not sensitive to unequal distribution of scores on different variables, i.e. they provide statistically precise data regardless of the Gaussian distribution.

The questionnaire consisted of 20 questions on a five-point Likert scale and was used in previous research by the authors of the present study (Čolović & Mitić, 2021; Čolović & Mitić, 2022). The reliability of this question-

Table 1.
Socio-demographic characteristics of the respondents

Socio-demographic characteristics	**N**	**Percentage**
Gender		
Male	120	30
Female	280	70
Total	400	100
Age		
From 18 to 24 years	100	25
From 25 to 39 years	155	39
From 40 to 64 years	141	35
Over 65 years	4	1
Total	400	100
Country		
Serbia	321	80.5
North Macedonia	41	10
Bosnia and Herzegovina	22	5.5
Croatia	10	2.5
Montenegro	6	1.5
Total	400	100
Education		
Primary school	13	3
High school	139	35
Higher school/vocational studies	55	14
Faculty/master studies	170	42
PhD	23	6
Total	600	100
Incomes		
Below average	60	15
Average	286	71.5
Above average	54	13.5
Total	600	100
Area		
Urban area	327	82
Rural area	73	18
Total	400	100

naire in the studies of the mentioned authors as a measure of internal consistency ranged from 0.75 to 0.85 Cronbach's alpha. It was not necessary to obtain any ethical statement since the applied questionnaire was completely anonymous and that did not contain any sensitive or, in any other way, intrusive questions that would endanger in some way the respondents and their privacy.

The data were processed with the help of the SPSS program, in version 26. In addition to descriptive statistics, the Wilcoxon test was used to examine the statistical significance between the same respondents in two different time distances and the Kruskal-Wallis test was employed to detect the present differences between the groups of participants. Matching of respondents in the sample was done based on the e-mail addresses of the respondents.

RESULTS AND DISCUSSION

Table 2 shows the results of the Wilcoxon testWe can see that the size of the difference between the two time periods in which the frequency of buying organic food was measured is at a statistically significant level ($Z=15.442$; $p<0.001$).

Table 2.
Frequency of purchasing organic organic food in two periods

Frequency of buying organic food in two observations	
Z	15.442[b]
Sig.	0.000

[b] *Observation 1 < Observation 2*

The direction of the obtained differences was in favour of the hypothesis that the Covid-19 pandemic led to a higher frequency of buying organic food, because the values registered by the second observation were significantly higher (Table 3). A potential reason for this may be increased consumer awareness and better information among consumers about the quality of organic and the importance of healthy nutrition. Due to the impact of the Covid-19 pandemic, consumers have started spending more money on food that does not contain pesticide residues and additives, i.e. organic food, due to fear for their own health and that of their family members.

Table 3.
Wilcoxon signed rangs test

		N	**Mean Rank**	**Sum of Ranks**
Frequency of buying organic food: Observation 1 - Observation 2	**Negative Ranks**	29[a]	99.50	2673.00
	Positive Ranks	295[b]	230.50	96117.00
	Ties	76[c]		
	Total	400		

[a] *Observation 1 > Observation 2*
[b] *Observation 1 < Observation 2*
[c] *Observation 1 = Observation 2*

Table 4.
Frequency of purchasing organic organic food during the two observation periods

Time period	**Observation 1 (2020 year)**		**Observation 2 (2022 year)**	
	Frequency	Percent	Frequency	Percent
Never	130	32.5	105	26.25
Once a month	100	25	90	22.5
Once a week	94	23.5	101	25.25
2–3 times a week	51	12.75	72	18.00
Daily	25	6.25	32	8.00
Total	400	100	400	100

Table 5.
Kruskal-Wallis test results

	The place to buy organic food (year 2020)	**The place to buy organic food hrane (year 2022)**
X^2	5.37	6.24
df	5	5
Sig.	0.241	0.197

Table 6.
Differences in buying organic food regarding to the place of purchase

	Observation 1 (year 2020)			Observation 2 (year 2022)		
	PLACE OF PURCHASE	**N**	**MR**	**PLACE OF PURCHASE**	**N**	**MR**
Frequency of purchasing organic food	Directly from the producer	27	205.33	Directly from the producer	27	205.33
	At the markets	67	263.90	At the markets	52	243.58
	In specialized food stores	79	284.70	In specialized food stores	91	295.40
	In supermarkets	113	344.64	In supermarkets	118	354.94
	In hypermarkets	82	288.90	In hypermarkets	84	288.43
	An unspecified place of purchase	32	212.53	An unspecified place of purchase	28	207.53
	Total	400		*Total*	400	

Source: Authors' calculations

As for a more detailed view of purchase frequency over a two-year period, the following table (Tab. 4) shows that purchase frequency has generally increased. We can see that the number of those who have never bought organic food decreased, and that the largest increase in the frequency of purchases was registered in the group of respondents who buy organic food 2 to 3 times a week after the pandemic.

The Kruskal-Wallis one-way analysis of variance test was used to examine differences in scores between larger numbers of groups of subjects. The results of the Kruskal-Wallis test showed that there were no statistically significant differences considering the place of purchase of organic food in 2020 (χ^2=5.37; p>0.05) and in 2022 (χ^2=6.24; p>0.05) (Table 5). The obtained results harmonizes with the study of Kranjac et al. (2017), Maksimović et al., (2017) and Vehapi (2015) according to which consumers most frequenty buy organic food in supermarkets and hypermarkets. The findings are partially in line with the results of Stojić and Dimitrijević (2020) according to whom consumers mostly buy organic food in markets and supermarkets.

In 2020, most consumers purchased organic food in supermarkets (28.25%), then in hypermarkets (20.5%) and specialized stores (19.75%), while the place of purchasing organic foods are least represented by the market (16.75%) and purchase directly from the producer (6.75%) (Table 6). Due to the influence of Covid-19, in 2022, the number of consumers who preferred buying in supermarkets increased slightly by 1.25%, and those in hypermarkets by 0.5%, while the percentage of consumers who purchased directly from the producer remained unchanged. The biggest change occurred at the beginning of the pandemic when 13% of consumers were involved in the purchase of organic foods in markets, which decreased by 3.75% in 2020 while the number of consumers who purchased foods in specialized stores declined by 3%. A potential reason for the decrease in the number of consumers who buy organic food in the markets may be the fear of the pandemic and the safety of the food in the markets. Due to the influence of the pandemic, Covid-19 increased consumer confidence in organic products sold in specialized stores, so an increasing num-ber of them decides to make their purchase.

The percentage of consumers who purchased directly from the producer has not changed, which indicates that they are loyal consumers, satisfied with the quality of purchased products as well, so they do not want to change their purchase habits. The results of the Wilcoxon test of equivalent ranks suggested that there was statistical significance regarding buying organic food online (Z=13.322; p<0.001) (Table 7).

Namely, the observation of the same group of respondents in two different periods (2020 and 2022) showed a statistically significant increase, given that respondents more often decide to buy organic food online. The direction of the obtained differences was in favour of the fact that the Covid-19 pandemic influenced the increase in the frequency of buying organic food be-

Table 7.
Frequency of buying organic organic food online

	Frequency of buying organic food online in two observations
Z	13.322[b]
Sig.	0.001

[b] *Observation 1 < Observation 2*

Table 8.
Wilcoxon signed rangs test

		N	Mean Rank	Sum of Ranks
Frequency of buying organic food online: Observation 1 - Observation 2	**Negative Ranks**	43[a]	108.50	6667.50
	Positive Ranks	278[b]	221.50	92122.50
	Ties	79[c]		
	Total	400		

[a] *Observation 1 > Observation 2*
[b] *Observation 1 < Observation 2*
[c] *Observation 1 = Observation 2*

Table 9.
The frequency of online organic food purchases during the two observation periods

Time period	Observation 1 (2020 year)		Observation 1 (2022 year)	
	Frequency	Percent	Frequency	Percent
Never	24	6	59	14.75
Once a month	376	94	341	85.25
Total	400	100	400	100

cause the values registered in the second observation were significantly higher (Table 8). Given that, in general, more and more consumers decide to buy food online, it is not a surprise that the number of consumers using the internet as a channel for buying organic food has also increased. The Covid-19 pandemic contributed much to this trend, as many consumers fearing the virus began to use alternative food supply channels to minimize contact with other people.

Only 6% of consumers used the internet as a channel for buying organic food in 2020, while in 2022, the number of consumers who purchase online increased by almost 9% and amounted to about 15% (Table 9).

The Internet as a channel for buying organic food has not yet been used to its full extent, being used less compared to other channels for buying organic food.

The increasing presence and use of information technologies, as well as the increased security of transactions on the Internet, have influenced a greater frequency of online purchases of organic food. Research findings in 2020 are in line with earlier results obtained in Serbia (Ćirić et al., 2020; Dašić et al., 2019), according to which about 6% of consumers use the possibility of online purchase of organic food. When it comes to the research from 2022, the results show that there has been an increase in the online purchase of organic food and it is approximately 15%, which is partially in line with the research conducted in Poland, where about 17% of consumers use the Internet as a channel for buying organic food (Śmiglak-Krajewska & Wojciechowska-Solis, 2021).

CONCLUSIONS

The organic food market is a very promising market due to constant growth, so in addition to the number of buyers, the number of producers and sellers of organic food has also increased.

The Covid-19 pandemic has influenced the increase in the purchase of organic food by consumers who are increasingly paying attention to a healthy lifestyle and adequate nutrition to boost their immunity. The first research hypothesis of the present study (H1) was confirmed: the Covid-19 pandemic influenced the increase in the frequency of buying organic food since the number of consumers in Serbia who never buy organic food decreased (in 2020, it was about 32%, while in 2022 it was 16%). Also, the number of consumers who regularly

buy organic food has increased, since in 2020, about 40% of consumers regularly bought organic food, and due to the impact of the pandemic, this number will reach about 50%.

Consumers most often buy organic food in supermarkets, which did not confirm the second research hypothesis (H2) that consumers most often buy organic food in specialized stores. However, the Covid-19 pandemic influenced more consumers to buy organic food in specialized stores and less often in markets.

The Internet as a channel for buying organic food is showing positive growth as more and more consumers decide to buy organic food online. The third hypothesis (H3) that the Covid-19 pandemic affected the frequency of buying organic food online was confirmed as the percentage of consumers using the internet to buy organic food increased at a statistically significant level. In 2020, about 6% of consumers in Serbia used the Internet to buy organic food, and in 2022, that percentage would amount to about 15%, bringing it closer to Polish consumers, where about 17% use the Internet for this type of purchase.

The results of this research can be useful for all entities related to the organic food market, from producers and sellers to buyers and regulatory agencies. Given that many consumers are concerned about environment hazards and health protection, sellers should develop appropriate strategies, primarily through better informing consumers about the importance and advantages of organic food. Better information and more knowledge of organic food consumers will influence an even greater frequency of buying organic food.

Since the study involved consumers residing in the countries of the former Yugoslavia, it may have not represented all consumers in the appropriate percentage. Also, the sample size of 400 consumers may not be sufficient to generalize the results. Therefore, to extend the validity of the results, more studies with a large sample size should be conducted in this direction. Future research may cover more countries to determine whether the Covid-19 pandemic has influenced the frequency of buying organic food. Consumer surveys are a valuable tool to determine which channels prevail in organic food purchase and what are their disadvantages and advantages.

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UTICAJ PANDEMIJE COVID-19 NA UČESTALOST KUPOVINE I ONLINE PRODAJU ORGANSKE HRANE MEĐU POTROŠAČIMA BIVŠE JUGOSLAVIJE

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Sažetak: Glavni cilj ovog istraživanje je utvrđivanje uticaja pandemije Covida-19 na učestalost kupovine organske hrane. Takođe, ispituje se i da li se povećala online prodaja organske hrane, kao i koji kanali se koriste za njenu kupovinu. Uzorak u aktuelnom istraživanju se sastoji od 400 ispitanika različitih demografskih karakteristika koji su popunjavali upitnik u dva navrata, tokom 2020. i 2022. godine. Podaci su obrađeni u SPSS programu, a pored deskriptivne statistike korišćene su i neparametrijske tehnike, Wilkoksonov test ekvivalentnih parova i Kruskal-Volisov test za utvrđivanje razlika u skorovima između više grupa ispitanika. Rezultati su pokazali da se usled uticaja pandemije Covida -19 povećala učestalost kupovine organske hrane, kao i njena prodaja preko interneta. Potrošači organsku hranu najčešće kupuju u supermarketima i hipermarketima, dok je najmanji broj potrošača koji je direktno kupuju od proizvođača organske hrane.

Ključne reči: *organska hrana, potrošači, učestalost kupovine organske hrane, online kupovina, Covid 19*

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