ANALYSIS OF THE IMPACT OF COVID-19 PANDEMIC ON CONSUMER BUYING BEHAVIOR IN FOOD CHAIN STORES[*]

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Abstract. The paper's chief goal is to determine the impact of COVID-19 on consumer purchasing behaviour and purchasing decisions concerning selected factors affecting consumers when buying food products in chain stores. The research was conducted in V4 countries, and data were obtained from a questionnaire. Essential research methods, such as analysis, synthesis, comparison, induction and deduction, were used in the presented research. Selected basic methods of descriptive statistics, normality tests and correlation coefficients were also applied. After evaluating the results of the questionnaire and verifying the research hypotheses, the expected conclusion regarding the apparent impact of COVID-19 on consumer purchasing and decision-making was confirmed. The hypothesis focused on buying behaviour in relation to gender ($p = 0.03665$), and economic status ($p = 0.0407$) was confirmed, manifesting a statistically significant relationship between these factors. A statistically significant relationship between age and buying behaviour during the COVID-19 pandemic was not confirmed ($p > 0.05$). The research's benefit is identifying changes in buying behaviour and consumer decision-making during the COVID-19 pandemic, which is crucial information, especially for entrepreneurs who can thus adjust their business activities to the current customer needs.

Keywords: consumer; consumer behaviour; wholesale; retail; COVID-19 pandemic

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1. Introduction

The COVID-19 pandemic has affected every sector of the economy, wholesale and retail. The pandemic upheaval has been a massive test of the economy's and trade's resilience. Businesses and policymakers need to respond effectively to a rapidly changing economic environment. Despite its vital role in the supply chain and the flow of goods, the retail sector has also been negatively affected during the pandemic. Due to the continuing unfavourable pandemic situation, many businesses have wholly or partially restricted the operation of their retail stores. Partial lockdown, originally supposed to last for a few weeks during the first wave of COVID-19 pandemic, was extended to more than three months, thus causing retailers to start looking for alternative ways to reach customers, for example, online sales. The relentless second wave of the COVID-19 pandemic closed retail stores for over one hundred days. Shortened opening hours, stricter protective measures, and high demand for durable foodstuffs all impacted food retailers and changes in consumer behaviour. Those businesses in the retail sector which, for various reasons, have not at least partially moved their business online have been affected by long-lasting restrictions during the second wave of COVID-19 pandemic, even to the point of existential problems. Despite its stable growth and relative resilience, this impact has also been reflected in the retail food industry. Although this upheaval has required a comprehensive response to support those worst affected entities, it has also accelerated specific trends in the retail food industry. Compared to the significant underperformance of the manufacturing sector, the retail food industry has manifested positive development during the pandemic. Retail sale of food has remained largely unaffected by the current crisis, even showing an increase in comparison with the previous years (Drago et al., 2020; Gavilan et al., 2021; Ginevicius et al., 2021; Caso et al., 2022).

The COVID-19 pandemic has severely disrupted all sectors of the food industry worldwide. Although these disruptions have had significant negative consequences, they have simultaneously reinforced the trends to which retailers must adapt anyway. The most important of them are digitization and changing consumer preferences. These accelerators enable more sustainable recovery. However, stakeholders need to be prepared for broader structural changes across retail, including digitization, the shift to more common online shopping, and stricter environmental legislation. To some extent, COVID-19 pandemic is the onset of these changes (Ham et al., 2020; Pradana et al., 2021; Csákay et al., 2021; Glova et al., 2022). The chief goal of the present paper is to find out the impact of COVID-19 on consumer buying behaviour and decisions concerning selected factors affecting consumers when shopping for food in retail chains.

The structure of the paper is as follows. The second chapter contains a brief literature overview addressing the issue of consumer buying behaviour. The third chapter presents the research focused on analyzing the impact of COVID-19 on consumer buying behaviour in grocery store chains. The study utilized an electronic questionnaire, data collection lasted from February 3 until March 12 last year. Based on the research results, we have formulated certain proposals and recommendations listed in the last chapter of the present paper. The achieved results are especially beneficial for entrepreneurs, who can thus respond more flexibly to the vicissitudes in consumer behaviour due to COVID-19 pandemic.

2. Theoretical background

The role of marketing is to satisfy the target customers' needs and desires better than the competition. Therefore, marketers need to understand how consumers reason and how they feel fully and consequently, they should offer clear value to each target customer. A company that wants to be successful in the market should consider its customers' needs. The company must realize that success in the market does not come by itself. Identifying the customers' needs and monitoring consumer behaviour are critical determinants in market research. Entrepreneurial success does not depend on what the company thinks the customer needs but on what the customer wants,

regardless of the entrepreneur's view of consumer behaviour (Dobrovič et al. 2016; de-Magistris, 2017; Nurliza & Oktoriana, 2021; Jansson-Boyd & Kobescak, 2020; Korauš et al. 2021; Kobis & Karyy, 2021; Andrejovska & Glova 2022). Within consumer behaviour, the consumer is perceived as a person who makes purchasing decisions under the influence of various external factors, the external environment being shaped by its specific features and the current purchasing situation. Each of us takes both a consumer and customer role throughout one's life. One becomes a customer during their life – they are a person who orders, buys and pays for a product or service.

On the other hand, the concept of a consumer is more general, as we have become one since our birth. The consumer is a person and/or an end user who needs the products and services for their own consumption. Defining and realizing the real role of the person with whom the business comes into contact is an important step in directing the tools of the marketing mix. It is not sufficient to merely address the consumer, customer or buyer – it is paramount to realize that their roles may change over time. For this reason, it is appropriate to manage all marketing stakeholders, as each fulfils a unique role for marketing specialists. The current customer is increasingly demanding concerning the products and services provided, so companies seek new opportunities and resources for continuous growth. Therefore, experts accordingly claim that active customer and management relationship offers businesses a competitive advantage in a difficult competitive environment (Gonos & Gallo, 2013; Hazée et al., 2017; Pramudya & Seo, 2019; Straková et al. 2021; Šip & Kuzyšin 2021; Šimberová et al. 2021; Dancakova et al. 2022).

In the past, marketing specialists could perceive and understand the consumer and their behaviour thanks to the daily experience of direct sales. However, as a result of globalization, markets and businesses have expanded exponentially, thus gradually losing direct contact with their customers and becoming more and more compelled to rely on the results of market research on consumer behaviour. The intention of marketing specialists is basically to reveal how customers respond to the applied marketing stimuli of companies (product features, prices, advertising, etc.) and to understand current and future consumer behaviour as much as possible (Grunert et al., 2014; Brecka & Koraus 2016; Akrout & Diallo, 2017; Al-Tkhayneh et al., 2019; Taranenko et al., 2021).

Complex consumer behaviour is typified by the consumer manifesting a lot of bias and going through all stages of the purchasing decision process, as there are significant differences between products/brands. The consumer behaviour of a consumer seeking diversity means that the consumer likes to change products/brands, which, however, is not a sign of dissatisfaction, but a wide range of selection. In the case of behaviour-reducing non-compliance, the consumer shows a high degree of interest in buying products but does not perceive any significant differences between products/brands – they try to obtain more information about the available offer but make the purchase decision relatively quickly. Stereotypical consumer behaviour can be defined as a recurring purchasing decision that is made almost without looking for any information or possible options (Chatzipanagiotou et al., 2016; Ismail et al., 2020; Mihalčová et al. 2021; Musova et al., 2021).

Consumer behaviour is currently influenced by many factors, the knowledge of which is fundamental. By identifying them, the driving motives and/or the reasons for buying a product caused by the awareness of a specific need, the necessity to satisfy it can be revealed. Due to the impact of various factors, consumers cannot be understood as a homogeneous group of people. Consumer behaviour across different cultures encompasses several universal elements and characteristics. Consumer behaviour is affected by, among other things, verbal and nonverbal communication, religion, symbols, rituals, myths, etc. The factors affecting consumer behaviour (characteristics) can be divided into four or five primary groups (see Figure 1). Marketers usually cannot control these factors, but they must consider them.
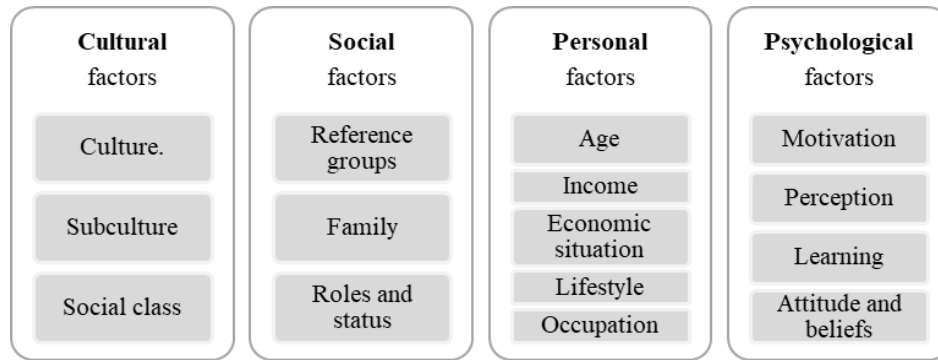
Figure 1. Major factors influencing consumer behaviour
Source: Kotler & Keller, 2012

The decision-making stage of consumer purchasing behaviour is not a one-off matter; it results from several decisions that follow each other. Purchasing decisions do not mean whether you buy the product or service as a customer and in what quantity, but first and foremost, whether you go to the store at all. Consumer buying behaviour is the subject of many research studies. However, due to the limited scope of the present paper, we have focused only on exploring mainly retail chains with food products. As illustrated by Amicarelli and Bux (2021), the outbreak of the coronavirus pandemic in early 2020 had a significant impact on lifestyle and consumer behaviour in many ways, including, undoubtedly, the consumption of food and food products. The vast majority of catering companies were forced to close down, causing a sharp increase in domestic consumption, thus increasing household waste. Following this, the above authors decided to research a small sample of Italian families to understand better the current consumer trends and food waste during the coronavirus pandemic. The scholars conclude that a controlled work-life balance, adequate time management, and timely delivery of food to retail outlets are (especially in this adverse period) good ways of reducing household food waste. The change in consumer behaviour of Italian households pertaining to the coronavirus outbreak was also investigated by Cavallo et al. (2020). In their research study, they focused, among other issues, on an overview of the most significant changes in food supply chains, retail outlets contributing to the sustainable development of the food system and food security in the country have significantly prospered (Muangmee et al., 2021; Musova et al., 2021; Ratan et al., 2021).

According to Leone et al. (2020) the coronavirus pandemic has led to significant changes in the distribution, sale, purchase, preparation and consumption of food in the United States. In their study, the scholars sought to analyze the impact of the pandemic on consumer behaviour and grocery stores. In addition to the recommended approaches to building more resilient food chains, they also formulated proposals to ensure the sustainability of small food businesses in the current gross situation. In their research study, Jo et al. (2021) analyzed consumer behaviour changes after the outbreak of the pandemic in South Korea. Using credit card data from January to June 2020, they examined consumer changes in various sectors – catering services, retail chains, wholesale chains, education, travel and leisure. The most significant decrease occurred in travel expenses and subsistence expenses. However, a significant correlation between changes in consumer behaviour in these sectors and the consequences of coronavirus in infected areas has not been confirmed. Understanding consumer behaviour and the factors affecting it is considered a basis for developing successful business strategies by Arenas-Gaitán et al. (2021). Their research study aimed to identify how consumers perceive value creation when shopping in vegetable retail chains. This research was conducted in Spain on a sample of 1,200 consumers of different ages and income groups. Based on the study results, the scholars emphasized the importance of the consumer shopping list, which significantly affects the consumer perception of the product portfolio in retail food stores, subsequently reflected in consumer behaviour. A similar research study was carried out by Xuan (2021). Based on 353 structured

interviews, he examined whether an environmental issue – certified organic packaging could be included in the factors influencing Vietnamese consumer behaviour. Using the example of a selected food product, the author concluded that consumers strongly prefer products packaged in certified organic packaging. At the same time, they tend to trust the certification by independent evaluators, and conversely, they have the least trust in the certificate by the Vietnamese government. According to the author, this factor influencing consumer behaviour also contributes to the transition to the sustainable development of the analyzed Vietnamese province. It encourages policymakers to formulate effective marketing strategies applicable to the relevant retail food chains. Consumer behaviour in grocery stores in other countries was investigated by, e. g. Hecht et al. (2020), Winkler et al. (2020), Beresford & Hirst (2020), Li et al. (2020), Wang et al. (2020).

3. Research objective and methodology

In the current difficult, ever-changing economic and distribution conditions, the sale of products and services is becoming a decisive factor affecting the very existence of businesses, not to mention the selection of food products. Compared to industrial products, food is subject to much faster decay, and the central part of it must be transported to areas with large populations. However, the market position and the concentration of retail food chains in the V4 countries are getting consolidated very fast. Over the past two decades, the chains have achieved a dominant position in the sale of food, as they sell more than 80% of all food products. According to a study carried out for the European Commission, as early as 2009, the concentration of five retail chains in the nationwide food assortment market reached a share of up to 48%. For these reasons, the V4 countries' retail chains operating in the food industry are a very suitable research sample, also in connection with the nature and consequences of the ongoing coronavirus pandemic.

The paper's primary goal is to determine the impact of COVID-19 on consumer buying behaviour and purchasing decisions in terms of selected factors that affect consumers when shopping in retail food chains. The following hypotheses have been formulated:

H1: We assume that there are statistically significant differences in buying behaviour during the COVID-19 pandemic in terms of respondents' gender.
H2: We assume that there is a statistically significant relationship between buying behaviour during the COVID-19 pandemic and the respondents' age.
H3: We assume that there are statistically significant differences in purchasing behaviour during the COVID-19 pandemic regarding the surveyed respondents' economic status.

We obtained data from a questionnaire, which was distributed in an electronic form to potential respondents. Data collection took place in the period from 3 February to 12 March 2023. The questionnaire was anonymous; out of 735 questionnaires, 678 were completed.

We used basic research methods – analysis, synthesis, induction, deduction and comparison. Descriptive statistics tools were also used to understand better the research sample and its brief characteristics, namely group mean, median and standard deviation. We used a nonparametric Wilcoxon test to verify the suggested hypotheses. The selected correlation coefficients were also used to verify the proposed hypotheses: Pearson's correlation coefficient r, Spearman's order correlation coefficient rho, Kendall's tau_b, Wilcoxon's robust correlation coefficient and polychoric correlation coefficient. After processing the respondents' answers, Excel-coded data were processed in the R-project and SPSS statistical programs to verify the suggested hypotheses.

4. Result and discussion

The subject of the research was to establish consumer buying behaviour in retail food chains during the COVID-19 pandemic. In investigating consumer behaviour, in the first hypothesis, we focused on the respondents' gender and its impact on their buying behaviour. We suggested the following hypothesis:

H1: We assume statistically significant differences in purchasing behaviour during the COVID-19 pandemic regarding respondents' gender.

From the questionnaire data, more females than males participated in the research. The share of females in the research sample was more than two times higher than that of males. The males included 73 respondents (32.30%), and the females included 153 respondents (67.70%). The descriptive statistics and respondents' gender distribution are given in Table 1.

Table 1. Descriptive statistics – males and females

Gender	Group average	Standard deviation	Group median	Quantity
Males	28.48	4.503	28.32	219
Females	29.94	5.010	29.92	459
Total	29.47	4.890	29.28	678

Source: authors' processing

A non-parametric Wilcoxon test was used to verify the hypothesis regarding purchasing behaviour during the COVID-19 pandemic from a gender perspective. The p-value of the test used is much lower than the stated test significance level alpha = 0.05. The difference between the group averages of males and females is statistically significant. Females manifest a larger group average (15.47), and their group median is higher (15.28). The p-value calculated using the Wilcoxon test is $p = 0.03665$. Based on the results, we may conclude that there is a statistically significant difference in purchasing behaviour during the COVID-19 pandemic regarding the surveyed respondents' gender. Thus, the suggested hypothesis was confirmed. The research results are shown in Table 2.

Table 2. Non-parametric Wilcoxon test – results of testing H1

Non-parametric Wilcoxon test
data: females and males
W = 6543.5
p-value = 0.03665
alternative hypothesis: true location shift is not equal to 0

Source: authors' processing

The second hypothesis concerned the buying behaviour during the COVID-19 pandemic in terms of respondents' age, and it was formulated as follows:

H2: We assume that there is a statistically significant relationship between buying behaviour during a COVID-19 pandemic and the respondents' age.

The research sample consisted of 678 respondents, an average of 27 years old. The youngest respondent was 16 years old, and the oldest one was 63 years old. Half of the respondents were between the ages of 16 and 24. 113 respondents, i.e.. 50% were between 25 and 63.

In the present research, age is an independent variable with a ratio scale, it is a fixed factor, independent of a particular sample. Its distribution is shown in Figure 2. From the histogram and density graph, we can see a significant skew towards higher values. The Q-Q normality graph also signals a considerable asymmetric distribution. We can notice a large number of outliers from the box chart. In this case, however, it does not depend on the fact whether the distribution is normal; we are particularly interested in the outliers and linearity or nonlinearity of mutual relations of the two correlated variables. A total of 10 outliers (47, 63, 45, 54, 48, 52, 52, 48, 48, 50) were identified in the statistical set, with values of 52 and 48 being repeated.
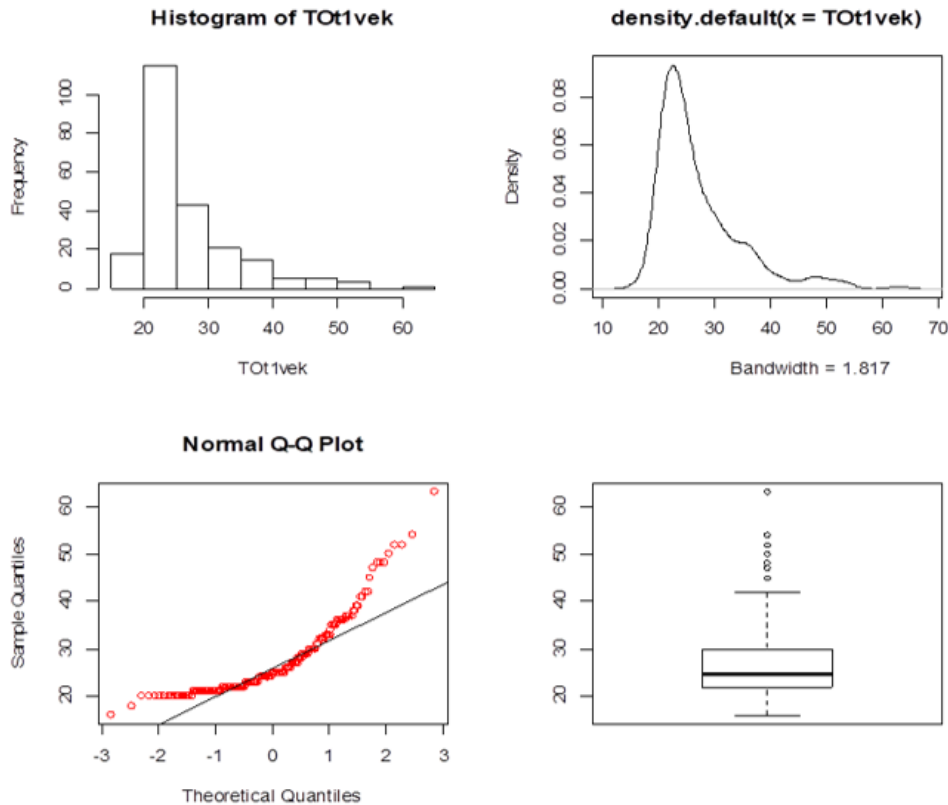

Figure 2. Independent variable distribution with ratio scale
Source: authors' processing

We assumed a statistically significant dependence between the correlated variables in the hypothesis. We tested the hypothesis at the significance level of alpha = 0.05. The test results are shown in Table 3.

Table 3. Results of testing H2

Correlation between buying behaviour during COVID-19 and respondents' age				
	Correlation	Spearman	Pearson	Kendall tau_b
Variables	Age			
SKOREnasp	Correlation coefficient	0.001	0.107	0.002
	Statistical significance	0.994	0.109	0.960
	N – number of cases	678	678.00	678

Source: authors' processing

The parametric Pearson's correlation coefficient r has a value of 0.107, the lower limit of low correlation, p-value 0.109 (N = 678). Nonparametric weaker Spearman's rho and Kendall's tau_b correlation coefficients are below 0.1; both p-values are above 0.9 (N = 678). The P-values of the correlation coefficients used are higher than the determined significance level of the test alpha = 0.05. Based on the statistical calculations, we must refute the hypothesis since there is no statistically significant relationship between buying behaviour during the COVID-19 pandemic and the respondents' age.

Concerning the third hypothesis, we examined the respondents' economic status in relation to the consumers' buying behaviour during the COVID-19 pandemic. The following hypothesis was set:
H3: We assume that there are statistically significant differences in buying behaviour during the COVID-19 pandemic regarding the surveyed respondents' economic status.

In terms of economic status, the research sample included mainly the respondents who were employed and the respondents who stated that they were students. Figure 3 shows the respondents' economic status.
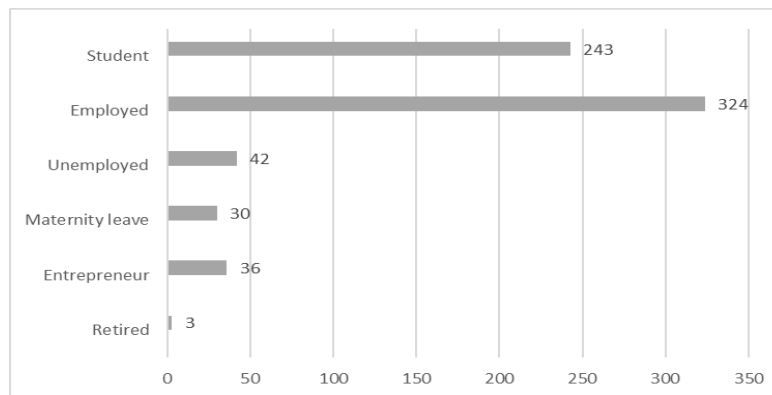

Figure 3. Respondents' economic status
Source: authors' processing

We used a nonparametric Wilcoxon test to verify the hypothesis. The p-value of the test used is slightly lower than the p-value of the t-test. The calculated value is 5358 and the p-value is 0.0407. Based on the verification of the hypothesis, there are statistically significant differences in buying behaviour during the COVID-19 pandemic in terms of the respondents' economic status. Thus, the proposed hypothesis was confirmed. Table 4 shows the results of testing the hypothesis.

Table 4. Non-parametric Wilcoxon test – results of testing H3

Non-parametric Wilcoxon test
data: economic status
W = 5358
p-value = 0.04077
alternative hypothesis: true location shift is not equal to 0

Source: authors' processing

In verifying the hypotheses, two hypotheses that considered consumer buying behaviour during the COVID-19 pandemic were confirmed, and one hypothesis was not confirmed; thus it had to be refuted. The impact of

respondents' gender and economic status on the buying behaviour in retail food chains was confirmed; the age, however, does not seem to affect the buying behaviour or does not affect the said decision-making.

The present research addressed consumer buying behaviour during the COVID-19 pandemic. Quite a few similar research studies related to the coronavirus pandemic have been conducted. Otterbring & Bhatnagar (2022) investigated the consumers' buying behaviour when they were shopping for food and revealed the changes in buying behaviour in terms of avoiding contact, meaning that consumers tended to pay with their credit cards rather than in cash, which was manifested concerning not only gender but also age. Eger et al. (2021), in their research paper, conclude that consumers of generations X and Y have changed their buying behaviour and needs, i.e. they have started to prefer health and safety during the pandemic crisis to their economic concerns. The research by Galasso et al. (2020) pointed to gender differences in buying behaviour; females tend to perceive COVID-19 as a severe health issue. The scholars state that the strategies adopted by the retailers have important implications for consumers' buying behaviour, and that these strategies need to be gender-based, thus highlighting gender differences, i. e. changes in behaviour in response to new risk. Consumer buying behaviour had also changed in Spain when the official statement on the COVID 19 pandemic was published, as Laguna et al. (2020) revealed in their research. The subjects, in terms of gender and age, began to prefer online shopping for food and relied on the statements made by experts or scientists that consumers. Martin-Neuninger & Ruby (2020) examined consumer buying behavior and changing food purchasing habits. Regarding economic status, consumers have reduced their shopping in brick-and-mortar stores and started to use online shopping. A sufficient number of research projects are currently run, and the present research has confirmed the changes in buying behaviour similarly to other research studies in the international arena.

Conclusions

The COVID-19 pandemic has brought many changes all around the world. Face masks and other protective equipment have become part of people's daily lives. Some areas have been hit harder by the pandemic, others less so. This situation affected the retail food chains the least; they have been prospering. In the present paper, we analyzed the impact of COVID-19 on the consumer buying behaviour and purchasing decisions concerning the selected factors affecting consumers. From the data obtained through the questionnaire and the verification of the suggested hypotheses, we may conclude that the pandemic has influenced buying behaviour and consumers' decisions regarding gender and economic status. In terms of minimizing the risk of infection, people have started stockpiling. The present research illustrates that, in buying behaviour, there are statistically significant dependencies between gender and economic status. In terms of age, no statistically significant dependence was confirmed.

We consider men shopping more often and in larger quantities during the COVID-19 pandemic as a managerial benefit compared to women who shop in smaller amounts and more often. The research was also focused on consumer shopping behaviour in terms of age. The benefit for managers is that we have not found any differences between the younger and older consumers; both categories have changed their shopping behaviour during the COVID-19 pandemic and are trying to shop more securely. In terms of economic status, we found differences between the individual categories. As a managerial benefit, we consider that mainly seniors and employed people changed their shopping behaviour and adapted it to the current security conditions of the COVID-9 pandemic. The managerial benefits of the research lie in the analysis of individual demographic and economic categories of consumers, which will enable better orientation for potential sellers in connection with changes in their consumer behaviour during the COVID-19 pandemic.

The limitations of the present research include a restricted research sample, which chiefly represented economically active people and students. The pandemic has also affected seniors, and its impact on the group's buying behaviour may be worth examining. Therefore, in our future research, we will focus on consumers of

various economic statuses that have not been represented sufficiently and on other sectors of the economy, not just retail food stores.

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