BMIJ
ISSN: 2148-2586

Research Article

BUSINESS & MANAGEMENT STUDIES:
AN INTERNATIONAL JOURNAL
Vol.:8 Issue:5 Year:2020, 3867-3890

Citation: Çınar, D., Panic Buying and In-Store Hoarding in the Covid-19 Period: An Assessment Based on the Scarcity Principle, BMIJ, (2020), 8(5): 3867-3890 doi: http://dx.doi.org/10.15295/bmij.v8i5.1616

PANIC BUYING AND IN-STORE HOARDING IN THE COVID-19 PERIOD: AN ASSESSMENT BASED ON THE SCARCITY PRINCIPLE

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Received Date (Başvuru Tarihi): 6/09/2020

Accepted Date (Kabul Tarihi): 23/11/2020

Published Date (Yayın Tarihi): 25/12/2020

ABSTRACT

The primary purpose of this study is to examine whether the perceived scarcity occurring in consumer during the COVID-19 period influences panic buying and in-store hoarding. Also, another aim of the study is to reveal whether the variables of competitiveness, hedonic shopping motivation and need for uniqueness have an interaction effect on the mentioned relationship. Finally, in the study, it has been tried to reveal whether the factors mentioned above differ significantly according to demographic variables. For this purpose, an online survey was conducted in the study, and 687 participants participated in the survey. As a result of the study, it has been observed that the perceived scarcity emerged in the consumer has a significant effect on the consumer's panic buying and in-store hoarding behaviour. Besides, it has been demonstrated that in case of scarcity, people with high hedonic shopping motivation, competitiveness and need for uniqueness tend to panic buying and in-store hoarding more. Finally, it was observed that each demographic variable included in the study differentiated on most of the dependent variables.

Keywords:

Consumer Behaviour,

Panic Buying,

In-Store Hoarding

JEL Codes:

M30,

M31,

M39

COVID-19 SÜRECİNDE PANİK ALIM VE MAĞAZA İÇİ İSTİFÇİLİĞİ: KITLIK PRENSİBİ TEMELİNDE BİR DEĞERLENDİRME

ÖZ

Bu çalışmada temel amaç, COVID-19 döneminde tüketicide oluşan kıtlık algısının panik alım ve mağaza içi istifçiliği üzerinde bir etkisinin olup olmadığını irdelemektir. Ek olarak, rekabet, hedonik alışveriş motivasyonu ve benzersizlik ihtiyacı değişkenlerinin bahsi geçen ilişki üzerinde etkileşim etkisinin var olup olmadığını ortaya koymak çalışmanın bir diğer amacını oluşturmaktadır. Çalışmada son olarak, demografik değişkenlere göre yukarıda bahsi geçen faktörlerin anlamlı bir şekilde farklılaşıp farklılaşmadığı ortaya konulmaya çalışılmıştır. Çalışmada bu amaçla online anket yapılmış ve 687 katılımcı ankete katılmıştır. Çalışma sonucunda, tüketicide ortaya çıkan kıtlık algısının tüketicin panik alım ve mağaza içi istifçiliği davranışı üzerinde anlamlı bir etkisinin var olduğu gözlemlenmiştir. Ek olarak, hedonik alışveriş motivasyonu, rekabetçilik düzeyi ve benzersizlik ihtiyacı yüksek olan kişilerin kıtlık durumunda daha çok panik alımla hareket ettiği ve mağaza içi istifçiliğine daha çok yöneldiği ortaya konulmuştur. Son olarak, çalışmada yer alan her bir demografik değişkenin bağımlı değişkenlerin büyük bir çoğunluğu üzerinde farklılaştığı gözlemlenmiştir.

Anahtar Kelimeler:

Tüketici Davranışı,

Panik Alım,

Mağaza İçi İstifçiliği

JEL Kodları:

M30,

M31,

M39

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1. INTRODUCTION

COVID-19, which entered into everyone's lives a few months ago and caused compulsory changes in many points such as business conduct, economy, daily life and social needs, has also transformed consumers' habits that have been developed for many years. In a short time, everyone had to adapt to these seemingly incredible changes and, a noticeable difference in consumer behaviour began to emerge in this period.

The main reason for this change in consumer behaviour can be described as the economic contraction and the presence of chaos. However, the panic increased with increased anxiety to meet unlimited needs with limited resources during the COVID-19 outbreak, and the resulting scarcity perception led to an increase in demand as well as buying and in-store hoarding. Therefore, it can be stated that the most critical variable behind consumption behaviour change may be psychological factors. As a matter of fact, during uncertainty periods, buying behaviour loses clarity and becomes unstable. The consumer trend tends to reduce all non-vital products and services in ambiguous situations.

Said situation can be evaluated based on the scarcity principle (Cialdini, 2001: 78; Brannon and Brock, 2001:49). Accordingly, when products are less accessible, these products are perceived as more valuable by consumers. It can be claimed that this situation will cause panic buying and in-store hoarding by consumers. It can be stated that consumers perceive the product as a scarce in cases of disasters such as epidemic and disaster, will lead the consumer to panic buying and lead to in-store hoarding with the fear of not finding products in the future.

Similarly, it can be argued that consumers will tend to buy without thinking and even to buy products that they do not need due to the perception of scarcity in such disaster situations. It can be argued that this tendency will also lead to panic buying and in-store hoarding. Also, in the case of a perception of scarcity, consumers who like to compete with others and need for uniqueness can be considered to act in line with panic buying and in-store hoarding.

In order for businesses to survive, they need to analyse the psychological factors that cause the change in consumer buying behaviour and create effective strategies accordingly. In this study, it was put forward to inform businesses about the behavioural changes that existed in the consumer during the COVID-19 period and also about the factors that may cause this change. Insufficient resources in the field of consumer behaviour in the period of COVID-19 is another factor that makes the study important. In the study, it was examined whether the perceived scarcity in the consumer during COVID-19 period caused panic buying and in-store hoarding. Besides; whether hedonic shopping motivation, competitiveness and need for uniqueness factors have an interaction power on the relationship mentioned above was examined. It is also analysed whether the demographic variables of the consumers differ according to these factors. In the study, first of all, hypotheses were developed in light of the literature review, and subsequent analyses were presented. Finally, the findings and the results of these findings are presented.

2. LITERATURE REVIEW

Scarcity is defined as restrictions on supply and number of suppliers, the cost of owning and retaining a product, restrictions on owning a product and delays in obtaining a product (Brock, 1968, p. 247). Studies on the subject assume that scarce products are more valuable for consumers (Verhallen and Robben,1994, p. 319; Amaldoss and Jain, 2005, p. 31). Also, it is claimed that consumers tend to buy more products that they perceive as scarce (Eisend, 2008, p. 34; Worchel, Lee, J. and Adewole, 1975, p. 906; Gierl and Huettl 2010, p. 225). In light of the mentioned information, it is thought that the perception of product scarcity that may exist in COVID-19 period will lead to panic buying and in-store hoarding. The study also assumes that factors that competitiveness, hedonic shopping motivation and need for uniqueness will also be affecting these relationships. It is thought that this study will make an essential contribution to the literature since it has never been done before. Besides, this study is considered to be necessary in order to inform practitioners about how consumers will behave in such cases of epidemic and disaster. Accordingly, the following studies on the subject have been used to develop hypotheses.

Panic buying occurs when consumers buy a large volume product due to, they perceive a disaster, think there will be a considerable price increase or think there will be a product scarcity (Singh and Rakshit,2020, p.44). When the studies on the subject are analysed, it shows that the consumer tends to panic buying in cases where the risk of supply scarcity is high. Thus, they make large purchases in order to reduce the risk of future product scarcity (Zheng Shou, and Yang, 2020, p. 1). It has often been observed that panic purchases are associated with disasters. For example, consumers were observed to act with panic buying after the Hurricane Katrina (2005) and the Hurricane Sandy (2012) in America or the earthquake in Japan (2011) (Shou, Xiong and Shen, 2013, p. 4). Similarly, this study claims that consumers are involved in panic buying behaviour during the COVID-19 pandemic. Therefore, in light of the above explanations, the following hypothesis has been established.

H_1: *There is a statistically significant relationship between perceived scarcity and panic buying in COVID-19 period.*

In-store hoarding is when a customer retains the product in order to prevent other customers from purchasing the product (Byun and Sternquist, 2008: 135). According to the study by Byun and Sternquist (2008, p. 137), vendor-based weakness (such as fashion products), quantity-sourced scarcity, and low price were the main drivers of in-store hoarding. The perceived scarcity arising from the limited production of a product will increase the desirability of the product and concerns about the future availability of the product. Consumers want products not only for future consumption but also for fear of not being available. For this reason, consumers who encounter a product scarcity may tend to hoard the product before it is purchased by other customers (Frost, Meagher and Riskind, 2001, p. 8). Besides, in case of a positive valuation regarding the product perceived as scarce, the motivation of the consumer to stack the product will increase (Tan and Chua, 2004, p. 348; Byun and Sternquist, 2011, p. 192). In line with the explanations mentioned above, the following hypothesis has been established.

H_2: *There is a statistically significant relationship between perceived scarcity and in-store hoarding in COVID-19 period.*

Competitiveness is defined as the desire to enjoy interpersonal competition, to win and to be better than others (Spence and Helmreich, 1983, p. 41). Under the scarcity conditions, the role of competitiveness in the consumer decision-making process is almost non-existent (Nichols, 2012, p. 197). Studies on the subject state that scarcity and competitiveness are interconnected (Gupta,2013, p. 6). For example, a consumer in time-based scarcity does not compete against other consumers, as in quantity-based scarcity (Aggarwal, Jun and Huh, 2011, p. 21). Due to the more intense competition, quantity-based scarcity has more impact on the consumer than time-based scarcity (Gupta,2013, p.6). According to this idea, achieving a scarce product means that someone has won the competition (Barry, 1998, p. 32). Therefore, it can be stated that in case of scarcity, people with high competitiveness will tend to both panics buying and in-store hoarding. Consequently, the following hypotheses can be established.

H_3: *The statistical relationship between perceived scarcity and panic buying in COVID-19 period varies according to whether the consumers are competitive or not.*

H_4: *The statistical relationship between perceived scarcity and in-store hoarding in COVID-19 period varies according to whether the consumers are competitive or not.*

Hedonic shopping motivation is defined as different types of emotional experience arising from purchasing a product (Hirschman and Holbrook,1982:94). From the perspective of value, it can be said that hedonic shopping is an entertaining experience. (Babin and Attaway, 2000, p. 93). Hedonic shopping value also triggers panic buying. So, as companies provide customers with hedonic shopping value, the level of panic buying will increase (Chung, Song and Lee, 2017, p. 717). Also, Arnold and Reynolds (2003, p.88) state that hedonic motives are related to in-store experiences and customer satisfaction. As a result, consumers who go shopping with hedonic motifs can buy products without intent and tend to in-store hoarding (Gültekin and Özer, 2012, p. 182). To summarize, since being in a competitive environment with limited resources is a potent stimulus, it affects the relationship between hedonic shopping motivation and in-store hoarding (Chung et al., 2017, p. 711). Based on these inferences, the following hypotheses were created.

H_5: *The statistical relationship between perceived scarcity and panic buying in COVID-19 period varies according to whether consumers have hedonic shopping motivation or not.*

H_6: *The statistical relationship between perceived scarcity and in-store hoarding in COVID-19 period varies according to whether consumers have hedonic shopping motivation or not.*

The need for uniqueness is that consumers express their uniqueness through the consumption of differentiated products (Snyder and Rromkin, 1980, p. 47). Consumers' preferences for rare products can be controlled by the 'need for uniqueness x scarcity' interaction. Mostly, individuals with a high level of need for uniqueness take more interest in scarce products (Snyder, 1992, p. 12).

Similarly, individuals with a high level of need for uniqueness feel the need to buy scarce products with more panic (Wu, Lu, Wu and Fu, 2012, p. 266). For the same reasons, it can be claimed that the level of in-store hoarding will vary depending on the need for uniqueness in case of scarcity. The hypotheses established in line with the above explanations are as follows.

H_7: *The statistical relationship between perceived scarcity and panic buying in COVID-19 period varies according to whether consumers need for uniqueness.*

H_8: *The statistical relationship between perceived scarcity and in-store hoarding in COVID-19 period varies according to whether consumers need for uniqueness.*

3. RESEARCH METHODOLOGY

In the study, it was aimed to reveal whether the perceived scarcity occurring in the consumer during COVID-19 period has an effect on panic buying and in-store hoarding and if there is a relationship, it is aimed to reveal whether the variables such as competitiveness, hedonic shopping motivation and need for uniqueness have an interaction effect with this relationship. Besides, it was tried to be determined whether the factors mentioned differed significantly according to demographic variables. Questionnaire method, which is one of the quantitative methods, has been applied to measure these situations. Since the original language of the questions was English, the questions were translated into Turkish and adapted, and then the back-translation method was applied. The total number of questions in the survey is 31 and consists of seven sections. Demographic questions were asked to the participants in the first part

of the questionary. The questions prepared to measure the scarcity perception of the participants during the COVID-19 period are included in the second part of the questionnaire. In the third part, questions were asked to measure the panic buying level of the participants in the period of COVID-19. On the other hand, in the fourth part of the survey, it was aimed to find the in-store hoarding level of the participants during the COVID-19 period. The questions asked in the fifth, sixth and seventh sections are respectively aimed at finding the competitiveness, hedonic shopping motivation and need for uniqueness levels of the participants. For this, it has benefited from the scale developed by Gupta (2013, p. 160). Online survey method was used in the study. Six hundred eighty-seven participants, which are aged over 18 and living in Turkey, have been selected as population. The research model created for the purposes discussed above is given below. This model was formed by deriving from the model created by Gupta (2013, p. 31).

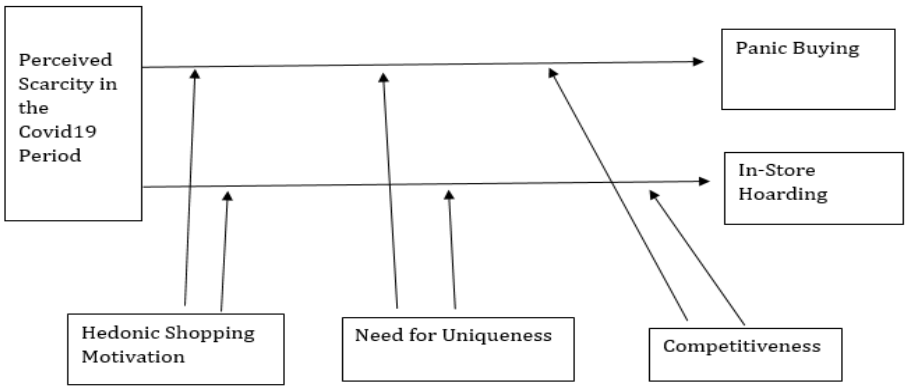

Figure 1. Research Model

4. FINDINGS

"SPSS 16.0" package program was used to analyse the data obtained from the research. Through this program; validity and reliability analysis, frequency analysis, Independent Samples T-Test, Factor Analysis, ANOVA and MANOVA analyses were performed.

4.1. Frequency Distributions Belonging to Demographic Variables

When the demographic characteristics of the participants are examined, it is observed that the majority of the participants at the age of 43 and over. On the other hand, when gender and marital status are examined, it is observed that the participants

show a relatively fifty-fifty distribution. In terms of monthly income, it can be stated that most of the participants earn between TL 0-2000. Finally, it is observed that the vast majority of the participants are undergraduate. The results of the frequency analysis are given in the table below.

Table 1. Descriptive Statistics on Demographic Characteristics of the Participants

Measure	Items	Frequency	%
Age	18-22	110	16,0
	23-27	116	16,9
	28-32	13	1,9
	33-37	35	5,1
	38-42	62	9,0
	43 years and older	351	51,1
Gender	Female	349	50,8
	Male	338	49,2
Marital Status	Married	336	48,9
	Single	351	51,1
Monthly Income	0-2000	178	25,9
	2001-4000	165	24,0
	4001-6000	138	20,1
	6001-8000	77	11,2
	8001-10000	56	8,2
	TL 10001 and above	73	10,6
Education Level	Primary education	10	1,5
	College	119	17,3
	High school	108	15,7
	Undergraduate	380	55,3
	Postgraduate	70	10,2

Independent Samples T-Test and One-Way-Anova Test were performed to measure whether perceived scarcity (PS), panic buying (PB), in-store hoarding (ISH), competitiveness (COMP), hedonic shopping motivation (HSM) and need for uniqueness (NFU) differ significantly according to demographic variables.

Table 2. Independent Samples T-Test Results

Measure	Variable	Group	Mean	Std. Dev.	F	Sig.	T	Df	Sig. (2-tailed)	Mean Diff.
Gender	PS	F	2,8978	1,00155	2,102	,148	2,676	685	**,008**	,21092
		M	2,6869	1,06421						
	PB	F	2,4833	1,03458	2,724	,099	2,394	685	**,017**	,19828
		M	2,2850	1,13510						
	ISH	F	2,7947	1,20299	5,630	,018	1,223	676,606	,222	,11714
		M	2,6775	1,30264						
	COM	F	2,3746	1,06077	1,375	,241	-1,545	685	,123	-,12832
		M	2,5030	1,11587						
	HSM	F	2,8246	1,06478	4,006	,046	3,382	681,486	**,001**	,26133
		M	2,5633	,95951						
	NFU	F	2,4069	,86394	,046	,830	,630	685	,529	,04120
		M	2,3657	,85049						
Measure	**Variable**	**Group**	**Mean**	**Std. Dev.**	**F**	**Sig.**	**T**	**Df**	**Sig. (2-tailed)**	**Mean Diff.**
Marital Status	PS	S	2,8368	1,00194	3,361	,067	1,057	685	,291	,08372
		Ma	2,7531	1,07022						
	PB	S	2,4940	1,09240	1,384	,240	2,561	685	**,011**	,21200
		Ma	2,2821	1,07699						
	ISH	S	2,8304	1,23196	1,162	,281	1,913	685	,056	,18268
		Ma	2,6477	1,26903						
	COM	S	2,6600	1,15088	14,922	,000	5,316	658,638	**,000**	,43490
		Ma	2,2251	,98248						
	HSM	S	2,8798	1,11856	25,023	,000	4,656	638,226	**,000**	,35953
		Ma	2,5202	,88674						
	NFU	S	2,5536	,88772	5,574	,019	5,074	669,382	**,000**	,32679
		Ma	2,2268	,79547						
F: Female; M: Male; S: Single; Ma: Married										

Independent Samples T-Test was performed since the dependent variables in the study were continuous, and independent variables were categorical. According to the test results, perceived scarcity, panic buying, and hedonic shopping motivation levels of men and women are different from each other. Accordingly, women's perceived scarcity, panic buying, and hedonic shopping motivation levels are higher than men. Also, the levels of panic buying, competitiveness, hedonic shopping motivation and need for uniqueness of married and singles are different. Accordingly, singles' panic buying, competitiveness, hedonic shopping motivation and need for uniqueness levels are higher than married people.

Table 3. ANOVA Test Results

Measure		F	Sig.
Age	Perceived Scarcity	1,139	,338
	Panic Buying	4,691	**,000**
	In-store hoarding	3,202	**,007**
	Competitiveness	10,759	**,000**
	Hedonic Shopping Motivation	12,096	**,000**
	Need for Uniqueness	9,615	**,000**
Monthly Income	Perceived Scarcity	8,809	**,000**
	Panic Buying	1,161	,327
	In-store hoarding	1,012	,409
	Competitiveness	3,764	**,002**
	Hedonic Shopping Motivation	5,631	**,000**
	Need for Uniqueness	2,419	**,035**
Education Level	Perceived Scarcity	4,381	**,002**
	Panic Buying	,993	,411
	In-store hoarding	,584	,674
	Competitiveness	,504	,733
	Hedonic Shopping Motivation	,969	,424
	Need for Uniqueness	2,226	,065

ANOVA test was performed to determine whether there are differences between 3 or more groups based on a particular variable. When the results are evaluated, panic buying, in-store hoarding, competitiveness, hedonic shopping motivation, and need for uniqueness, the levels differ according to age ranges. Perceived scarcity, competitiveness and hedonic shopping motivation levels differ according to the monthly income level. Finally, perceived scarcity levels differ according to education levels. Multiple comparisons values for the mentioned variables are shown in detail in the appendix.

4.2. Reliability and Validity Analysis Belong to Scale

In the study, first of all, the internal consistency test was conducted in order to find out the result of whether the scale is reliable or not. As a result of the analysis, the reliability rate of the scale developed by Gupta (2013, p.160) was found to be 0.885. It can be stated that both the scale and the factors that make up the scale are reliable because Cronbach's α value is more significant than 0.7. Then, explanatory factor analysis was conducted to reveal whether the many factors used in the research can be expressed with a few essential variables. Accordingly, it can be stated that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy value is suitable for factor analysis since the value is close to 1.00.

Similarly, Bartlett's Test of Sphericity shows that the data is suitable for factor analysis since its significant value is 0.00. As a result of the analysis, it has been determined that there are seven components with eigenvalue value above 1. In total, it can be stated that this scale can explain 69,542% of the feature that is tried to be measured. The reliability and validity results of the factors in the mentioned study are summarized in the table below.

Table 4. Reliability and Validity Analysis

Factors	**Cronbach's Alpha**	**Total Variance Explained (%)**
Perceived Scarcity	,869	60,616
Panic Buying	,717	66,757
In-store hoarding	,815	73,339
Competitiveness	,826	64,583
Hedonic Shopping Motivation	,853	63,354
Need for Uniqueness	,724	69,427
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		,835
Bartlett's Test of Sphericity	Approx. Chi-Square	9,378E3
	df	325
	Sig.	,000

Also, the factor loads were examined in order to observe the relative importance of each item in the factor. Since the factor load values of the items are higher than 0.40, it can be stated that each item in the factor measures the factor well.

Table 5. Factor Analysis Results

Factor Name	Phrases	Factor Loads
Perceived Scarcity	1. In the period of COVID 19, I saw that the products in the markets where I shop were finished very quickly	,709
	2. In the period of COVID 19, I think that the markets where I shop have deliberately created product shortages by limiting the number of products in some products.	,750
	3. I think that product scarcity was implemented as a strategic policy in the markets where I shop during the COVID-19 period.	,755
	4. I observed that there are a limited number of products in terms of size, weight, and quantity in the markets where I shop during the COVID-19 period.	,827
	5. During the COVID-19 period, I found that the products I want to buy in the markets where I shop are generally few.	,827
	6. In the period of COVID 19, I saw that the products I want to buy in the markets I shop are almost out of stock	,797
Panic Buying	7. During COVID 19, when I was shopping at any market, I got into the desire to buy as soon as I found the products I wanted.	,758
	8. During COVID 19, when I was shopping in any market, I tended to buy products that I usually do not consider buying.	,939
	9. During the COVID-19 period, when I was shopping at any market, I could not resist buying products that I usually do not need	,899
In-store hoarding	10. In the period of COVID 19, as soon as I found the product in the market where I shop, I hurried to buy	,859
	11. In the period of COVID 19, although I am not sure whether I will buy the product, I sometimes put the product in my basket.	,943
	12. During COVID 19, I bought more products than I wanted to buy in the supermarkets I shop.	,758
Competitiveness	13. I enjoy competing with others	,768
	14. I think it is essential to perform better than others.	,863
	15. I enjoy testing my skills against others.	,847
	16. I think winning is extremely important.	,729
Hedonic Shopping Motivation	17. I enjoy shopping.	,773
	18. Shopping seems to me to be an escape from problems.	,837
	19. I am happy to see exciting new products while shopping.	,773
	20. Compared to other things done, the time spent on shopping is delightful.	,878
	21. I have a good time while shopping because at that time I decide to buy it without thinking.	,709
	22. I feel like I'm on a hunt during the shopping	,779
	23. I feel myself in adventure while shopping.	,793
Need for Uniqueness	24. It is a fundamental goal for me to find something that often reveals my unique style when purchasing a product.	,743
	25. I am actively trying to develop my style by purchasing unique products or brands.	,731
	26. I often avoid products or brands that I know are bought by the general population.	,775

After reliability and validity analysis, MANOVA test was carried out to determine whether the independent variable (perceived scarcity) affected dependent variables (panic buying and in-store hoarding). According to the MANOVA test result, four different multivariate statistics results were found to be significant at the level of 0.05. Based on this, there is a significant difference between panic buying and in-store hoarding in terms of perceived scarcity ($p < 0.05$).

Table 6. MANOVA Test Results

		Value	F	Hypothesis df	Error df	Sig.
PERCEIVED SCARCITY	Pillai's Trace	,255	4,032	48,000	1,324E3	,000
	Wilks' Lambda	,757	4,110	48,000	1,322E3	,000
	Hotelling's Trace	,305	4,187	48,000	1,320E3	,000
	Roy's Largest Root	,236	6,511	24,000	662,000	,000

When Table 7 is examined, there is a significant difference between perceived scarcity and panic buying level ($p < 0.05$). There is also a significant difference between perceived scarcity and in-store hoarding level ($p < 0.05$). Therefore, there is a statistically significant relationship between perceived scarcity during COVID-19 and panic buying. Also, there is a statistically significant relationship between perceived scarcity during COVID-19 and in-store hoarding.

Table 7. Hypothesis 1 and Hypothesis 2 Test Results According to Variance Analysis

	Dependent Variables	**Type III Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**	**Hypotheses**
Perceived Scarcity	Panic Buying	115,398	24	4,808	4,560	,000	**H1 is accepted**
	İn-store hoarding	200,717	24	8,363	6,312	,000	**H2 is accepted**

In the study, an interaction model was created to find whether the variables such as competitiveness, hedonic shopping motivation and need for uniqueness have an interaction effect. Therefore, ANOVA analysis was performed to reveal the interaction variable effect.

Table 8. ANOVA Analysis for Interaction Variable Effect of Competitiveness

Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Hypotheses
Panic Buying						
Perceived Scarcity	103,270	24	4,303	6,623	,000	
Competitiveness	50,506	16	3,157	4,859	,000	
Perceived Scarcity X Competitiveness	326,269	179	1,823	2,806	,000	**H3 is accepted**
In-store hoarding						
Perceived Scarcity	130,347	24	5,431	6,951	,000	
Competitiveness	46,877	16	2,930	3,750	,000	
Perceived Scarcity X Competitiveness	450,773	179	2,518	3,223	,000	**H4 is accepted**

According to the results revealed in Table 8; it can be stated that the main effect variables (perceived scarcity and competitiveness) and the interaction variable (perceived scarcity x competitiveness) are significant on panic buying and in-store hoarding ($p < 0.05$). So, the statistical relationship between perceived scarcity in COVID-19 period and panic buying varies according to whether the consumers are competitive or not. Besides, the statistical relationship between perceived scarcity in COVID-19 period and in-store hoarding varies according to whether the consumers are competitive or not.

Table 9. ANOVA Analysis for Interaction Variable Effect of Hedonic Shopping Motivation

Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Hypotheses
Panic Buying						
Perceived Scarcity	84,656	24	3,527	7,517	,000	
Hedonic Shopping Motivation	65,744	20	3,287	7,006	,000	
Perceived Scarcity X Hedonic Shopping Motivation	401,878	222	1,810	3,858	,000	**H5 is accepted**
In-store hoarding						
Perceived Scarcity	136,458	24	5,686	9,169	,000	
Hedonic Shopping Motivation	78,610	20	3,930	6,339	,000	
Perceived Scarcity X Hedonic Shopping Motivation	495,814	222	2,233	3,602	,000	**H6 is accepted**

According to the results revealed in Table 9; it can be stated that the main effect variables (perceived scarcity and hedonic shopping motivation) and interaction

variable (perceived scarcity x hedonic shopping motivation) are significant on panic buying and in-store hoarding (p <0.05). So, the statistical relationship between perceived scarcity in COVID-19 period and panic buying varies according to whether consumers have hedonic shopping motivation or not. Besides, the statistical relationship between perceived scarcity in COVID-19 period and in-store hoarding varies according to whether consumers have hedonic shopping motivation or not.

Table 10. ANOVA Analysis for Interaction Variable Effect of Need for Uniqueness

Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Hypotheses
Panic Buying						
Perceived Scarcity	92,584	24	3,858	7,441	,000	
Need for Uniqueness	77,687	20	3,884	7,492	,000	
Perceived Scarcity X Need for Uniqueness	351,104	198	1,773	3,420	,000	**H7 is accepted**
In-store hoarding						
Perceived Scarcity	121,611	24	5,067	6,838	,000	
Need for Uniqueness	90,894	20	4,545	6,133	,000	
Perceived Scarcity X Need for Uniqueness	426,362	198	2,153	2,906	,000	**H8 is accepted**

According to the results revealed in Table 10; it can be stated that the main effect variables (perceived scarcity and need for uniqueness) and interaction variable (perceived scarcity and need for uniqueness) are significant on panic buying and in-store hoarding (p <0.05). So, the statistical relationship between perceived scarcity in COVID-19 period and panic buying varies according to whether consumers need uniqueness or not. Also, the statistical relationship between perceived scarcity in COVID-19 period and in-store hoarding varies according to whether consumers need uniqueness or not.

5. RESULTS AND DISCUSSION

As soon as the COVID-19 is announced as a pandemic, the perception of scarcity that emerges on the consumer leads to panic buying and in-store hoarding. During periods of uncertainty, purchasing behaviour loses clarity and becomes unstable. Indeed, in the event of a possible panic or danger, the brain gives alarms of survival and wants to secure itself. In the COVID-19 pandemic process, it can be stated that this is the basis of panic buying and in-store hoarding. For example, when the COVID-19 outbreak began to spread, the shelves in supermarkets were emptied. In this period,

consumers' extra purchases of toilet paper, bread, pasta, cologne, a disinfectant can be seen as the reflection of the brain's activation of survival on their consumption behaviour.

When the consumer behaviour studies on the COVID-19 period are analysed, it can be stated that there are a limited number of consumer behaviour studies for the period in question. Accordingly, unusual purchasing behaviour (Laato, Najmul-Islam, Farooq and Dhir, 2020); product evaluations (Yetkin-Özbük, 2020); consumer spending (Coibion, Gorodnichenko and Weber, 2020); consumer responses (Andersen, Hansen, Johannesen and Sheridan, 2020); consumer panic buying behaviour in parallel with social media platforms (Naeem, 2021) and consumer buying behaviour of departmental stores (Acee-Eke and Ogonu, 2020) on the COVID 19-period studies have been found in the literature. Laato et al. (2020) examined the consumer's unusual purchasing behaviours such as stacking toilet paper during Covid 19, and a strong relationship was found between the consumer's intention to isolate himself and his unusual purchase intention. Besides, it was stated in the study that perceiving the pandemic situation as a serious event and the cyberchondria situation in the consumers caused unusual purchasing. Yetkin-Özbük (2020) examined the impact of the COVID-19 pandemic on product evaluations on internet platforms, and it was concluded that the product evaluations made by consumers during the pandemic period were more damaging than the product evaluations made before the pandemic period. Coibion et al. (2020) conducted a study on how the COVID-19 pandemic affects household spending and macroeconomic expectations at the local level. As a result of the research, it has been revealed that approximately 50% of the participants lost income and wealth due to the COVID-19 pandemic. Also, the study found that total consumer expenditures decreased by 31 per cent per day. Andersen et al. (2020) aimed to reveal the change in consumer spending due to shutdowns as a result of the COVID-19 pandemic. As a result of the research, it was observed that consumer expenditures before the shutdown period decreased by 27% compared to consumer expenditures after the shutdown period. Besides, the study concluded that the decrease in consumer expenditures mostly concentrated on goods and services. In the study conducted by Naem (2021), it was investigated how social media causes collective reactions of people

and what are the effects of these reactions on panic buying. As a result of the research, the consumer panic Buying theory was developed in parallel with the global capitalism/information society, risk society, social impact and social proof theories. In the study conducted by Acee-Eke and Ogonu (2020), the effects of a department store on consumer purchasing behaviour during the COVID-19 pandemic were examined. As a result of the study, it was observed that large stores affected consumer purchasing behaviour due to market shutdown and border closure during the COVID-19 pandemic. On the other hand, no studies were observed to examine panic buying and in-store hoarding behaviour in parallel with the perceived scarcity in the COVID-19 period. For this reason, it can be claimed that this study is original and will contribute to both academia and practice.

In the study, it was aimed to reveal whether the perceived scarcity occurring in the consumer during COVID-19 period has an effect on panic buying and in-store hoarding and if there is a relationship, it is aimed to reveal whether the variables such as competitiveness, hedonic shopping motivation and need for uniqueness have an interaction effect with this relationship. Besides, it was tried to be determined whether the factors mentioned differed significantly according to demographic variables. According to the study results, perceived scarcity, panic buying, and hedonic shopping motivation levels of men and women are different from each other. Accordingly, women's perceived scarcity, panic buying, and hedonic shopping motivation levels are higher than men. Also, the levels of panic buying, competitiveness, hedonic shopping motivation and need for uniqueness of married and singles are different. Accordingly, singles' panic buying, competitiveness, hedonic shopping motivation and need for uniqueness levels are higher than married people. Besides; panic buying, in-store hoarding, competitiveness, hedonic shopping motivation, and need for uniqueness the levels differ according to age ranges. Perceived scarcity, competitiveness and hedonic shopping motivation levels differ according to the monthly income level. Finally, perceived scarcity levels differ according to education levels. According to the other result of the study, it can be expressed that there is a significant difference between panic buying and in-store hoarding in terms of perceived scarcity. Another significant result is that people with

high hedonic shopping motivation, competitiveness and need for uniqueness tend to more panic buying and in-store hoarding in case of scarcity.

In light of these results, it can be stated that companies should analyse the changes in consumer behaviour in the period of COVID-19 well and produce new strategies in this direction. At this point, it can be argued that it is essential for businesses to understand the change in consumer psychology. Since there is a significant relationship between perceived scarcity and panic buying and in-store hoarding, it can be stated that practitioners should be selling their products not only in the traditional environment but also in the online environment in order to prevent panic taking and in-store hoarding. Besides, the consumer should be informed that there are sufficient numbers of products in existing stores and that the stock policy is applied accordingly. On the other hand, if an increase in sales is aimed in a short time, then the perception that the product is limited in number can be created consciously. Since the level of competitiveness directs the relationship between perceived scarcity and panic buying and in-store hoarding, practitioners create the perception that there is a competition among consumers, and in this sense, focusing on marketing communication studies can enable competitors to buy more products at the same time. This can likewise trigger short-term increases. Since the level of hedonic motivation directs the relationship between perceived scarcity and panic buying and in-store hoarding, practitioners create the perception that the consumer will take delight the product purchase and show shopping as an entertainment activity will increase hedonic purchases. This situation will contribute to the sustainability of businesses. Because the level of uniqueness needs to guide the relationship between perceived scarcity and panic buying and in-store hoarding, practitioners' personalized product, price, promotion and distribution activities will increase the level of need for uniqueness, which in turn will lead businesses to gain a competitive advantage.

From an academic perspective, it is observed that the studies on COVID-19 in marketing are minimal for now. For this reason, in future studies, research can be conducted regarding the marketing mix strategies or changing attitudes towards the brand in the period of COVID-19. Besides, in future studies, comparisons can be made between generations, store types, countries, regions or cities in terms of panic buying

and in-store hoarding during COVID 19. The extent to which online and offline marketing communication efforts triggered panic buying and in-store hoarding during the COVID-19 era can be examined. Finally, panic buying, and in-store hoarding can be observed in COVID-19 period based on consumer inventory.

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APPENDIX

Appendix 1. Multiple Comparisons Results for Age Groups

Dependent Variable	AGE (I)	AGE (J)	Mean Difference (I-J)	Std. Error	Sig.
PB	**18-22**	43 years and older	,42531*	,11742	,004
	28-32	43 years and older	,87939*	,30350	,045
ISH	**38-42**	43 years and older	,54811*	,17131	,018
COMP	**18-22**	28-32	-1,06696*	,30869	,008
		33-37	,59513*	,20426	,043
		43 years and older	,43732*	,11501	,002
	23-27	28-32	-1,00630*	,30784	,014
		33-37	,65579*	,20298	,016
		38-42	,51696*	,16559	,023
		43 years and older	,49797*	,11272	,000
	28-32	33-37	1,66209*	,34186	,000
		38-42	1,52326*	,32107	,000
		43 years and older	1,50427*	,29728	,000
HSM	**18-22**	38-42	,50991*	,15611	,014
		43 years and older	,54400*	,10742	,000
	23-27	38-42	,67458*	,15465	,000
		43 years and older	,70867*	,10528	,000
NFU	**18-22**	43 years and older	,37325*	,09083	,001
	23-27	33-37	,54611*	,16031	,009
		38-42	,44961*	,13078	,008
		43 years and older	,55130*	,08903	,000

Appendix 2. Multiple Comparisons Results for Monthly Income (TL)

Dependent Variable	MONTHLY INCOME (I)	MONTHLY INCOME (J)	Mean Difference (I-J)	Std. Error	Sig.
PS	0-2000	10001 and above	,53423*	,14026	,002
	2001-4000	4001-6000	,33542*	,11641	,047
		6001-8000	,60101*	,13928	,000
		8001-10000	,61643*	,15607	,001
		10001 and above	,79570*	,14185	,000
	4001-6000	10001 and above	,46028*	,14605	,021
COMP	0-2000	4001-6000	,43041*	,12233	,006
HSM	0-2000	4001-6000	,35221*	,11401	,025
		6001-8000	,64184*	,13711	,000
		8001-10000	,53274*	,15401	,008
NFU	0-2000	6001-8000	,33588*	,11629	,046

Appendix 3. Multiple Comparisons Results for Education Level

Dependent Variable	MONTHLY INCOME (I)	MONTHLY INCOME (J)	Mean Difference (I-J)	Std. Error	Sig.
PS	Primary education	College	1,23557*	,33827	,003
		High school	1,01296*	,33960	,025
		Undergraduate	1,20614*	,32914	,002
		Postgraduate	1,29762*	,34733	,002

ETHICS COMMITTEE APPROVAL

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09.09.2020

Beykent Üniversitesi, İktisadi ve İdari Bilimler Fakültesi İşletme (TR) Bölümü Doktor Öğretim Üyesi Dilaysu ÇINAR'ın "Panic Buying and In-Store Hoarding in The COVID19 Period: An Assessment on The Basic of Scarcity Principle" başlıklı akademik çalışmasının bilgisayar ortamında test uygulması uygunluğu, Beykent Üniversitesi Sosyal ve Beşeri Bilimler için Yayın Etiği Kurulu tarafından değerlendirilmiş ve onaylanmıştır.

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