

## THE PURCHASING PATTERNS THAT HAVE PERMANENTLY BECOME ESTABLISHED AMONG POLISH RESPONDENTS BECAUSE OF THE COVID-19 PANDEMIC

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**Purpose:** The present study investigates the impact of COVID-19 on Consumers' behaviour during the purchasing. The aim is to investigate changes in customer purchasing behavior that may have occurred during the Covid-19 pandemic. The additional goal was to find out whether the behavior forced by restrictions turned into a habit after the pandemic.

**Design/methodology/approach:** A questionnaire survey was carried out in 2023 to understand the impact of COVID-19 on consumers' attitude towards purchasing. The research was purposely conducted 2 years after the pandemic in order to examine the purchasing patterns that have permanently become established among respondents. The study sample mainly focused on students from Poland, with data gathered using an online survey method. The chi-square test was used to determine the representativeness of the sample file.

**Findings:** According to survey results, people up to the age of 18 were much less likely to make purchased goods returns (19.0%), while people over 60 years (50.0%) make returns more often than in the pre-pandemic period. The respondents over the age of 60 (50.0%) also paid more attention to whether the company is pro-ecological than it was for people under 18 (14.3%). Among statistically significant behaviors, it can be indicated that women prefer online shopping more than before the pandemic (50.3%), men showed this less often (36.0%), and female pay much more with non-cash payments than before the pandemic - 44.8%, male only 26.7%. According to the research, students/ disciples (13%) are more willing to shop stationary than before the pandemic, but such dependence was not noticed among working people (3.6%).

**Research limitations/implications:** The study results have several findings and implications primarily for practitioners, policymakers and managers. Retailers can use this information to change their sales strategies and sales processes. Moreover, they can enhance customer interactions to better meet and exceed their expectations. The presented research results are necessary to better understand customer behaviors that have changed during the Covid-19 pandemic and have consolidated in the post-pandemic period. The presented findings enrich the theoretical understanding of customer behavior and customer purchase intentions. They also provide retailers with a quantitative point of view and a new perspective on designing modern, more tailored sales processes to improve customer satisfaction.

**Practical implications:** As with other studies of this type, the results and implications are limited due to the research design and methods used. However, these limitations also indicate potential directions for future research. Conducting scientific research is associated with many challenges in the area of behavior change. The topic is current, multidisciplinary, characterized by unusual dynamics, which requires different points of view. Perhaps a similar study should have been conducted on a wider research sample, conducting interviews with respondents from different countries (e.g. Visegrad Group), analyzing the behavior of different clients with different mentality and in different life situations, as well as age.

**Originality/value:** The article explores the lasting impact of COVID-19 on consumer shopping behavior and preferences from a new angle, considering demographic changes in consumer habits following the pandemic.

**Key words:** customer purchasing behavior, purchasing patterns, COVID-19.

**Category of the paper:** Research paper.

## 1. Introduction

According to Das et al. (2022) such aspects as environmental, social, biological, cognitive, and behavioral aspects have significant impact for changes in consumer behavior around their needs and preferences. Consumers behavior is influenced by their internal needs and motivations, but also by the external environment in which they operate (Rajagopal, 2019). Various factors in the environment in which the entity operates may have a greater or lesser impact on its behavior. Analysis of historical events shows us that pandemics and epidemics consistently and significantly affect human life from year to year (e.g. Ebola outbreak). Pandemics like Covid-19 can contribute to changes in consumption behavior, disrupting current stability and moreover prompting customers to plan their spendings more carefully because of the occurrence unexpected issues such as price increases or shortages of certain items. These changes may be long-term and continue also after the pandemic. The outbreak of the COVID-19 pandemic probably has affected every possible aspect of human life.

Due to the lockdown, areas such as people's health and financial well-being, safety, social connections significantly have been affected. Paradoxically, this has suffered despite numerous efforts to contain the pandemic. It also forced most consumers to change their current behavior, both during the purchase process and after purchasing, when returning these goods to the seller. Cariappa et al. (2020) reported that 92.01% of respondents declared that they noticed changes in their purchasing behavior. An estimated 90% of respondents linked this change to the risk of infection and strict isolation. According to (Eger et al., 2021), consumer purchasing behavior during the COVID-19 pandemic was primarily driven by fear. The greater the fear, the greater the change in purchasing behavior. The most common fear was fear of infection, complications, and death (Chalhoub et al., 2022).

As the research results show (Veselovská et al., 2023), it can be stated that the COVID-19 pandemic has changed people's thinking about such different areas of life, especially about such common things as choosing a place to shop, choosing a supplier or saving. The pandemic has changed thinking in an irreversible way. Pursued Ease of Use (PEU) and Perceived Usefulness (PU), product price and trust had significant impact on online consumer purchasing behavior during the Covid-19 pandemic among young adults (Yee et al., 2023). Consumer behavior has changed during the pandemic due to fear-driven impulse buying, increased awareness of local products, the need to reduce waste, and sustainable consumption (Kongming, 2023). Purchasing patterns have changed and become more value-oriented after the pandemic (Mbongwe, Qutieshat, 2023). Quantitative changes in purchased goods were also recorded: consumers began to focus on more economical packaging, purchasing larger capacities. Attention was also drawn to the need to stay at home and limiting mass visits to markets, resulting in high purchasing activity uploaded to various online platforms and delivery services. Such changes, of course required switching to cashless payment methods, which was not common before practice (Huterska et al., 2021). After Covid-19 pandemic consumers prioritizing essentials over comfort and luxury items, consumers have adopted restrictive living conditions and are more concerned about their spending and buying patterns (Pang, Ko, Kim, Ko, 2022). Before the Covid-19 pandemic, 67% of consumers said brands needed to do more to guide their purchasing decisions online and preferred to visit a physical store to consider their purchase decision (Zoovu, 2020). After the pandemic, 74% of consumers are interested in a solution that independently recognizes their needs in real time based on their responses and issues a personalized recommendation. These results show that consumers have become more resourceful, independent, and open to technology. The COVID-19 pandemic has led to an increase in online shopping, primarily due to government-imposed restrictions. Consumers' personal concerns about their own health related to shopping in physical stores were also an important factor (Shaw, Eschenbrenner, Baier, 2022). The global increase in e-commerce due to the Covid-19 pandemic was initially driven by the need to avoid person-to-person contact. The outbreak of the COVID-19 pandemic and the introduced lockdown necessitated an immediate response by companies, both in response to the restrictions introduced, as well as changes in the assumptions and strategies that guided sellers in the long term. Some of them had to create an online store or seriously revive it. Online shopping was the only alternative as retail stores were closed and people stayed at home to avoid spreading the virus. Faced with various barriers and restrictions hindering visits to stores, many consumers decided to shop online. This shift in shopping caused global e-commerce to rise from 15% of total retail sales in 2019 to 21% in 2021. It now sits at an estimated 22% of sales (Morgan Stanley's report, 2022). Optoro, a leading returns technology provider that provides services to manage, process and resell returned goods, saw a 20% decline in average weekly returns at the end of the pandemic (Optoro, 2021). Similarly, Returnly, a digital returns platform supporting retail chains, saw e-commerce returns decline by 21% after the government-recommended lockdown

(Returnly, 2021). During the Covid-19 pandemic, in order to build consumers' trust and encourage them to buy despite higher uncertainty and risk, companies have started to adopt more liberal returns policies, which in turn can lead to higher returns than in traditional retail.

While researchers have examined the various areas of social and economic life in which changes in consumer behavior have been noticed during and after the Covid-19 pandemic, we still do not know enough about **the changes in behavior of Polish consumers that may have occurred during the Covid-19 pandemic and adapted to their habits**. Taking into account the theoretical gap in the literature on the subject, the article explores and analyzes the changes in purchasing behavior of customers after the Covid-19 lockdown.

First, we tried to explore how the Covid-19 pandemic changed consumer behavior and which behaviors stayed with consumers 2 years after the pandemic. Then, we tried investigated socio demographic features that have impact on purchasing behavior. In order to realize the goal, it is necessary to answer 3 research questions:

**RQ1: How the Covid-19 pandemic changed consumer behavior?**

**RQ2: Does age influence differences in respondents' purchasing behavior?**

**RQ3: Which gender prefers more online shopping?**

Answering this question not only fills an academic gap but also provides various insights for the changes in purchasing behavior of customers after the Covid-19 lockdown that have the greatest impact on becoming rooted in habits. It can be concluded that these changes influenced the comfort, safety and greater awareness of the respondents.

## **2. Literature review**

### **2.1. Factors determining online shopping**

At the end of 2021, when the pandemic began to slow down, some governments began to ease their restrictions and consumers began to return to shopping in stationary stores, which created a risk that the number of online purchases would decline after the reopening of stores. However, there were concerns that consumers may still prefer online shopping more often than before the pandemic due to the experiences gained during isolation. Researchers note that convenience, efficiency and security play an important role in women's perceptions about online shopping, which influences their desire to continue shopping online (Sehkal et al., 2021). To increase e-commerce sales, sellers must create a positive experience for customers by paying attention to aspects such as website design, reliability and quality of after-sales support (Holloway, Beatty, 2003). Customer satisfaction after completing a transaction is a key factor for subsequent returns and store recommendations (Camilleri, 2021; Zhang et al., 2013).

When buying physical goods online, one of the elements that determine the overall quality of service is the fulfillment of the order, which can be assessed by delivery times, the correctness of the order contents and delivery standards. One of the unique features of stationary retailers, highly appreciated by consumers, is the ability to have direct contact with the products they want to buy and with the staff in the store. The key difference between online and offline shopping is real interaction between people and personalized shopping experiences. For example, many customers like to talk to a sales representative to get advice and talk about different products in a natural conversational style. When shopping in-store, customers can choose the item they want and take it home to use right away, without needing expert advice to see how valuable the item is. However, there are sectors in which online sales have a greater impact, such as when buying digital products such as e-books and software, as the goods are instantly delivered after payment (Rao et al., 2011). In contrast, when purchasing physical goods online, there is a delay due to the need for delivery. Customers may also face additional shipping costs, which can be significant. Given the potential delays, inconvenience with returns, and the risk of receiving the wrong product, some consumers may avoid online shopping (Titiyal et al., 2022).

Despite the so-called "post-COVID" era, the trade situation is changing rapidly. Retail and e-commerce companies have noticed new changes in shopping behavior, and the changes that have occurred over the past year are showing signs of adoption in habits. First thing is contactless payment. According to BigCommerce (2022) it may not be correct to expect online transactions to replace every purchase made in person. The use of contactless mobile payments has increased significantly during the pandemic, with growth of 22.2% in 2020 according to eMarketer (eMarketer, 2021). There is also an important trend towards browsing and buying products directly on social platforms, which has become a key aspect of e-commerce. Consumers browse products and complete transactions via social media and content creation platforms, all using a dedicated app. This new form of shopping removes friction from the purchasing process, provides a more immersive consumer journey and provides brands with new opportunities to capture consumer interest (McKinsey & Company, 2022). In 2020, social commerce accounted for 3.4% of total e-commerce sales and is expected to increase further. In addition, many millennials and members of Generation Z believe that social media is the optimal platform for sourcing new products, as opposed to traditional online search (BigCommerce, 2022).

Another strong phenomenon in e-commerce is paying even more attention to the management of returns, which on the one hand generate large logistics costs (Shang et al., 2017) and on the other hand contribute to increasing customer loyalty. The basis for long-term loyalty of buyers is their positive attitude to the offer, an indispensable element of which is the pro-consumer returns and complaints policy. The issue of returns is very important (Frei et al., 2002). It gives the customer security and guarantees that the seller is sure of the products offered by him and is ready to take responsibility for them (Barlow, Maul, 2000). A conscious and more

demanding customer has higher expectations of his rights when processing returns. Consumers returned a staggering \$817 billion worth of products, representing just over 16% of total retail sales in US Statista (2023). The National Retail Federation estimates the cost of returns to be \$101 billion. Return rates for all retail purchases can be as high as 10%, and for e-commerce, return rates can go up to 30% (NRF, 2021). Companies offer their clients return policy in order to reduce the post-purchase risk. The increased number of online purchases, especially during the Covid-19 pandemic, has another strong phenomenon in e-commerce is paying even more attention to the management of returns, which on the one hand generate large logistics costs (Shang et. al.2017) and on the other hand contribute to increasing customer loyalty. The basis for long-term loyalty of buyers is their positive attitude to the offer, an indispensable element of which is the pro-consumer returns and complaints policy. The issue of returns is very important (Frei et al., 2002). It gives the customer security and guarantees that the seller is sure of the products offered by him and is ready to take responsibility for them (Barlow, Maul, 2000). A conscious and more demanding customer has higher expectations of his rights when processing returns. Consumers returned a staggering \$817 billion worth of products, representing just over 16% of total retail sales in US (Statista, 2023). The National Retail Federation estimates the cost of returns to be \$101 billion. Return rates for all retail purchases can be as high as 10%, and for e-commerce, return rates can go up to 30% (NRF, 2021). Companies offer their clients return policy in order to reduce the post-purchase risk. The increased number of online purchases, especially during the Covid-19 pandemic, has made customers pay more attention to the delivery time of the ordered goods and the possibility of returning an incorrect purchase easily and free of charge. A company that had a more efficient customer support system based on well-organized and fast reverse logistics processes had a chance to attract a larger pool of loyal customers. When seller that does not accept returns or allows the exchange of goods:

- he completely ignores of the principles of customer service,
- he is not sure about the quality of goods or services provided,
- he did not include the returns policy in the company's logistics system, which makes him unable to manage these returns.

Nowadays, e-commerce cannot take place without the return of unwanted or disliked goods by customers. Returns and complaints are an integral part of contemporary business. Guaranteeing of a friendly return policy (“no questions asked” policy, hassle free return policy) by the company and, what is more, its effective and efficient implementation more often become an element of competitive advantage. During the Covid-19 pandemic, in order to build trust and encourage consumers to buy despite higher uncertainty and risk, companies have started to adopt more liberal returns policies, which in turn can lead to higher returns than in traditional retail. However, the research results show otherwise. Oporto, a leading returns technology provider that provides services to manage, process and resell returned goods, saw a 20% decline in average weekly returns at the end of the pandemic. Similarly, Returnly,

a digital returns platform supporting retail chains, saw e-commerce returns decline by 21% after the government-recommended lockdown (Returnly, Optoro, 2021). We can observe very similar statistics in Europe, and especially in Poland.

## 2.2. Changes in shopping behavior in Poland during and after Covid-19

In the period January-March 2020, due to the coronavirus pandemic and the closure of many stationary stores in Poland, the number of e-commerce stores increased compared to the same period in 2019. Since April 2020, the Polish economy has been undergoing rapid changes caused by the Covid-19 pandemic. Restrictions on traditional trade affected GDP, which was 2.8% lower than in 2019 (Markethub.pl, 2021). In 2020, most online stores were created in the categories of books and media, food products, gifts and accessories (Statista 2024). In 2023, the Polish Allegro market achieved revenues of over PLN 10.2 billion, which means an increase of 14%. compared to the same period last year. Allegro also owns the Ceneo.pl pricing website. Ceneo's revenues increased by 7% in the observed period, reaching nearly PLN 208 million in 2023 (Statista, 2024).

The coronavirus has gradually changed the behavior of Polish consumers, who switched from offline to online sales, change payment methods, pay less in cash, and more recently use their credit cards and phones (NBP, 2022). When it comes to the method of goods delivery, Polish consumers became more interested in parcel lockers, which during the pandemic offered contactless parcel collection using a mobile phone.

According to Business Insider Polska, during 2020, the percentage of returns on the Allegro platform among Polish consumers mostly did not change and remained at a very low level. Moreover, in March 2020, compared to February 2020, this percentage decreased and the average number of returns in the first quarter of 2020 was approximately 40%. lower than in the fourth quarter of 2019 (Business Insider, 2020). These declines are likely due to consumer caution and adherence to government rules. Consumers wanted to minimize the additional stress of leaving home to go to the store during the pandemic to return purchases. According to the report of the postal operator PostNord "E-commerce in Europe 2020", the percentage of online consumers in Poland reached 83% in 2020, in 2019 it was 80%. The dynamics of online trade was boosted by the restriction of sales on Sundays and by restrictions because of lockdown. In Poland, the Allegro marketplace has withstood the pressure from foreign e-commerce giants and holds a dominant position in the market. 38% polish consumers prefer "Collect it by myself from a parcel machine", 35% - "Home delivery in daytime" (PostNord, 2020).

The Covid-19 pandemic has had a visible impact on the collection of parcels and the processing of returns by customers. The PBS report shows that collecting parcels from a courier is still the dominant trend - 73% of respondents, however, collecting parcels at a parcel locker was chosen by almost 43% of respondents (PBS, 2021). Without a doubt, the main role in this

case was the sense of security associated with the ability to maintain social distance. During the pandemic, leading logistics operators and courier companies, wanting to adapt to the new reality, introduced many changes and improvements aimed at increasing safety also when collecting a parcel at the door directly from the courier. Such improvements include:

- cashless payment with the courier - sanitary issues forced companies to introduce portable terminals for this purpose,
- development of a network of parcel lockers that allow you to collect parcels at any time, 24 hours a day, and contactless door opening using a smartphone has largely contributed to increasing consumer safety,
- contactless confirmation of receipt by adding special, one-time PIN codes that were universally assigned to each shipment,
- introduction of disinfection procedures - wearing gloves by couriers, disinfection of parcels (spraying them in the warehouse), cleaning and disinfection of cars transporting parcels, constant sanitary supervision of company employees.

Following an analysis of the literature, it can be concluded that the timeliness of this article is justified by the lack of research into changes in the behaviour of strictly Polish consumers. Although researchers (Cariappa et al.; Barlow et al.; Yee et al.) have investigated various aspects of social and economic life where shifts in consumer behavior have been observed during and after the Covid-19 pandemic, there remains a lack of comprehensive understanding regarding changes in the behavior of Polish consumers during this period and how these changes may have influenced their habits. Addressing this theoretical gap in the literature, this article examines and analyzes the transformations in purchasing behavior among customers following the Covid-19 lockdown.

### **3. Research Methodology**

In addition to the literature review, research surveys were conducted using the computer-assisted website interview (CAWI) technique. The online survey questionnaires were distributed using the servers of the Google. The purpose of the research was to investigate changes in customer behavior especially in terms of product return, that may have occurred during the Covid-19 pandemic. The most interesting thing was to find out whether the behavior forced by restrictions turned into a habit after the pandemic. The following gender and age amounts were used in the study:

- 51% of male and 49% of female,
- 68,9% of people aged 18 to 26.



The research process related to the collection of primary data consisted of two stages: pilot and proper studies. In each of them, questionnaire surveys were used to collect primary data. The actual survey was carried out among 305 people representing Polish adult final buyers, mostly students. The research was purposely conducted 2 years after the pandemic in order to examine the purchasing patterns that have permanently become established among respondents. The actual survey was carried out in April and May 2023. According to the Central Statistical Office, 37,637 million people lived in Poland at the time of the research.

**Table 1.**  
*Demographic structure of the study sample [n = 305]*

<b>Sociodemographic characteristics</b>	<b>n</b>	<b>%</b>
<b>Age</b>		
up to 18 years old	21	6,9%
from 18 to 26 years old	210	68,9%
from 27 to 45 years old	44	14,4%
from 46 to 60 years old	9	2,6%
over 60 years old	22	7,2%
<b>Sex</b>		
female	149	49,0%
male	156	51,0%
<b>Place of residence</b>		
village	104	34,1%
city up to 20 000	28	9,2%
city from 20 000 up to 150 000	59	19,3%
city from 150 000 up to 500 000	85	27,9%
city over 500 000	29	9,2%
<b>Education</b>		
primary	9	3,0%
vocational	6	2,0%
technical secondary	96	31,5%
general secondary education	108	35,4%
higher	86	28,2%
<b>Type of professional activity</b>		
unemployed	2	0,7%
have own business	9	3,0%
employed in a company / institution	88	28,6%
pensioner	14	4,7%
student	186	61,0%
disciple	6	2,0%
<b>Average net income per month</b>		
no income	72	23,6%
up to PLN 4000	107	35,1%
4001-6000 PLN	82	26,9%
6001-8000 PLN	24	7,5%
8001-10 000 PLN	12	4,3%
over 10 000 PLN	8	2,6%

Source: created by the authors.

The research procedure consisted of the following stages:

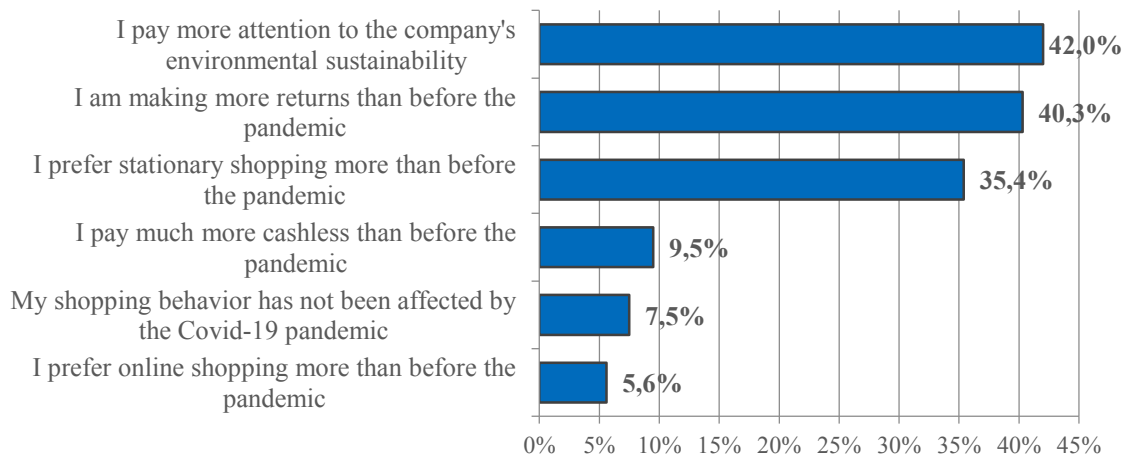
1. Selecting a research sample.
2. Constructing a prototype of a survey on changes in consumer behavior in terms of returns during a pandemic and verifying the survey in a pilot group.

3. Analysis of results, making corrections in survey questions.
4. Conducting research on a verified and tested questionnaire, hosted on the servers of the Google.
5. Analyzing and discussing the results obtained from the study.
6. Drawing conclusions based on analysis and discussion, limitations and future research directions.

#### 4. Analysis of the obtained research results

In the following part of the study, the results of the study will be presented in relation to the impact of the Covid-19 pandemic on consumer behavior relative to their social personality. Figure 1 shows the results of how the pandemic has contributed to changes in consumer purchasing behavior. **It can be clearly stated that the majority of respondents noticed changes in their behavior in relation to the increase in online purchases (42%),** what could have been caused by restrictions introduced by the Government in terms of movement and restrictions on stationary sales. Developed habits for online shopping in a few years, have been preserved in the minds of consumers as an easier and more accessible way to make purchases. In addition, the trend towards non-cash payments noticeable during the pandemic contributed to the remaining settlement method in as many as 35.6% of respondents. **However, 40.3% of respondents did not change their shopping behavior, which may involve the active use of online shopping in the period before the pandemic** and the same degree of stationary purchases in the field of goods available immediately.

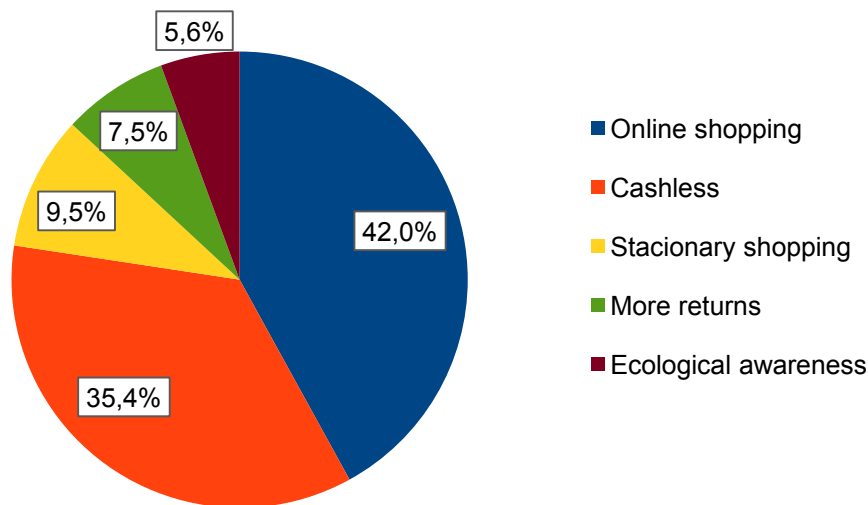
A small percentage of respondents noticed changes in the increase in the frequency of returns (7.5%) or preference for stationary purchases online (9.5%). Such a phenomenon may indicate that consumers are guided by their own preferences in order to satisfy their own needs. A small percentage of respondents began to pay attention to the pro-ecological activities of the company (5.6%), which may have been caused by changes in EU regulations in the field of sustainable policy.



**Figure 1.** The evaluation of how the Covid-19 pandemic affected the respondents' shopping behavior (The answers given in the multiple choice question do not equal 100%, n = 305).

Source: created by the authors.

Moreover, it can be stated that the restrictions related to the Covid-19 pandemic in most cases (59,7%) had an impact on consumer behavior also after the pandemic, which was subject to a broader analysis later in the study (Figure 2).



**Figure 2.** Changes in consumer behavior during the pandemic, which have become embedded in their lifestyle.

Source: created by the authors.

The results of chi-square tests in 2 cases showed a statistically significant relationship ( $p < 0.05$ ) between the cases in which the Covid-19 pandemic changed the shopping behavior of respondents and their age (tab. 1). **Subjects over the age of 60 (50.0%) were the most numerous group that made returns more often than by the pandemic, while people up to the age of 18 were much less likely to make such returns (19.0%). The respondents over the age of 60 (50.0%) also paid more attention to whether the company is pro-ecological than it was for people under 18 (14.3%).**

**Table 2.**

*An assessment of how the Covid-19 pandemic changed the purchasing behavior and age of respondents [The answers given in the multiple choice question do not equal 100%, n = 305]*

Factors:	up to the age of 18 [n=21]	18 to 26 years old [n=210]	27 to 45 years old [n=64]	46 to 60 years old [n=8]	over the age of 60 [n=2]	Statistical significance
I prefer online shopping more than before the pandemic	28,6%	41,0%	48,4%	50,0%	50,0%	$\chi^2=3,00116$ $p=0,55763$
I prefer stationary shopping more than before the pandemic	23,8%	10,5%	3,1%	0,0%	0,0%	$\chi^2=9,30204$ $p=0,05397$
I am making more returns than before the pandemic	19,0%	5,7%	9,4%	0,0%	50,0%	<b><math>\chi^2=11,12531</math></b> <b><math>p=0,02519</math></b>
I pay more attention to the company's environmental sustainability	14,3%	5,2%	3,1%	0,0%	50,0%	<b><math>\chi^2=11,77482</math></b> <b><math>p=0,01910</math></b>
I pay much more cashless than before the pandemic	28,6%	35,7%	35,9%	50,0%	0,0%	$\chi^2=2,28672$ $p=0,68318$
My shopping behavior has not been affected by the Covid-19 pandemic	52,4%	41,0%	34,4%	37,5%	50,0%	$\chi^2=2,34857$ $p=0,67193$

$\chi^2$  – chi-square test result; p – statistical significance; \* -  $p < 0,05$

Source: created by the authors.

Such behavior may indicate that the older generation does not think about the negative impact of their behavior on the environment, but they pay attention to the activities of companies in a pro-ecological way. This may be due to the prevailing claim that the company must act pro-ecologically, and the consumer paying the company for services covers the cost of damage that can be caused by actions aimed at satisfying the customer. The generation of young people, on the other hand, does not translate responsibility into companies, makes more thoughtful purchases and therefore makes a much smaller percentage of returns.

The results of chi-square tests ( $p < 0.05$ ) in three cases showed a statistically significant relationship between the impact of the Covid-19 pandemic on the purchasing behavior of respondents compared to their gender. **Among statistically significant behaviors, it can be indicated that women prefer online shopping more than before the pandemic (50.3%), men only (36.0%), and they pay much more with non-cash payments than before the pandemic (44.8%), men only (26.7%).**

**Table 3.**

*The impact of the Covid-19 pandemic on the purchasing behavior of respondents compared with their gender [The answers given in the multiple choice question do not equal 100%, n = 293]*

<b>Factors:</b>	<b>female [n=143]</b>	<b>male [n=150]</b>	<b>Statistical significance</b>
I prefer online shopping more than before the pandemic	50,3%	36,0%	$\chi^2=6,15021$ $p=0,01313$
I prefer stationary shopping more than before the pandemic	9,1%	10,0%	$\chi^2=0,07000$ $p=0,79133$
I am making more returns than before the pandemic	7,7%	6,7%	$\chi^2=0,11574$ $p=0,73369$
I pay more attention to the company's environmental sustainability	7,7%	3,3%	$\chi^2=2,69441$ $p=0,10070$
I pay much more cashless than before the pandemic	44,8%	26,7%	$\chi^2=10,46185$ $p=0,00121$
My shopping behavior has not been affected by the Covid-19 pandemic	30,8%	48,0%	$\chi^2=9,08809$ $p=0,00257$
<b><math>\chi^2</math> – chi-square test result; p – statistical significance; * - p &lt; 0,05</b>			

Source: created by the authors.

This difference can be caused by the fact that women are more likely to make purchases than men. The ability to order various goods without spending time in the store has contributed to the development of the e-commerce industry.

The results of the chi-square tests ( $p < 0.05$ ) presented in Table 3 showed one example of a statistically significant relationship between the impact of the Covid-19 pandemic on the shopping behavior of respondents and the type of their professional activity. **According to the research, students/disciple (13%) are more willing to shop stationary than before the pandemic, but such dependence was not noticed among working people (3.6%).**

**Table 4.**

*The impact of the Covid-19 pandemic on shopping behavior and the type of professional activity of respondents [n = 302]*  
*[The answers given in the multiple choice question do not equal 100%, n = 293]*

<b>Factors:</b>	<b>Student/disciple [n=192]</b>	<b>Working person [n=110]</b>	<b>Statistical significance</b>
I prefer online shopping more than before the pandemic	38,5%	48,2%	$\chi^2 2,66702$ $p=0,10244$
I prefer stationary shopping more than before the pandemic	13,0%	3,6%	$\chi^2=7,09511$ $p=0,00772$
I am making more returns than before the pandemic	7,8%	7,3%	$\chi^2=0,02895$ $p=0,86487$
I pay more attention to the company's environmental sustainability	7,3%	2,7%	$\chi^2=2,74266$ $p=0,09770$

Cont. table 4.

I pay much more cashless than before the pandemic	33,9%	38,2%	$\chi^2=0,57251$ $p=0,44926$
My shopping behavior has not been affected by the Covid-19 pandemic	42,2%	36,4%	$\chi^2=0,98777$ $p=0,32028$
$\chi^2$ – chi-square test result; $p$ – statistical significance; * - $p < 0,05$			

Source: created by the authors

Such dependence may be due to the fact that students/ disciple are more aware of the importance of protecting the environment and taking care of it along with reducing harmful emissions, thus, when choosing stationary purchases, they contribute to the reduction of carbon dioxide (CO<sub>2</sub>).

## 5. Discussions and conclusion

There is no doubt that the Covid-19 pandemic has had a significant impact on the way people behave, think and shop. Many experts believe that the surge in online shopping will continue the positive trend. As more people become accustomed to the convenience of shopping at home, it is likely that e-commerce will continue to grow and evolve into new and more convenient forms for consumers in the coming years. The Covid-19 pandemic has had long-term effects on global trade, and the increase in online shopping is just one of many changes. As we progress and develop, it is important to understand the impact of the Covid-19 pandemic on the exponential growth of online shopping and the likely evolution of e-commerce in a post-pandemic world (Szasz et al., 2022).

In our study, we've formulated three research questions. Thanks to the precise answers of the respondents, accurate answers were obtained:

- **RQ1: How the Covid-19 pandemic changed consumer behavior?** The pandemic has contributed to changes in consumer purchasing behavior. It can be clearly stated that the majority of respondents noticed changes in their behavior. 42% of respondents admitted to changing their shopping habits towards online shopping, 35.6% of respondents are switching towards cashless payments, which contributed to leaving the traditional method of settlements. A small percentage of respondents noticed changes in the increase in the frequency of returns (7.5%) or preference for stationary purchases online (9.5%). However, 40.3% of respondents did not change their shopping behavior, which may involve the active use of online shopping in the period before the pandemic and the same degree of stationary purchases in the field of goods available immediately.

- **RQ2: Does age influence differences in respondents' purchasing behavior?**

Yes, age differentiates respondents' purchasing behavior:

- People up to the age of 18 were much less likely to make such returns (19.0%), while people over 60 years of age (50.0%) make returns more often than in the pre-pandemic period. Pre-pandemic research by Source et al. (2005) suggests that age affects online shopping behavior and product returns, especially if the consumer searched for the product online (Sorce et al., 2005). The results of this research show that the percentage of purchases by age category is very similar. Comparing this result to the study described in the article (the younger generation makes fewer returns), we can see a difference indicating an increase in the number of returns over time. Comparing our study to the Basak et al. (2022) survey, according to which the online shopping return rate among young Indian consumers is close to 50%, there is a noticeable difference in consumer awareness about return policy. Such a difference is due to a much more reduced risk in the return policy of online stores in India. The return policy in Poland is friendly to consumers, but in parallel with this, companies are introducing changes to make the return policy more environmentally friendly.
- The respondents over the age of 60 (50.0%) also paid more attention to whether the company is pro-ecological than it was for people under 18 (14.3%). According to our research, students/disciples (13%) are more willing to shop stationary than before the pandemic, but such dependence was not noticed among working people (3.6%). Our research shows that students/students are more likely to shop stationary than before the pandemic, but among other studies, this data is not confirmed. The pandemic has accelerated the development of e-commerce and consumers spend more time on online shopping platforms (Ingaldi, Brožová, 2020; Akçagün et al., 2021; Ludin et al., 2022). International students, especially those from Asia, have shown a greater change in buying habits, including increased online shopping and preferences for local products (Szlachciuk et al., 2022). This trend is attributed to factors such as convenience, pandemic restrictions and the adaptation of brick-and-mortar stores to online platforms (Ludin et al., 2022). These results suggest a significant transformation of consumer behaviour, especially among students, as a result of the COVID-19 pandemic.
- **RQ3: Which gender prefers more online shopping?** Among statistically significant behaviors, it can be indicated that women prefer online shopping more than before the pandemic (50.3%), men only (36.0%), and they pay much more with non-cash payments than before the pandemic (44.8%), men only (26.7%). Many studies from different countries show us that female consumers were more likely to shop online during the Covid-19 pandemic than before the pandemic, paying particular attention to cashless payment (Kráľ et al., 2022; Ohata et al., 2022; Singh et al., 2022). As we can see from

the results of that research, the trend continues. Post-covid behavior related to the convenience of online shopping and the favorable factors for non-cash payments and a consumer-safe return policy, which began to grow during the pandemic became established in the consumer behavior of both sex groups.

International events, such as the economic, geopolitical or biological crisis, introduce many changes in consumer behavior. Until recently, we have been dealing with the global crisis of the Covid-19 pandemic, and today we are facing a political crisis. Such phenomena clearly indicate not only changes in the market, but also changes in consumer expectations and behavior. In this article, the authors presented the results of an online survey among Polish consumers conducted in April-May (N = 305). The authors also compared consumer behavior before, during and two years after the outbreak of the pandemic. The results have led to some conclusions: the age and gender of consumers have a direct impact on the way purchases are made and their returns. Younger people shop more responsibly and have less negative impact on the environment than the way older people shop.

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