

## Consequences of the Covid-19 epidemic on hygiene purchase behavior

**Elena Rusalca VELICU**

Bucharest University of Economic Studies, Romania  
rusalca.velicu@gmail.com

**Ovidiu Andrei Cristian BUZOIANU**

Bucharest University of Economic Studies, Romania  
buzoianuvidiu@yahoo.com

**Carol Cristina GOMBOS**

Bucharest University of Economic Studies, Romania  
gomboscarolcristina@yahoo.com

**Ana Maria BOLAHAN**

Bucharest University of Economic Studies, Romania  
anamaria.bolohan@gmail.com

**Abstract.** *The present research aimed to determine the consequences of the Covid-19 epidemic on the behavior of purchasing sanitary products among the Romanian population. A crisis hit the world in the form of the Covid-19 pandemic in early 2020. As a result, people began to buy products impulsively out of fear. As a result, entire store chains were ransacked by shoppers who emptied all the product shelves they thought were essential. Stores, manufacturers, retailers and companies have had to adapt to the changing behavior of shoppers. Previous research has shown that price and quality are two of the most influential factors in consumer decision-making, in particular the increase in price sensitivity and perceived quality. The above factors become the main concerns of consumers in the decision to buy a product. The aim of this study was to investigate beyond impulsive buying behaviors, investigating whether consumer buying behavior changed during the Covid-19 pandemic, given price sensitivity and perceived quality within a single category, namely hygiene products. By conducting empirical research and subsequent analysis, most of the hypotheses were confirmed. The research findings lay the foundation for future crisis research. Studying this unique crisis situation that has not been studied in detail so far, I can see new psychological phenomena that simultaneously affect consumers around the world in a similar way. The research findings show the direct effect of the pandemic on changing the behavior of Romanian consumers, from the perspective of perceived quality and price sensitivity caused by fear.*

**Keywords:** behaviors, consumers, Covid-19, epidemic, hygiene products.

**JEL Classification:** G41, I12.

## 1. Introduction

The Covid-19 pandemic began in late 2019, with reports of a new virus in China. Chinese authorities have informed the World Health Organization of several cases of mysterious lung disease in Wuhan, the capital of Hubei Province in central China.

The World Health Organization has classified this new disease as coronavirus disease (Covid-19), along with a severe acute virus, respiratory coronavirus syndrome 2 (SARS-CoV-2) (World Health Organization, 2020a).

Periods in which the world has faced animal diseases have existed in the past and have been overcome. People tend to travel more nowadays and this has led to the spread of the virus around the globe (Akhtar et al., 2020).

To counter the spread of Coronavirus, schools and universities were closed in many countries, events were canceled, and merchants who did not sell essential products had to close, leaving only supermarkets open. Law changes have been introduced fairly quickly and drastically in most countries. Governments around the world have taken various precautionary measures, such as quarantine rules, limiting the hours you can go out and closing borders.

The Covid-19 virus has created a global crisis that is destabilizing the economy. This, in turn, has led to fears among the population, as people are unsure of what will happen in the near future. Due to the implementation of the new quarantine and isolation laws, a panic was created among the people which led to the impulsive purchase of a large number of products. The store shelves were emptied of hygiene products and food because people wanted to make storage in case they could no longer be found.

The global crisis continues to this day and the behavior of buyers has changed. The panic at the beginning of the pandemic, induced by the media, has subsided over time. Store shelves are no longer cluttered with people and product demand is back to normal.

According to research conducted by Sharon (2017) on post-disaster consumption, survival psychology recognizes that individuals may experience behavioral changes due to the occurrence of particular events, including natural disasters, health crises, and terrorist attacks. These behavioral changes may include: herd mentality, panic over-buying, changes in buying habits, and investment decision-making.

As we do not have enough information on modern pandemics other than the one caused by the SARS virus, which did not have the same impact globally, research on Covid-19 will bring a new perspective on understanding and perhaps anticipating new global crises.

The present research aimed at analyzing the way in which Romanians were influenced in the decisions related to the purchase of hygiene products during and after the pandemic and how their behavior as buyers was changed.

## 2. Relevance of price and quality

As mentioned in the introduction, the Covid-19 pandemic has led to changes in buyer behavior, but there has also been a change in the factors that influence the decision-making process.

According to Noel (2009) price and quality are general influences that influence the influencing factors e.g. the price influences the attitude and subsequently, the attitude influences the buying behavior. A Nielsen investigation shows that the Covid-19 pandemic has led consumers to look for products that are safe and have the highest quality, especially when it comes to food, but also hygiene products. Therefore, consumers are willing to pay even a higher price (Bell et al., 2018).

Although price is one of the most influential factors in buying behavior (Hoyer et al., 2008), it seems to be secondary at this time. The main reason for the change in the behavior of buyers is the virus and the fear induced by it. It seems that most people tend to put their health first and do not think about anything else in special situations where they feel in danger.

### 2.1. The relevance of the price

Kotler and Armstrong (2018) define price as the amount of money charged for a product or service. More developed, price is the sum of all the values that customers give up in order to gain the benefits of obtaining or using a product or service. Historically, price has had a major influence on buying behavior. However, non-price factors have also become very important in the purchasing decision process in recent decades (Kotler and Armstrong, 2018). Consumers support companies that sell products at prices they consider fair (Barber and Hyunji, 2020).

The degree of price sensitivity differs from consumer to consumer, some may be more affected by price changes than others. On the other hand, there are consumers who would buy a product regardless of its price (Chrysochou, 2017). Consumers who are more price sensitive mostly have absolute price thresholds that influence their purchasing decisions.

This type of consumer imposes an advance amount that he is willing to pay for a product. If the price of a product falls within this amount, the buying behavior will not change. However, attributes such as quality influence the tendency to make a purchase, even if the price is above the set amount (Vastani and Monroe, 2019).

Based on prices in grocery stores, it has been observed that men's buying trends differ from those of women, as men are more affected by price than women (Vastani and Monroe, 2019). The frequency of purchases has an effect on the reference price, the more purchases are made, the less price sensitive the person is.

Sometimes the consumer determines the quality of a product by its price. This is due to the fact that the experience of buying a certain product at this price, promised them a certain quality and vice versa. If price is used as an indicator of quality, overestimations in price-quality relationships are common (Ballantine et al., 2014).

## 2.2. The relevance of quality

Due to the Covid-19 pandemic, people prefer to pay higher prices for quality products in order to have a guaranteed quality assurance. Consumers have bought hygiene products, long-lasting pre-packaged items and canned food to provide them with safety and, therefore, quality assurance. In addition, the origin of the products is one of the concerns of consumers, as local products are seen as safer and do not need to be imported at the risk of being exposed to Covid-19 virus (Barber and Hyunji, 2020)

According to Chrysochou (2017), one of the basic characteristics of modern marketing is the orientation towards creating successful brands. The name of the brand that makes the product creates an image of it in the mind of the consumer, the image being associated with the quality of the product and thus his choice becomes motivated by this simple reason.

However, the concept of consumer confidence has never been examined on its own. The lack of research on this topic can be explained by the fact that theories of interpersonal relationships cannot be applied to discover more because the brand is not something specific and is an empirical concept (Tamin, 2020).

In an effort to cope with the demand for purchasing and to create a plan for future demand growth, cleaning and hygiene supply companies worked 24 hours a day. However, to continue production without breaks, companies first ensured the safety of their workers. These safety measures included education on the virus, transmission methods, adjusting operating processes to work safely during a pandemic (social distance from workstations and scheduling break room times) and establishing the protocol for on-site testing.

The companies recognized the importance of workers during this period. As a result, many companies have changed their pay and holiday policies and implemented temporary salary increases, special bonuses and an emergency employee assistance fund (Kratzel et al., 2020).

Another vital change that hygiene supply companies have had to make in order to meet the demand for certain products has been to reduce the variety of products they offer (Hampson et al., 2013). The companies considered it vital to focus on the market demand of the time and therefore focused on the required hygiene products. For many companies, this included temporarily discontinuing certain products that are less in demand, eliminating product features such as odor, and introducing new products while reducing the cost of production and time required (Vastani and Monroe, 2019).

By January 2020, the Covid-19 virus was perceived in the United States and around the world as a threat to consumers. There was an 855% increase in consumer spending (NC Solutions, 2020); a level that manufacturing companies could not meet leading to empty shelves, missing stocks and very few products.

The shortage of products threatens the consumer's freedom to choose between these assortments (Carrigan, 2010) and empty shelves make this threat extremely visible (De Man et al., 2020). Therefore, if products are scarce they are perceived as important, the threat of

unavailability increases and consumers will seek to regain control by storing a large quantity of products. Rarity can lead consumers to adopt a competitive mindset in which they see others as adversaries, leading to territorial behavior (Kirk et al., 2018).

### 3. Research and discussion results

This research is based on the epistemological paradigm of positivism because this paper is realistically oriented and the reality should be described as it really is.

Positivism implies that the phenomena have an objective reality, in this case, the phenomenon is the Covid-19 pandemic and it is important to capture the buying behavior during the pandemic in an objective way so as not to disturb the reality. Moreover, by choosing the positivist approach, research can investigate the buying behavior of buyers regarding hygiene products without influencing the subjects in any particular way.

The Google Forms platform was used to collect data. The tool automatically gathers all the data collected as a spreadsheet. First, the raw data was exported to an Excel file, where it was sorted and encoded. The processed data was then exported from the Excel sheet to the IBM SPSS Software. Descriptive statistics show us an overview of the empirical data used in the analysis. In research where people are the object of the study, it is very important to check if the statistical values are in line with the research.

Of the 105 participants, the average age was 34.65 years. The minimum age was 18 years and the maximum was 70 years, with an equal percentage between the age categories. Of the participants, 74.5% are female and 25.5% male, the percentage being low in terms of male respondents. The environment of origin of the participants was 92.2% urban and 7.8% rural. Regarding marital status, 37.5% of the participants were in a relationship at the time of completing the questionnaire, 33.5% were single and 29% were married. The level of completed studies of the subjects are: 40.2% have completed high school, 57.9% higher education (university, masters, doctorate) and 2% other studies. The monthly income of the participants is: 32.4% an income of 1,400-2,000 lei; 14.7% an income of 2,100-3,000 lei; 19.6% an income of 3,100-5,000 lei; 33.3% an income of over 5,000 lei.

The Pearson correlation test is a test that measures the statistical relationship or association between two continuous variables. It is known as the best method of measuring the association between variables of interest because it is based on the covariance method. Provides information about the magnitude of the association or correlation, as well as the direction of the relationship (Statistics Solutions). The test is used to analyze a correlation between two variables, producing an  $r$  value for the correlation between 1 and -1. If the value is between 0 and 1, the relationship between the variables is considered to be positive. A value between -1 and 0 is negative and opposite. Weak or strong correlations depend on the sample size, significance levels, and what is considered to be a small, medium, or large correlation.

A basic rule of thumb is that correlation levels, whether positive or negative, between  $r = 0.1-0.3$  are considered small correlations,  $r = 0.3-0.5$  as average correlations, and  $r = 0.5-1$  high correlation (Hemphill, 2003). There are many arguments in the literature on what levels should be the accepted significance threshold ( $p$ ) of a correlation. The significance levels  $p < 0.001$ ,  $p < 0.01$  and  $p < 0.05$  are the most accepted meanings, even if the level of 0.05 is not difficult to reach, it can be modified depending on the sample size and the circumstances of the research.

Since the present research should be seen as an exploratory research, since there is no previous research on this topic, I consider  $p < 0.10$  to be an acceptable level of significance. Moreover,  $p < 0.001$  will represent a very strong significance,  $p < 0.01$  strong significance,  $p < 0.05$  a weak significance and  $p < 0.10$  very weak significance.

To test the hypothesis that there is a positive relationship between the change in the price of hygiene products and the change in purchasing behavior, we applied the Pearson linear correlation test to assess the association between buyer behavior and product price. We obtained a positive relationship with a statistically weak correlation  $r = 0.26$ ,  $p < .05$  (Table 1), which allows rejecting the null hypothesis and accepting the research hypothesis which claims that there is a positive relationship between price and behavior but she is very weak.

**Table 1.** *Pearson test of correlation price-behavior*

		Price	Behavior
Price	Pearson Correlation	1	.264**
	Sig. (2-tailed)		.006
Behavior	Pearson Correlation	.263**	1
	Sig. (2-tailed)	.007	

\*\* Correlation is significant at the 0.01 level (2-tailed).

To test the hypothesis that there is a positive relationship between the perceived quality of hygiene products and the change in buyer behavior, the same Pearson correlation test was applied to find out the association between buyer behavior and perceived quality of hygiene products. The two correlate positively but statistically weak  $r = 0.27$ , with a strong significance  $p < 0.05$  (Table 2), rejecting the null hypothesis and accepting the research hypothesis.

**Table 2.** *Pearson test of correlation behavior-quality*

		Behavior	Quality
Behavior	Pearson Correlation	1	.278**
	Sig. (2-tailed)		.005
Quality	Pearson Correlation	.278**	1
	Sig. (2-tailed)	.005	

\*\* Correlation is significant at the 0.01 level (2-tailed).

To test the hypothesis that there is a positive relationship between the need for hygiene products and a change in consumer behavior, we applied the Pearson correlation test which

showed that there is a positive correlation between using hygiene products due to fear of virus and buyer behavior. high  $r = 0.72$ ,  $p < 0.001$  (Table 3) so we reject the null hypothesis and accept the research hypothesis.

**Table 3.** *Pearson Test of correlation behavior – use fear*

		Behavior	Use fear
Behavior	Pearson Correlation	1	.725**
	Sig. (2-tailed)		.000
Use fear	Pearson Correlation	.725**	1
	Sig. (2-tailed)	.000	

\*\* Correlation is significant at the 0.01 level (2-tailed).

The Pearson correlation test shows a small negative correlation between participants' gender and marital status. We can see a large correlation in age and income because it is very likely that older participants will have higher incomes than younger ones. There are also average positive correlations between age and participants' studies. Older subjects tend to have completed higher education and the chances of them getting married are much higher. Education has a strong positive correlation with monthly income because higher education also leads to better paid jobs.

The purpose of this study was to investigate the extent to which purchasing behavior changed during the Covid-19 pandemic due to consumer price sensitivity and quality concerns regarding the hygiene products purchased by Romanians. This study can be compared with the models presented in the first chapter, with an emphasis on price sensitivity and perceived quality as a stimulus that affects buying behavior. Previous research has shown that in the face of previous crises such as financial crises or health crises, consumers have become more sensitive to the price of products and have become more cautious about their quality, which in turn has led to a change in consumer behavior.

Price becomes the main feature that stands out even the way the products look becomes a secondary influencing factor for the purchase decision (Hampson and McGoldrick, 2013). There is no information in the literature from previous crises about the relationship between price sensitivity and the purchase of hygiene products.

With the help of this research, the first information on this subject is discovered. This sensitivity may be due to the high prices of hygiene products during the pandemic, mainly since the beginning of the crisis. Rising prices make buyers more sensitive to their price (Vastani and Monroe, 2019).

The second hypothesis of the research, respectively there is a positive relationship between the perceived quality of hygiene products and the change in buyers' behavior, was accepted with a strong statistical significance which denotes its veracity and the possibility of meeting this relationship in reality. Quality seems to be an influential factor in people's final purchasing decision. The results of the hypothesis show that there is a real positive relationship between the perceived quality of a product and the change in the attitude of buying hygiene products.

This means that the more quality consumers pay attention to, the more their buying behavior has changed. In the EBM model, this would mean that price and quality influence the factors of buyers' behavior and the result is a modified buying behavior (Chrysochou, 2017).

The third hypothesis of the research, namely There is a positive relationship between the need for hygiene products and the change in the behavior of buyers, was confirmed. There is a great positive relationship between the need for hygiene products and the change in the behavior of buyers because the pandemic has led to the realization of the need for hygiene products (disinfectants, wet wipes, soap, etc.). At the beginning of the pandemic, people filled their baskets with toilet paper and bottles of alcohol, which validates the hypothesis as existing and in reality.

Hypothesis 3 supports the above statements. At the beginning of the pandemic, people bought a lot of products from here and the price increased due to the lack of stock of the products and the delayed production time of the factories. Previous research has shown a positive relationship between the compatibility of a product with the needs and lifestyles of consumers and the perceived quality of the product (Slevitch, 2011).

The need for hygiene products such as hand sanitizer or hand soap has led to an increase in their use and, again, an increase in sales. We can also mention the behavior of the group as a determinant of the purchasing decision, here we can include the environment and lifestyle, the entourage, the objectives of individuals, as determining factors. Also, the impulsive act of buying often takes place in the case of the mentioned products, if we speak especially of the combination of the already existing need with the sudden appearance of some deficiencies of the products on the shelves. The fear factor makes people buy products impulsively.

## Conclusion

The present research addressed the topic consequences of the Covid-19 epidemic on the behavior of purchasing sanitary products among the Romanian population. To be more precise, I wanted to find out what influence the price sensitivity and the perceived quality of consumers have on the change of the behavior of buying hygiene products. From the problematization, the research questions were formed, to which an answer from the empirical research will be given. The literature was first reviewed to understand what buying behavior is, why price and quality are relevant in buying products, and, above all, examining past research into buying behavior in crisis.

Based on different theoretical approaches and knowledge presented in the literature, hypotheses were formed and a research model was created. By conducting empirical research and further analysis, we were able to confirm most of the hypotheses.

As in any empirical research, in this study there are a number of limitations that must be taken into account in the conduct of the following research. A first limit is the sample of

people. The female gender being in a much higher proportion than the male gender. This can lead to statistical errors and false results. Future directions in this regard are more selective sampling of an equally divided population.

A second limitation would be the questions in the questionnaire, in which the subjects had to recall their behavior from the months before the beginning of the pandemic. The possibility of these memories being erroneous in one way or another is very likely. In order to address this in the future direction of research, the survey should be carried out at the time of the crisis and possibly returned to it in order to continue research with information before and after.

Also in the questionnaire, the questions I asked and the scales taken from other close studies as a subject may be incomplete and may not respond very well to the requirements for validating the hypotheses.

Achieving more accurate benchmarks is a good start in future research. Another limitation is the number of respondents and the capacity of the test. Acceptable but not good enough for research that requires a larger dimension for better results. More values should be measured in future research and several types of behaviors of several social types should be examined.

---

## References

---

- Akhtar, N., 2020. Covid-19 restrictions and consumers psychological reactance toward offline shopping freedom restoration, *The Service Industries Journal*, 40(13-14), pp. 891-913.
- Ballantine, W., Zafar, S. and Parsons G., 2014. Changes in retail shopping behaviour in the aftermath of an earthquake, *The International Review of Retail, Distribution and Consumer Research*, 24(1), pp. 1-13.
- Barber, S.J. and Hyunji, K., 2020. Covid-19 Worries and Behavior Changes in Older and Younger Men and Women, *Pubmed*, DOI: 10.1093/geronb/gbaa068.
- Bell, E., Bryman, A. and Harley, B., 2018. *Business research methods*, 5th ed., New York: Oxford University Press.
- Carrigan, M.D., 2010. Economic Uncertainty and the Role of Organizational Development. *Journal of Business & Economics Research (JBER)*, 8(4).
- Chrysochou, P., 2017. Consumer behavior research methods, in *Consumer Perception of Product Risks and Benefits*, pp. 409-428.
- Hampson, D.P. and McGoldrick, P.J., 2013. A typology of adaptive shopping patterns in recession, *Journal of Business Research*, 66(7), pp. 831-838, Elsevier.
- Kirk, C.P., Peck, J. and Swain, S.D., 2018. Property lines in the mind: Consumers' psychological ownership and their territorial responses. *Journal of Consumer Research*, 45(1), pp. 148-168.
- Kotler, P. and Armstrong, G., 2018. *Principles of Marketing*, 17th ed., Harlow: Pearson Education.

- Kratzel, A., 2020. Efficient inactivation of SARS-CoV2 by WHO-recommended hand rub formulations and alcohols. bioRxiv.
- De Man, P., 2020. Sterilization of disposable face masks by means of standardized dry and steam sterilization processes, *The Journal of hospital infection*, 105(2), pp. 356-357.
- Sharon L., 2017. Post-disaster consumption: analysis from the 2011 Christchurch earthquake, *The International Review of Retail*, 27(1), pp. 28-42.
- Slevitch, L., 2011. Qualitative and quantitative methodologies compared: Ontological and epistemological perspectives. *Journal of Quality Assurance*, 12(1), pp. 73-81.
- Tamin, B.N., 2020. Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-1. *The New England journal of medicine*, 382(16), pp. 1564-1567.
- Vastani, S.F. and Monroe, K.B., 2019. Role of customer attributes on absolute price thresholds. *Journal of Services Marketing*, 33(5), pp. 589-601.