



Research Article

The Impact of COVID-19 on e-Commerce: A Systematic Review of the Literature on the Purchasing Behavior of Online Retail Consumers

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Abstract

The COVID-19 pandemic has significantly impacted the retail industry, with a surge in online shopping. This systematic literature review examines the latest research on the impact of the pandemic on e-commerce, with a focus on the behaviour of online retail consumers. **The motive behind the study:** The COVID-19 pandemic has led to a significant increase in online shopping, as consumers have been forced to stay home and avoid in-person contact. There needs to be more research on the impact of COVID-19 on e-commerce, and this study fills this void by providing a comprehensive overview of the latest research on this topic. The void in the literature makes this study important once the existing literature on the impact of COVID-19 on e-commerce is limited and needs to capture the latest trends in online consumer behaviour fully. **Methodology in the study:** The study uses a systematic literature review to identify and synthesise the most relevant research on the impact of COVID-19 on e-commerce. The review includes studies published in peer-reviewed journals, conference proceedings, and other academic sources. **Findings:** The study found that the COVID-19 pandemic has led to several changes in online consumer behaviour, including 1) A significant increase in online shopping, particularly for essential goods and services. 2) A shift towards mobile commerce, as consumers increasingly use their smartphones to shop online. 3) A greater focus on convenience and delivery speed, as consumers are less willing to wait in line or go to the store. 4) There is a growing demand for personalised shopping experiences, as consumers want to find the products they want quickly and easily. **Conclusion:** This study concludes that the COVID-19 pandemic has significantly impacted e-commerce, and these changes are likely to persist even after the pandemic. Businesses need to adapt their strategies to meet the needs of the new online shoppers. The study also found that these changes are likely to persist even after the pandemic. That suggests that e-commerce is here to stay and that businesses need to adapt their strategies to meet the needs of the new online shoppers.

Keywords: E-commerce; COVID-19 pandemic; Business-to-Consumer; Online consumer behavior; Online retail

Introduction

In December 2019, in the city of Wuhan (China), the first case of the new coronavirus SARS-CoV-2, whose disease is called COVID-19, appeared (Tesi, 2021). This virus quickly spread to the rest of the world, causing several confinements to reduce infections between individuals and, consequently, more deaths.

As a result, since individuals are confined to their homes and cannot go outside, shopping has become virtual. In this way, e-commerce emerges as a facilitator of this process, which, if it had already grown in recent years (ACEPI, 2020), with the emergence of the pandemic derived from the COVID-19 disease, the use of e-commerce was accelerated. E-commerce is understood as using the Internet, applications, and browsers available on mobile devices to carry out commercial transactions, that is, monetary exchanges for products or services (Laudon & Travor, 2017). These relevant field authors also explain that e-commerce can be defined as digital commercial transactions between organisations and individuals (Laudon & Traver, 2017).

With the emergence of the Web, the retail section of e-commerce (Business-to-Consumer) has been developing over the years (Gil, 2010). Turban and King (2004), renowned authors in the area, state that this business model occurs over two primary entities - a company and a possible consumer. Therefore, the business transactions between them occur among a legal entity, the supplier, and an individual, i.e., the consumer. Gil (2010) indicates that B2C is characterised by the creation of electronic commercial relationships between companies and their final consumers. The latter can collect information about a particular product or service and buy physical (tangible) or digital goods.

In this context, the main objective of this research is to understand the evolution of e-commerce due to the COVID-19 disease pandemic, that is, whether the confinements experienced by consumers influenced e-commerce. At the same time, it is also intended to determine the changes in online retail consumer behaviour during and after the pandemic crisis. So, the research

question for this study is: "How has the COVID-19 pandemic impacted the evolution of e-commerce and altered the purchasing behaviour of online retail consumers?".

In this sense, it is crucial to clarify the concept of online consumers and consumer behaviour to understand changes in individuals' online behaviour. The online consumer is characterised by being informed since he can find all the necessary information about a product or service online. He can also compare prices and make purchase decisions with less risk (Szymanski & Hise, 2000). The same considers that regularly buying in physical stores wastes time, so buying in online stores becomes a great advantage for this type of consumer (Morganosky & Cude, 2000). Offline consumers refer to individuals who prefer to visit traditional stores and physically see and examine the products and contact the salesman directly if they have questions about the products. On the other hand, visiting traditional stores is associated with high costs in searching for product information (namely price or product characteristics, among others) and travelling, plus limited store hours (Arya, 2015).

Researchers in the area point out that online consumer behaviour is explained through three main aspects: the Consumer Profile, the consumer's use of the Internet, and the attitudes taken toward online shopping (Morgado, 2003). Therefore, several factors will influence an individual's purchase decision, thus determining their behaviour. In addition to psychological factors, the security of transactions and the customer's data, accessibility, ease, and speed of access to the website, customer service and after-sales service, guarantees and return policies, price, and the characteristics of the products or services, and, also, the existing promotions, are conditioning factors in the online consumer's purchase decision.

In the scope of this article, the systematic literature review methodology and the PRISMA method were used (Page et al., 2021) to find the most relevant studies by researchers in this area. The database chosen was the Web of Science because it is characterised by being one of the most reputable at a scientific level due to its vast number of articles.

The structure of the work is as follows: the Methodological Approach, which includes a description of how and where the research of articles was carried out; the Results, where the systematic literature review based on the research question is presented; the Discussion, which contains a critical analysis of the results obtained in the systematic review of the literature; and, finally, the Conclusion, where the main conclusions of the research carried out, and the prospects for future work, are listed.

Methodological Approach

A systematic literature review was developed using the PRISMA method (Page et al., 2021). This method requires the researcher to have a concrete plan with a previously formulated research question as a starting point. In this way, the systematic review can be characterised as a rigorous and explicit process whose primary purpose is to gather, analyse, and synthesise the results from other studies carried out by other researchers (Alcadinho et al., 2020).

As mentioned above, we used the PRISMA method (Page et al., 2021), and the search keywords were defined, more specifically, "consumer behaviour", "e-commerce", and "covid"/ "pandemic". In this sense, we used the database Web of Science, and the following query was searched: (consum* behaviour*) AND (e-commerce) AND (covid* or pandemic*). In the first stage of PRISMA ("Identification"), the search resulted in 128 articles, which were reduced to only 121 through the application of two filters directly to the database: "Article" and "Proceeding Paper" and the language of the articles for "English" and "Portuguese", as inclusion criteria.

As there were no duplicate articles, in the second stage of PRISMA, corresponding to the "Analysis", the 121 articles were analysed by reading the respective titles and abstracts. Sixty-seven articles were excluded, as they were not relevant to the topic of the investigation question because they were not directly related to the topic to be studied, leaving 54. In observing the 54 potential articles, 12 could not be accessed because it was necessary to make a payment, which is an exclusion criterion. Based on the same method (to the left

42), 28 questionnaires were excluded after verifying that they were not wholly framed in the topics under analysis in this investigation, that is, the influence of the COVID-19 pandemic on e-commerce and the behaviour of online retail consumers. Finally, in the third and final stage of PRISMA ("Included"), 14 relevant articles were selected for the systematic literature review.

Results

This systematic literature review made it possible to obtain and adequately analyse 14 articles on the Web of Science, which is considered the most relevant topic.

We found papers by several authors whose main objective was to understand the impact of the COVID-19 pandemic on e-commerce, both in the short and long term. In Belgium, Beckers et al. (2021) conducted two questionnaires for online retail consumers and Belgian retail sellers. 50% of retail sellers said they only had an online store at the beginning of the first confinement, therefore having to adapt to the new reality. In China, Yuan et al. (2021) analysed changes in consumer buying behaviour on a large online shopping platform. The authors performed a chronological analysis (2019 and 2020, before and during the pandemic) to identify the product categories that were most sought after or purchased. In Brazil, Soares et al. (2022) conducted an online consumer survey to analyse the influence of COVID-19 on online shopping behaviour. Thus, the results obtained were that the perception of risk of being infected with the disease COVID-19 when shopping in person positively impacted the perception of utility and ease of purchase and that this perception of utility is positively related to the intention to buy online. In European Union countries, Dewalska-Opittek et al. (2022) examined whether and to what extent the pandemic affected online consumer behaviour. The variables studied were "online consumer behaviour", "willingness to spend online", and "online activity". By analysing these variables in 2019 and 2020 (before and during the pandemic), we were able to observe the impact of the pandemic crisis on consumer behaviour. However, this was different in each EU country. For example, in Poland, Ireland, Romania, Hungary, Slovenia, Spain and Finland, consumer behaviour changed significantly, while in Bulgaria

and Romania, the values of the variables studied remained unchanged.

On the other hand, Bausch et al. (2021) aimed to understand the impacts that the pandemic caused on consumer behaviour through a systematic literature review. This investigation proved that the pandemic and the need for confinement changed consumer behaviour. Buying behaviour in a panic environment emerged at the beginning of the pandemic, lasting a few months during confinement.

From a perspective of psychological and cognitive analysis of online consumer behaviour, having as influence periods of crisis, Kawasaki et al. (2022) studied the changes in the psychological intentions of Japanese B2C consumers regarding e-commerce, as well as identifying the reasons for these changes, before, during and after the COVID-19 outbreak. A questionnaire was carried out in which individuals answered questions that were divided into groups for the three periods. It is concluded that consumers who consider e-commerce helpful will continue to use it, so some individuals only use it to reduce the risk of contracting the disease rather than for the benefits of e-commerce. These will be less likely to continue to use the platforms after the pandemic. Jasinska-Biliczak (2022) conducted a study on The Allegro platform, confirming that e-commerce, combined with its advantages, is used by online consumers and demonstrated the growing popularity of this purchase method in situations such as the pandemic (59% of women and 19% of men).

On the other hand, Guthrie et al. (2021) evaluated consumer behaviour through the "React, Cope, Adapt" framework. The pattern observed by the researchers was in line with this structure, finding that online consumers react, deal with, and adapt to the most demanding everyday life events. To Ercog et al. (2022), the main objective was to determine how this outbreak affected consumer behaviour, whether it remained or changed, and how they adapted better or worse. Ivascu et al. (2022) sought to measure consumers' perception of how the measures imposed to prevent the

COVID-19 disease had influenced their decision-making to make an online purchase, as economic and social factors and psychological issues can influence this phenomenon. The authors concluded that online shopping would continue to increase even after the pandemic. Gu et al. (2021) designed a methodological approach to assess relationships and the influence of factors that activated consumer purchasing behaviour at the level of the pandemic crisis. The authors Wang et al. (2021) explored the changes in consumer behaviour concerning "self-service" caused by the pandemic in the context of research applied to e-commerce, also exploring the affective-cognitive-social perspective.

In a more specific study related to only one retail sector, Koch et al. (2020) investigated the reasons for Generation Y and Z's online clothing purchases during the April 2020 confinement. The main conclusions obtained by the authors were that, during this type of crisis, consumers' expectations and behaviour are influenced by the media. They also concluded that hedonistic motivation predominates over utilitarian motivation about purchasing relationships. This phenomenon can be explained by the few opportunities available for involvement in leisure activities during confinement. There was a positive perception of the utility of e-commerce as consumers considered online shopping a helpful substitute for retailing. This alternative reduces the risk of contagion and infection, as there is no direct contact with other individuals.

Lastly, Afzidi et al. (2021) studied the impact of COVID-19 on e-commerce practices and consumer behaviour in Pakistan. The results pointed to the significant impact that COVID-19 had on e-commerce and consumer buying behaviour.

Table 1 presents a summary of the main results obtained by the studies carried out by the authors mentioned above, containing the main changes observed in online consumer behaviour regarding e-commerce, which resulted from the pandemic crisis caused by the COVID-19 disease on a global scale.

Table 1 - Changes in online consumer behaviour influenced by the COVID-19 pandemic, according to the authors analysed

Authors	Online consumer behaviour influenced by the COVID-19 pandemic
Beckers et al. (2021)	Online consumers made more purchases in the first wave of the pandemic than before it started, whether orders related to food or those related to other sectors. The number of orders per week tripled during that time. The most present sectors in the sample were Clothing and Luxury, Convenience (grocery stores), and Leisure.
Yuan et al. (2021)	The most sought-after/purchased products were masks, disinfectants, hand sanitisers, vitamins, and online courses. The behavioural patterns of buying stocks were reactive to the pandemic crisis.
Soares et al. (2022)	When the fear of being infected when accessing physical retail stores emerged, consumers saw e-commerce as an alternative to stores. It was also notorious for users' great exposure to digital media today, favouring e-commerce since the consumer who intends to buy online is likely to make that purchase.
Dewalska-Opitek et al. (2022)	The first research hypothesis was partially verified in this study. Significant changes were observed in EU countries such as Poland, Ireland, Romania, Hungary, Slovenia, Spain, and Finland, which means that the COVID-19 pandemic in these countries changed consumer behaviour. Subsequently, only Bulgaria and Romania remained unchanged during the study period (before and during the pandemic).
Bausch et al. (2021)	The survey carried out by the authors pointed to the increase in online shopping, the expansion of services in a virtual environment, and how consumers quickly adapted to these new conditions. After the pandemic, e-commerce and m-commerce will remain high due to the reliability and convenience perceived by users and the trust gained during the pandemic period.
Kawasaki et al. (2022)	There was an increase in staying at home due to the disease and decreased shopping frequency (physical stores). Demand for groceries increased significantly, and machine/PC and books/DVD/ software applications only increased slightly. Consumers recognised the importance of e-commerce after the pandemic outbreak, and those who changed their behaviour toward online shopping spent more time at home than other groups.
Jasinska-Biliczak (2022)	Respondents stated that some of their shopping habits, such as savings schemes, will remain after the pandemic and indicated the pandemic's influence on their online habits. The survey concluded that the main reasons to buy products online are the more affordable prices than in physical stores and the desire to save time.
Guthrie et al.	Consumers have taken advantage of e-commerce and its advantages to react,

Authors	Online consumer behaviour influenced by the COVID-19 pandemic
(2021)	deal with, and adapt to periods of restrictions imposed by the COVID-19 disease or other stressful events in everyday life (such as confinement).
Erceg et al. (2022)	Croatians started shopping more online during the pandemic (2020/2021) – from 50% in 2019 to 65% in 2021. The most sold categories were Fashion (21%), Electronics and Media (16.3%), and Furniture and Appliances (3.2%). As for consumer behaviour, 37% of individuals made an online purchase once a month, and the purchase decision went through the reviews of other users that the article has. In 2021, they bought clothes and shoes, household linen, and applications on the Internet, but the most significant increase was in the food category and hygiene and cleaning products.
Ivacu et al. (2022)	During the pandemic, the increase in the number of transactions, the value of these transactions, and the decision to purchase products/services online depended on the quality of the products/services and trust in merchants. This pandemic has shown an increase in consumer opinion regarding the quality of the product, the trust placed in sellers, the price, and even delivery times. Respondents paid great attention to the benefits of e-commerce and the difficulties encountered in buying products/services online.
Gu et al. (2021)	Users increased their interest in sports products, retail services, beauty/cosmetics, and financial services, with 23.6%, 7%, 3.7%, and 1.8%. In January 2021, online transactions significantly increased as consumers became more confident about e-commerce, buying high-quality products at low prices. Transactions from supermarkets and local retail stores increased by 73.4% and 49.9%. Household products, jewellery, watches, and sporting goods saw an increase of about 28.7%, 26.4%, and 26.2%, while travel services, fashion products, and luxury goods showed a decrease of 33%, 5.2%, and 2.8%.
Wang et al. (2021)	151 of 500 consumers increased their "self-service" use, and 293 remained unchanged. Consumers who used this service weekly or more often tended to have a higher level of affective/cognitive risk assessments, better action/planning, and subjective normative perception.
Koch et al. (2020)	Consumers made online purchases for fun purposes and because they considered it a distraction or a leisure activity, finding a positive relationship between online shopping and motivational variables such as arousal and pleasure. Respondents who found themselves in quarantine showed a higher level of hedonism, as it restricts recreational opportunities, so hedonic reasons for staying in activities, such as online shopping, increased. Women are the ones who have a higher level of hedonism, having a greater hedonistic motivation in purchases.
Afridi et al. (2021)	Most respondents (51.8%) bought food for delivery, then clothing (32.5%), Services (10.4%), Electronics (3.2%) and Others (2.1%). Internet access was mostly via smartphone (75.70%), payments were made in cash at the time of delivery (70.70%), and online banking (22.10%). They also stated that they had a 47.50% satisfaction level for low-quality products and 26.40% for high-priced products.

Discussion

The systematic literature review suggests that the COVID-19 pandemic emerged as an influencer of online shopping and that there were, in fact, changes in consumer behaviour regarding e-commerce.

However, despite the emergence of COVID-19 in late 2019 and early 2020, there are already several studies in 2022 that address the issue of the influence of this virus on purchases in online stores and changes in the behaviour of online retail consumers.

Online stores increased significantly in 2020 when compared to 2019. There was also a pattern in consumer behaviour due to the global need to stay home to avoid contracting the virus. This pattern consists of buying only the essentials, thus increasing the demand for hygiene and cleaning products and foodstuffs. The use of mobile phones to make online purchases also increased significantly during the pandemic crisis. The reasons associated with this behaviour change are essentially psychological, such as risk perception (i.e., fear of contracting the virus in physical stores); motivational variables, namely excitement and pleasure; the hedonistic motivation (which predominates over the utilitarian motivation, as individuals made more purchases online during confinement because they could not leave the house and it was an opportunity for distraction); and, also, the desire to save time, which results from the facilities related to the act of making an online purchase.

There was an increase in the trust placed in e-commerce and its merchants by consumers during the period of confinement. In this way, opinions about the quality of a product or service, the trust of consumers towards online sellers, the price, and even the delivery times proved to be decisive factors for purchasing that same product or service.

Conclusion

The present systematic literature review allowed us to conclude that the COVID-19 pandemic

influenced consumers' use of e-commerce and, therefore, their online purchase behaviour.

We can say that the objectives defined for the realisation of this article were successfully achieved since, with the detailed analysis of the 14 articles considered most relevant to the topic, it was concluded that there was, in fact, an increase in online shopping during the pandemic period, making it possible to understand the changes in online consumer behaviour, namely the regularity with which they made purchases and the value of these transactions.

Another major conclusion from this systematic review was that there is a high probability that consumers will continue to shop online; that is, e-commerce has grown and will continue to grow on a global scale after the end of the pandemic crisis resulting from the COVID-19 disease. In this way, individuals could find advantages in e-commerce for everyday life and realise the ease of online purchasing through their mobile phones.

This article aims to contribute to the study of the influence of the COVID-19 pandemic on e-commerce and the changes registered in the behaviour of online consumers.

Regarding the prospects for future research, it is essential to study the continuity of the changes observed in the behaviour of online consumers or whether these recede and individuals return to their initial behaviour during the year 2019, pre-pandemic. The same happens with the influence of confinement on e-commerce, where researchers will be able to analyse the motivations that lead consumers to buy online.

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