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CHANGES OF CONSUMER BEHAVIOR CAUSED BY THE COVID-19 PANDEMIC

Abstract: *The aim of the paper is to identify changes in consumer behavior regarding food caused by the COVID-19 pandemic. Quantitative research was carried out using the CAWI method among 2,000 consumers selected for the study in a quota manner. The selection of respondents reflected the actual structure of gender, age and region of residence of adult Poles. The study was conducted in March 2022. This article reviews similar studies to identify the major changes in consumer behavior caused by the COVID-19 pandemic. Consumers were characterized due to typical socio-demographic characteristics, but also due to the level of perceived stress and trust, as variables that may affect consumer behavior in the era of a pandemic. The most common changes in consumer shopping behavior caused by the COVID-19 pandemic were determined: frequency of purchases, their size, place of purchase, type of food purchased, behavior of other buyers. The COVID-19 pandemic has affected consumer behavior when buying food. It is not known which of these behaviors will persist.*

Keywords: *consumer behavior, food, stress, pandemic*

1. Introduction

The pandemic has changed the world in which we live, affecting many aspects of our lives, including our behavior regarding the purchase and consumption of food. Consumer behavior can be defined as: "actions taken to obtain goods and services to meet needs in accordance with the perceived hierarchy of preferences and the totality of ways to use them (Żelazna et al., 2002).

The first confirmed case of COVID-19 in Poland dates from March 4, 2020. Since then, numerous trade regulations have been introduced to limit the transmission of the virus. Restrictions and recommendations for trade in Poland can therefore be considered in the following areas: limiting the activities of selected retail outlets, keeping the

distance between customers in the store, determining the number of customers in the store and/or the number of customers per one cash register, covering the mouth and nose by customers and sales staff, wearing gloves/hand disinfection, observing the "hours for seniors" (Kucharska & Malinowska, 2021). These regulations and consumer concerns about the risk of coronavirus infection have resulted in changes in their behavior in terms of purchasing and consuming food (Samuk, Sidorowicz, 2021; Chlipała, Żbikowska, 2021). In the initial period of the pandemic, consumers bought large quantities of products, they behaved similarly to other crises, e.g. during the financial crisis in 2007-2009 (Loxton et al., 2020; Aydınlioğlu, Gencer, 2020; Chua et al., 2021; Prentice et al., 2022).

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The impact of the COVID-19 pandemic on consumer behavior is influenced by various variables, including socio-demographic preferences and attitudes as well as the specific functioning of the household itself (Borsellino et al., 2020). However, these changes often depend on factors that may go beyond the individual level and are more closely linked to decisions and policies at the local, national and global levels (Naja & Hamadeh, 2020).

Regardless of the determinants that take the above-mentioned issue as an area of analysis, we need to be aware that consumer behavior is always uncertain and rational (Soodan & Pandey, 2016) and its definitional dimension states that "consumer behavior is the mental, emotional and physical actions that people engage in when selecting, purchasing, using and disposing of products and services so as to satisfy needs and wants" (Priest et al., 2013). These behaviors as indicated in the literature and in our own research over the last three years have been somewhat different than until the pandemic, influenced by a number of objective and subjective factors. In addition to basic purchasing criteria such as price, availability and convenience, other criteria than previously classified have emerged.

The COVID-19 pandemic has caused significant changes in the global economy, the functioning of the company, as well as the everyday life of consumers. Such a situation related to the pandemic is often referred to in the literature as the "black swan" theory (Mączyńska, 2020) or demand-supply shocks (Beck, Janus, 2016). A black swan is a term used in economics to mean an unexpected event that (almost) no one can predict. Such events often have a significant impact on the world and negatively affect the economy and society (Gorzelany-Dziadkowiec, 2020). Wiśniewska i Wyrwa (2022) indicate that the COVID-19 era has also caused a visible paradigm shift in favor of safe food, through the emphasis on mutual responsibility, on compliance with hygiene practices by consumers and food operators.

The aim of the paper is to identify changes in consumer behavior as a result of the COVID-19 pandemic. In order to determine these changes, quantitative CAWI surveys were conducted among 2,000 respondents in Poland in March 2022. In addition to typical socio-demographic characteristics such as: gender, age, place of residence, education, income, the following were also introduced: making purchasing decisions and due to COVID pandemic and its impact on consumer behavior - perceived stress level and trust.

In the course of the research, answers to the following research questions are sought:

- 1) How has the COVID-19 pandemic changed consumer behavior when shopping for food?
- 2) What consumer factors/characteristics had a significant impact on these changes, e.g. socio-demographic, perceived stress, trust?
- 3) Can the positive effects of the pandemic be determined in the above aspect?

2. Research Method

The study was quantitative and was carried out on the basis of a questionnaire consisting of a total of 13 closed questions and a metric. The study was carried out in March 2022. The research process consisted of the following implementation stages: development of the research methodology, research tool, implementation of a quantitative internet study, statistical analysis of the research results obtained. The study was based on the CAWI (Computer-Assisted Web Interview) technique. The research sample consisted of 2,000 respondents selected in a quota manner. The selection of respondents reflected the actual structure of gender, age and region of residence of adult Poles. The most important results of the study were presented with a distinction for selected socio-demographic variables, and possible relationships were

confirmed by the Chi-square test. The significance level was 0.05. The calculations were made in the R program (ver. 3.5).

The share of women in the research sample was 52.5%, and men 47.5%. The largest group of respondents were people between 30 and 39 years of age (19.4%), while the fewest respondents were aged 50-59 and 70 and more (14.8%). Every fifth person participating in the study (20.7%) lived in the southern region of Poland - 11.9% of the inhabitants of the region Śląskie and 8.8% of the inhabitants of the region Lesser Poland. People living in the Mazowieckie region accounted for 14.0% of the research sample, being the most numerous represented region in Poland. The smallest number of survey participants lived in central Poland - inhabitants of the Łódzkie and Świętokrzyskie regions constituted a total of 9.8% of the total number of respondents (6.5% - inhabitants of the Łódzkie region; 3.3% - inhabitants of the Świętokrzyskie region). The place of residence for the largest percentage of respondents was a city with a population of 50,000 to 250,000 inhabitants (26.3%), and slightly fewer respondents pointed to a city of up to 50,000 inhabitants (23.5%). Every fifth respondent was a rural inhabitant (19.9%). The remaining respondents declared living in cities with a population of at least 250,000 people. Every fourth survey participant (25.6%) declared basic vocational education, while every tenth (10.6%) indicated primary education. The remaining respondents had secondary education (31.7%) or higher (32.1%).

The monthly household budget declared by 22.3% of the respondents exceeded 700€ net per person. The surveyed people whose households had relatively the lowest budget (no more than 200€) formed the smallest group - 3.8% of all survey participants.

The participants of the study were also characterized due to their participation in the decision-making process regarding the purchase of food products. The sole

decision-makers in the field of purchasing food products accounted for 42.7% of the respondents. Other respondents admitted that they make decisions jointly with another household member.

Due to the subject of the study, the participants were described in terms of their perceived level of stress. A basic, 4-point version of the perceived stress scale was used (PSS – Perceived Stress Scale) (Mikolajczyk et al., 2009). Each of the participants of the study determined the frequency of experiencing isolated situations during the last month. Respondents answered the following questions: (1) In the last month, how often have you felt that you were unable to control the important things in your life? (2) How often in the last month have you felt confident about your ability to deal with personal problems? (3) How often in the last month have you felt that everything was going your way? (4) How often in the last month have you felt difficulties piled up so high that you could not overcome them?

The frequency was determined by the respondents on the basis of a 5-point measurement scale: 1 - never; 2 - almost never; 3 - sometimes; 4 - often; 5 - very often.

Lack of control over important things in their lives in the last month was very often or often felt by 23.4% of the respondents. A low sense of confidence regarding the ability to cope with personal problems concerned 18.4% of the study participants (answers "never"; "almost never"). A similar percentage of respondents (18.9%) admitted that they never or almost never felt during the last month that everything was going their way. At least every fifth respondent (21.4%) had a negative opinion about the possibility of overcoming the emerging difficulties, i.e. he admitted that very often or often in the last month he felt that the difficulties were piling up so high that he was unable to overcome them.

The metric also includes a question to determine whether the respondents trust other people. Most of the respondents (65.6%) agreed with the statement "I generally trust other people".

3. Results and discussion

On the basis of the literature review (Bareja-Wawryszuk et al., 2022; Yang et al., 2022; Profeta et al., 2021; Bender et al., 2022; Gorzelany-Dziadkowiec, 2020) the assumed changes of consumers behavior were identified, that are the following: shopping frequency, place of shopping, the volume of purchases, eating meals at home or away from home, purchase of local food, purchase of packaged food, paying attention to the behavior of other buyers.

Respondents presented their opinion on the basis of a bipolar 5-point measurement scale (Fig. 1), with opposing statements regarding shopping habits at the ends. The arithmetic mean was used to analyze the results of the study.

The result of the analysis of the survey results indicates a change in consumer habits as a result of the COVID-19 pandemic, primarily in the direction of:

- more frequent purchases of food produced in Poland, driven by the desire to avoid the risk of its contamination during the long journey of transport and intermediaries (average: 0.45) - about 38.9% of respondents gave an answer closer to such a change (answers "2"; "1"),

- more frequent preparation of meals at home (0.44) - 39.2% of respondents agree with such a change in shopping behavior,

- paying more attention to the behavior of other buyers, e.g. keeping distance, wearing masks, disposable gloves (0.43) - 45.2% of respondents chose the answer indicating agreement in terms of observing such a change in shopping habits.

More surveyed consumers also admitted that as a result of the pandemic, they buy more food during one purchase (average: 0.24). This opinion was shared by 33.8% of the

respondents, while 16.7% of the respondents agreed that they buy smaller amounts of food during one purchase.

More frequent purchase of packaged food, due to its greater safety, was declared by 26.2% of consumers participating in the study (average: 0.20). A similar percentage of respondents (27.9%) admitted that they more often order take-away meals than eat meals outside the home, e.g. in a restaurant (14.9% of respondents shared this opinion).

Relatively the greatest diversification of consumer opinions in terms of changes in their shopping habits was observed in relation to the frequency of making purchases and the size of the store where they most often shop. Slightly more participants of the study admitted that the emergence of the pandemic made them shop less often (21.7% of respondents). The answer indicating more frequent shopping than before the pandemic was chosen by 17.1% of respondents. The youngest participants of the study more often gave an answer indicating more frequent shopping. With age, the percentage of respondents admitting that they shop less frequently as a result of the pandemic increased. Every fourth respondent aged 70 or more indicated the answer indicating agreement in terms of observing such a change, while among the youngest participants of the study (18-29 years old) 16.5% of the respondents were of such an opinion.

A similar percentage of respondents also expressed the opposite opinion regarding the size of the store where they most often shop. About 27.4% of respondents agreed that they shop in large stores, thus they are not afraid of crowds. However, every fourth respondent was of the opposite opinion, i.e. they considered that the emergence of the pandemic resulted in more frequent purchases in smaller stores to avoid crowds of buyers.

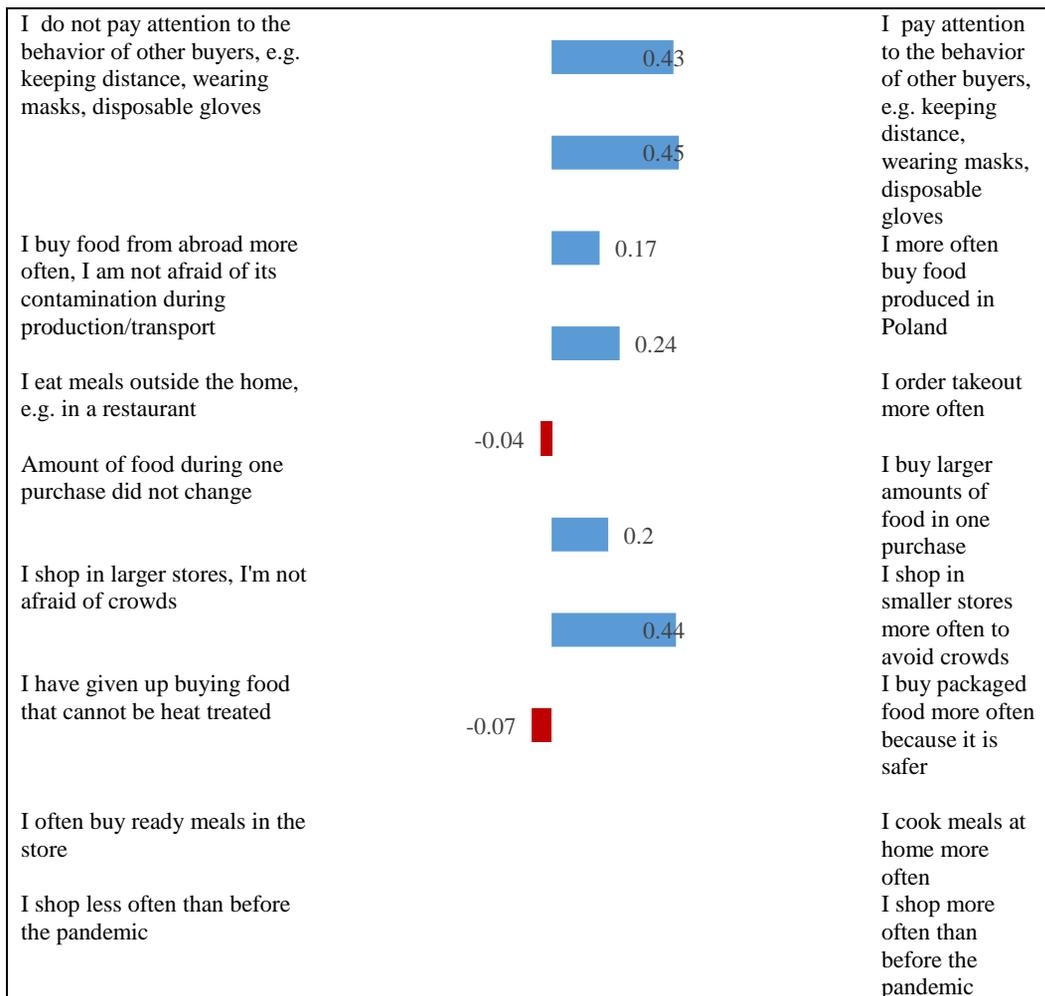


Figure 1. Impact of the COVID-19 pandemic on current shopping habits - respondents' opinion on changes in shopping habits. Source: own study.

The Chi-square test was used to check whether there is an influence of socio-demographic characteristics on the frequency of choosing specific answers. It was found that: (1) women more often than men changed their behavior when buying food, e.g. buying packaged food, ordering takeaway meals, buying domestic food, (2) regardless of gender, respondents paid attention to other buyers' compliance with the rules, (3) people with greater decision-making power on purchases changed the above-mentioned behaviors more often when buying food.

At the end of 2020, a report on changes in consumer behavior caused by the COVID-19 pandemic was published. In the case of consumers from Poland, it was noticed that they shop online more often, but less often than consumers from other European countries. On the other hand, at a similar level as in other countries, Poles were interested in preparing meals at home. In Poland, the interest in food of local origin has also increased by almost 30%, and by over 30% in health-promoting nutrition (COVID-19 Study. European Food Behaviours, 2020). Greater interest in local

food in the era of the COVID-19 pandemic is also emphasized by other researchers (Palau-Saumell et al., 2021; Levy et al., 2021; Hobbs, 2020).

Consumers participating in the survey declared that they would buy local food more often, as it is not affected by the long chain of distribution, which makes it perceived as safer. In addition, local food is more easily available and usually more familiar to the consumer. Consumer confidence in local, Polish products also results from the high level of ethnocentrism that Polish consumers are characterized by. The importance of consumer ethnocentrism during the pandemic is indicated by Szabuniewicz and Majkut (2021), which translates into more frequent selection of products made in Poland. Verma and Naveen (2021) also point to more frequent purchases of local food.

Werner-Lewandowska et al. (2021) points out that as a result of the COVID-19 pandemic, you can notice a lower frequency of shopping and more often choosing smaller stores as a place to shop due to smaller concentrations of people.

In Appendix 1 to the position of the Committee on Human Nutrition of the Polish Academy of Sciences on dietary recommendations during the COVID-19 pandemic, e.g. the following recommendations can be found:

- 1) In terms of compliance with the rules of hygiene and safe handling of food: wash food packaging after bringing it home, if possible; Thoroughly wash food intended to be eaten raw, especially vegetables and fruits; Follow the basic rules of hand, kitchen and dish hygiene.

- 2) In the aspect of eating home-cooked meals together as a method of stress relief: Try to prepare meals together with family members or friends using the messenger, If you use the delivery of ready meals, pay attention to the appropriate hygienic conditions during their transport and delivery and observe the best-before date.

They refer to changes in consumer behavior regarding the purchase of packaged food, more frequent meals at home.

The responses of consumers participating in the survey are consistent with the results obtained by other authors and the recommendations published by the government, and most often concern: making planned purchases and buying more products in a single purchase, buying local food, preparing meals at home and maintaining hygiene rules.

The COVID-19 pandemic was difficult to predict, the countries affected by the pandemic did not have time to prepare for its occurrence, hence a high level of uncertainty and fear resulting from the lack of certainty regarding, for example, the effects of infection, ways of spreading the infection, etc. could be noticed at the beginning. may have caused stress to many consumers.

Gomez-Corona et al. (2021), based on research conducted among consumers, showed the relationship between the fear associated with the pandemic and the change in consumer behavior. Authors Jeżewska-Zychowicz et al. (2020) confirmed the relationship between perceived stress and behavioral change. It should be added, however, that both of these studies were carried out in the initial phase of the pandemic, when we were dealing with an unknown or little-known virus. In these studies, a relationship was found between the level of perceived stress and the change in behavior. This is a positive correlation – the greater the level of perceived stress, the more often consumers declared a change in behavior related to the purchase/consumption of food. However, no such relationship was observed in the case of paying attention to the behavior of other buyers, i.e. regardless of the level of perceived stress, consumers paid attention to the behavior of other buyers, e.g. wearing masks in confined spaces was mandatory). However, no effect of trust on the frequency of selected behaviors on the food market was

found.

Sensationalist media headlines during the early phase of COVID-19 and government measures to slow the spread of the disease (social distancing, quarantine, closure) contributed to revealing a trend related to shortages of staple foods (Depoux et al., 2020; Nicola et al., 2020), which became known in the literature as the 'scarcity effect' (Pantano et al., 2020). Grocery shops saw a dramatic increase in demand as consumers sought to stockpile food and other goods (Garbe et al., 2020; ReFED, 2020; Wang et al., 2020; Dammeyer, 2020; MAPA Spanish Ministry of Agriculture, 2020; Cranfield, 2020; Chauhan & Shah, 2020; Cha et al., 2015; Baker et al., 2020; Nielsen, 2020). A new trend of buying more food and thus stockpiling food has emerged among consumers (Brizi & Biraglia, 2021; ISMEA, 2020a; 2020c; Galanakis, 2020; Oliveira et al., 2020; Rundle et al., 2020). At the beginning of the pandemic, when the world was faced with significant consumer stocks for specific products, i.e. food, this was a sign of the impact of the pandemic on changing consumer behaviour towards a new phase of shopping that did not really exist in the past (Laato et al., 2020). Such above-average purchases involved not only non-perishable foods (Larson & Shin, 2018; Bentall et al., 2021; Eger et al., 2021), but also fresh fruit and vegetables, albeit in smaller quantities (Statistisches Bundesamt, 2019; Benker, 2020). Under normal conditions, the purchasing habits of the population are formed gradually over time, but due to the constraints of the pandemic, necessity has dictated their relatively rapid change (Sheth, 2020; Howard & Jagdish, 1969; Sheth & Kellstadt, 2021), which may result mainly from stress (Roberts & Jones, 2001), anxiety (Koran et al., 2006), panic (Yuen et al., 2020) and also pleasure and excitement (Trotzke et al., 2015).

In addition, due to restrictions in the aspect of consumers being in social spaces, there is a significant increase in the amount of food prepared and consumed at home, which

scales with the availability of respondents' time, the perceived risk of eating out and the income disruption caused by the pandemic (Bender et al., 2022).

There is no doubt that the fear and uncertainty that arose from the COVID-19 outbreak caused psychological changes in consumer behavior (Duan & Zhu, 2020; Meyer, 2020). In many countries, such as the United States, Australia, and European Union countries, there has been panic buying, which occurs when consumers stockpile to avoid the effects of a possible future shortage (New Straits Time, 2020).

Another key change in consumer behavior observed during COVID-19, was the increased use of online shopping and reduced consumption of food away from home (Ellison et al., 2021; Laato et al., 2020; Babbitt et al., 2021). Examples of this include countries such as: Finland, Germany, France, Romania and Poland (European Institute of Innovation and Technology, 2020; Abou Jeb & Choura, 2021; Alaimo et al., 2020; Zhao & Bacao, 2021). Studies have shown that men and women have different psychological predispositions towards online shopping, with men having more positive attitudes towards this form of food sourcing (Wolin & Korgaonkar, 2003; Lin et al., 2019).

Some of the behaviors of today's consumers that increased during the pandemic are related to strategies commonly recommended to reduce residential food waste (Hebrok & Boks, 2017; EPA U.S., 2020). Consumers in the regions most affected by the pandemic were more aware of food use and were more likely to change food purchasing and preparation behaviors in ways that could minimize the effect of food waste (Jribi et al., 2020; Qian et al., 2020), with the greatest decrease in food waste observed among young consumers (Principato et al., 2020).

Many current studies on consumer behavior highlight the fact that consumers' diets are changing. Results show a significant

increase in the energy density of solid foods consumed by consumers during the Covid-19 pandemic (Mattioli et al., 2020), with some results showing an increase in the energy density of food consumed only in women (Poskute et al., 2021; Bracale & Vaccaro, 2020).

Blockage and associated reductions have also been associated with more immediate changes in consumer lifestyle, including increased smoking frequency among smokers (Sidor & Rzymiski, 2020), both increased and decreased alcohol consumption (Koopmann et al, 2020; Kim et al., 2020) self-reported weight gain associated with consumption of higher amounts of macronutrients; fats, carbohydrates (Butler & Barrientos, 2020; L'opez-Moreno et al., 2020; Poelman et al., 2020; Zachary et al., 2020; Sidor & Rzymiski, 2020; Jiménez-Pavón et al, 2020; Cherikh et al., 2020; Rolland et al., 2020; Ammar et al., 2020; Branley-Bell & Talbot, 2020; Creswell, 2020; Muscogiuri et al., 2020; Nelson, 2020; Pellechia, 2020; Rehm et al., 2020), increased intake of unhealthy foods, uncontrolled snacking, snacking between meals and generally greater consumption of main meals (Jia et al, 2021; Deschasaux-Tanguy et al, 2020; Sanchez & Moreno, 2020; Darwin Nutrition & IFOP, 2020; Ashby, 2020; Di Renzo et al, 2020; Sidor & Roman, 2020; Pietrobelli et al, 2020; Carroll et al, 2020; Ammar et al, 2020). There are also such research findings that suggest positive changes in consumer eating behaviour compared to the period before the COVID-19 outbreak, which changed the determinants of dietary choices, reinforcing the importance of health and weight control (Glabska et. al., 2020; Scacchi et al. 2021), but according to the authors these are in the minority.

Another trend observed during the pandemic is the shift to preparing meals at home (Amicarelli & Bux, 2020; Ben Hassen et al, 2020), which may be the result of a number of factors, including changes in time and budget constraints, as well as consumer risk

aversion and fear of infection (Marty et al., 2020; Giacalone et al., 2020; Kriaucioniene et al., 2020; Tiwari et al., 2017, Wolfson et al., 2016; Jabs & Devine, 2006; Larson et al., 2006).

In addition to the aforementioned changes, the situation of confinement implied an emotional deregulation characterized by stress, fear and anxiety, which have been identified as one of the determinants of the modern consumer's food choice; both quantitatively and qualitatively (Poelman et al, 2020; L'opez-Moreno et al., 2020; Cherikh et al., 2020; Lins & Aquino, 2020; Ceccato et al., 2020; Mammarella et al., 2012; Zebrowitz et al., 2015; Cummings et al., 2021; Di Renzo et al., 2020). Stress drives consumers towards hedonic overeating, mainly consuming more sugary and salty 'comfortfoods' (Yilmaz & Gokmen, 2020), which can lead to a loss of health over time (Al-Domi et al., 2021) in particular escalating the risk of developing overweight and obesity (Jayawardena et al., 2020; Wu et al., 2020). Some consumers focused on buying groceries as a behavioral response to feelings of stress and uncertainty (Ben Hassen, et al., 2020; Brooks et al., 2020). Negative feelings (e.g. fear, stress and uncertainty) can trigger a panic buying situation (Yuen et al., 2020; Lins & Aquino, 2020).

Stress, panic, depression and decreased confidence are now frequently observed symptoms in the behaviour of modern consumers (Park et al., 2022; Brooks et al., 2020; Li et al., 2020; Mahmud et al., 2021). Research from the American Psychological Association Research from the American Psychological Association indicates that US adults reported a stress level of 5.9/10 in relation to the COVID-19 pandemic and a stress level of 5.4/10 overall in early 2020 (American Psychological Association, 2020; Cherikh et al., 2020; Creswell, 2020; Muscogiuri et al., 2020; Nelson, 2020; Pellechia, 2020; Rehm et al., 2020).

It is worth noting at this point that the most commonly identified decline in trust by consumers occurs in information provided by government agencies, as well as by doctors or nutritionists on television or social media (Finset et al., 2020; Henderson et al., 2020; Webster, 2020).

One of the most frequently discussed recent changes concerning consumer behavior in the food market has been related to efficient food use and waste minimization (Jribi et al., 2020; Roberts & Downing, 2020). Consumers in some regions have changed the types of food they consume, towards healthier options (Ben Hassen et al., 2020; Battle-Bayer et al., 2020) and focused on efficient food use to adapt to less frequent purchases (Principato et al., 2020; World Bank, 2020). In addition, research findings indicate that consumers are increasingly turning to buying organic food or purchasing food products directly from farmers (Di Renzo et al., 2020; Martin-Neuninger & Ruby, 2020). Ethical consumption is taking on a special dimension in the minds of consumers these days (Carolan, 2021).

Hassan & Soliman (2021), on the other hand, argued that the pandemic and the new regulations generated led to a change in consumers' social consciousness and the results of their study revealed a significantly unique factor that concerned individual social responsibility, especially among the female population (Memery et al., 2015; Onyango et al., 2007; Aertsens et al., 2011).

The global expansion of COVID-19 has become an economic and social crisis (FAO, 2020; Galanakis, 2020; WHO, 2020b). In order to develop a future framework for the study of consumer behavior in the food market, it will be helpful to conclude on the most important factors that determine the strength and direction of changes in the behavior of the 'postcovid' consumer (Fig. 2). These factors, as confirmed by the results of our own research and considerations on the subject by other authors, influence consumer behavior, so variable over time and conditioned by the increasingly observed "pathologies" in the space of socio-economic functioning.



Figure 2. Determinants of the strength and direction of "postcovid" consumer behaviour change. Source: own elaboration.

The changes taking place in the modern world, which are very dynamic in nature, are creating a new model of the food service consumer, who is constantly reorganizing his or her consumption needs and, in making choices, is guided by both external determinants and internal factors (Górka-Chowaniec & Sikora, 2023; European Institute of Innovation and Technology, 2020; Accenture, 2020; Ahmed et al, 2020; Akter, 2020; Deloitte, 2020b; Lazzerini & Putoto, 2020; Arshad et al, 2020; Robinson et al, 2021; Brown et al, 2021).

4. Conclusion

The pandemic has changed the functioning of economies and consumer behavior around the world. At this point, it's hard to tell which of the behavioral changes will be permanent. As consumers, we had to quickly get used to the changes introduced, which meant that everyday shopping was not always easy and accessible, and before the pandemic it usually was. The pandemic has been going on long enough (over 2 years) that it is possible that some consumer behavior will become permanent, e.g. online food shopping. Based on the conducted research and the results of research by other authors, it can be concluded that among the main changes in consumer behavior related to food, the following can be identified: (1) making larger purchases during one visit to the store, which is to reduce the time of exposure to the virus, (2) choosing smaller stores, because they are smaller clusters of people, (3) paying attention to whether other buyers comply with the safety rules, (3) preferring local food as safer.

Regardless of socio-demographic characteristics, involvement in the food purchase process, consumers paid attention to the behavior of other buyers, e.g. wearing masks, using disposable gloves. Perhaps in this negative situation, which is undoubtedly a pandemic, this is a positive aspect. Perhaps it is hoped that the pandemic has "made it clear" to consumers that their behavior

affects food safety and that food safety is crucial, and that consumers are involved in the food chain and their behavior matters.

The authors' analyses of consumer behaviour trends over the past three years in particular (2020-2022) have confirmed that the changes that are taking place in consumer thinking have undoubtedly been accelerated by the COVID-19 infectious disease pandemic caused by the SARS-CoV-2 coronavirus (Górka-Chowaniec & Sikora, 2022; Guo et al., 2020; WHO, 2020; Pérez-Escamilla et al., 2020). These changes vary somewhat in both direction and severity from country to country and depend primarily on the epidemiological situation, the baseline situation (in particular the level of socio-economic development), the resilience to shocks as well as the effectiveness of national health systems (Hlpe, 2020; Hassan & Soliman, 2021).

Indeed, as Worldometer points out, the spread of infection has been dramatic over the months, registering exponential growth: numbers reached 9 206 609 cases and 474 730 deaths on 23 June 2020, affecting 213 countries and territories worldwide (Worldometer, 2020).

Undoubtedly, the COVID-19 pandemic poses a threat to the global food system by changing consumer behavior both in terms of food choices, procurement and consumption (so-called 'farm-to-table') (Chakraborty & Maity, 2020; Laguna et al., 2020; Bareja-Wawryszak et al., 2022; AMJC, A Timeline of COVID-19 Developments in 2020, 2020; Abbas et al., 2020; Ben Hassen et al., 2020; Heck et al., 2020).

Rightly, most of the initial attention has focused on the impact of COVID-19 on consumer food safety (Ahn & Norwood, 2020; Gundersen et al., 2021; Ziliak, 2021; Laborde et al., 2020; Chayanon et al., 2020; Polukhin et al, 2021; Schanzenbach & Pitts, 2020) However, increasing attention is being paid to capturing a deeper understanding of consumer food buying and management

habits in response to COVID-19 (Ellison et al., 2021; Roe & Bender, 2020; Brizi & Biraglia, 2021; Pappalardo et al., 2020; WRAP UK, 2020; Wolfson & Bleich, 2015).

The emergence of the pandemic and the observed changes in consumer behaviour, the accompanying increase in stay-at-home orders, the closure of many catering establishments, changes in the disposable income of the population and changes in the availability of time due to changes in the work delivery process of the majority of the

population, pose a huge challenge to the resilience of the food system and to its last link, the consumer.

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