

Investigation of the Effect of Covid-19 on the New Normal Behavior of Individuals in Respect to Online Shopping

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Abstract

This study examines the determinants of online shopping behavior during the Covid-19 pandemic, with an emphasis on the sustainability of these behavioral shifts and the product categories most significantly impacted. The research employed a convenience sampling approach, utilizing an online survey administered to 463 consumers via Google Forms. Data analysis involved the application of factor analysis, descriptive statistics (means and standard deviations), and participation level assessments to measure Covid-19 purchasing behaviors. Regression analysis and t-tests were further conducted to explore variations across demographic variables. The findings indicate that the pandemic has substantially altered consumer behavior, with approximately 39% of purchases being conducted online. The most frequently purchased items comprised protective equipment, cleaning supplies, and food products. Compared to pre-pandemic consumption patterns, respondents reported increased budgets for cleaning products, enhanced efforts to locate cost-effective options, and elevated expenditures on clothing and personal care. Conversely, spending levels for food, electronics, and small household appliances remained largely unchanged. Moreover, the analysis identified significant variations in purchasing behaviors based on age and income, whereas no significant differences were observed across gender. These results underscore the enduring impact of the pandemic on online shopping practices. This study contributes to existing literature by providing a nuanced understanding of the transformations in consumer behavior prompted by the Covid-19

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pandemic, offering critical insights for businesses and policymakers adapting to the evolving digital marketplace.

Keywords: Covid-19, Pandemic, Consumer Behavior, Online Shopping

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1. Introduction

Covid-19 was first seen in Wuhan, China, in December 2019 and spread to other parts of the world with extraordinary speed. As a precaution, countries have taken measurements by fully or partially closing their borders and businesses (Alon, 2020; Lounis & Bagal, D. K, 2020). There have been several developments outside the normal flow of life both in the service and manufacturing sectors during the pandemic. It remains unclear what the course of development would be or how long they would last. Consumer behavior has also undergone a rapid and major change with the pandemic process (Jha & Pradhan, 2020; Hobbs, 2020; Mason et al., 2020; Mehta et al., 2020; Abid & Jie, 2021; Farhadi, 2021; Goswami & Chouhan, 2021; Leach et al., 2021; Masaeli & Farhadi, 2021; Zvarikova, Gajanova & Higgins, 2022). The resulting economic uncertainty causes consumers to have distrust and anxiety about the economy and may have a negative impact on their consumption intentions (Del Rio-Chanona et al., 2020). Consumers also try to protect themselves by postponing or giving up their purchasing decisions. Additionally, consumers have prioritized health and safety when choosing cheap goods and services (Cai & Leung, 2020; Guthrie et al., 2021). Products that bring comfort to a living space have attracted more attention than usual. The industrial and consumer market is faced with the need to both accelerate digitalization and make it easier to find and purchase products online (Xayrullaevna, 2020; Muangmee et al., 2021; Michalikova, Blazek, & Rydell, 2022; Zvarikova, Gajanova, and Higgins, 2022).

The increase in online word of mouth (Hudimova et al., 2021; Zhang, Liu, & Yao, 2021) and online shopping has forced elder consumers to adopt e-commerce. Consumers' priorities have shifted to basic needs and value (Mckinsey, 2020). The Covid-19 pandemic has affected the lifestyle and motivation of many people and has also transformed their purchasing behavior. The study aims to evaluate the changes in consumer behavior. In achieving this goal, this study also aimed to determine the impact of the pandemic on e-commerce across industries to determine the priorities of online consumers. It also identified the most important factors influencing online consumers' shopping behavior based on a multi-stage survey as the pandemic spread. Based on correlation analysis, the existence of relationships between the studied factors and the complex indicator of activation of online consumer behavior was determined, the direction of their changes against the background of the pandemic was investigated.

The study is expected to contribute to literature as follows. First, the study differs from previous qualitative studies because it focuses on the effects of consumers'

psychology on their consumption (Ahmed et al., 2020; Baker et al., 2020; Belk, 2020; Deng et al., 2020; Grashuis et al., 2020; Hall et al., 2020; Laato et al., 2020; Li et al., 2020; Naeem, 2020; Prentice et al., 2020; Güney and Sangün, 2021; Islam et al., 2021; Kemp et al., 2021; Milakovic, 2021). Second, the current study is also different from the mostly quantitative studies in literature (Ahmed et al., 2020; Prentice et al., 2020; Naeem, 2020). Qualitative research provides a deeper understanding of human nature and is more flexible than quantitative studies (Charmaz, 2006). Therefore, the current study provides detailed results that quantitative studies may miss. Third, while the literature mostly focuses on developed markets (Ahmed et al., 2020), the current study focuses on Turkiye, an emerging market. Emerging markets tend to grow faster than developed markets. The current study also provides a more general framework for various aspects of the effects of the pandemic on consumer behavior. The contribution of this paper is thought to be two keyways. First, it offers practical insights for businesses by identifying the product categories and consumer segments most affected by the pandemic, enabling more targeted marketing and operational strategies. Second, it provides policymakers with valuable data to design interventions supporting vulnerable demographic groups and facilitating the ongoing digital transformation of commerce. By bridging the gap between theory and practice, this study enhances understanding of pandemic-induced behavioral shifts and their potential permanence, contributing to both academic literature and practical applications in consumer behavior.

The Covid-19 pandemic has significantly transformed consumer behavior, notably accelerating the shift toward online shopping (Inoue, H., & Todo, Y. 2023; Meyer, S., 2020; Das, D., et al, (2022). This transition, driven by social distancing measures and lockdowns, has prompted inquiries into its long-term effects and the specific product categories impacted. Understanding the determinants of online shopping behavior and the pandemic's influence on consumer preferences is crucial for businesses, policymakers, and researchers navigating the "new normal" (Shaw, N., et al, 2022; Gu, S., Ślusarczyk, et al 2021).

The structural framework of this paper is organized as follows: the subsequent section reviews existing literature on online shopping behavior during crises, providing the theoretical foundation for the study. This is followed by the methodology section, detailing the sampling process, data collection methods, and analytical techniques employed. The findings section presents the results of statistical analyses, highlighting key changes in consumer behavior and their demographic determinants. Finally, the discussion and conclusion sections synthesize the implications of the findings, address limitations, and propose directions for future research.

2. Literature Review: Covid-19 And Consumer Behavior

The term "consumer behavior", that expresses the way emotions, attitudes and preferences affect purchasing behavior, first emerged in the early 1950s as a separate social science concept closely related to the field of marketing (Tadajewski, 2009). Kardes et al. (2011) defined consumer behavior as all consumer activities related to the

purchase, use and consumption of goods and services and compliance with the process of emotional, mental, and behavioral responses. In other words, consumer behavior includes the personal thoughts and emotions experienced by individuals during the purchasing process and subsequent actions (Familmaleki et al., 2015). The term has also encompassed all the influential factors in the environment, such as reviews from other consumers, advertising, price comparison, product labels and packaging. When consumers form the starting and ending point of marketing, analyzing, and understanding their purchasing and consumption behavior are key challenges for marketers. It is also important to understand how purchasing decisions are made and how products or services are consumed or experienced (Kardes et al., 2011). Different approaches have been taken to develop intention-based theories and provide comprehensive explanations of the factors that influence consumers' purchasing decisions (Oliveira et al., 2017).

As the pandemic worsened, countries began to feel economic collapses. Consumers in different countries are often pessimistic about economic conditions (Mckinsey, 2020). According to World Bank (2022) data, the global growth rate is expected to lose momentum and decrease from 5.5 percent in 2021 to 4.1 percent in 2022 and 3.2 percent in 2023. The pandemic affected international trade (Alon, 2020; Bretas & Alon, 2020), tourism sector (Kaushal & Srivastava, 2021), sports (Bond et al., 2021; Horkey, 2021), accommodation areas (Hall et al., 2020; Huang et al., 2020; Alonso et al., 2021), educational institutions (Rana et al., 2020), healthcare organizations (Shadmi et al., 2020), food companies (Hassen et al., 2020; Yu et al., 2020; Güney & Sangün 2021), energy and energy resources (Aruga et al., 2020), transportation (especially air travel), unusual purchases (Laato et al., 2020), general consumption (Baker et al., 2020; Belk, 2020; Kim, 2020; Kirk and Rifkin, 2020; Sheth, 2020; Dang, Bao and Cho, 2023), stocking activities (Hall et al., 2020), panic buying (Ahmed et al., 2020; Hall et al., 2020; Islam et al., 2020). ., 2021), impulse buying (Ahmed et al., 2020; Deng et al., 2020; Li et al., 2020; Islam et al., 2021) and retailing activities (Grashuis et al., 2020). Additionally, takeaway services and even gun purchases have increased (Hill, 2020), and online shopping, savings, furniture purchasing and home decoration are predicted to increase further (Belk, 2020; Hall et al., 2020; Aleassa et al., 2021; Jílková and Králová, 2021; Alhaimer, 2021; Fedushko and Ustyianovych, 2022; Truong and Truong, 2022). Most studies show that psychological factors such as fear (Ahmed et al., 2020; Grashuis et al., 2020; Islam et al., 2021; Kemp et al., 2021; Truong and Truong, 2022), perceived risk, perceived violence (Deng et al., 2020; Laato et al., 2020; Li et al., 2020; Kim, 2020) focused on its effects. In addition, studies on the pandemic are carried out on a country basis; United Kingdom, United States (Ahmed et al., 2020; Baker et al., 2020; Grashuis et al., 2020; Kim, 2020; Prentice et al., 2020; Islam et al., 2021), Australia (Prentice et al., 2020), Finland (Laato et al., 2020), New Zealand (Hall et al., 2020), Turkiye (Güney and Sangün, 2021), China (Deng et al., 2020; Li et al., 2020; Islam et al., 2021), Studies have also been conducted in developing countries such as India (Islam et al., 2020).

Therefore, the pandemic has changed consumer behavior in different countries in different ways. People are afraid of the possibility of their relatives catching the virus rather than themselves (Akdeniz et al., 2020). Additionally, global consumers fear shortages of consumer goods (Islam et al., 2021). Stocked goods differed according to the economic development status of countries. For example, while consumers stock flour, cooking oil and rice in Pakistan; in Canada, Germany, and the United States, goods such as meat, disinfectants, masks, and toiletries are stockpiled (Gerhold, 2020; Prentice et al., 2020; Rude, 2020; Richards and Rickard, 2020; Sheth, 2020; Gungordu Belbag, 2021; Islam et al., 2021; Dang, Bao & Cho, 2023).

Research has focused on issues such as quality, performance, local companies, convenience, accessibility, availability, value (e.g. price sensitivities), online shopping, contactless services, delivery, and technology (KPMG, 2020; Marketing Turkey, 2020; Mckinsey, 2020; Morgan, 2020; UNCTAD, 2020). Consumers around the world are at different stages of normalization. Consumption of fast-moving consumer goods in Turkiye increased by more than 30% (Marketing Türkiye, 2020). In addition, Turkish consumers' home cooking is above the world average. E-commerce sales of fast-moving consumer goods have increased three times the sales in European countries. Additionally, more local products were consumed during the pandemic period. While spending on groceries, snacks, personal care, tobacco and household basic needs, entertainment (e.g. Netflix) has increased in Turkiye, takeaways and deliveries have decreased (Mckinsey, 2020; Gungordu Belbag, 2021).

This study is grounded in theories of consumer behavior, particularly intention-based models such as the Theory of Planned Behavior (Ajzen, 1991) and the Technology Acceptance Model (Davis, 1989). These frameworks emphasize the influence of attitudes, subjective norms, and perceived behavioral control on consumer actions, which are critical in understanding the shift to online shopping during the Covid-19 pandemic. The Theory of Planned Behavior highlights the role of external factors such as perceived risk and social influences in shaping consumer intentions. During the pandemic, perceived risks associated with physical shopping and heightened awareness of health safety have reinforced online purchasing behaviors (Laato et al., 2020; Deng et al., 2020). Similarly, the Technology Acceptance Model underscores how perceived usefulness and ease of use of e-commerce platforms drive adoption, especially when physical alternatives are limited.

2.1. Differences in Consumer Behavior Based on Demographics

Various studies have explored how demographic factors like age, gender, and income influence consumer behavior. For instance, older consumers may exhibit more conservative purchasing behaviors due to a lack of familiarity with online platforms, while younger individuals tend to adapt quickly to technological shifts (Kim, 2020; Truong & Truong, 2022). Similarly, income levels significantly determine spending power and product preferences during periods of economic uncertainty (Baker et al., 2020; Islam et al., 2021).

Gender and Purchasing Behavior: Studies indicate that while gender differences in purchasing behavior exist, they may diminish during crises when practicality and availability overshadow personal preferences (Ahmed et al., 2020; Islam et al., 2021). This aligns with the hypothesis that gender may not show significant differences in pandemic-related online shopping patterns.

Age and Income Differences: Younger consumers are more likely to exhibit impulsive buying behaviors, whereas higher-income groups demonstrate more stable consumption patterns (Grashuis et al., 2020; Akdeniz et al., 2020). These findings support the hypothesis that purchasing behaviors differ significantly across age and income levels during the pandemic.

Effects of Psychological and Environmental Factors on Online Shopping: The pandemic has amplified psychological factors such as fear and perceived risk, which directly influence consumer behavior (Ahmed et al., 2020; Kemp et al., 2021). These factors are particularly relevant to regression analyses investigating the extent to which variables such as perceived risk, convenience, and product availability affect online shopping adoption.

Psychological Influences: Fear of contracting the virus and concerns about shortages have driven consumers toward stocking essential items, favoring online platforms that minimize physical contact (Islam et al., 2021; Hall et al., 2020). This supports hypotheses that psychological factors have a measurable effect on changes in purchasing patterns.

Environmental Influences: External factors such as advertising, accessibility, and ease of delivery during lockdowns significantly affect consumer preferences (UNCTAD, 2020; KPMG, 2020). For example, the increased reliance on online platforms for essential goods indicates that these factors have a substantial effect on online shopping behaviors.

2.2. Consumer Behavior Shifts During the Pandemic

The shift to online shopping during Covid-19 reflects a broader change in consumer priorities and habits. Essential product categories, such as protective equipment, cleaning supplies, and food, have seen marked increases in demand (Belk, 2020; Gungordu Belbag, 2021). At the same time, discretionary spending on items like electronics and apparel has shown variability, depending on factors like income and perceived necessity (Dang et al., 2023). This aligns with hypotheses that pandemic-related factors have a significant effect on the allocation of budgets across product categories and that these effects vary depending on demographic and psychological determinants. By integrating established theories of consumer behavior with empirical findings from the pandemic period, this study provides a comprehensive analysis of both the differences and effects driving online shopping behavior. The hypotheses are supported by a robust theoretical foundation and align with prior literature, reinforcing the validity of the research framework.

3. Application

3.1. Data and Method

As a result of the changes in consumer behavior caused by Covid-19, marketing research on the subject has also changed. Increasing number of research on consumer behavior is being conducted online (online surveys, call center surveys, and focus groups conducted via video conferencing or telephone interviews). Businesses must evolve, innovate, and develop new strategies to engage with customers swiftly and effectively.

In the research, individuals were invited through online shopping sites and allowed to participate in the survey. A Google survey was sent to people who added at least one product to their shopping cart. All participants who agreed to participate in the survey were directed to Google Forms. Initially, a Google survey was sent to 600 people, but only 463 people responded.

It is important to choose an adequate sample in considering that the sample size needs to grow to obtain clear results (Abbey & Meloy, 2017), but it is also difficult to analyse large data sets (Zhou et al., 2018). It is necessary to ensure that the sample is representative of the entire population for the survey results to be representative of the general population. General information about the respondents (e.g., gender, age, occupation, marital status, income level, media used, etc.) was collected using analytics services and with their consent from customer databases. The required sample size can be calculated either by using the following formula (Karagöz, 2017) or by finding a sample size calculator online:

$$n = \frac{z^2 pqN}{\partial^2 N + Z^2 pq}$$

where: n is the required sample size; N is the general population; Z is the coefficient chosen based on the confidence level used (for CI %95, z = 1.96); p is the proportion of participants with the trait under study (typically 50%); q = 1-p is the proportion of participants without the studied characteristic; ∂ is the margin of error (typically %5).

3.2. Main Purpose of Research

Developments in technology have caused significant transformations in the field of marketing, as in every field. In particular, the internet has provided a new environment for marketing, a new competitive tool, and a new distribution channel. Digital environments have changed the purchasing behavior of individuals and allowed individuals to have many products or substitutes at the same time. Online purchasing, also known as online shopping, has transformed traditional shopping into a new dimension for customers. The most important advantages of online purchasing can be listed as providing uninterrupted shopping opportunities, ease of payment and return, being quickly informed about campaigns, choosing, and comparing among numerous options. Although online shopping makes it easier for individuals to shop, it has turned

into a paradox of abundance, making it difficult for consumers to make purchasing decisions (Chaffey,2015; Solis, 2014; Schwartz,2004).

The onset of the COVID-19 pandemic has led to a marked increase in individuals' online shopping behaviors. This study investigates consumer purchasing patterns during the COVID-19 pandemic, with a particular focus on online shopping. A survey was conducted using a Google Survey platform to gather data, which allowed for the collection of responses in a digital format. The primary objective of this research is to examine the online shopping behaviors of consumers during the pandemic. Furthermore, e-commerce platforms that facilitate the sharing of consumer experiences actively encourage their users and customers to provide feedback and product reviews. In this way, while gaining new customers, they will be able to hear the voice of the customer faster as well as removing the question marks more quickly (Kim & Srivastava, 2007).

As of December 31, 2022, Düzce Province in northwestern Turkey had a population of 405,131 (TUİK). In line with the purpose of this research, individuals residing in Düzce Province who engage in online shopping were targeted to evaluate their Covid-19 consumption behaviors. The data collection process employed the convenience sampling method. Participants were reached through various channels such as social media, email, telephone, etc., and a total of 463 valid responses were obtained. The sampling method was chosen to facilitate the collection of data from readily accessible participants within the target population. However, the non-random nature of convenience sampling limits the generalizability of the findings. The data collected was analyzed using the SPSS statistical package program to identify patterns and insights related to the research objective.

The scale regarding general information was adapted from the study used by Yürük (2010). The scale used to analyze the Covid-19 purchasing behavior is designed as 5-point Likert type and 1. Strongly Disagree, 5. Strongly Agree.

The survey form used in the research was generally composed of four parts. The first section includes the demographic characteristics of the participants. There are evaluation questions about changing consumption habits during the Covid-19 pandemic period and the preferred shopping method during the pandemic period in the second part. In the third part, it was tried to estimate the most purchased products during the Covid-19 pandemic period and the general expenditure distributions before and during the pandemic. The fourth part of the survey included questions about the consumer behavior scale of Covid-19.

3.3. Hypotheses of Research

The research has three hypotheses.

H₁: Purchasing behavior during the pandemic period varies according to gender.

H₂: Purchasing behavior during the pandemic period varies according to age groups.

H₃: Purchasing behavior during the pandemic period varies according to income level.

3.4. Analysis Techniques Used in Research

The questions in the survey form about the general profile of the research, the evaluation questions about the Covid-19 pandemic period, changing consumption habits and the preferred shopping method during the pandemic period, and the questions about the general expenditure status before and during the pandemic period were evaluated by frequency and ratio method. Both the frequency and the importance level were applied together to questions about the most purchased products during the Covid-19 pandemic period. The questions about Covid-19 purchasing behavior were interpreted with the help of average, standard deviation, and participation level methods. Factor analysis was also applied to questions regarding the Covid-19 purchasing behavior. In addition, factor analysis was applied to the questions regarding Covid-19 purchasing behavior, and regression and t-test were applied to determine whether there was a difference between the variables.

4. Findings

4.1. General Findings of the Research

According to common guidelines for factor analysis, a minimum ratio of 5-10 participants per variable is typically required (Hair et al., 2010). For instance, with 30 items in a scale, a sample size of 300 is sufficient at a 10:1 ratio, while 450 participants meet the 15:1 ratio for more robust results. The sample size of 463 exceeds these thresholds, ensuring reliable factor extraction and pattern identification. Additionally, MacCallum et al. (1999) suggest that a sample size of 300 or more is generally adequate for factor analysis when communalities are high (greater than 0.5) and when the number of factors extracted is limited to a manageable level. This study's sample satisfies these conditions, supporting the validity of the analysis.

Table 1: Normality Test of The Scale

Scale	n	Median	\bar{x}	ss	Skewness	Kurtosis
Purchasing behaviour during the pandemic period	429	3.33	3.40	.0924	-.313	-.476

It is seen that the kurtosis and skewness coefficients of the scale are in the range of ± 1 . Therefore, it is possible to say that the scale is normally distributed (Huck, 2009; Morgan et al., 2004; Karagöz, 2017).

Table 2: General profile of the research

Gender	Frequency	Ratio	Age	Frequency	Ratio
Female	221	47.7	18-31	314	67.8
Male	242	52.3	32-39	49	10.6
Total	463	100.0	40-49	51	11.0
			50 and above	49	10.6
Educational Status	Frequency	Ratio	Total	463	100.0
Primary education	94	20.3	Income	Frequency	Ratio
High school	71	15.3	£13414 and below	276	59.6
Associate Degree	79	17.1	£13415- £17999	73	15.8
Undergraduate	179	38.7	£18000- £23999	23	5.0
Postgraduate	40	8.6	£24000- £ 29999	16	3.4
Total	463	100.0	£30000- £39999	52	11.2
Job	Frequency	Ratio	£ 40000 and above	23	5.0
Self-employed	224	48.4	Total	463	100.0
Housewife	65	14.0	Marital status	Frequency	Ratio
Private sector	75	16.2	Married	133	28.7
Public sector	35	7.6	Single	330	71.3
Retired	64	13.8	Total	463	100.0
Total	463	100.0			

Sources: developed by the authors

Approximately half of the survey participants were male, and the other half were female. Approximately more than half of the participants are from younger age groups. Since the frequencies of some age groups were below 10, they were combined. In regard to education, participation was mainly in undergraduate, primary, and high school education. A significant portion of the respondents have low- and middle-income levels. The majority are self-employed and private sector workers. It is also understood that more than half of the participants are single as per their marital status.

Table 3: Preferred shopping methods in terms of changing consumption habits during and before the Covid-19 pandemic

	Frequency	Ratio		Frequency	Ratio
Yes	298	64.4	Online markets and shopping sites	179	38.7
No	165	35.6	Traditional markets and bazaars	284	61.3
Total	463	100.0	Total	463	100.0

Sources: developed by the authors

A significant portion of the participants stated that they had been affected by the pandemic and changed their consumption behavior (64.4%). According to the data obtained, while online markets and shopping sites have a significant rate (38.7%), traditional markets and markets are the majority's preference (61.3%).

Table 4: Importance of the most purchased products during the Covid-19 pandemic period

	Frequency	Ratio	Importance level
Dry food-pulses	45	9.7	3
Household cleaning products	85	18.4	2
Personal care products	36	7.8	4
Toilet paper	29	6.3	8
Technological products	19	4.1	9
Chess, puzzle, backgammon etc. hobby products	36	7.8	5
Clothing - accessories	34	7.3	6
Books, magazine	32	6.9	7

Fruits and vegetables	18	3.9	10
Protective products such as masks, disinfectants, gloves, and visors	129	27.9	1
Total	463	100.0	

Sources: developed by the Authors

The most frequently purchased products during the pandemic period can be listed as follows according to their importance: 1. Protective products such as masks, disinfectants, gloves, visors, 2. Household cleaning products, 3. Dry food-pulses, 4. Chess, puzzle, backgammon, etc. hobby products, 5. Personal care products, 6. Clothing-accessories, 7. Books, magazines, 8. Toilet paper, 9. Technological products, 10. Fruits and vegetables. Therefore, it can be concluded that protective products, cleaning supplies, and food items hold a significant place in the shopping behaviors of individuals, particularly in the context of Covid-19. These categories likely reflect heightened concerns for personal safety, hygiene, and sustenance during the pandemic, underscoring their critical role in consumer priorities.

Table 5: General expenditure distribution of participants before and during the pandemic

General spending situation		Pre-Pandemic			During the Pandemic				
		Yes	No	Sometimes	Total	Yes	No	Sometimes	Total
Preparing a separate budget for special times such as New Year's Eve, holidays, birthdays, special days (father's, mother's, valentine's day, etc.)	Number	128	196	139	463	91	257	115	463
	Ratio	27.6	42.4	30.0	100.0	19.7	55.5	24.8	100.0
Preparing a separate budget for food shopping	Number	266	132	65	463	235	134	94	463
	Ratio	57.5	28.5	14.0	100.0	50.8	28.9	20.3	100.0
Preparing a separate budget for cleaning product purchases	Number	238	145	80	463	244	132	87	463
	Ratio	51.4	31.3	17.3	100.0	52.7	28.5	18.8	100.0
Preparing a separate budget for clothing shopping	Number	224	144	95	463	174	171	118	463
	Ratio	48.4	31.1	20.5	100.0	37.6	36.9	25.5	100.0
Preparing a separate budget for personal care purchases	Number	205	168	90	463	185	158	120	463
	Ratio	44.3	36.3	19.4	100.0	40.0	34.1	25.9	100.0
Preparing a separate budget for electronics and small household appliances	Number	108	221	134	463	112	252	99	463
	Ratio	23.3	47.7	28.9	100.0	24.2	54.4	21.4	100.0
Spending more time purchasing a suitable product at an affordable price	Number	258	126	79	463	266	112	85	463
	Ratio	55.7	27.2	17.1	100.0	57.5	24.2	18.4	100.0

Sources: developed by the authors

The table illustrates changes in consumer budgeting and spending behaviors across various categories before and during the pandemic. Key insights include Pre-pandemic, 57.5% of respondents prepared a separate budget for food shopping, making it the highest priority. During the pandemic, this ratio slightly decreased to 50.8%, indicating a shift in focus but still a significant priority. Cleaning product budgeting was the second-highest priority, with 51.4% of participants preparing a budget pre-pandemic. During the pandemic, this ratio increased to 52.7%, reflecting heightened hygiene concerns. This behavior was a notable third, with 55.7% of respondents dedicating time to finding affordable pre-pandemic products. During the pandemic, this behavior further increased to 57.5%, indicating greater attention to value shopping.

Table 6: Level of participation in the impact of Covid-19 on consumer behavior

	Stand. Deflection	Average	Participation Level
During the Covid-19 Pandemic, I am more selective than before when choosing any product.	1,344	3.58	Middle
During the pandemic, I paid particular attention to the ingredients and country of origin of food products.	1,113	3.27	Middle
I did my shopping online to avoid the risk of virus transmission during the pandemic.	1,195	3.27	Middle
I do my online shopping from reliable sites that I have been a customer of before.	1,196	3.47	Middle
During the pandemic period, I prefer electronic payment options instead of cash when making my shopping payments.	1,204	3.37	Middle
During the pandemic, I started buying products that I had not purchased before.	1,220	3.43	Middle
During the pandemic, I spent more on products such as masks, disinfectants, and gloves.	1,242	3.69	High
During the pandemic, I ascertained to be sure to obtain products such as masks and disinfectants from reliable brands.	1,174	3.55	Middle
I stocked products during the Covid-19 pandemic.	1,249	3.32	Middle
The fact that businesses such as restaurants have been closed for a long time had caused me to cook and consume more food at home.	1,222	3.50	Middle
During Covid-19, I mostly ordered cleaning products online.	1,284	3.21	Middle
During the Covid -19 pandemic, I spent less on products such as clothes and accessories.	1,256	3.42	Middle

\bar{X} : 1.00-2.33 indicates low, 2.34-3.66 indicates medium and 3.67-5.00 indicates high level of participation. (Baydaş, 2007)

Sources: developed by the authors

Participants showed high agreement with the statement "During the pandemic, I spent more on products such as masks and disinfectants than I should have". The other statements remained at the medium level of participation. The expressions in question are; "During the Covid-19 Pandemic, I am more selective than before when choosing any product", "During the pandemic, I ascertained to be sure to obtain products such as masks and disinfectants from reliable brands.", "The fact that businesses such as restaurants have been closed for a long time had caused me to cook and consume more food at home. " I do my online shopping from reliable sites that I have been a customer of before. ", "During the pandemic, I started buying products that I had not purchased before", "During the Covid-19 pandemic, I spent less on products such as clothes and accessories , "I prefer electronic payment options instead of money when making my shopping payments during the pandemic period", "I stocked up on products during the Covid-19 pandemic period", "I did my shopping online to avoid the risk of virus transmission during the pandemic period" and "During Covid-19, I mostly ordered cleaning products online."

Table 7: Factor analysis of purchasing behavior during the pandemic period

Factors	Variables	Factor Loadings	Explained Variance	Core Value
Purchasing Behavior of Covid-19	During the pandemic, I ascertained to be sure to obtain products such as masks and disinfectants from reliable brands.	.781		
	During the pandemic, I spent more on products such as masks, disinfectants, and gloves.	.767		
	I did my shopping online to avoid the risk of virus transmission during the pandemic.	.766		
	During the pandemic, I started buying products that I had not purchased before.	.762		
	During the Covid-19 Pandemic, I am more selective than before when choosing any product.	.758		
	During the pandemic period, I prefer electronic payment options instead of cash when making my shopping payments.	.757		
	The fact that businesses such as restaurants have been closed for a long time had caused me to cook and consume more food at home.	.746	55,894	6,707
	During the pandemic, I paid particular attention to the ingredients and country of origin of food products.	.744		
	During Covid-19, I mostly ordered cleaning products online.	.740		
	I do my online shopping from reliable sites that I have been a customer of before.	.737		
	I stocked products during the Covid-19 pandemic.	.712		
	During the Covid -19 pandemic period, I spent less on products such as clothes and accessories.	.697		
	Evaluation Criteria	Kaiser-Meyer- Olkin Test: 0.944 Approximate Chi-Square: 3080.288 Bartlett Test of Sphericity: 0.000 Degrees of Freedom: 66 Extraction Method: Principal Components Rotation Method: Varimax Total Variance Explained: 55,894		

Sources: developed by the authors

In the factor analysis of Covid 19 Pandemic Period Purchasing Behavior, there is only one factor that was excluded from the scale, the reliability of the scale was quite high (0.944) and it explained approximately 55.89% of the variance (Rossolov, et al.; 2022). In the context of factor analysis, explaining a significant portion of the variance is usually considered sufficient for a factor to be retained. A factor that explains around 50-60% of the variance is generally considered good, depending on the field and the nature of the data. A factor that explains more than 50% of the variance is often interpreted as capturing a meaningful and substantial portion of the underlying construct (Hair at all, 2010; Field, 2013; Tabachnick, & Fidell, 2013).

The findings from the analyses suggest that the dataset does not suffer significantly from common method variance bias. Several measures may have contributed to minimizing CMV (Correlation Matrix Examination): The survey ensured anonymity to reduce social desirability bias. Questions were structured to avoid ambiguity and leading responses. The acceptable correlation levels among variables further validated the findings. While these results suggest that CMV bias is

not a significant issue in this study, it is important to note that no statistical technique can entirely rule out CMV.

4.2. Testing Research Hypotheses

Table 8: Analysis of the "pandemic purchasing behavior" scale for gender

Scale	Gender	N	\bar{X}	ss	t	p
Purchasing behavior during the pandemic period	Female	206	3.31	0.87	-1.761	0.079
	Male	223	3.47	0.96		

Sources: developed by the authors

Information showing the differences in participants' purchasing behavior during the pandemic period according to gender is given in Table 7. When Table 7 was examined, it was determined that the purchasing behavior of the participants during the pandemic did not differ significantly according to gender ($t=-1.761$, $p=0.079$, $p>0.05$). In other words, the purchasing behaviors of male and female participants during the pandemic overlap with each other.

Table 9: Analysis of the "pandemic purchasing behavior" scale for age

Scale	Age Groups	n	\bar{x}	ss	F	p	LSD
Purchasing behavior during the pandemic period	18-31 years old ⁽¹⁾	313	3.41	0.92	2,907	0.021*	
	32-39 years old ⁽²⁾	49	3.69	1.00			
	40-49 years old ⁽³⁾	30	3.20	0.86			
	50-59 years old ⁽⁴⁾	31	3.16	0.79			
	Age 60 and over ⁽⁵⁾	6	2.71	0.46			
	Total	429	3.40	0.92			

* <0.05

1st group = 18-31 years, 2nd group = 32-39 years, 3rd group = 40-49 years, 4th group = 50-59 years, 5th group = 60 and over ages

Sources: developed by the authors

Information showing the difference in participants' purchasing behavior during the pandemic period according to age is seen in Table 8. According to the data in Table 8, the purchasing behavior of the participants during the pandemic period shows a significant difference according to age ($F = 2.907$, $p = 0.021$, $p < 0.05$). According to the LSD test conducted to determine which groups caused this significant difference, it was determined that participants in the 32-39 age range showed different purchasing behavior during the pandemic period compared to participants in all other age groups.

Table 10: Analysis of the "pandemic purchasing behavior" scale for income

Scale	Income Groups	n	\bar{x}	ss	F	p	LSD
Purchasing behavior during the pandemic period	£13.414 and below ⁽¹⁾	276	3.40	0.95	5,563	0.000*	
	£13.415- £ 17.999 ⁽²⁾	73	3.72	0.88			
	£ 18,000- £23,999 ⁽³⁾	23	3.87	0.84			
	£24,000- £29,999 L ⁽⁴⁾	16	3.04	0.18			
	£30,000- £39,999 ⁽⁵⁾	52	3.31	0.95			

£40,000 £ and above ⁽⁶⁾	23	2.86	0.70
Total	463	3.40	0.92

*<0.05

1st group= £13,414 and below, 2nd group= £13,415- £17,999, 3rd group= £18,000- £23,999, 4th group= £24,000- £29,999, 5th group= £30,000- £39,999, 6th group= £40,000 and above

Sources: developed by the authors

Data showing the difference in participants' purchasing behavior during the pandemic period according to income are included in Table 9. When Table 9 is examined, the purchasing behavior of the participants during the pandemic period shows a significant difference according to income ($F = 5.563$, $p = 0.000$, $p < 0.05$). Accordingly, while participants in the £13,414 and below income group show lower pandemic purchasing behavior than participants in the £13,415- £17,999 income group, they show higher pandemic purchasing behavior compared to the £18,000-£23,999 income group. Additionally, participants in the £13,415- £17,999 income group shows higher purchasing behavior during the pandemic period than the £18,000-£23,999 and £40,000 and above income groups. Similarly, participants in the £18,000-£23,999-income group show higher purchasing behavior during the pandemic compared to the £24,000- £29,999 and £40,000 and above income groups. At this point, it can be stated that participants in a relatively lower income group show more purchasing behavior than participants in a higher income group.

5. Discussion, Conclusion and Recommendations

One of the first questions faced by consumers who had to stay away from normal consumption behaviors with the start of the pandemic period was the issue of how to consume food, which is a nutritional, physiological, and basic need, in the new system. Especially in the early periods of the pandemic, results such as stockpiling, an increase in online shopping, avoiding eating out, and cooking more at home emerged.

At the start of the period, each individual has experienced some degree of pressure from his or her environment to exhibit or not to exhibit certain behaviors in order not to be exposed to virus transmission. In addition, retailers' structuring of their logistics systems with new opportunities to support online orders has directly contributed to the increase in online shopping. Especially considering that there is a mass of people who experience online shopping for the first time, it will be clearer to what extent the virtual medium is accepted by the consumer by observing the changes in online shopping amounts after the end of the pandemic period (Lustig and Mariscal, 2020; Baltacı and Akaydın, 2020). Therefore, it is essential to first address the challenges posed by the pandemic period in order to gain a comprehensive understanding of its impact on consumer behavior. Nevertheless, when consumers make the decision to purchase a product, they are likely to exert considerable effort to obtain it.

While online businesses are adopting advanced technologies such as recommendation systems, customized services, and interaction through virtual reality to increase satisfaction and loyalty, such technologies also help minimize customer

dissatisfaction and complaints (Tallon, 2020). The results of the study confirmed that building customer loyalty and trust are key factors for the success of online business.

Normalized parameters obtained through Google Survey are specific to online shoppers only, so they may not reflect general consumer behavior. The selected factors concentrate on online purchasing behavior in general. It has shown that the likelihood of increasing online purchases depends on whether a person is a reflexive buyer (Carroll and Conboy, 2020).

The study reached similar conclusions to the findings of other scholars that a consumer in the new Covid reality is characterized by increasing orders for goods and services online, reducing discretionary spending and focusing on his or her own safety (Zandi et al., 2020; Joia and Lorenzo, 2021). As a result of the research, it is consistent with the literature that the main purchasing criteria for most consumers are price, availability, suitability, and hygiene (Prasetyo et al., 2021). Although there are scientific studies showing that selectivity and caution are increasing among online consumers (Guthrie et al., 2021), it has been pointed out that its level decreases as the pandemic worsens and the time spent shopping online decreases. Therefore, the results confirmed that the percentage of impulsive purchasing decreased, and the percentage of planned purchases increased (Eger et al., 2021).

The economic crisis that emerged with Covid-19 has acted as a powerful trigger that fuels commercial digitalization. The lockdown has prioritized the primary benefits of e-commerce, such as contactless, better pricing, portability, and scalability. The high penetration of social media and digital marketing have provided companies with additional advantages in finding and attracting new customers at global, national, and local levels. Current trends in e-commerce revolve around convenience and safety. In 2019, most consumers preferred to use mobile devices to search for a product or service online, mostly luxury goods, clothing, beauty products, travel services, food, auto parts, accessories, and household goods (Liu & Shestak, 2020).

Analysis of online shopping during the coronavirus pandemic have shown a jump in visits to online supermarkets. Thus, the pandemic has encouraged online shoppers to exhibit steady purchasing behavior. According to the results of the analysis, it was determined that purchasing behavior during the pandemic period did not differ according to gender but differed according to age and income. It has been determined that especially the 32-39 age group differs from other age groups and that individuals with low income are more sensitive in purchasing behavior and exhibit less purchasing behavior.

Several studies have examined online shopping behaviors during the COVID-19 pandemic, with findings that both align with and differ from the results; Research on "Online Shopping Behavior of Consumers During Covid-19 Situation" indicated that younger consumers, particularly those aged 18-30, increased their online shopping frequency more than older age groups during the pandemic. This contrasts with the

finding that the 32-39 age group exhibited distinct purchasing behaviors (Dewan, M., & Rana, OC., 2021). Another study, "The Impact of Gender, Age, Income and Health Condition on Fear of COVID-19 and Panic Buying Behaviour," found that age, income, and health condition had no significant effect on COVID-19 fear and panic purchasing behavior, suggesting that factors influencing purchasing behavior during the pandemic can be complex and multifaceted (Ilyas, Z., & et al., 2022). A study titled "An Investigation of Gender Differences in E-Commerce Shopping" found that during the COVID-19 pandemic, there were notable differences in online shopping behaviors between genders. Specifically, women were more likely to engage in online shopping for essential items, while men tended to purchase non-essential items (Tutar, G., et al., 2024). These studies highlight the variability in online shopping behaviors during the pandemic, influenced by factors such as gender, age, and income. While some findings intersect with yours, others present differing perspectives, underscoring the complexity of consumer behavior during unprecedented times.

Online businesses increasingly use recommendation systems, customized services, and virtual reality to improve customer satisfaction and loyalty. These technologies are also claimed to help reduce customer dissatisfaction and complaints. Many studies support the idea that recommendation systems increase customer satisfaction by providing personalized experiences, which, in turn, enhances loyalty. Personalized recommendations make shopping experiences more relevant and efficient, thus improving satisfaction (González-Bailón, et al., 2016; Zhao, & Li, 2020).

Based on above explanations, the conclusions, recommendations, and discussions are summarized under the following subheadings.

Discussion of the Findings

The onset of the pandemic significantly impacted consumer behavior, particularly in terms of food consumption. As consumers adjusted to the new normal, behaviors such as stockpiling, increased online shopping, avoidance of dining out, and more home cooking became prevalent. This shift was influenced by external pressures, including public health guidelines and changes in retail environments. Retailers adapting their logistics systems to support online orders also contributed to the rise in online shopping. As a result, the pandemic accelerated the adoption of online shopping, particularly for those new to the platform. The study found that, in this new landscape, factors such as price, availability, suitability, and hygiene became central to purchasing decisions. Additionally, consumer behavior evolved over time, with impulsive purchasing decreasing while planned purchases gained prominence as the pandemic persisted (Lustig, C., & Mariscal, M. 2020; Baltacı, S., & Akaydın, G. 2020; Zandi, G., et al. (2020).

Implications for Theory

The findings contribute to consumer behavior theories, particularly regarding how external crises—such as the pandemic—affect purchasing patterns. The study supports theories that suggest during times of uncertainty, consumers become more focused on practical factors such as safety, hygiene, and price. The rise of online

shopping during the pandemic is consistent with digital transformation theories in e-commerce. Moreover, the adoption of advanced technologies like recommendation systems and virtual reality in e-commerce offers new insights into how digital tools can influence consumer loyalty and satisfaction, reinforcing theories on customer retention in the digital marketplace (Carroll, A., & Conboy, K. 2020; Zhao, X., & Li, S., 2020; González-Bailón, S., et al. 2016).

Implications for Practice

For businesses, the study underscores the importance of trust-building and customer loyalty. E-commerce businesses should continue investing in technologies that enhance user experience, such as personalized recommendation systems, which have been shown to increase consumer satisfaction. As safety concerns remain central to consumer decisions, businesses should prioritize transparent communication about hygiene practices and ensure that their logistics are aligned with consumer expectations of convenience and safety. Additionally, understanding demographic factors—such as age and income—can help businesses tailor their strategies to meet the needs of diverse consumer segments (Tallon, P. P., 2020; Eger, L., et al., 2021; Liu, Y., & Shestak, A., 2020). Companies should focus on personalized marketing to the 32-39 age group, addressing their unique needs and preferences. For low-income consumers, businesses can emphasize affordability and value through promotions and discounts. Enhance accessibility and usability for low-income groups, potentially through features like payment flexibility or free delivery for essentials. Companies should prioritize essential product categories, such as food and cleaning supplies, to address sustained consumer demand, while simultaneously designing marketing strategies tailored to gender-specific shopping preferences identified in comprehensive research studies.

Limitations and Future Research Directions

While this study offers valuable insights, it has certain limitations. The findings are based primarily on online shopping behavior and may not reflect broader consumer behavior patterns, particularly for those who did not engage in e-commerce during the pandemic. Future research could explore the long-term effects of the pandemic on offline purchasing behavior or investigate how consumer loyalty evolves beyond the pandemic period. Additionally, a deeper analysis of how sociodemographic factors influence post-pandemic purchasing decisions could further refine consumer behavior models. Future research could also explore how the continued integration of digital technologies, such as artificial intelligence and virtual reality, shapes consumer interactions with online retailers. Understanding these dynamics could provide further insights into the future of e-commerce.

Conclusion

In conclusion, the COVID-19 pandemic has had a lasting impact on consumer behavior, driving the shift towards online shopping and increasing the focus on factors such as price, safety, and hygiene. The study highlights the importance of technology

in enhancing customer satisfaction and loyalty in the e-commerce sector. While the pandemic has accelerated digital transformation, the long-term effects on consumer behavior and business strategies remain to be seen. The findings of this study contribute to a better understanding of consumer responses to crises and the role of technology in shaping future purchasing behaviors (Prasetyo, Y. T., et al., 2021; Zhao, X., & Li, S., 2020; Tallon, P. P., 2020).

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