Oran Özen, B. N. & Güzel, M. A. (2025). From Scales to Scraping: A Mixed-Method Study of Compulsive Buying, Urge to Buy, Hoarding, and Stocking Tendencies. *Journal of Consumer and Consumption Research,* 17(2), 775-810
Doi: 10.15659/ttad.17.2.214

From Scales to Scraping: A Mixed-Method Study of Compulsive Buying, Urge to Buy, Hoarding, and Stocking Tendencies

Büşra Nur ORAN ÖZEN[1]
Mehmet Akif GÜZEL[2]

Abstract

This study investigated consumers' compulsive buying, hoarding, and stockpiling behaviors via survey and experimental methods along with the web scrapping of the stocking contents in customer reviews left on a widely used online shopping portal. Before filling in related scales, participants in the survey phase rated various products in terms of their essentialities and estimated each product's average price and maximum price they would be willing to pay to calculate their "urge to buy" scores. Compulsive buying (CB) and hoarding behaviors were positively correlated, women agreed with compulsive buying statements more, and younger adults and the low-income group reported higher hoarding tendencies. Urge to buy scores were positively correlated with products' perceived essentialities. Additionally, high-CB group considered the products more essential for themselves than low-CB group, while high- and low-hoarding groups retained similar product essentialities. Consumer review analysis also showed the percentage of stockpiling contents, which based on the data given after

1 **Sorumlu Yazar/Corresponding Author:** Veri Bilimi MSc, Abdullah Gül Üniversitesi, Sosyal Bilimler Enstitüsü, busranur.oran@outlook.com, https://orcid.org/0000-0002-1827-5286

2 Doç. Dr., Abdullah Gül Üniversitesi, İnsan ve Toplum Bilimleri Fakültesi, akif.guzel@gmail.com, https://orcid.org/0000-0001-5828-1237 akif.guzel@gmail.com,

Makale Türü / Paper Type: Araştırma Makalesi / Research Paper
Makale Geliş Tarihi / Received: 02.01.2025
Makale Kabul Tarihi / Accepted: 22.07.2025

actual shopping, was positively correlated with products' perceived essentiality rankings obtained in online survey. The results overall underline the potential of using big data method to detect consumer behaviors along with or even beyond conventional methods in consumer research, such as surveys or experiments. The results were discussed in the light of related literature.

Keywords: compulsive buying, hoarding, stockpiling, urge to buy, big data.

Ölçeklerden Veri Kazımaya: Kompulsif Satın Alma, Satın Alma Dürtüsü, İstifçilik ve Stokçuluk Eğilimlerine Yönelik Karma Yöntemli Bir Araştırma

Öz

Bu çalışma, tüketicilerin kompulsif satın alma, istifçilik ve stoklama davranışlarının anket ve deneysel yöntemlerle araştırmasıyla birlikte tüketicilerin sık kullanılan bir online alışveriş sitesinde yaptıkları yorumların stoklama içeriklerini veri kazıma yöntemi kullanarak incelemektedir. Online anket aşamasındaki katılımcılar, ilgili ölçekleri doldurmadan önce, çeşitli ürünleri ve bunların gereklilik düzeylerini derecelendirmiş ve satın alma dürtülerini hesaplayabilmek için her bir ürünün ortalama fiyatı ile bu ürünler için ödeyecekleri en yüksek fiyatı tahmin etmişlerdir. Kompulsif satın alma ve istifleme davranışları pozitif korelasyon göstermiş, kadınlar kompulsif satın alma ifadelerine daha fazla katılmış ve genç yetişkinler ve düşük gelirli grup daha yüksek istifleme davranışları göstermiştir. Katılımcıların satın alma dürtüsü puanları, ürünlerin algılanan gereklilikleri ile pozitif yönde ilişkili bulunmuştur. Ek olarak, yüksek kompulsif satın alma eğilimi gösteren grup, düşük olan gruba göre ürünleri kendileri için daha gerekli olarak değerlendirirken, yüksek ve düşük istifleme grupları ürünlere benzer gereklilik puanları vermiştir. Tüketici yorumları analizi, gerçekte yapılan alışveriş sonrasında elde edilen verilere dayanan stoklama içerikleri yüzdesinin, çevrimiçi ankette elde edilen ürünlerin algılanan gereklilik düzeyleri ile pozitif ilişkili olduğunu göstermiştir. Çalışma sonuçları, anket ve deneysel yöntemler gibi geleneksel yöntemlerle birlikte ya da bunların ötesinde büyük veri yöntemleriyle ilgili tüketici

davranışlarının da tespit edilebileceği potansiyelini vurgulamaktadır. Sonuçlar ilgili alan yazın ışığında tartışılmıştır.

Anahtar kelimeler: kompulsif satın alma davranışı, istifçilik, stoklama, satın alma dürtüsü, büyük veri

Introduction

Being one of the intricate decision-making processes, consumer behavior involves the related activities of choosing, buying, using, and discarding goods (Kardes et al., 2011). Like all behaviors, however, it is affected by various internal and external factors, such as consumers' characteristics, their moods; family environment, occupation, economic conditions, prices, and alike (e.g., Deshpande, 2015; Kotler et al., 2022; Solomon et al., 2012; Wilkie, 1994). Though it is an indispensable part of modern daily life, this behavior can occasionally deviate from what may be expected (Hassay & Smith, 1996; Krych, 1989; O'Guinn & Faber, 1989). Therefore, compulsive buying has taken the interest of researchers to understand the further end of consumer behavior.

Compulsive buyers, for instance, have been shown to have gradually worsened severe economic, psychological, and social burdens (Christenson et al., 1994; Edwards, 1993; O'Guinn & Faber, 1989; also see, e.g., Faber & Christenson, 1996). Just like compulsive buying, hoarding has also been shown to have adverse effects on the well-being of individuals and their families as well as their social environment (Frost et al., 1998, 2002, 2004; Mueller et al., 2009; Shoham et al., 2017). Previous works have shown compulsive buying and hoarding are affected by a range of factors, such as consumers' socio-demographic characteristics. For instance, it has been shown that women have been shown to have higher compulsive buying tendencies than men (e.g., Akagün Ergin, 2010; d'Astous, 1990; Dittmar, 2005a; Harvanko et al., 2013), and younger people have a higher compulsive buying tendency than older people (see e.g., Akagün Ergin, 2010; Dittmar, 2005b; Kyrios et al., 2004; Ye et al., 2021). Although income level (Fogel and Schneider, 2011; Khare, 2013), occupation (Leite & Silva, 2016; Setyorini et al., 2021), and family stru-

cture of the consumers (i.e., high-stress level and hostile family environment) have been claimed and so shown to be significant determinants in compulsive buying (e.g., Rindfleisch et al., 1997), other studies could not confirm such findings (see e.g., Akagün Ergin, 2010; Dittmar, 2005b; Leite & Silva, 2016).

Unlike compulsive buyers, hoarders save even trivial items to avoid stress and negative emotions, and this excessiveness causes them to get more stress, which deteriorates their personal and social lives. Some hoarders have been found to have difficulty maintaining their jobs, and they even struggle to find new jobs (Kancherla et al., 2022; Steketee & Frost, 2003). These individuals have been characterized by giving higher value to their possessions, encouraging them to find more reasons to keep them regardless of their material values. However, such a strong attachment to the items may eventually cause serious incidents, such as fire and severe health threats due to lack of hygiene (Frost et al., 1998, 2000; Thomas, 1998).

Previous studies have also revealed mixed results between hoarding and socio-demographic characteristics, like those found in compulsive buyers. Though the majority of the studies observed higher number of hoarders who are women than men (e.g., Dozier & Ayers, 2014; Frost et al., 2015; Mueller et al., 2009), some others did not find such difference (e.g., Demirhan, 2014; Frost & Hristova, 2011), and even some studies indicated that men have a higher hoarding tendency than women (e.g., Aydin et al., 2014; Samuels et al., 2008). Likewise, while age is positively correlated with hoarding behavior (Frost et al., 1998; Grisham et al., 2006; Mueller et al., 2007), this relation was not found in other studies (Demirhan, 2014; Dozier & Ayers, 2014; Mueller et al., 2009). Additionally, lower-income groups are more likely to show hoarding behavior than higher-income groups (Aydin et al., 2014; Charilaou & Vijaykumar, 2023; Samuels et al., 2008); however, other studies have not found any difference between these groups (e.g., Demirhan, 2014). The findings regarding occupation are also mixed (e.g., Mathes et al., 2019). Unlike those mixed results, however, family accommodation (i.e., assistance

and reactions of family members to the person with abnormal behavior) has been suggested as a critical factor, particularly for the development of hoarding behavior (Nix & Dozier, 2023; Vorstenbosch et al., 2015).

Besides the works investigating those dysfunctional types of consumption separately, previous studies have expectedly shown compulsive buying and hoarding behaviors are positively correlated (Ye et al., 2021). Such buyers have been shown to have a higher tendency to become hoarders than non-compulsive buyers (Frost et al., 2002). However, it is noteworthy that consumer behavior and decision-making processes differ across cultures (e.g., Kim et al., 2022). For instance, Mueller et al. (2009), who investigated a German sample, showed that compulsive buying and hoarding behaviors are significantly but negatively correlated. In contrast, some other studies conducted in different samples, such as in Chinese (Ye et al., 2021), Caucasian, and African American samples (Frost et al., 2002), showed that they are positively correlated, implying that cultural practices play a role in shaping these behaviors.

Theoretical Framework

Compulsive Buying and Hoarding vs. Stockpiling Behavior

Stockpiling behavior may readily show a resemblance to compulsive buying or even hoarding. However, it should not be considered an abnormal behavior since it appears a reasonable strategy once well-reasoned, justified, and undoubtedly controllable. For instance, this behavior leads consumers to buy higher amounts of the same products than they currently need since they may consider these items will still be needed, but their prices will potentially climb up in the expected future, such as in a global crisis (Ben Hassen et al., 2021; Marshall, 2023; Wang et al., 2020). Therefore, it is no surprise that stockpiling is widely sensitive to price changes and uncertainties (e.g., Beasley, 1998; Gangwar et al., 2014; Guo & Villas-Boas, 2007).

The factors that may affect stockpiling are, again, miscellaneous. For instance, socioeconomic factors such as marital status, ethnicity, educa-

tion level, age, residential area, employment status, and psychological factors such as depression, loneliness, hopelessness, and feeling scared (e.g., El Baba & Fakih, 2023), as well as other related factors, such as storage space (Bell & Hilber, 2006) and type of the product (Franjković et al., 2017; Kirk & Rifkin, 2020) have also been shown to play a role in stockpiling behavior. As a common research strategy, however, the previous research has expectedly investigated stockpiling in panic buying, such as in emergencies, and they have shown that it is highly linked to some item-related factors, e.g., price dumping (see e.g., Guo & Villas-Boas, 2007).

Aim of the Study

The primary motivation of the current study was to investigate specific consumer behaviors (i.e., compulsive buying, hoarding, and stockpiling behaviors) in the same study and by using "survey and big data methods together". Although utilizing multiple approaches in customer research has been suggested as a research strategy to grasp the phenomenon at hand fuller (see e.g., Davis et al., 2011 or an extensive review), using big data is still relatively scarce in this research venue. The main impetus for us to use big data along with a survey method was to reveal an "actual customer behavior" via detecting the patterns of the footprints left in the customer reviews (i.e., in the reviews' contents). This method, therefore, aimed to bridge the gap between customers' perceptions and actual behaviors.

The study retained the following questions: (1) what is the relationship between compulsive buying and hoarding behaviors?; (2) do people have a higher tendency to spend more on the products that they consider highly essential than those they consider less essential?; (3) do people have a higher tendency to stockpile the products that they consider highly essential than those they consider less essential? We expected compulsive buying and hoarding tendencies would be positively correlated, customers would tend to spend more on the products they consider highly essential for them, and the customer reviews would also contain a

higher number of stockpiling contents for them as well, implying that stockpiling tendencies can also be inferred from the customer reviews. Lastly, we expected those with higher compulsive buying tendencies to yield higher "urge to buy scores" than those with lower compulsive buying tendencies.

We ran a two-phased study after receiving ethics approval from the Institutional Ethics Board of Abdullah Gül University (AGU), Kayseri, Türkiye that the researchers are affiliated with and agreeing with the online shopping portal that only publicly available comments left by the actual customers for some products were to be obtained without revealing the names of users, companies, and brands. In the first phase, we conducted an online survey where participants initially evaluated a list of products by considering the following questions and later completed the scales measuring their compulsive buying and hoarding tendencies. Participants were asked to assess 22 products in terms of (1) how essential they find them for their usage, (2) how they think other people will find these items essential, (3) the estimated price, and (4) the maximum price they would be willing to spend on them (see Table 2 for the selected products). Price estimations allowed us to quantify the compulsive buying tendency in terms of the urge to buy scores. We categorized the products' expected essentialities as low-, medium-, and highly essential items (note participants were not informed about that). In the second phase, the same products enlisted in the online survey were also selected on a widely used online shopping platform. The customer reviews given to the most reviewed and the most rated ones were taken with a web scraping method, and their contents were analyzed in terms of how frequently the customers mentioned that they stockpiled them.

Methodology

Participants

The initial selection criteria for participation were being over 18 years old, having a good command of Turkish, and living in Türkiye. The

study was advertised to AGU students via the university's communication platform and the researchers' social media platforms. Therefore, the study used both convenient and snowball samplings. The sample eventually consisted of 189 participants.[1] They rated the enlisted products and filled in the scales (see materials section for the scales used). Participants were adults (18 years and over) who live in Türkiye. Among the participants, 68.78% were female, and the average age was 29.99. Table I displays the sample's demographic characteristics.

Materials

Demographic Information Form

Considering that they might be more related factors to vary the dependent variables (i.e., compulsive shopping, stocking, and hoarding) amongst possible demographic characteristics, The participants were asked to answer the following questions: their ages, gender, type of residential areas, whether they were living with family or not, occupation types, and monthly incomes; see Table 1.

[1] We had to start collecting data due to time management of this research. However, when we had to start data collection, two strong earthquakes hit the Southern and Southeastern parts of Türkiye (i.e., Kahramanmaraş Earthquakes). Therefore, we needed to use an online survey to reach as many participants as possible and use the most available sampling methods that could allow us to reach them. As a result, we used both convenient and snowball samplings. Please also note that the sample size in the online survey part was still not large since the university education was decided to be online throughout the country, and we observed that potential participants were reluctant to take part in such incoming online surveys due to their already prolonged screen times.

Table 1: Demographic Characteristics of the Sample

		Gender / Age				
		Male (*n*)	Age (*sd*)	Female (*n*)	Age (*sd*)	*N*
Type of residential area	Village	5	22.40 (*1.81*)	3	20.00 (1.00)	8
	Town	1	24 (0.0)	12	25.33(6.55)	13
	Small city	19	30.27(*10.54*)	39	30.32(*10.59*)	58
	Metropolitan	34	30.42 (10.52)	76	30.21 (10.06)	110
Living with family	Yes	38	30.53 (*10.64*)	112	30.11 (*10.52*)	150
	No	21	30.26 (*10.51*)	18	30.21 (*10.54*)	39
Occupation	Unemployed	2	34.59 (*10.63*)	11	31.34 (*10.73*)	13
	Student	21	22 (*2.15*)	50	21.33 (*1.76*)	71
	Civil servant	21	36.23 (*12.25*)	46	37.85 (*7.82*)	67
	Private sector	12	25.15 (*2.03*)	21	32.80 (*7.93*)	33
	Independent business	2	31.50 (*7.77*)	0		2
	Retired	1	55 (0.0)	2	52.5 (*12.02*)	3
Monthly income	0-2,000 TL*	6	23 (*1.78*)	30	23.33 (*6.28*)	36
	2,000-5,000 TL**	9	21.88 (*2.08*)	20	22.85 (*7.25*)	29
	5,000-10,000 TL	15	24.2 (4.17)	15	28.73 (7.95)	30
	10,000-15,000 TL	11	38.45 (*14.56*)	19	31.94 (*11.14*)	30
	Above 15,000 TL	18	32.27 (*10.78*)	46	38.52 (*7.93*)	64
	TOTAL	59	28.84 *(10.65)*	130	30.51 *(10.36)*	189

Notes. *TL = Turkish lira. ** The data was collected between February and May 2022, and the minimum wage was 5500,35 Turkish lira during this time.

Extended Compulsive Buying Behavior Scale

The Extended Compulsive Buying Behavior Scale (CBBC-extended), measuring one's irresistible urge (i.e., compulsion) to buy items, was developed by Baltacı and Eser (2021) via combining the two most frequently used scales of Faber and Q'Guinn (1992) and Edwards (1993). Since the existing scales define compulsive buying as one's compulsion to buy an item and as it appears due to several negative emotions, respectively, the researchers suggested utilizing the available scales to cover

the to-be-measured construct better (see Baltacı, 2019). In the extended scale (i.e., CBBC-extended), participants rate their level of agreement to 25 items, two of which are control items, on a 5-point Likert-type interval scale. Baltacı and Eser (2021) showed the total variance explained was 71.44%, and the Cronbach Alfa of the scale was 0.93.

Saving Inventory-Revised

The Saving Inventory-Revised (SI-R) measuring the hoarding tendencies (Frost et al., 2004) was adapted into Turkish by Demirhan (2014). The total variance explained was found to be 41.86%, and the Cronbach Alfa of the inventory was shown as 0.86. It consists of 23 items that are rated on a 5-point Likert-type scale. Though a score of 41 or higher is required for a clinical diagnosis (Frost and Hristova, 2011), the inventory has been suggested to assess non-clinical sample's compulsive saving tendencies as well (e.g., Kalogeraki et al., 2020).

Procedure

The research team, which involved the data science postgraduate student and her thesis supervisor (who run this study and are the authors of the current paper as well, respectively), reviewed all available product categories on the most popular online shopping platform, namely Trendyol (https://trendyol.com), and selected the possible products from each category by considering that their essentialities may vary as low, intermediately essential, and highly essential products. Table 2 shows the products selected in terms of their expected essentiality categories.

Table 2: The Selected Products and Their Expected Essentiality Categories

Product category	Products' expected essentiality categories		
	high	intermediate	low
Clothes	t-shirt	shirt	tracksuit
Food	cheese		ice cream, chocolate
Hygiene	toothpaste, shampoo, toilet paper	deodorant, wet towel	skincare mask, air freshener
Hobby		novel	games console, board games
Stationary		pen/pencil	pin board, day planner
Accessories	purse	sunglasses	hat

The survey part of the study was created on Qualtrics. The responses were collected from adults at least 18 years old and living in Türkiye. Both convenient and snowball sampling techniques were used to reach the sample. The participants could also disseminate the survey link to their social circles (for further details, please see footnote 1). As indicated in the informed consent, participation was entirely voluntary, and participants had the right to leave the study at any time when responding. The link could be accessed for four months. Three-hundred-and-eighty-one people eventually accessed it; however, one respondent was under 18, eight respondents gave unreliable answers (e.g., unrealistic, i.e., astronomic prices for the products), and 183 respondents did not complete the survey entirely (i.e., they left the survey's web page before they fully completed it). After removing those participants, the sample eventually consisted of 189 participants (i.e., the completion rate was 51.96%). As was informed at the beginning of the survey, five participants who reached the final page were directed to a separate link prepared on a Google Form where they could leave their e-mail addresses for a lottery. Five participants were randomly selected, and they received 100 Turkish Liras (TL) Amazon Türkiye gift cards.

After giving consent to take part in the study, participants filled in the demographic form and then rated the enlisted products in terms of how essential they found them for their own on a 5-point interval scale (1 = "not at all essential", 5 = "very much essential"). They also rated each product on how essential they thought they were for others. The main reason to ask this question was to detect whether particularly those who show hoarding tendencies have an insight or a perspective that some items are not quite essential items for almost any others; however, they still have the urge to hoard them. Participants also predicted the average price for each product by considering a prototypical item (e.g., what comes to their mind first when they imagine a typical pair of "sunglasses"). They reported the maximum price they would be willing to spend on each product. Following these ratings and estimations, they filled in the CBBS-extended and SI-R forms. Being a self-paced one, the study lasted between 30 and 45 minutes.

Data Analysis Plan

The survey data obtained on Qualtrics was transferred to the JAMOVI program for statistical analysis. Participants were categorized into low- and high-compulsive buyers and categories of those having low and high hoarding scores (not hoarders vs. hoarders). Since the sample was selected from a non-clinical population, the obtained scores on the scales was not dispersing enough (i.e., the scores were mostly restricted to lower values on the scales), the values between 0.5 standard deviations below and above the mean were excluded, so the scores towards the two edges constituted the two groups (e.g., low- and high-compulsive buyers, and not hoarder and hoarder groups), which eventually enabled the groups significantly different in terms of their mean values. The differences between these groups regarding their demographic characteristics were analyzed via separate independent samples t-tests. The group sizes between those living with their families and those not living with their families differed substantially; therefore, these were equalized to avoid violations in statistical analyses. Specifically, the same number of

the participants' responses were randomly selected from the larger group to that of the smaller one.

Pearson's correlation analysis was applied to investigate the relationship between compulsive buying behavior and hoarding behavior. The difference between the products' predicted essentialities and the essentiality levels derived from the survey results was examined using Spearman's rank correlation. This correlation analysis was also applied to compare the essentiality levels of the products from survey results and stockpiling rates of these products derived from the consumer reviews. Independent samples t-tests were also used to reveal whether low- and high-compulsive buyer groups differed in their ratings on the products' essentiality levels, average prices that they gave, and the maximum prices they were willing to spend on each item. Finally, separate "urge to buy scores" for each participant: Urge to buy = (maximum price – predicted price) / predicted price. For instance, if one estimates the average price of a regular novel is 250 TL, yet they are willing to pay a maximum of 1400 TL for it, then the urge to buy score of the participant for that item is "4.6" (i.e., [1400-250]/250]). In order words, it is inferred that this participant is willing to pay three times more than their estimated average price. Note that some urge to buy scores may yield minus (-) signs instead of (+) signs, implying that the participant is now willing to pay even less than what they estimate the item's average price would typically be in the market.

Web Scraping of the Customer Reviews

Consumer reviews were collected from https://www.trendyol.com via web scraping (see e.g., Khder, 2021), the most popular online shopping site in Türkiye in the last twelve months according to the data provided by Google Trends. The sample, therefore, consisted of the consumers who made online shopping and left a review for the products listed in the survey, except ice cream, since it was not an available item in the selected online shopping platform. All available enlisted product categories and the items under each category were first reviewed on the

shopping portal, and the best-selling products in the selected category (e.g., the best-selling shampoo and the best-selling t-shirt) were determined. The best-selling products were thought to be more accessible and affordable for the majority, and the consumers would have tended to stock them, proving that they liked them. Therefore, the reviews where the related product received only four and five stars (out of five stars) were collected and the remaining reviews were not considered (N = 106,646). We also combined the reviews of two or more best-selling items since the number of customer reviews was so low for some products, although they received very high ratings (e.g., 4 or 5), such as the best-selling brand of shampoo that month. Eventually, the number of reviews that we collected ranged between 801 (for sunglasses) and 13874 (for toothpaste), with an average of 5078.4 reviews per product (sd = 3597.5).

We used Python software to collect data from this online shopping website since it appears to be one of the most convenient programs for web scraping due to its large libraries and the opportunities it provides coders (Thomas & Mathur, 2019). Additionally, Selenium emerges as one of the resources used to acquire web data among the available libraries (Chaulagain et al., 2017). Therefore, this study used the Selenium library for web scraping mainly because it is an open-source library, supports various web browsers, and provides the opportunity to scrape without a visible browser window (Bale et al., 2022). Since Structured Query Language (SQL) allows users to store, fetch, and manipulate data more conveniently, and DB2 provides a complete comprehension of the structure of the database (Karlsson et al., 2001), the collected reviews were stored in IBM Database 2 (DB2). Lastly, the data collected by Selenium can be directly transferred into the database using the IBM_DB module in Python. In this way, the requirement to store the data on computers is eliminated, reducing the probability of data loss and memory problems.

Using the web scraping method, we collected 106646 consumer reviews from 21 chosen products (excluding ice cream) for the second part of the study. The frequencies of the reviews that involved all pos-

sible stockpiling contents that we could think of were calculated to reach the percentage of stockpiling contents in the reviews, such as those involving the following phases and their possible variations in Turkish: "stokladım/stok yaptım (I've stockpiled)", "çoklu aldım (I've purchased multiple numbers of it)", "2/İki paket aldım (I've purchased 2/two packages)", and "bitmeden yenisini aldım/sipariş verdim (I've purchased/ordered a new one again before it runs out)", and alike.

Results

Correlation Between Compulsive Buying and Hoarding

Pearson Product Moment Correlation Coefficient was applied to reveal whether compulsive buying behavior and hoarding behavior are related. As expected, the result showed a significant positive correlation between compulsive buying and hoarding behaviors; r (187) = 0.39, $p <$ .001.

Effects of Some Demographics on Compulsive Buying and Hoarding Behaviors

Separate independent samples t-tests and correlation analyses were initially applied to each demographic and compulsive buying behavior (and then hoarding behavior). Only gender was a significant variable in compulsive buying. That is, women were found to have significantly higher compulsive buying tendencies than men. However, living family or not and occupation did not differ between low- and high-compulsive buyer groups, and monthly income and age did not correlate with the level of compulsive buying tendency; see Table 3.

Table 3: T-Test and the Correlation Analyses Results Obtained When the Compulsive Buying Scores were Analyzed Concerning Several Demographic Variables

		N	*M*	*t*	df	*p*
Gender	Male	59	45.40	4.06	187	<.001
	Female	130	55.70			
Living with Family*	Yes	39	50.00	-0.18	76	0.85
	No	39	50.70			
Occupation	Unemployed	87	54.20	1.30	187	0.19
	Employed	102	51.00			
Monthly income	Below minimum wage	95	53.30	0.61	187	0.53
	Above the minimum wage	94	51.70			
			Spearman's *ρ*		**df**	***p***
Monthly income		189	-0.08		187	0.24
			Pearson's *r*		**df**	***p***
Age		189	-0.12		187	0.09

Notes. * Group sizes were equalized to avoid violation of the normality assumption.

Hoarding behavior was also examined in terms of demographic variables. The results did not provide a significant difference in hoarding tendency in terms of gender. However, a significantly negative correlation was found between hoarding tendency and age. Even though this relationship was weak, younger people were found to have a higher hoarding tendency than older people. The independent samples t-test did not reveal a significant difference between hoarding and not-hoarding groups regarding their monthly incomes (note that participants were clustered into below- and above-minimum wage groups). The p-value in this analysis was close to the 95% confidence interval (.53); therefore, a separate Spearman's rank correlation analysis was applied to examine

the relationship between hoarding tendency and monthly income. The correlation analysis resulted in a marginally high p-value and a negative correlation score; ρ (187) = -0.14, p = .05, implying that the participants' hoarding tendency increased as their monthly incomes decreased. Further analyses showed that those who lived with families and those who did not live with their families did not differ regarding their hoarding behaviors. Table 4 shows the results for hoarding behavior and the sample's demographics.

Table 4: T-Test and the Correlation Analyses Results Obtained When the Saving (Hoarding) Scores were Analyzed Concerning Several Demographic Variables

		N	*M*	*t*	df	*p*
Gender*	Male	59	27.00	0.39	116	0.69
	Female	59	26.10			
Living with Family*	Yes	39	29.10	0.25	76	0.80
	No	39	28.30			
Occupation	Unemployed	87	30.70	2.30	187	0.02
	Employed	102	26.60			
Monthly Income	Below minimum wage	95	30.20	1.89	187	0.06
	Above minimum wage	94	26.80			
			Spearman's ρ		**df**	***p***
Monthly Income		189	-0.14		187	0.05
			Pearson's *r*		**df**	***p***
Age		189	-0.16		187	0.02

Notes. *Group sizes were equalized to avoid violation of the normality assumption.

Compulsive Buying, Hoarding, and Product Essentiality

Pearson's correlation analysis was applied to reveal whether people's tendency to buy the products is related to the items' perceived essentialities. This analysis, however, did not show a significant result (r = .028, p = .702), suggesting that the essentiality of the product was not related to the sample's spending behavior. However, the researchers varied the essentiality level for each product before collecting data. Therefore,

Kendall's Tau rank correlation was applied to examine the consistency between the varied expected essentialities and the actual perceived essentiality levels of the products given by the participants. The result showed they were significantly correlated: $\tau = 0.75$, $p < .001$. The products we predicted to be highly essential were also considered highly essential by the participants.

Further t-test analyses showed that the high-compulsive buyer group considered the products more essential than the low-compulsive buyer group; $t\ (122) = 2.91$, $p < .005$. Results did not reveal any significant difference in the predicted average prices ($t\ (122) = -0.609$, $p > .05$) and maximum spending ($t\ (122) = -1.27$, $p > .05$) between these groups. Though high- and low-compulsive buying groups differed regarding products' perceived essentialities, results did not reveal any difference between high- and low-hoarding groups regarding their perceived essentialities of the products; $t\ (114) = -1.09$, $p > .05$.

Urge to buy and product essentialities in compulsive buying and hoarding groups

First, a Kendall's Tau rank correlation analysis was applied to test the hypothesis that the urge to buy would increase with the products' perceived essentiality levels (note that the rank correlation was calculated for all products separately rather than clusters). Results revealed a positive rank correlation between the essentiality level and urge to buy scores of the products; $\tau = 0.51$, $p < .001$. Participants rated higher perceived essentialities to the products that they revealed higher urge to buy scores; however, the results did not reveal any significant difference in the urge to buy scores ($t\ (122) = -0.70$, $p > .05$) between high- and low-compulsive buying groups (see Figure 1).

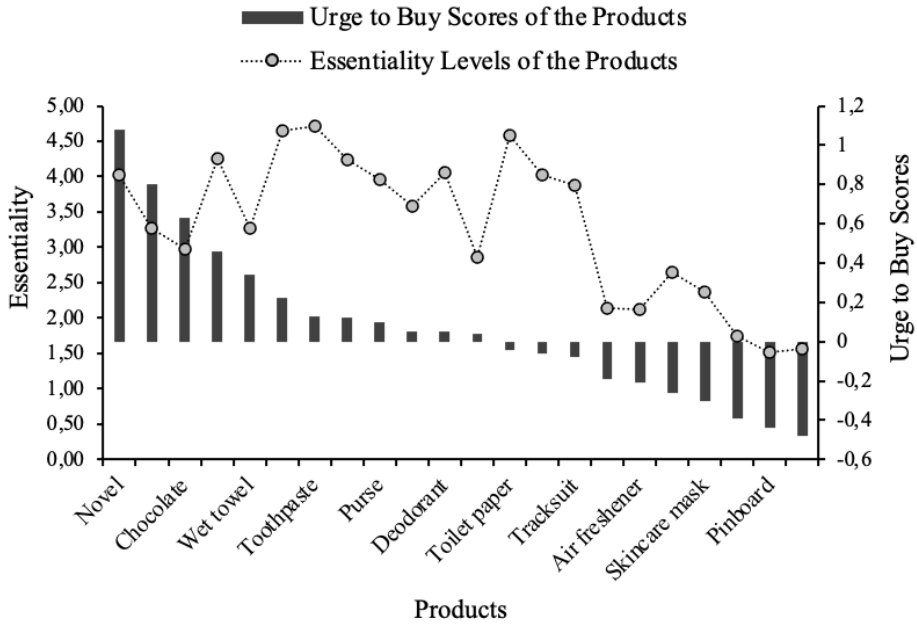

Figure 1. Urge to Buy Scores of the Products and Their Perceived Essentiality Scores

Customer Reviews, Product Essentiality, and Stockpiling

Kendall's Tau rank correlation was applied to infer from survey results and consumer reviews (N=106646). Kendall's Tau B was found to be 0.41 with a significant p-value (p<.05), suggesting a significant correlation between the ranks of the essentiality levels of the products obtained in the survey and the percentage of the stockpiling contents left in the reviews of these products (see Figure 2).

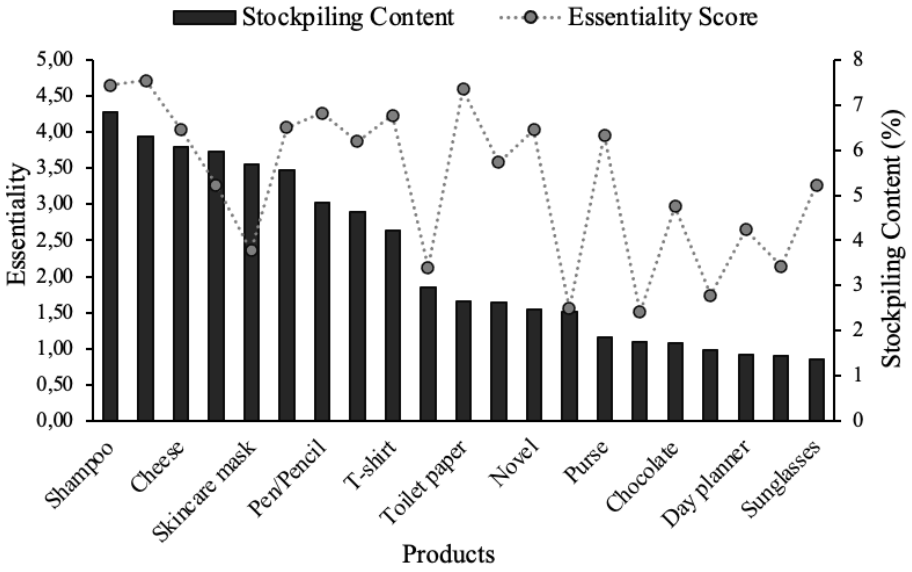

Figure 2. Percentage of Stockpiling Content in Customer Reviews and Essentiality Levels of the Products Observed in the Survey

As seen in Figure 2, product essentiality and stockpiling rates of products follow a similar trend. As the percentage of stockpiling contents of the customer reviews diminishes, the participants' perceived essentiality levels also tend to be gradually lower.

Conclusion

We investigated consumers' compulsive buying, hoarding, and stockpiling behaviors using a survey and a particular big data method, web scraping. Being parallel to previous studies (Frost et al., 2002, 2004; Mueller et al., 2009; Ye et al., 2021), compulsive buying and hoarding behaviors were found to be positively correlated in this study as well, implying customers tended to buy compulsively also tend to hoard items. We also found compulsive buyers rated significantly higher essentiality to the items than those with lower compulsive buying. This pattern suggests that compulsive buyers also seem to exhibit a similar pattern as those with hoarding behavior in the way that they highly value the items

(e.g., Frost et al., 1998). However, we did not find a significant difference in the essentiality of products considered by hoarding and not-hoarding groups, although previous research suggested hoarders acquire and save objects since they think disposing of the objects is wasting a potentially useful thing (Dozier & Ayers, 2014). This finding implied that those who tended to hoard more may have avoided discarding the saved objects mainly due to the strong bond they built for them rather than the fact that they considered their saved possessions essential.

We also showed some demographics are related to compulsive buying and saving (i.e., hoarding) behaviors. For instance, as was shown in some previous studies (Dittmar, 2005a; Harvanko et al., 2013) women showed higher compulsive buying tendencies than men. Even though women have been shown to tend to hoard more than men in previous works (e.g., Dozier & Ayers, 2014; Frost et al., 2015), we did not find a significant difference in terms of gender, living or not living with family, income, and occupation, which was similar to some other works, such as of Demirhan (2014) and Frost and Hristova (2011). Yet again, even though the relationship was weak, we found a negative correlation between hoarding behavior and age, unlike some previous works that showed a positive correlation between these variables (e.g., Frost et al., 1998; Grisham et al., 2006; Mueller et al., 2007) but like some other studies that they did not show such a positive correlation (e.g., Demirhan, 2014; Dozier & Ayers, 2014; Mueller et al., 2009).

Additionally, our prediction of the products' expected essentialities matched the perceived essentiality levels the participants assigned. Correlation analysis showed that the urge to buy was mostly concordant with the essentiality of the product. That is, customers were willing to pay more for the items that they considered more essential.

However, some products with higher urge to buy scores were not considered essential in a parallel fashion. In other words, participants seemed to be willing to spend more on the products than they estimated the products' average prices, even though the products were not considered essential for them (e.g., chocolate and sunglasses).

We also investigated the consumer reviews of certain products in an online shopping platform. Then, we calculated the frequencies of the consumers' stockpiling contents among all possible reviews given to each product (i.e., % of these contents). As confirmed by our expectations, the results showed a medium yet significant correlation between the percentage of stockpiling contents in the reviews and the essentiality levels obtained in the survey. That is, the stockpiling behavior seemed to increase as the essentiality of the products increased. One surprising finding on the stockpiling rates was of toilet paper. The survey participants considered this product as one of the most essential products; however, it was in the 11th order among 21 available products in terms of their percentages of stockpiling contents even though this product is known to be the most stockpiled one (Franjković et al., 2017). We relate this finding to the possibility that toilet paper can readily be bought in large packages so that purchasing a large package can already be considered as stockpiling them without any further need to buy additional packages (e.g., we took the reviews of the bestselling 48-roll toilet papers in this study).

Finally, this study has two main contributions to the research on customer behaviors. First, we suggest the quantified measurement of customers' compulsions to buy a product, which we herein call the "urge to buy" score, can be calculated by using a simple yet straightforward formula (i.e., [maximum price – predicted price] / predicted price]). Although previous works suggested some factors to distinguish impulsive and compulsive buying to reveal their specific natures of urges to buy (Flight et al., 2012) or also suggested several methods to measure the willingness to pay scores of the customers (see e.g., Miller et al., 2011), our suggestion herein is to utilize the term "urge" instead of "willingness" for compulsive buyers in particular and to quantify this urge with, for instance, the above-mentioned formula. Second, despite its relatively lower usage than other conventional research strategies in customer research, using big data (and even artificial intelligence) seems to have a huge potential to find converging or further evidence to those gathered directly from the participants, such as in surveys or experiments. For

instance, we could reveal the association between a particular perception (e.g., perceived essentialities of the products) and a possibly related actual behavior by following the footprints of this relation in the stockpiling reporting of actual customers.

Limitations of the Study and Suggestions for Future Research

The study had the following limitations. First, the sample size of the survey was relatively small. The sample size in the online survey part was not large since we had to collect data after a little while (i.e., four weeks later) when a strong earthquake hit the Southern and Southeastern parts of Türkiye. The university education was also wholly transformed to online again throughout the whole country, and so the prospective participants, particularly the university students, seemed to struggle to be online further for the incoming survey requests. Therefore, we needed to reorganize the data for the analyses. For instance, we planned to apply the analysis of variance (ANOVA) statistics to the possible occupational groups; however, we could not reach enough numbers of those with different occupations. Therefore, we needed to cluster the participants' occupations into two broad categories, such as civil servants and private sector workers, and so we applied independent samples of t-test statistics. Also, our sample consisted of a larger group of women (almost 70%), which rendered the group sizes of genders not comparable enough when analyzing various variables concerning gender.

Future studies, therefore, may consider recruiting larger and evenly distributed sample sizes for the demographic variables. Future studies may also have an alternative product list or a broader list along with the ones listed in this study. Also, we collected consumer reviews from one online shopping platform. Prospective research may also consider collecting these reviews from multiple platforms and/or sources to compare customers' compulsive buying, hoarding, and stockpiling behaviors between different platforms and products. Additionally, we only considered the stockpiling contents in the reviews; therefore, future research can examine them in terms of "the reasons why they are stockpiled"; for

instance, whether they include any content mentioning the existence of dumping in the price, the current and/or the expected future prices (e.g., an expected price increase due to inflation), and alike. Lastly, we suggest future studies utilize a newer calculation method, which we term "urge to buy" scores, to infer customers' compulsions to buy a product along with the related scales that measure compulsive buying behaviors. Using big data in customer research may also allow researchers to reveal the reflections, footprints, or patterns of various purchasing behaviors.

Research and Publication Ethics Statement

The study was carried out following approval from the Institutional Ethics/Review Board of Abdullah Gül University, as documented by decision No: E-23934413-050.04.04-57331 dated 27th February 2023.

Authors' Contribution Rates to the Article

The authors contributed equally to the article.

Statement of Interest

We have no conflict of interest to disclose.

References

Akagün Ergin, E. (2010). Compulsive buying behavior tendencies: The case of Turkish consumers. *African Journal of Business Management*, 4(3), 333–338.

Aydin, E., Konkan, R., Alatas, G., Tabo, A., Yigit, S., Gonullu, O. and Aydin, E. (2014). Çöp Evler ve DSM-5 Yeni Tanı Kategorisi Biriktirme Bozukluğu: Sınırlı Alan Çalışması. *Anatolian Journal of Psychiatry*, 15(4), p. 289, doi: 10.5455/apd.48434.

Bale, A. S., Ghorpade, N., Kamalesh, S., Rohith, R. & Rohan, B. S. (2022). Web Scraping Approaches and their Performance on Modern Websites. *2022 3rd International Conference on Electronics and Sustainable Communication Systems (ICESC)*, presented at the 2022 3rd International Conference on Electronics and Sustainable Communication Systems (ICESC), IEEE, Coimbatore, India, pp. 956–959, doi: 10.1109/ICESC54411.2022.9885689.

Baltacı, A. (2019). *Kompulsif Satın Almada Durumsal Faktörler ve Benlik Algısının Etkisi Üzerine Bir Araştırma*, Unpublished Doctoral Thesis, Başkent University, Ankara.

Baltacı, A. & Eser, Z. (2021). Genişletilmiş Alternatif Bir Kompulsif Satın Alma Davranışı Ölçme Aracı Önerisi. *Yüksek İhtisas Üniversitesi Sağlık Bilimleri Dergisi*, 2 39–48, doi: 10.51261/yiu.2021.00034.

Beasley, F. M. (1998). An Examination Of Stockpiling Behavior In Response To Price Deals *Academy of Marketing Studies Journal*, 21 23–34.

Bell, D. R. & Hilber, C. A. L. (2006). An Empirical Test of the Theory of Sales: Do Household Storage Constraints Affect Consumer and Store Behavior. *Quantitative Marketing and Economics*, 4, 87–117, doi: 10.1007/s11129-006-8127-9.

Ben Hassen, T., El Bilali, H., Allahyari, M. S., Berjan, S., Karabašević, D., Radosavac, A., Dašić, G., *et al.* (2021). Preparing for the Worst? Household Food Stockpiling during the Second Wave of

COVID-19 in Serbia. *Sustainability*, 1320 11380, doi: 10.3390/su132011380.

Charilaou, L. & Vijaykumar, S. (2023). Influences of News and Social Media on Food Insecurity and Hoarding Behavior During the COVID-19 Pandemic. *Disaster Medicine and Public Health Preparedness*, 17, e58, doi: 10.1017/dmp.2021.315.

Chaulagain, R. S., Pandey, S., Basnet, S. R. & Shakya, S. (2017). Cloud Based Web Scraping for Big Data Applications. *2017 IEEE International Conference on Smart Cloud (SmartCloud)*, presented at the 2017 IEEE International Conference on Smart Cloud (SmartCloud), IEEE, New York, NY, pp. 138–143, doi: 10.1109/SmartCloud.2017.28.

Christenson, G. A., Faber, R. J., De Zwaan, M., Raymond, N. C., Specker, S. M., Ekern, M. D., Mackenzie, T.B., *et al.* (1994). Compulsive buying: Descriptive characteristics and psychiatric comorbidity. *Journal of Clinical Psychiatry*, 551 5–11.

d'Astous, A. (1990). An inquiry into the compulsive side of 'normal' consumers. *Journal of Consumer Policy*, 131 15–31, doi: 10.1007/BF00411867.

Davis, D. F., Golicic, S. L. & Boerstler, C.N. (2011). Benefits and challenges of conducting multiple methods research in marketing. *Journal of the Academy of Marketing Science*, 3 467–479, doi: 10.1007/s11747-010-0204-7.

Demirhan, N. (2014). *Kompulsif Biriktirmenin Bilişsel-Davranişçi Modelinin İncelenmesi Ve Biriktirme Envanteri-Gözden Geçirilmiş Formu'nun Türkçeye Uyarlanması.* Master Thesis, Uludağ University, Bursa.

Deshpande, P. P. (2015). Consumer Behavior as a Synthesis of Different Social Science Approaches *Journal of Socialomics*, 4(2), 1-4, doi: 10.4172/2167-0358.1000123.

Dittmar, H. (2005a). A New Look at 'Compulsive Buying': Self–Discre-

pancies and Materialistic Values as Predictors of Compulsive Buying Tendency. *Journal of Social and Clinical Psychology*, 24(6), 832–859, doi: 10.1521/jscp.2005.24.6.832.

Dittmar, H. (2005b). Compulsive buying – a growing concern? An examination of gender, age, and endorsement of materialistic values as predictors. *British Journal of Psychology*, 96(4), 467–491, doi: 10.1348/000712605X53533.

Dozier, M. E. & Ayers, C. R. (2014). The Predictive Value of Different Reasons for Saving and Acquiring on Hoarding Disorder Symptoms. *Journal of Obsessive-Compulsive and Related Disorders*, 3(3), 220–227, doi: 10.1016/j.jocrd.2014.05.002.

Edwards, E. A. (1993). Development of a New Scale for Measuring Compulsive Buying Behavior. *Financial Counseling and Planning*, 4(1), 67–84.

El Baba, W. & Fakih, A. (2023). COVID-19 and Consumer Behavior Food Stockpiling in the US Market. *Agribusiness*, 39(2), 515–534, doi: 10.1002/agr.21786.

Faber, R. J. & Christenson, G. A. (1996). In the mood to buy: Differences in the mood states experienced by compulsive buyers and other consumers. *Psychology and Marketing*, John Wiley and Sons, US, 13(8), 803–820, doi: 10.1002/(SICI)1520-6793(199612)13:8<803 ::AID-MAR6>3.3.CO;2-2.

Faber, R. J. & O'Guinn, T.C. (1992). A Clinical Screener for Compulsive Buying. *Journal of Consumer Research*, 19(3), p. 459, doi: 10.1086/209315.

Flight, R., Markley, M. & Beatty, S. (2012). Feeling The Urge: Affect in Impulsive and Compulsive Buying. *Journal of Marketing Theory and Practice*, 20, 453–465, doi: 10.2307/23461978.

Fogel, J. Schneider, M. (2011). Credit card use: disposable income and employment status. *Young Consumers*, 12(1), 5–14, doi: 10.1108/17473611111114740.

Franjković, J., Dujak, D. & Šebalj, D. (2017). Price Promotions – Implications for Logistics and Consumer Behavior. *Proceedings of International Scientific Conference Business Logistics in Modern Management*, pp. 351–366.

Frost, R. O. & Hristova, V. (2011). Assessment of hoarding. *Journal of Clinical Psychology*, 67(5), 456–466, doi: 10.1002/jclp.20790.

Frost, R. O., Kim, H.-J., Morris, C., Bloss, C., Murray-Close, M. Steketee, G. (1998). Hoarding, compulsive buying and reasons for saving. *Behavior Research and Therapy*, 36(7-8), 657–664, doi: 10.1016/S0005-7967(98)00056-4.

Frost, R. O., Steketee, G. & Grisham, J. (2004). Measurement of compulsive hoarding: saving inventory-revised. *Behavior Research and Therapy*, 42(10), 1163–1182, doi: 10.1016/j.brat.2003.07.006.

Frost, R. O., Steketee, G., Tolin, D.F., Sinopoli, N. & Ruby, D. (2015). Motives for acquiring and saving in hoarding disorder, OCD, and community controls. *Journal of Obsessive-Compulsive and Related Disorders*, 4, 54–59, doi: 10.1016/j.jocrd.2014.12.006.

Frost, R. O., Steketee, G. & Williams, L. (2000). Hoarding: A Community Health Problem. *Health and Social Care in the Community*, 8(4), 229–234, doi: 10.1046/j.1365-2524.2000.00245.x.

Frost, R. O., Steketee, G. & Williams, L. (2002). Compulsive buying, compulsive hoarding, and obsessive-compulsive disorder. *Behavior Therapy*, 33(2), 201–214, doi: 10.1016/S0005-7894(02)80025-9.

Gangwar, M., Kumar, N. & Rao, R. C. (2014). Consumer Stockpiling and Competitive Promotional Strategies. *Marketing Science*, 33(1), 94–113, doi: 10.1287/mksc.2013.0814.

Grisham, J.R., Frost, R.O., Steketee, G., Kim, H.-J. & Hood, S. (2006). Age of onset of compulsive hoarding. *Journal of Anxiety Disorders*, 20(5), 675–686, doi: 10.1016/j.janxdis.2005.07.004.

Guo, L. & Villas-Boas, J.M. (2007). Consumer Stockpiling and Price Competition in Differentiated Markets. *Journal of Economics*

and Management Strategy, 16(4), 827–858, doi: 10.1111/j.1530-9134.2007.00159.x.

Harvanko, A., Lust, K., Odlaug, B.L., Schreiber, L.R.N., Derbyshire, K., Christenson, G. & Grant, J.E. (2013). Prevalence and characteristics of compulsive buying in college students. *Psychiatry Research*, 210(3), 1079–1085, doi: 10.1016/j.psychres.2013.08.048.

Hassay, D.N. & Smith, M.C. (1996). Compulsive buying: An examination of the consumption motive. *Psychology and Marketing*, 13(8), 741–752, doi: 10.1002/(SICI)1520-6793(199612)13:8<741::AID-MAR2>3.0.CO;2-F.

Kalogeraki, L., Vitoratou, S., Tsaltas, E., Stefanatou, P., Chalimourdas, Th., Mourikis, I., Vaidakis, N., *et al.* (2020). Factor structure and psychometric properties of the Greek version of Saving Inventory-Revised (SI-R) in a non-clinical sample. *Psychiatriki*, 31(2), 105–117, doi: 10.22365/jpsych.2020.312.105.

Kancherla, N., Garlapati, S.K.P., Sowkhya, P., Yegateela, T. & McCrary, A. (2022). A Case of Coexisting Depression and Hoarding Disorder. *Cureus*, 14(6), doi: 10.7759/cureus.25645.

Kardes, F. R., Cronley, M. L. & Cline, T.W. (2011). *Consumer Behavior*, South-Western, Cengage Learning, Mason, OH.

Karlsson, J. S., Lal, A., Leung, C. & Pham, T. (2001). IBM DB2 Everyplace: a small footprint relational database system. *Proceedings 17th International Conference on Data Engineering*, presented at the 17th IEEE International Conference on Data Engineering, IEEE Comput. Soc, Heidelberg, Germany, pp. 230–232, doi: 10.1109/ICDE.2001.914833.

Khare, A. (2013). Credit Card Use and Compulsive Buying Behavior. *Journal of Global Marketing*, 26(1), 28–40, doi: 10.1080/08911762.2013.779406.

Khder, M. (2021). Web Scraping or Web Crawling: State of Art, Techniques, Approaches and Application *International Journal of Ad-*

vances in Soft Computing and Its Applications, 13(3), 145–168, doi: 10.15849/IJASCA.211128.11.

Kim, S., Sheng, X. & Ketron, S.C. (2022). The Roles of Legacy Versus Social Media Information Seeking in American and Chinese Consumers' Hoarding During COVID-19. *Journal of International Marketing*, SAGE Publications Inc, 30(2), 38–55, doi: 10.1177/1069031X221089347.

Kirk, C. P. & Rifkin, & L.S. (2020). I'll trade you diamonds for toilet paper: Consumer reacting, coping and adapting behaviors in the COVID-19 pandemic. *Journal of Business Research*, 117, 124–131, doi: 10.1016/j.jbusres.2020.05.028.

Kotler, P., Keller, K. L. & Chernev, A. (2022). *Marketing Management*, Sixteenth edition; global edition. Pearson Education, Harlow, England.

Krych, R. (1989). Abnormal Consumer Behavior: a Model of Addictive Behaviors. *ACR North American Advances*, NA-16.

Kyrios, M., Frost, R. O. & Steketee, G. (2004). Cognitions in Compulsive Buying and Acquisition. *Cognitive Therapy and Research*, 28(2), 241–258, doi: 10.1023/B:COTR.0000021543.62799.32.

Leite, P. L. & Silva, A. C. (2016). Psychiatric and socioeconomic aspects as possible predictors of compulsive buying behavior. *Trends in Psychiatry and Psychotherapy*, 38(3), 141–146, doi: 10.1590/2237-6089-2015-0057.

Marshall, M. (2023). Prepared for a Crisis and the Unexpected: Managing Everyday Eventualities Through Food Storage Practices. *Food, Culture and Society*, 26(2), 305–326, doi: 10.1080/15528014.2021.1967643.

Mathes, B. M., Henry, A., Schmidt, N. B. & Norberg, M. M. (2019). Hoarding Symptoms and Workplace Impairment. *British Journal of Clinical Psychology*, 58(3), 342–356, doi: 10.1111/bjc.12212.

Miller, K. M., Hofstetter, R., Krohmer, H. & Zhang, Z. J. (2011). How Should Consumers' Willingness to Pay be Measured? An Empiri-

cal Comparison of State-of-the-Art Approaches. *Journal of Marketing Research*, SAGE Publications Inc, 48(1), 172–184, doi: 10.1509/jmkr.48.1.172.

Mueller, A., Mitchell, J. E., Crosby, R. D., Glaesmer, H. & de Zwaan, M. (2009). The prevalence of compulsive hoarding and its association with compulsive buying in a German population-based sample. *Behavior Research and Therapy*, 47(8), 705–709, doi: 10.1016/j.brat.2009.04.005.

Mueller, A., Mueller, U., Albert, P., Mertens, C., Silbermann, A., Mitchell, J. E. & De Zwaan, M. (2007). Hoarding in a compulsive buying sample. *Behavior Research and Therapy*, 45(11), 2754–2763, doi: 10.1016/j.brat.2007.07.012.

Nayeem, T. (2012). Cultural Influences on Consumer Behavior. *International Journal of Business and Management*, 7(21), , doi: 10.5539/ijbm.v7n21p78.

Nix, C. A. & Dozier, M. E. (2023). Generational Impact of Household Clutter. *British Journal of Clinical Psychology*, 1 260–271, doi: 10.1111/bjc.12407.

O'Guinn, T. C. & Faber, R. J. (1989). Buying: A Phenomenological Exploration. *Journal of Consumer Research*, 162 p. 147, doi: 10.1086/209204.

Rindfleisch, A., Burroughs, J. E., & Denton, F. (1997). Structure, Materialism, and Compulsive Consumption. *Journal of Consumer Research*, 234 p. 312, doi: 10.1086/209486.

Samuels, J. F., Bienvenu, O. J., Grados, M. A., Cullen, B., Riddle, M. A., Liang, K., Eaton, W.W., *et al.* (2008). Prevalence and Correlates of Hoarding Behavior in a Community-Based Sample. *Behavior Research and Therapy*, 46(7), 836–844, doi: 10.1016/j.brat.2008.04.004.

Shoham, A., Gavish, Y. & Akron, S. (2017). Hoarding and Frugality Tendencies and their Impact on Consumer Behaviors. *Jour-*

nal of International Consumer Marketing, 29(4), 208–222, doi: 10.1080/08961530.2017.1310646.

Solomon, M., Russell-Bennett, R. & Previte, J. (2012). *Consumer Behavior*, Pearson Higher Education AU.

Steketee, G. & Frost, R. (2003). Compulsive hoarding: Current status of the research. *Clinical Psychology Review*, 23(7), 905–927, doi: 10.1016/j.cpr.2003.08.002.

Thomas, D. M. & Mathur, S. (2019). Data Analysis by Web Scraping using Python. *2019 3rd International Conference on Electronics, Communication and Aerospace Technology (ICECA)*, presented at the 2019 3rd International Conference on Electronics, Communication and Aerospace Technology (ICECA), IEEE, Coimbatore, India, pp. 450–454, doi: 10.1109/ICECA.2019.8822022.

Thomas, N. D. (1998). Hoarding: Eccentricity or Pathology: When to Intervene? *Journal of Gerontological Social Work*, 1 45–55, doi: 10.1300/J083v29n01_04.

Vorstenbosch, V., Antony, M. M., Monson, C. M. & Rowa, K. (2015). Accommodation in Problem Hoarding. *Journal of Obsessive-Compulsive and Related Disorders*, 7, 7–15, doi: 10.1016/j.jocrd.2015.08.001.

Wang, E., An, N., Gao, Z., Kiprop, E. & Geng, X. (2020). Consumer food stockpiling behavior and willingness to pay for food reserves in COVID-19. *Food Security*, 124 739–747, doi: 10.1007/s12571-020-01092-1.

Wilkie, W. L. (1994). *Consumer Behavior*, 3rd ed., John Wiley and Sons Inc, New York.

Ye, J., Lam, S. C. & He, H. (2021). Prevalence of Compulsive Buying and Hoarding Behaviors in Emerging, Early, and Middle Adulthood: Multicentre Epidemiological Analysis of Non-clinical Chinese Samples. *Frontiers in Psychology*, 12, 568041, doi: 10.3389/fpsyg.2021.568041.

Genişletilmiş Özet

Ölçeklerden Veri Kazımaya: Kompulsif Satın Alma, Satın Alma Dürtüsü, İstifçilik ve Stokçuluk Eğilimlerine Yönelik Karma Yöntemli Bir Araştırma

Bu çalışmada, tüketicilerin kompulsif satın alma, istifleme ve stoklama davranışları anket ve veri kazıma yöntemlerinin birlikte kullanılarak incelenmesi ve böylece tüketici davranışı literatürüne katkı sunulması amaçlanmaktadır. Anket çalışmasının sonucunda; (1) kompulsif satın alma ve istifleme davranışları arasındaki pozitif yönlü ilişki, (2) kadınların kompulsif satın alma eğiliminin erkeklere göre daha yüksek olduğu, (3) genç yetişkinlerin ve düşük gelirli grubun istifleme davranışı gösterdikleri, (4) tüketicilerin gerekli gördükleri ürünlere yönelik satın alma dürtülerinin daha yüksek olduğu ve (5) yüksek kompulsif satın alma eğilimi gösteren grubun düşük kompulsif satın alma eğilimi gösteren gruba göre ürünleri kendileri için daha gerekli gördükleri bulunmuştur. Ek olarak, veri kazıma yöntemi ile elde edilen tüketici yorumlarında yer alan ve stoklama belirten ifadelerin yüzdesi ile anket sonuçlarından elde edilen ürünlerin gereklilik düzeyleri arasında bir karşılaştırma yapıldığında, ürünlerin algılanan gereklilik düzeyleri ile stoklanma yüzdeleri arasında pozitif yönlü bir ilişki bulunmuştur.

Çalışmada yer alan çevrimiçi ankette katılımcılar ilk olarak kendilerine verilen bir ürün listesine ait belirli soruları yanıtlamış ve sonrasında doldurdukları ölçekler ile katılımcıların kompulsif satın alma ve istifleme davranışları ölçülmüştür. Katılımcılara gereklik düzeyleri farklılaşacağı düşünülen ve 22 üründen oluşan bir ürün listesi sunulmuş ve her bir ürün için (1) bu ürünleri kendileri için ne kadar gerekli gördükleri, (2) diğer insanların bu ürünleri ne kadar gerekli gördüğünü düşündükleri, (3) ürünlerin tahmini fiyatlarını ve (4) bu ürünlere ödeyecekleri en yüksek fiyatı belirtmeleri istenmiştir. Fiyat tahminleri kullanılarak katılımcıların satın alma dürtüleri hesaplanmış ve kompulsif satın alma davranışının satın alma dürtüsü ile paralellik gösterdiği gözlenmiştir.

Tüketici yorumlarının toplanması aşamasında ise öncelikle Google Trends üzerinden veri toplanıldığı dönemde Türkiye'deki en çok kullanılan çevrimiçi alışveriş platformu (Trendyol) tespit edilmiştir. Sonrasında, ankette yer alan ürünlerin o dönemde Trendyol üzerinde en çok satılan karşılıkları belirlenmiş ve Python programlama dilinde yer alan Selenium kütüphanesi kullanılarak bu

ürünlere 5 yıldız üzerinden 4 ve 5 yıldız veren tüketicilerin yorumları toplanmıştır. Kolay ulaşılabilir olduğu ve tüketicilerin beğendiği düşünülerek araştırma için en çok satan ürünler tercih edilmiştir. 4 ve 5 yıldız veren tüketicilerin yorumlarının toplanmasının sebebi ise, tüketicinin satın aldığı ürünü beğenmemesi durumunda stoklamayacağı düşüncesidir.

Çalışmanın analiz kısmında Qualtrics üzerinden toplanan anket yanıtları JAMOVI istatistiksel analiz programına yüklenmiştir. Kompulsif satın alma ve istifleme davranışlarını ölçmeye yönelik sunulan ölçeklerin yanıtlarına göre katılımcılar, kompulsif satın alma eğilimi gösterenler ve göstermeyenlerle istifleme davranışı gösterenler ve göstermeyenler olarak gruplandırılmıştır. Bunun için ölçek sonuçlarının ortalamasının 0.5 standart sapma altındaki ve üstündeki yanıtlar (orta değerdeki gruplar) analize dahil edilmemiştir. Bu gruplar arasındaki farklılıkları incelemek amacıyla bağımsız örneklemler için t-test uygulanmıştır. Kompulsif satın alma ve istifleme davranışları arasındaki ilişkiyi incelemek amacıyla da korelasyon analizi yapılmıştır. Son olarak tüketici yorumlarındaki stoklama davranışını istatistiksel olarak değerlendirebilmek amacıyla frekans analizi uygulanmıştır.

Anket ve veri kazıma yöntemleri kullanılarak hem birincil hem de ikincil verilerden yararlanarak iki ayrı kaynaktan veri toplanması, çalışmanın örneklemini genişletmeye yardımcı olmuştur. Bu sayede, anket yöntemiyle elde edilen verilerle belirli ürünlere yönelik satın alma dürtüsü, algılanan gereklilik düzeyleri ve stoklanma düzeyleri incelenebildiği gibi anket sorularına yanıt veren tüketiciler ile çevrimiçi alışveriş deneyimini yorum yaparak ifade eden tüketiciler arasındaki davranışların (diğer bir ifadeyle, potansiyel müşterilerle ürün yorumları belirterek gerçekten alışveriş yapmış müşterilerin davranışlarının) ne tür benzer örüntüler gösterdiğine dair farklı yöntemler arasında bir köprü kurulabilmiştir.

Kompulsif satın alma ve istifleme davranışları arasındaki ilişkiyi inceleyen çalışmalar literatürde yer alsa da Türkiye'de yaşayan tüketicilerin kompulsif satın alma ve istifleme davranışlarına yönelik çalışmalar sınırlı görünmektedir. Buna ek olarak, çalışmada anket ve veri kazıma yöntemleri bir arada kullanılarak sosyal bilimlerde yeni yöntemlerin kullanımının yaygınlaşmasına katkıda bulunmak amaçlanmıştır. Böylece, raporlanan bu çalışma tüketicilerin kompulsif satın alma ve istifleme davranışlarını klinik olmayan bir yaklaşımla ele almış ve bu davranışlara ek olarak ürünlerin tüketicilere göre algılanan gereklilik düzeyleriyle birlikte bu ürünlere yönelik satın alma dürtülerinin de kompulsif

satın alma ve istifleme davranışları ile ilişkisi incelenmiştir. Özetle, bu çalışmadaki gibi anket ve veri kazıma yöntemlerinin bir arada kullanılmasının özgül olarak tüketici davranışını inceleyecek çalışmalar için yöntemsel bakımdan yol gösterici olduğu düşünülmektedir.