

HYGIENE ANXIETY AND BRAND LOVE OF CONSUMERS: LESSONS FROM COVID-19 PANDEMIC¹



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ABSTRACT The current study analyzed the hygiene anxiety of consumers within the context of the COVID-19 pandemic. Hygiene anxiety means the state of being worried about the cleanliness of purchased or to-be-purchased products/services that may cause illness. It is hypothesized that the hygiene anxiety experienced by consumers with strong emotional bonds with their brands - consumers who love the brand - would not reduce their purchasing intentions. In the first study, unexpectedly, it was found that the purchase intention of consumers with higher brand love significantly decreased when their hygiene anxiety was triggered. In the second study, what can reduce the hygiene anxiety of consumers is qualitatively inquired. Direct and indirect anxiety efforts were discovered. Indirect efforts are the brand's hygienic image, brand trust, and country of origin. Direct efforts are categorized under a hygienic 3P (product, promotion, and place) concept inspired by the classical marketing mix (4P).

Keywords: Hygiene anxiety, brand love, COVID-19

JEL Codes: M30, M31, M39

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¹ Compliance with the ethical rules of the relevant study has been declared.

TÜKETİCİLERİN HİJYEN KAYGISI VE MARKA AŞKI: COVID-19 PANDEMİSİNDEN DERSLER



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ÖZ Bu çalışmada COVID-19 pandemisinde günyüzüne çıkan tüketicilerdeki hijyen kaygısı kavramı tanımlanarak analiz edilmiştir. “Satın alınan veya alınacak ürün/hizmetlerin temiz olup olmadığı konusunda hastalığa neden olabileceğinden dolayı endişe duyma durumu” hijyen kaygısı şeklinde kavramsallaştırılmıştır. Bu kaygının, tüketicinin markayla kurduğu en güçlü duygusal bağdan etkilenmeyeceği varsayımıyla, “markaya aşık tüketicilerin yaşadıkları hijyen kaygısının satın alma niyetlerini düşürmeyeceği” hipotezi geliştirilmiş ve hijyen kaygısının manipüle edildiği bir deneysel tasarımla test edilmiştir. Çalışmada, beklenilenin aksine, marka aşkı yüksek tüketicilerin de hijyenle ilgili korkuları tetiklendiğinde satın alma niyetinin önemli ölçüde düştüğü sonucuna ulaşılmıştır. Beklenmeyen bu sonuç üzerine ikinci bir araştırma yapılarak, tüketicilerin hijyen kaygısını nelerin azaltabileceği nitel olarak sorgulanmış ve doğrudan ve dolaylı anksiyolitik (kaygı giderici) çabalar keşfedilmiştir. Dolaylı çabalar, markanın hijyenik imajı, marka güveni ve menşe ülkesi başlıkları altında toplanmıştır. Doğrudan çabalar ise klasik pazarlama karmasından (4P) ilham alarak hijyenik 3P (ürün, promosyon ve dağıtım) konsepti altında kategorize edilmiştir.

Anahtar Kelimeler: Hijyen kaygısı, marka aşkı, COVID-19

JEL Kodları: M30, M31, M39

Alan: İşletme

Türü: Araştırma

1. INTRODUCTION

Every person is involved in different types of risky behaviors, including those with health risks, throughout their lifespan. While the negative consequences of some of these risky behaviors occur in the long term (like smoking, drinking, or eating unhealthy food), the consequences of others can occur in the short term and are never certain (like driving at high speed or not wearing seat belts while driving). Thus the risk of the behavior is sometimes ignored. Behaviors that can end in viral infection during a pandemic can be classified in the latter group. However, while some people may overlook the risk of infection, others' perceived risk can be overly increased, especially in the context of information and misinformation bombardment, which fosters health-related anxiety and attitudes and behaviors related to this anxiety (Ahorsu et al., 2020). During the COVID-19 pandemic, people in most countries are encouraged to stay at home in isolation, public service announcements that emphasize hygiene are published frequently, and hygiene practices are repeatedly recommended by health experts, including some measures for products and services that are delivered by ordering via phone or Internet. These external pressures have increased health-related anxiety about Coronavirus disease.

The pandemic has created many changes in people's attitudes and behaviors. Uncertainty about how long the epidemic will last, uncertainties about the virus itself, quarantine practices, and all kinds of news and articles about the virus in the press and social media cause long-term depression, anxiety, fear, and traumatic stress in humans (Haktanir, Seki & Dilmaç, 2020; Zandifar & Badrfam, 2020; Ahorsu et al., 2020; Satıcı, Saricali, Satıcı & Griffiths, 2020). Moreover, since the virus has spread from China, racism and xenophobia have been observed against Chinese and Asian people (Devakumar, Shannon, Bhopal & Abubakar, 2020).

People's shopping attitudes and behaviors have also changed, similar to during the SARS epidemic in China in 2003. Due to people's fear of being outside, online shopping has peaked, especially for food (Chang & Meyerhoefer, 2020), groceries, and pharmacy products (Reeves, Carlsson-Szlezak, Whitaker & Abraham, 2020). People have tried to reduce health risks by preferring organic food (Xie, Huang, Li & Zhu, 2020). A negative attitude toward Chinese products has been observed (Lee, Mathis, Jobe & Pappalardo, 2020). In Turkey, for example, the volume of e-commerce in 2020 increased by around %66 in comparison to 2019 and the most significant increase was realized for grocery products (Kerse, 2022, p.7). In addition to e-grocery, lockdown boosted the growth of industries like remote learning, online entertainment, and telemedicine. As a striking example, the online entertainment company Disney Plus achieved

in two months what Netflix did in seven years (Kohli, Timelin, Fabius & Veranen, 2020). The most remarkable increase is undoubtedly realized in the sector of personal cleaning products. Again, in Turkey, the amount of disinfectant consumed per person was 0,4 kg in 2019, but this figure reached 1,4 kg in 2020 (Akyüz & Aytakin, 2022). The increase in the sales of hygiene products was the most significant example of the widespread of hygiene anxiety consumers experienced during the pandemic.

Hygiene anxiety related to fear of infection is aggravated by the aforementioned external pressures, insufficient information (Kar, Yasir Arafat, Kabir, Sharma & Saxena, 2020), and misinformation bombardment (Readfern, 2020) about the virus incubation period, transmission route, prevention, and treatment methods. These changes in attitudes and behaviors evoke further questions, such as whether feeling powerful emotions toward a specific brand can suppress the hygiene anxiety of consumers; thus, can purchase intention remain stable? In the current research, we tried to answer this question. In the first study, within an experimental design, we measured the purchase intention of consumers whose brand love is higher (vs. lower) and whose hygiene anxiety is increased with manipulation (vs. control). We choose brand love because it is accepted as the most vital attachment type in the marketing literature (Carroll & Ahuvia, 2006). The second study is a follow-up study that we decided to conduct after seeing that purchase intention significantly decreases, even for brand lovers, regarding hygiene anxiety. In that study, we seek answers for how businesses can cope with consumers' hygiene anxiety.

2. HYGIENE ANXIETY OF CONSUMERS

Perceived risk is one of the most important determinants of consumers' purchase decisions. Cunningham (1967, p. 37) conceptualized perceived risk as a function of two factors: (1) the amount that would be lost (i.e., that which is at stake) if the consequences of an act were not favorable, (2) and the individual's subjective feeling of certainty that the consequences will be unfavorable. In brief, consumer research has approached the subject of perceived risk in terms of uncertainty and consequences. Both increase consumers' perceived risk (Campbell & Goodstein, 2001). Several perceived risks have been identified and measured: (1) functional risk, (2) physical risk, (3) financial risk, (4) social risk, (5) psychological risk, and (6) time risk. The operational definition of physical risk is stated as, "What are the chances that an unfamiliar brand of ____ may not be safe; i.e. may be (become) harmful injurious to your health?" (Jacoby & Kaplan, 1972; Kaplan et al., 1974). More recently, it is defined as "the product poses a threat to the physical well-being or health of the user or others" (Kotler

& Keller, 2016, p. 200). As can be understood from the definition, perceived physical risk means the possibility of the product threatening the consumer's health. In addition to perceived physical risk, literature on consumer behavior has analyzed consumers' health or hygiene concerns under different concepts like health consciousness (Kraft & Goodell 1993) as well as hygiene in food consumption (Mitchell 1998) or hygiene in hospitality management (Alananzeh 2017). In the current research, we concentrate on the intersection of two subjects: hygiene-related health anxiety, or hygiene anxiety in short. While perceived physical risk is indeed at play here, there is a difference in that in most situations where a consumer perceives high physical risk s/he can substitute another product or brand, because their concern is mainly about the core product, however, when a consumer experiences hygiene anxiety, switching brand or product is not a solution unless the new brand proposes a more hygienic market offering. So rather than core products the issue here is more about augmented products (Kotler & Keller, 2016, p. 163).

Consumers' perceived risk significantly increased for almost all products during the Covid-19 pandemic, mainly because of the anxiety of viral transmission through touching an object from the outside world. The vague information about the Covid-19 virus mainly spread through social media which exacerbated consumers' perceived hygiene anxiety. For example, consumers kept newly bought products on the balconies or outside for 3-4 hours to wait for viruses on the surface of the newly bought products/groceries to die (Ünal, Özdemir & Yüksel Kaçan, 2020). It is necessary to examine what hygiene and anxiety mean separately before defining the hygiene anxiety of consumers, which was observed in previous outbreaks but peaked during the COVID-19 pandemic. Hygiene is defined as "the practice of keeping yourself and your living and working areas clean to prevent illness and disease" (Hygiene, n.d.). This definition perfectly fits with the concerns experienced by consumers during the COVID-19 pandemic. During the pandemic, consumers were not just keeping their environment clean for the same reasons as previously (e.g., social pressure or feeling good); they were doing so mainly to prevent virus infection. On the other hand, anxiety is defined as "the state of feeling nervous or worried that something bad is going to happen" (Anxiety, n.d.). By blending the two definitions, we define consumers' hygiene anxiety as "the state of being worried about the cleanliness of purchased or to-be-purchased products/services that may cause illness." In sum, hygiene anxiety addresses one's concerns about the hygiene of a certain product or service, which may damage one's health.

3. OVERVIEW OF THE CURRENT STUDIES

The term "brand love" implies that the consumer–brand relationship can be more than liking or attachment. Consumers' relationships with brands can be similar to interpersonal relationships (Fournier, 1998); hence, they can have love-like feelings and emotions toward brands, which is described as brand love. It represents the highest positive position of the consumer–brand relationship (Carroll & Ahuvia, 2006; Batra, Ahuvia & Bagozzi, 2012). Current studies associate brand love with long-term relationships, memories, positive emotions, and behavioral habits rather than short-term love that develops with intense emotion (Ahuvia et al., 2014; Bagozzi, Batra & Ahuvia, 2017). Overall, literature has shown that brand love is positively related to purchase intention (Sarkar, Ponnampalani & Murthy, 2012; Yasin & Shamim, 2013; Sarkar & Sreejesh, 2014).

Even though Pan and Ha (2021) found a negative relationship between brand love and brand loyalty during the pandemic, overall literature is more optimistic about the role of brand love, i.e., emotional attachment to a brand, in buffering the adverse effects of the pandemic on brands' relationship with consumers. For example, Ajumah, Nuseir, & Refae (2022) illustrated that during the COVID-19 period social media marketing efforts increased stated brand love and loyalty. Ding et al. (2022) also illustrated that during pandemic brand love played a mediating role on the relationship between brand attachment and brand loyalty for new e-commerce consumers. Similarly, in a threatening context like COVID-19, brands can provide psychological security to consumers against death anxiety, in turn sparking stronger brand attachment (Cai, Wang, Huang, & Jiang, 2023). Furthermore, it is found that for tourism businesses, the existence of brand love antecedents reveals the brands' ability to respond to crises like pandemics and delineates the paths that must be developed for consumers to remain passionate about places (Pereira, Frias, & Jerónimo, 2021).

Similarly, we expect brand lovers' purchase intention to be high and not significantly decrease even if their hygiene anxiety increases. On the contrary, we expect a significant decrease for the non-lovers group because they do not experience intense emotion toward their brand to outweigh their fear of infection. To put it differently, we expect that brand lovers' increased hygiene anxiety will not lead to postponing or canceling their purchase decision:

H₁: The purchase intention of consumers whose brand love is higher (vs. lower) will not significantly decrease when their hygiene anxiety increases (vs. control condition).

In Study 1, we tested Hypothesis 1 with an experimental design. Study 2 is a follow-up study in which we qualitatively investigated consumers' expectations from their brands related to their hygiene anxiety. The protocol of

both studies was approved by the Ethics Committee of Aksaray University (E-34183927-000-00000881207; 2023/06-12).

3.1. Study 1: Brand Love, Hygiene Anxiety and Purchase Intention

In the current study, we manipulated iPhone users² via a brief story about the Corona pandemic that was created based on real online stories published on popular news websites. We predicted that when the story was presented (vs. not presented) to participants whose brand love is higher (vs. lower), their willingness to buy a new iPhone would not be significantly lower. We expected people with lower brand love to show significantly lower intention to buy when the story was presented (vs. not presented).

Method

Participants and Design. Participants who already have at least one iPhone were invited to the study by using online platforms or e-mail with snowball sampling method. Since we aimed to reach only iPhone users in Turkey, the applied sampling methodology can be defined as a combination of snowball and purposive sampling. The link was spread over online channels, e.g., WhatsApp and Facebook. It is also e-mailed to undergraduate students via the student portal of a Turkish university. Receivers of the link were asked to share it with their peers and families. This snowballing method allowed researchers to bypass boundaries and enhance sample size and representativeness. The only inclusion criterion was having at least one iPhone. Three hundred sixty-seven iPhone users took part in the study. Participants were 53.1% male, with a mean estimated age of 31.77 (SD= 9.969, range 15–67) (See Appendices for Demographics Table). The design was a 2 (hygiene anxiety: story presented vs. not presented) x 2 (brand love: lower vs. higher) between subjects.

Procedure. After completing the brand love (Carroll & Ahuvia, 2006) ($\alpha=.899$) and brand loyalty scale (Gronholdt, Martensen, & Kristensen, 2000)³ ($\alpha=.894$), participants were randomly assigned experiment and control groups. In the experimental group, participants were manipulated by being exposed to a text related to the Corona epidemic, derived from a popular news website, which reminded them that an important amount of the iPhones in the global market are produced in China,⁴ where the pandemic first started and that the virus can survive

² Panigrahi et al. (2020) point out that mobile phones have one of the most touched surfaces thus may constitute a serious hygiene problem during the pandemic. Also we preferred the iPhone instead of Apple because we observed that the iPhone as a brand has a more powerful position than Apple considering that other Apple products (Apple TV, Apple Watch, etc.) are not as popular as iPhone in Turkey.

³ We checked the validity of brand love measurement by looking for correlation between loyalty and love, and we found high positive correlation ($r=.697$, $p<.01$) (See Appendices for Correlational Matrix of the first study).

⁴ At the time when the study was conducted, virus cases were very rare in Turkey and fear of virus infection through bought products was a very popular discussion in the media. Thus, we chose to mention that iPhone is

a long time on surfaces other than the human body (see Appendices for items and story). After reading the story, participants were asked to fill out an open-ended item asking their willingness to buy a new iPhone as a percentage⁵. Participants completed the survey by filling out the manipulation check item and demographics. Participants in the control group were not exposed to any text. Next to the brand love and loyalty scale, they were asked to state their intention to buy a new iPhone nowadays, followed by manipulation check item and demographics.

Results and Discussion

Manipulation Check. Both groups' hygiene anxiety is measured with a seven-point scale: "I think this buying behavior can be risky in terms of health." A significant difference is observed between groups, which means that manipulation was successful ($M_{\text{experimental group}} = 3.25$, $SD = 1.795$; $M_{\text{control group}} = 2.87$, $SD = 1.718$, $p = .039$).

Intention to Buy. There was a significant main effect of hygiene anxiety, ($F(1, 357) = 6.028$, $p = .015$) and brand love, ($F(1, 357) = 37.322$, $p = .000$) on willingness to buy but not for their interaction, ($F(1, 357) = 1.129$, $p = .289$) (Figure 1.).

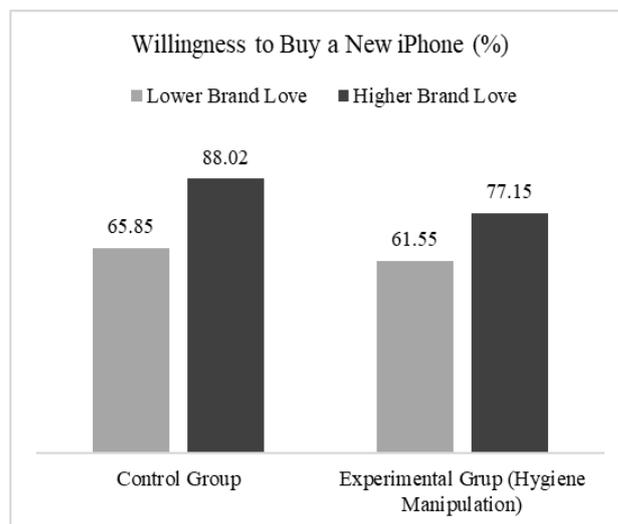


Figure 1: Willingness to Buy as a Function of Brand Love and Hygiene Anxiety

made in China which was the center of outbreak at that time. Our manipulation method has nothing to do with country-of-origin, as the manipulation check showed it was for increasing hygiene anxiety.

⁵ Assume that you need a new phone and your financial situation is currently good. Please indicate your probability of choosing iPhone as a percentage (%).

In the higher brand love ($n=222$; $M_{\text{brand love}}=5.9313$, $SD=1.006$) group, people who were manipulated with a story showed lower willingness to buy ($M=77.147$, $SD=2.510$) than people who were not manipulated with a story ($M=88.023$, $SD=3.039$; $F(1,357)=7.611$, $p=.006$). In the lower brand love group ($n=145$; $M_{\text{brand love}}=3.465$, $SD=0.6917$), people showed a lower willingness to buy who are manipulated with health concerns ($M=61.545$, $SD=3.249$) than people who are in the control group, but not significantly ($M=65.851$, $SD=3.483$; $F(1,357)=.817$, $p=.357$). Even though people whose brand love is higher showed a much higher willingness to buy a new iPhone than people whose brand love is lower, unexpectedly, lovers' intention to buy a new iPhone significantly decreased when they were manipulated with hygiene by approximately 10% (Mean Difference= 10.875 , $SE=3.942$); thus H_1 is rejected.

3.2. Study 2: Exploring Anxiolytic Efforts

In the first study, we found that even in the most extreme brand–consumer attachment cases (in brand love condition), hygiene-related health concerns – or hygiene anxiety as we call it – may cause a significant decrease in purchase decisions. Thus, by conducting a qualitative follow-up study, we aimed to figure out what kind of marketing efforts can moderate this decrease.

Method

Participants and Design. Regardless of brands, all mobile phone users were invited to participate in the study when the COVID-19 pandemic had just begun to spread (February–March 2020). Again, we recruited participants via same snowball sampling by using online platforms. No incentives were used for participation. Two hundred thirty-one mobile phone consumers (59.7% males; Mean Age= 40.55 ; $SD=14.799$) participated in the study. One hundred thirty-eight (59.7%) participants stated that they had hygiene-related health concerns about buying a new phone nowadays (at the beginning of the COVID-19 pandemic). We then asked about their expectations from their brands to ease their concerns with a single open-ended question (See Appendices for used questions). We gathered 91 (50.5% males; Mean Age= 37.595 , $SD=12.993$) valuable answers⁶. Data were coded inductively to create categories (Saldaña, 2013, p. 13). The researchers coded data manually after converting online survey data into transcripts. The analysis aims to seek broader categories by gathering codes together. In qualitative research, categories are developed by a systematic and iterative data analysis procedure. These categories are used to organize and interpret data, enabling researchers to uncover patterns, themes, and concepts that arise from the data. For example, some participants suggested that firms can offer

⁶ The rest of the participants (34%) stated that there is no way to ease their concerns or they had no ideas to share.

products with packages that can only be accessed by the first user (first access); this is coded as safe packaging and labeled under the product theme because packaging and labeling in the marketing literature (also in practice) are the subjects of the product concept.

Result and Discussion

Our findings suggest that there are two broad categories of marketing efforts to deal with consumers' hygiene anxiety. We labeled the first group as direct efforts; these are efforts that could be applied to any problem related to hygiene that can increase consumers' hygiene anxiety, such as a pandemic (Table 1). Another main category is indirect efforts, which entail marketing efforts that are not directly related to hygiene but positively affect consumers' hygiene anxiety. While these indirect efforts are related to previous experiences and relationships of consumers with brands, the direct efforts are about the present time- when hygiene problems and anxiety are occurring.

Table 1: Direct and Indirect Anxiolytic Efforts

EFFECT TYPE		HIERARCHICAL CATEGORIES EXTRACTED INDUCTIVELY		
Direct	❖ Product	<ul style="list-style-type: none"> ● Packaging and Labeling 	<ul style="list-style-type: none"> ✓ Hygiene of the package 	<ul style="list-style-type: none"> ○ Sterilization during packaging ○ Safe-packaging (e.g., first access)
		<ul style="list-style-type: none"> ● Product Development 	<ul style="list-style-type: none"> ✓ New hygienic products ✓ Adding hygienic features 	
		<ul style="list-style-type: none"> ● Reassurance of Health or Hygiene 	<ul style="list-style-type: none"> ✓ Certification ✓ Guarantee 	

Direct	❖ Promotion	<ul style="list-style-type: none"> • Sales Promotion 	<ul style="list-style-type: none"> ✓ Cleaning products 	
		<ul style="list-style-type: none"> • Brand Communication 	<ul style="list-style-type: none"> ✓ Visual 	<ul style="list-style-type: none"> ○ Information about production processes ○ Information about delivery processes
			<ul style="list-style-type: none"> ✓ Textual 	<ul style="list-style-type: none"> ○ Scientific information ○ Production date and place ○ Sales numbers
Direct	❖ Place	<ul style="list-style-type: none"> • Hygienic attitude of the salesperson or deliverer • Store's hygiene • Sterilization during delivery • New hygienic delivery system 		
Indirect	❖ Brand Trust	<ul style="list-style-type: none"> • Trust toward brand • Trust toward partner brands • Previous shopping experiences 		
Indirect	❖ Brand's Hygienic Image	<ul style="list-style-type: none"> • Caring for the health of employees • Caring for the health of the public 		
Indirect	❖ Country of Origin	<ul style="list-style-type: none"> • Positive attitude toward local/national brands • Negative attitude toward brands from countries with a low perception of hygiene 		

Direct Efforts

Direct efforts resemble the classical marketing mix (McCarthy, 1960) and it would be possible to term these as hygienic 4P. However, data did not

suggest reliable findings about pricing⁷ so we are using the term hygienic 3P. The main categories in the direct efforts are product-related, promotional and communication-related, and efforts related to stores and distribution. Product-related issues are mainly about the hygienic design of products thus most of the participants expressed their expectations not only from brands that they prefer but also from partner brands of those brands.

Consumers' main concern is about the sterilization of the package. Also, participants mentioned some creative ways in designing the package (e.g., first-access) so that the delivery person or any other reseller cannot open the package, as has been employed by some pizza firms previously. In addition to packaging, several participants stated their expectations about labeling:

[The mobile phone] may contain a document saying the product has been sterilized and must have been well protected. (Aged 26, female)

In a similar vein, several consumers stated their expectations about certification or guarantee about the product's hygiene:

The mobile phone brand I choose should guarantee that it meets conditions that do not allow the virus to survive until I receive the phone. (Aged 35, female)

Although some consumers stated that they expect brands to produce new products (e.g., with the new hygienic surfaces), overall product-related issues were mainly about the augmented product rather than the core product. The promotion theme consists of two categories: sales promotions and brand communication. A significant part of the participants mentioned the importance of cleaning delivered items with products like sanitizers or gloves. Under the brand communication category, we compiled consumers' mentioned communicative needs. They want to be convinced by brands about their market offerings by receiving visual or textual messages:

Explaining with a video that the packaging and shipping process of the product is done in a way that reduces the risk of epidemic [...]. (Aged 31, female)

Interestingly, one participant stated that sales numbers will ease her hygiene concerns. Some others stated that they needed scientific information

⁷Two of the participants stated that decreasing price would ease their concerns. We avoided coding these answers because of weak support in general and because it was difficult to associate these responses with the topic of hygiene.

about the cleanness of the product, mainly about the possibility of virus survival on the surface of the bought product.

The last category in the direct efforts consists of consumers' expectations from places where they shop or the delivery of the product, especially through online shopping. Participants shared their expectations about the hygiene of the store and the hygienic attitude of the salesperson:

I decide by looking to see whether the store I am going in is hygienic and airy or not, whether employees follow the hygiene rules or not [...]. (Aged 55, female)

One participant stated that during delivery brands can try some innovative ways to achieve zero-contact delivery, like delivery with drones.

Indirect Efforts

The first sub-category in indirect effects is brand trust, which means consumers' perceived trust toward the brand they prefer. Several consumers stated that their hygiene concerns about shopping depend on their preferred brand. While some directly mentioned the name of a brand, others talked about the general reliability of brands:

A reliable brand will not cause any problems for me. (Aged 35, female)

My trust is important. (Aged 46, female)

Additionally, at this juncture, participants focused on the reliability of partner brands:

[...] The sensitivity and quality of courier and/or cargo company chosen by the authorized company [mobile phone brand] is important. (Aged 34, male)

The seller should play a role, not the brand, in this process. (Aged 33, male)

The second category in the indirect efforts is the brand's hygienic image, which concerns its involvement in the health of its employees and the public. Several participants stated that the brand's sensitivity about the pandemic will positively affect their purchase intention:

Being visually persuasive about that firm and the employees of the firm are consciously behaving in terms of protecting their health as well as the public's health. (Aged 58, female)

The last category in indirect effects is country of origin, which implies that

the homeland of a brand affects consumers' hygiene perception. Our data suggest that during the COVID-19 pandemic, while there is a negative attitude toward Chinese brands, local brands (Turkish brands in this case) gained positive evaluation. Some viral news on social media like videos that contain scenes of exotic food consumption in China may have created a negative image about China. One of the participants stated that he would prefer Korean products if he had to choose:

I don't want to buy products from China, because almost all mobile phones are made in China or Korea. Maybe I could choose Korea if I have to choose. (Aged 63, male)

4. GENERAL DISCUSSION AND IMPLICATIONS

During the COVID-19 pandemic, consumers' attitudes and behaviors have changed dramatically. With the implementation of lockdowns and social distancing measures, there was a significant surge in online shopping (e.g., Ali, 2020). Consumers engaged in panic buying behavior- stocked up on necessities, causing temporary shortages (Islam et al., 2021). Food consumption and cooking habits changed when restaurants and cafes closed (Eftimov et al., 2020). With the pandemic's adverse economical effects on various sectors, especially in services (e.g., air transportation; Pehlivanlı, 2020), consumer spending habits were influenced by economic uncertainty and employment instability (Mehta, Saxena, and Purohit, 2020). Further, consumer health and safety concerns drove demand for products such as hand sanitizers, face masks, and cleaning supplies (Das, Sarkar & Debroy, 2022). Within this context, this study examined a widely observed phenomenon during the COVID-19 pandemic called consumers' hygiene anxiety. To the best of authors' knowledge, it is the first study that offered this term, which can be framed in the product risk concept in consumer behavior literature. We define consumers' hygiene anxiety as "the state of being worried about the cleanliness of purchased or to-be-purchased products/services that may cause illness. It is shown how this psychological state can be strong enough to curb purchase intention for a product even for the most strongly bonded consumers, i.e., brand lovers.

Current studies illustrate that people's concern about viral infection can change attitudes and behaviors radically (Haktanir et al., 2020; Zandifar & Badrfam, 2020; Ahorsu et al., 2020; Satıcı et al., 2020), and their perception of hygiene alters their shopping choices (Chang & Meyerhoefer, 2020). During the pandemic, we have also witnessed that interpersonal relationships are hurt and love relationships are damaged (Balzarini et al., 2020). As a marketing concept, brand love is inspired by interpersonal love (Batra et al., 2012), and this study's

findings showed that brand love can also be negatively influenced by the pandemic, which is contrary to some previous insights from tourism or e-commerce (Ding, Tu, Xu & Park, 2022; Pereira, Frias & Jerónimo, 2021). It should be noted that even when consumers' love toward brands does not change, as our second study implied, they may expect signals about hygiene from their preferred or loved brands during tough times. This contributes to the discussions on the brand love concept by implying that brand love is akin to an ongoing relationship rather than an intense emotion (Ahuvia et al. 2014). Supporting this Ajumah, Nuseir and Refae (2022) found that during the Covid-19 social media marketing can trigger emotional attachment to brands. Overall, findings underscore the necessity of interacting with consumers during a crisis (Hang, Aroean & Chen, 2020).

In the second study, we qualitatively inquired about these signals; in other words, what anxiety efforts can businesses adopt during the pandemic or any other hygiene-related crisis? Overall, the findings of the second study stress the importance of co-branding with partner brands. Many participants shared their concerns about cargo or intermediary firms. Trusting the brand alone on this point is not sufficient. Consumers also want to trust partner brands in terms of hygiene. This highlights the importance of successful co-branding strategies during crisis times. During the COVID-19 pandemic, co-branding allowed businesses to collaborate and provide customer value while solving pandemic-related difficulties (e.g., Starbucks enriched product delivery channels by cooperating with Uber Eats in early 2020; see Reuters, 2020).

Findings related to country of origin overlap with those of Lee et al. (2020), indicating there is a positive relationship between avoidance of Chinese products and Coronavirus anxiety. Our findings revealed a positive attitude toward local products and a negative attitude toward Chinese products at the pandemic's beginning. This may not be only about fear of the virus because, during the pandemic, we have also seen many racist statements and attitudes in various countries (Donmez, 2020). Previous research also provided evidence of the relationship between physical purity and moral judgment (Helzer & Pizarro, 2011). Co-branding with local companies and Corporate Social Responsibility (CSR) activities may ease consumers' concerns and positively change attitudes during hard times. Ding, Levine, Lin and Xie (2020) already found that firms that invested in CSR activities before the pandemic had high stock price performance.

As our data suggested, consumers want brands to behave responsibly by caring about the public's and employees' health during the pandemic. Public relations efforts may help in increasing a brand's hygienic image. Considering

social media allowed brands to engage with the public emotionally during the Covid-19 pandemic (Huang, Jin, Lynn & Men (2021), it can be positioned at the center of the public relations efforts with specific tools like influencer marketing during tough times like the pandemic (e.g., Aydınoglu & Demirel, 2022). Not only for delivering public relations messages but also as a credible message source when appropriately cooperating with an influencer can boost consumers' purchase intention (Özdemir, Kayhan & Özer, 2021).

It can be said that the most repeated codes in the second study were related to product packaging and distribution. Most participants underscored the necessity of applications such as ensuring safety in packaging and increasing product hygiene through innovative ways. Consumers still would be careful about the hygiene of products and services for a long time during the post-pandemic period. Accordingly, companies must be proactive in the post-pandemic period, especially in finding innovative ways for packaging and distribution, and be prepared for any crisis. Nevertheless, consumers' expectations related to hygienic packaging and delivery and promotional cleaning items would increase costs; nevertheless, rising prices may negatively affect the brand's image and be perceived as opportunism during tough times like the pandemic. Brands should thus carefully analyze their costs and decide on the best anxiety-reducing measures by considering possible reactions.

4.1. Limitations and Future Studies

Since the current study is conducted through snowballing sampling methodology by three researchers who work in the same university, the backgrounds of the participants were not very diverse. Hygiene anxiety can differ by gender or socioeconomic status as hygiene perception differs (Meilicke et al., 2013), and future studies can test this. This study focused on only mobile phones, and future inquiries can compare different products and brands within hygiene anxiety and love concepts. Further, future studies can retest this relationship by adding some control variables into the experimental design (e.g., hygiene OCD). The most significant limitation is that hygiene anxiety has only been taken within the context of the Covid-19 pandemic. Future studies should retest these findings in the post-pandemic period and different contexts. It should also be noted that the effectiveness of anxiety-reducing efforts discovered here may depend on the market and culture. The effect of culture on these anxiety-reducing measures can be analyzed by comparing different cultures (collectivist vs. individualistic). Lastly, this study did not have robust findings about pricing and anxiety-reducing efforts; several issues related to price and pricing strategies can be discussed in future studies.

5. CONFLICT OF INTEREST STATEMENT

There is no conflict of interest between the authors.

6. FINANCIAL SUPPORT

No funding or support was used in this study.

7. AUTHOR CONTRIBUTIONS

EA, MBA: Idea;

MBA, EA, HÖ: Design;

EA: Supervision;

HÖ, MBA: Collecting and processing resources;

MBA, HÖ: Analysis and Interpretation

MBA: Literature Review;

MBA, HÖ: Writing;

EA: Critical review

8. ETHICS COMMITTEE STATEMENT AND INTELLECTUAL PROPERTY COPYRIGHTS

The protocol of both studies was approved by the Ethics Committee of Aksaray University (E-34183927-000-00000881207; 2023/06-12).

9. REFERENCES

- Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The fear of COVID-19 scale: development and initial validation. *International journal of mental health and addiction, International Journal of Mental Health and Addiction*, 20, 1537–1545 (2022).
- Ahuvia, A., Bagozzi, R. P., & Batra, R. (2014). Psychometric vs. C-OAR-SE measures of brand love: A reply to Rossiter. *Marketing Letters*, 25, 235-243.
- Akyüz, H. Ö., & Aytakin, İ. (2022). Covid-19 Sürecinde koruyucu sağlık ve hijyen ürünlerinin satışı ve tüketimi üzerine bir inceleme. *Medical Research Reports*, 5(1), 27-39.
- Aljumah, A. I., Nuseir, M. T., & El Refae, G. A. (2022, November). Exploring the effect of social media marketing and destination image on destination loyalty in COVID-19 times: Sequential mediating role of brand love and brand loyalty. In *2022 International Arab Conference on Information Technology (ACIT)* (pp. 1-8). IEEE.
- Alananzeh, O.A., (2017). Impact of safety issues and hygiene perceptions on customer satisfaction: A case study of four and five-star hotels in Aqaba, Jordan. *Journal of Tourism Research & Hospitality*, 6(1), 5-18.
- Ali, B. J. (2020). Impact of COVID-19 on consumer buying behavior toward online shopping in Iraq, *Economic Studies Journal*, 18(42), 267-280.

- Anxiety. (n.d.) In Oxford Learners' Dictionaries. <https://www.oxfordlearnersdictionaries.com/definition/english/anxiety?q=anxiety> Accessed 6.11.2023.
- Aydinlioğlu, Ö., & Demirel, Ç. (2022). Fenomen pazarlamanın Covid-19 pandemi sürecinde marka farkındalığı bağlamında kullanımı. *Afyon Kocatepe Üniversitesi Sosyal Bilimler Dergisi*, 24(1), 169-182.
- Bagozzi, R. P., Batra, R., & Ahuvia, A. (2017). Brand love: development and validation of a practical scale. *Marketing Letters*, 28, 1-14.
- Balzarini, R. N., Muise, A., Zoppolat, G., Di Bartolomeo, A., Rodrigues, D. L., Alonso-Ferres, M., ... & Slatcher, R. B. (2023). Love in the time of COVID: Perceived partner responsiveness buffers people from lower relationship quality associated with COVID-related stressors. *Social Psychological and Personality Science*, 14(3), 342-355.
- Batra, R., Ahuvia, A., & Bagozzi, R. P. (2012). Brand love. *Journal of Marketing*, 76(2), 1-16.
- Cai, Y., Wang, M., Huang, H. & Jiang, Q. (2023). Which brands do consumers become attached to? The roles of brand concepts and brand positioning in the context of COVID-19. *Journal of Product & Brand Management*, 32(6), 892-907.
- Campbell, M. C., & Goodstein, R. C. (2001). The moderating effect of perceived risk on consumers' evaluations of product incongruity: Preference for the norm. *Journal of Consumer Research*, 28(3), 439-449.
- Carroll, B. A., & Ahuvia, A. C. (2006). Some antecedents and outcomes of brand love. *Marketing Letters*, 17, 79-89.
- Chang, H. H., & Meyerhoefer, C. D. (2021). COVID-19 and the demand for online food shopping services: Empirical Evidence from Taiwan. *American Journal of Agricultural Economics*, 103(2), 448-465.
- Cunningham, S.M. (1967). The major dimensions of perceived risk. In *risk taking and information handing in consumer behavior*; Cox, D.F., Ed.; Harvard University Press: Boston, IL, USA.
- Das, D., Sarkar, A., & Debroy, A. (2022). Impact of COVID-19 on changing consumer behaviour: Lessons from an emerging economy. *International Journal of Consumer Studies*, 46(3), 692-715.
- Devakumar, D., Shannon, G., Bhopal, S. S., & Abubakar, I. (2020). Racism and discrimination in COVID-19 responses. *The Lancet*, 395(10231), 1194.
- Ding, Y., Tu, R., Xu, Y., & Park, S. K. (2022). Repurchase intentions of new e-commerce users in the COVID-19 context: The mediation role of brand love. *Frontiers in Psychology*, 13, 968722.
- Ding, W., Levine, R., Lin, C., & Xie, W. (2020). Corporate immunity to the COVID-19 pandemic (No. w27055). *National Bureau of Economic Research*, 10, w27055.
- Donmez B. B. (2020). Report says virus fuels anti-Asian racism, xenophobia. <https://www.aa.com.tr/en/latest-on-coronavirus-outbreak/report-says-virus-fuels-anti-asian-racism-xenophobia/1839509> Accessed 6.11.2023.

- Eftimov, T., Popovski, G., Petković, M., Seljak, B. K., & Kocev, D. (2020). COVID-19 pandemic changes the food consumption patterns. *Trends in Food Science & Technology*, 104, 268-272.
- Fournier, S. (1998). Consumers and their brands: Developing relationship theory in consumer research. *Journal of Consumer Research*, 24(4), 343-373.
- Gronholdt, L., Martensen, A., & Kristensen, K. (2000). The relationship between customer satisfaction and loyalty: Cross-industry differences. *Total Quality Management*, 11(4-6), 509-514.
- Haktanir, A., Seki, T., & Dilmaç, B. (2022). Adaptation and evaluation of Turkish version of the fear of COVID-19 scale. *Death Studies*, 46(3), 719-727.
- Hang, H., Aroean, L., & Chen, Z. (2020). Building emotional attaching during COVID-19. *Annals of Tourism Research*, 83, 103006
- Helzer, E. G., & Pizarro, D. A. (2011). Dirty liberals! Reminders of physical cleanliness influence moral and political attitudes. *Psychological Science*, 22(4), 517-522.
- Huang, Q., Jin, J., Lynn, B. J., & Men, L. R. (2021). Relationship cultivation and public engagement via social media during the covid-19 pandemic in China. *Public Relations Review*, 47(4), 102064.
- Hygiene. (n.d.) In Oxford Learners' Dictionaries. <https://www.oxfordlearnersdictionaries.com/definition/english/hygiene?q=hygiene> Accessed 6.11.2023.
- Islam, T., Pitafi, A. H., Arya, V., Wang, Y., Akhtar, N., Mubarik, S., & Xiaobei, L. (2021). Panic buying in the COVID-19 pandemic: A multi-country examination. *Journal of Retailing and Consumer Services*, 59, 102357.
- Jacoby, J. & Kaplan, L. (1972). The components of perceived risk, *Advances in Consumer Research*, 59(3), 287-291.
- Kaplan, L. B., Szybillo, G. J., & Jacoby, J. (1974). Components of perceived risk in product purchase: A cross-validation. *Journal of Applied Psychology*, 59(3), 287.
- Kar, S. K., Yasir Arafat, S. M., Kabir, R., Sharma, P., & Saxena, S. K. (2020). Coping with mental health challenges during COVID-19. *Coronavirus Disease 2019 (COVID-19) Epidemiology, Pathogenesis, Diagnosis, and Therapeutics*, 199-213.
- Kerse, Y. (2022). Pandemi sürecinde tüketicilerin sanal market alışveriş deneyimleri: Nitel bir araştırma. In M. Yücenurşen (Ed.), *Sosyal, beşeri ve idari bilimler alanında uluslararası çalışmalar V* (ss. 7-18). Eğitim Yayınevi.
- Kohli, S., Timelin, B., Fabius, V. & Veranen, S.M. (2020). How COVID-19 is changing consumer behavior-now and forever, McKinsey & Company. <https://www.mckinsey.com/industries/retail/our-insights/how-covid-19-is-changing-consumer-behavior-now-and-forever> Accessed 04 December 2023.
- Kotler P., & Keller K.L. (2016). *Marketing management*. Global Edition: Pearson Education UK.
- Kraft, F. B., & Goodell, P. W. (1993). Identifying the health conscious consumer. *Marketing Health Services*, 13(3), 18.

- Lee, S. A., Mathis, A. A., Jobe, M. C., & Pappalardo, E. A. (2020). Clinically significant fear and anxiety of COVID-19: A psychometric examination of the Coronavirus Anxiety Scale. *Psychiatry Research*, 290, 113112.
- McCarthy, E.J. (1960). *Basic marketing: A managerial approach*. Richard D. Irwin Inc., Homewood, IL
- Mehta, S., Saxena, T., & Purohit, N. (2020). The new consumer behaviour paradigm amid COVID-19: permanent or transient?. *Journal of Health Management*, 22(2), 291-301.
- Meilicke, G., Riedmann, K., Biederbick, W., Müller, U., Wierer, T., & Bartels, C. (2013). Hygiene perception changes during the influenza A H1N1 pandemic in Germany: Incorporating the results of two cross-sectional telephone surveys 2008–2009. *BMC public health*, 13(1), 1-7.
- Mitchell, V. W. (1998). A role for consumer risk perceptions in grocery retailing. *British Food Journal*, 100(4), 171-183.
- Özdemir, S., Kayhan, R., & Özer, İ. A. (2021). Pandemi (Covid-19) döneminde kaynak güvenilirliği boyutlarının, elektronik ağızdan ağıza iletişimin ve marka imajı boyutlarının tüketici satın alma niyeti üzerindeki etkisi: Instagram fenomenleri üzerine bir araştırma. *Pazarlama ve Pazarlama Araştırmaları Dergisi*, 14(1), 113-146.
- Pan, H., & Ha, H. Y. (2021). An empirical test of brand love and brand loyalty for restaurants during the COVID-19 Era: A moderated moderation approach. *Sustainability*, 13(17), 9968.
- Panigrahi, S. K., Pathak, V. K., Kumar, M. M., & Raj, U. (2020). Covid-19 and mobile phone hygiene in healthcare settings. *BMJ Global Health*, 5(4), e002505.
- Pehlivanlı, E. A. (2020). Covid-19'un havalimanları performansları üzerine etkisinin değerlendirilmesi: Türkiye havalimanları örneği. *Turkish Studies*, 15(4), 905-922
- Pereira, A., Frias, C., & Jerónimo, A. P. (2021). Falling in love again: Brand love and promotion of tourist destinations during the Covid-19 pandemic. In *Pandemics and travel* (pp. 227-241). Emerald Publishing Limited.
- Readfern, G. (2020). *Coronavirus overload: Five ways to fight misinformation and fear*. The Guardian. <https://www.theguardian.com/world/2020/mar/22/coronavirus-overload-five-ways-to-fight-misinformation-and-fear> Accessed 6.11.2023.
- Reeves, M., Carlsson-Szlezak, P., Whitaker, K., & Abraham, M. (2020). Sensing and shaping the post-COVID era. *The BCG Henderson Institute*. <https://www.bcg.com/publications/2020/8-ways-companies-can-shape-reality-post-covid-19.aspx> Accessed 6.11.2023.
- Reuters (2019). *Starbucks to expand delivery with Uber Eats across U.S in early 2020*. <https://www.reuters.com/article/us-starbucks-strategy-idUSKCN1UI2MV> Accessed 6.11.2023.
- Saldaña, J. (2013). *The coding manual for qualitative researchers* (Second edition). London: Sage.

- Sarkar, A., Ponnampalani, A., & Murthy, B. K. (2012). Understanding and measuring romantic brand love. *Journal of Customer Behaviour, 11*(4), 324-347.
- Sarkar, A., & Sreejesh, S. (2014). Examination of the roles played by brand love and jealousy in shaping customer engagement. *Journal of Product & Brand Management, 23*(1), 24-32.
- Satici, B., Saricali, M., Satici, S. A., & Griffiths, M. D. (2022). Intolerance of uncertainty and mental wellbeing: Serial mediation by rumination and fear of COVID-19. *International Journal of Mental Health and Addiction, 20*(5), 2731-2742.
- Ünal, E., Özdemir, A., & Yüksel Kaçan, C. (2020). Impact of the Covid-19 pandemic on feeding and hygiene habits of nursing students. *Uludağ Üniversitesi Tıp Fakültesi Dergisi, 46*(3), 305-311.
- Xie, X., Huang, L., Li, J., & Zhu, H. (2020). Generational differences in perceptions of food health/risk and attitudes toward organic food and game meat: The case of the COVID-19 crisis in China. *International Journal of Environmental Research and Public Health, 17*(9), 3148.
- Yasin, M., & Shamim, A. (2013). Brand love: Mediating role in purchase intentions and word-of-mouth. *Journal of Business and Management, 7*(2), 101-109.
- Zandifar, A., & Badrfam, R. (2020). Iranian mental health during the COVID-19 epidemic. *Asian Journal of Psychiatry, 51*, 101990.

10. APPENDICES

Manipulation Story in the First Study

The COVID-19 pandemic, which killed more than 4 thousand people globally, has also deeply affected the technology industry. Various statements were published in the media that the virus that causes COVID-19 survives on surfaces rather than human body for 9 to 10 days. As it is known, vast majority of the iPhones are being manufactured in China.

Scale Items of the First Study

Brand Love Scale⁸ (Carroll and Ahuvia 2006) ($\alpha=.899$)	Mean	SD
This is a wonderful brand	5,49	1,391
This brand makes me feel good.	5,03	1,663
This brand makes me very happy.	4,77	1,749
This brand is a delight.	4,54	1,847
Brand Loyalty Scale (Gronholdt et al. 2000) ($\alpha=.894$)		
I will repurchase the product from this brand.	5,38	1,805
I will recommend this brand to other consumers.	5,06	1,756
I will purchase other products from this brand	4,69	1,863

Demographics of the First Study

Frequency %			Frequency %		
Sex	Male	195 53,1	Family Income*	2000 TL	42 11,4
	Female	172 46,9		2001-4000 TL	72 19,6
	Total	367 100,0		4001-6000 TL	89 24,3
Age	Mean:31,77; SD: 9.969		6001-8000 TL	62 16,9	
			8001-10001 TL	38 10,4	
			10001 TL \geq	61 16,6	
			Total	367 100,0	

*The data was collected during February and March 2020. These data should be evaluated together with the Turkey's rapidly increasing inflation rates since then.

⁸ These Items chosen by following Loureiro et al.'s (2012: p.19) approach; due to capture the essence of feelings of love with a brand.

Correlational Matrix of the First Study				
	Income	Sex	Brand Love	Age
Sex (1=Male;2=Female)	-,246**			
Brand Love	,011	,105*		
Age	,443**	-,255**	-,098	
Loyalty	,005	,184**	,697**	-,152**

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

Questions Used in the Second Study

- Imagine that you need to buy a new mobile phone nowadays and your financial situation is okay to buy. Would you have health concerns in this shopping due to the Coronavirus pandemic? Yes/No
If yes;
- In your opinion, how can your mobile phone brand eliminate such anxiety that may be experienced? Please do not hesitate to share detailed opinions. You can also elaborate on your answer by giving examples.