

DID FEAR OF MISSING OUT TRIGGER PANIC BUYING BEHAVIOR AND COGNITIVE DISSONANCE OF CONSUMERS DURING EARLY DAYS OF COVID-19 PANDEMIC? THE MEDIATING ROLE OF PANIC BUYING

KAÇIRMA KORKUSU COVID-19 PANDEMİSİNİN İLK GÜNLERİNDE TÜKETİCİLERİN PANİK SATIN ALMA DAVRANIŞINI VE BİLİŞSEL UYUMSUZLUĞUNU TETİKLEDİ Mİ? PANİK SATIN ALMA DAVRANIŞININ ARACI ROLÜ

İlkin YARAN ÖGEL* 

Abstract

Since the breakout of Covid-19 pandemic, irrational consumer behaviors have been observed all over the world. Drawing on the drive-reduction theory and social comparison theory, this study attempts to explain some part of these irrational behaviors on the basis of the interaction between fear of missing out, panic buying and cognitive dissonance. Fear of missing out is included in this study as an independent variable that leads to cognitive dissonance as a post-purchase behavior. Panic buying is included as a mediator variable in the proposed model. Data were obtained from 465 respondents who were residents of Turkey and have stockpiled any supplies since the early days of Covid-19 pandemic. In order to test the associated links between the variables, structural equation modelling was utilized. The results reveal that fear of missing out and panic buying both have a significant positive influence on cognitive dissonance. Also, full mediation impact of panic buying on the relationship between fear of missing out and cognitive dissonance is empirically found. The results also provide applicable insights to policy makers and practitioners to mitigate cognitive dissonance of consumers by calming down their fear of missing out and panic buying with a right communication strategy.

Keywords: Fear of missing out, cognitive dissonance, panic buying, drive-reduction theory, social comparison theory

JEL Classification: M30, M31, M39

* **Corresponding Author:** Research Assistant, PhD, Afyon Kocatepe University, Faculty of Economics and Administrative Sciences, Department of Business Administration, ilkinbaran@aku.edu.tr, ORCID ID: 0000-0003-3414-753X.

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Öz

Covid-19 pandemisinin ortaya çıkmasından bu yana tüm dünyada rasyonel olmayan tüketici davranışları gözlemlenmiştir. Bu çalışma, dürtü azaltma teorisi ve sosyal karşılaştırma teorisinden yola çıkarak, rasyonel olmayan bu davranışların bir kısmını kaçırma korkusu, panik satın alma davranışı ve bilişsel uyumsuzluk arasındaki etkileşim temelinde açıklamaya çalışmaktadır. Kaçırma korkusu, bu çalışmada satın alma sonrası bir davranış olan bilişsel uyumsuzluğa yol açan bağımsız değişken olarak yer almıştır. Panik satın alma davranışı ise önerilen modele aracı değişken olarak dahil edilmiştir. Çalışmanın verileri, Türkiye’de ikamet eden ve Covid-19 pandemisinin ilk günlerinden bu yana herhangi bir malzeme stoklayan 465 katılımcıdan elde edilmiştir. Değişkenler arasındaki ilişkileri test etmek için yapısal eşitlik modellemesinden yararlanılmıştır. Çalışmanın sonuçları hem kaçırma korkusunun hem panik satın alma davranışının bilişsel uyumsuzluk üzerinde anlamlı ve pozitif etkiye sahip olduğunu ortaya koymuştur. Ayrıca, panik satın alma davranışının, kaçırma korkusu ile bilişsel uyumsuzluk arasındaki ilişkide tam aracılık etkisi ampirik olarak bulunmuştur. Çalışmanın sonuçları, doğru bir iletişim stratejisiyle tüketicilerin kaçırma korkusu ve panik satın alma davranışlarını yatıştırarak bilişsel uyumsuzluklarını azaltmak için politika yapıcılara ve uygulayıcılara faydalı bilgiler sağlamaktadır.

Anahtar Kelimeler: Kaçırma korkusu, bilişsel uyumsuzluk, panik satın alma, dürtü azaltma teorisi, sosyal karşılaştırma teorisi

JEL Kodları: M30, M31, M39

Introduction

Buying behavior seems a usual behavior for consumers, but in fact buying behavior of them is never simple. So, it requires a deep understanding, particularly in terms of marketing managers. It is widely known that decisions regarding buying behavior of consumers are taken under different circumstances and under the effects of several factors. This frequently makes the decision-making process not always rational for individuals because how consumers connect with each other can influence their buying behaviors.

Such interactions of consumers with other consumers become much more complex under uncertain conditions like pandemics. In such conditions, consumers are more likely to display unplanned buying behaviors and unusual consumer behavior patterns (Kirk & Rifkin, 2020) because pandemics are related with the panic buying of goods and services (Taylor, 2021). For instance, in the early weeks of Covid-19 pandemic, toilet papers were ridiculously treated as commodity as precious as diamonds because toilet paper shortage was observed all over the world because of the panic buying behavior of the consumers. A vast number of tweets sent on Twitter at early months of Covid-19 pandemic also dramatically pointed up over-hoarding of toilet paper by large number of consumers (Leung et al., 2021). Most of these consumers might not need to buy extra toilet papers. Then, what did make us hoard that much toilet papers with panic? What kind of anxiety or fear triggered our panic buying behaviors? Did we experience cognitive dissonance after buying something that we really didn't need?

In order to reply these questions, fear of missing out, or commonly referred to as FoMO is employed as a driver to explain consumers' panic buying behavior during Covid-19 pandemic. FoMO is one of the recent popular constructs which is related to be keeping connected with others actions

(Przybylski et al., 2013). Since, FoMO serves as an important motive for consumption behaviors (Kang et al., 2019), it has already been used to explain consumption behavior of consumers in marketing literature with respect to social media consumption (e.g., Abel et al., 2016; Blackwell et al., 2017); smartphone consumption (Elhai et al., 2016); sport event consumption (e.g., Kim et al., 2020); tv consumption (e.g., Conlin et al., 2016), conformity consumption (e.g., Kang et al., 2019), luxury brand consumption (e.g., Kang et al., 2020; Saavedra & Bautista, 2020), socializing behaviors (e.g., Adams et al., 2017; Riordan et al., 2015) and so on. Nevertheless, the empirical testing of FoMO related to consumption behavior is still limited. Hence, to explain underlying reason of panic buying and cognitive dissonance of consumers during uncertain Covid-19 process, we adopt FoMO construct in this research.

On the other hand, panic buying which has drawn a renewed interest among scholars with the emergence of Covid-19 global pandemic (e.g., Yuen et al., 2020; Zheng et al., 2020) is adopted in the study. Panic buying is known to lead customers to buy supplies with anxiety, panic and urgency. In this context, panic buying can be treated as a kind of unplanned buying behavior which leads to negative post-purchase behaviors such as cognitive dissonance and post-purchase regret (e.g., Kaur, 2014; Saleh, 2012). As well as FoMO, panic buying can stimulate consumers to buy what others buy, although they do not need these products. Hence, FoMO and panic buying behavior might potentially result in some negative post purchase behaviors such as cognitive dissonance.

To extend the existent research, theory of social comparison and drive-reduction theory of motivation are employed in this study. Theory of social comparison suggests that humans have an inherent drive to evaluate themselves, often in comparison to others (Festinger, 1954). In addition, drive-reduction theory of motivation proposes that humans are motivated to lower their negative state of tensions in order to keep up their homeostasis or sense of equilibrium (Hull, 1943). Whether it comes from comparing themselves with others or their state of tensions, both of these psychological theories suggest that humans have personal anxieties which stimulate them to act immediately with panic. In such context, both of these psychological theories help us to explain why FoMO triggers the panic buying behavior of consumers and paves the way for cognitive dissonance for them during Covid-19 pandemic. Since there are strong links between FoMO and panic buying with the subject of personal anxiety and taking immediate action to cope this anxiety under uncertainty in the social and physical world (Schwartz, 2010), both of these two theories help us explain the interactions between FoMO, panic buying and cognitive dissonance.

Building on the foregoing discussion stated above, this study attempts to examine the interplay between FoMO, panic buying and cognitive dissonance by extending drive-reduction theory and theory of social comparison within a previously untapped context. The findings of the study have important theoretical contributions and managerial implications to consumer buying behavior literature in many aspects. First, with the findings of the study, we extend the existing research on FoMO by providing an integrative conceptual framework that incorporates FoMO and panic buying behavior simultaneously. Also, we contribute to extant research by disclosing the mediating impact of panic buying on the relationship between FoMO and cognitive dissonance to explain consumption

behavior of consumers since the breakout of Covid-19 pandemic. Second, by the means of the findings of the study, we broaden both the social comparison theory and drive-reduction theory by explaining these theories within the context of FoMO, panic buying and cognitive dissonance. Additionally, the results of the study provide applicable implications to practitioners by emphasizing the importance of effective communication programs to decrease FoMO and panic buying of consumers during pandemic times.

The rest of the study is organized as follows. Initially, the relevant literature on social comparison theory, drive-reduction theory, FoMO, panic buying, cognitive dissonance and associations between them are examined. After that, a conceptual model of the study is portrayed and hypotheses of the study are established. In following part, methodology of the study including sampling method, data collection and questionnaire design are explained. Then, the findings of the study are given and discussed. Afterwards, conclusions and theoretical and managerial implications are presented. Finally, limitations of the present study and suggestions for future research are indicated.

2. Literature Review

In this part of the study, social comparison and drive reduction theory are discussed and the constructs of the study are introduced.

2.1. Social Comparison Theory and Drive Reduction Theory

Social comparison theory is regarded as one the most well-known and well-established socio-psychological theories (Jang et al., 2016). Social comparison theory principally rests on the pioneer work of Festinger in which he discussed that people possess an innate drive to appreciate their abilities, capabilities, attitudes, opinions and behaviors (Festinger, 1954). This drive leads people to decrease anxiety about themselves and help them to find answer to the questions like “How am I doing” or “What should I think and do” (Gibbons & Buunk, 1999: 129). The answers of these questions are frequently hidden in the actions and decisions of others in the lack of objective criteria. Accordingly, because the actions and decisions of others can serve as benchmark for self-evaluation, people tend to follow and collect information about what others do and compare themselves with others to evaluate their own attitudes and behaviors objectively (Festinger, 1954).

Several studies in which social comparison theory is applied to the social media settings have suggested that people using social media compare themselves with others while they are viewing others’ posts, status updates, pictures and profiles (e.g., Chae, 2017; Jang et al., 2016; Lee, 2014; Phua et al., 2017; Reer et al., 2019; Yang, 2016). Nevertheless, some studies have pointed out that comparison on social media just paves the way for general life dissatisfaction and psychological distress (e.g., Chen & Lee, 2013; Chou & Edge, 2012; Liu et al., 2017) by cultivating some negative feelings such as depression, anxiety, envy, jealousy, fear of missing out or negative perceptions of one’s own capability (e.g., De

Vries et al., 2018; Fox & Moreland, 2015; Liu et al., 2017; Reer et al., 2019; Tandoc et al., 2015; Yang, 2016).

These negative feelings such as fear and anxiety are more likely to turn into a manifestation of the negative drive states which can potentially weaken the sense of equilibrium (Lim, 2016). However, drive-reduction theory by Hull (1943) argues that people need to keep up sense of equilibrium or homeostasis. In this context, the more the lack of homeostasis increases, the more a negative drive state grows, if it is not mitigated by right behavior (Anagnostaras & Sage, 2010). Therefore, people are trying to do their best to reduce negative drive states that disturb the sense of equilibrium. In such context, drive-reduction theory tells us that there is an indisputable link between drive and behavior, and to reduce the tension, people tend to act immediately.

During the Covid-19 lockdowns, consumers had to be isolated at their homes and so they have started to spend too much time on the internet and particularly on social media platforms in which people share what they do and buy. Accordingly, consumers have been exposed to what other people did and bought more than ever during Covid-19 pandemic through social media which makes the comparison easier. Based on social comparison theory by Festinger (1954), these comparisons might be used by consumers for self-evaluation and inadvertently trigger the FoMO impact on panic buying behavior of consumers as a drive reduction behavior, which potentially leads to cognitive dissonance as a post purchase behavior. In such context, based on both social comparison theory by Festinger (1954) and drive-reduction theory by Hull (1943), we figure out that FoMO and panic buying are affected by the innate need to compare oneself to that of others and need to lower the negative tensions evoked when these constructs are triggered under specific conditions.

2.2. Fear of Missing Out (FOMO)

FoMO is one of the recent popular phenomena which has drawn the attention of scholars (e.g., Przybylski et al., 2013; Alt, 2015; Zhang et al., 2020) for a few decades. The condition, which is described as experiencing unease when a person feels at risk for missing out on what others are doing, is popularly termed fear of missing out, or FoMO in short (Baker et al., 2016). In relevant literature, FoMO is commonly characterized as a pervasive anxiety or fear felt by individuals when others might be performing rewarding experiences from which they are absent (Przybylski et al., 2013). Thus, FoMO is regarded as an emotional experience which stems from a compulsive anxiety that people might feel when they miss an opportunity (Argan & Argan, 2019).

Based on self-determination theory by Deci & Ryan (1985), motivation and well-being factors are frequently related to FoMO in extant literature (e.g., Alt, 2015; Conlin et al., 2016; Przybylski et al., 2013). With respect to self-determination theory, self-determined reasons that shape the attitudes and intentions consistently with the motivational orientations can lead individuals to perform a specific behavior to satisfy their motives (Elliot et al., 2002; Saavedra & Bautista, 2020). In this context, since the psychological needs and motivation determine the ways how individuals move themselves and act, the action of following what others are doing closely can be related to psychological needs and

motivation with which individuals are centrally concerned. Accordingly, FoMO is also described as a person's innate need to evaluate their own well-being with respect to that of others (Festinger, 1954) because of some unsatisfied psychological needs (Przybylski et al. 2013; Reagle 2015).

Although, self-determination theory provides a good approach to understand FoMO, a single theory approach does not help to explain the factors that affect behavior comprehensively. Among several psychological theories, social comparison theory by Festinger (1954), which argues that people have an innate drive for self-evaluation and so they need to compare themselves with others, if there is a lack of objective criteria, can provide a good context to explain the impact of FoMO construct during Covid-19 pandemic. Starting from the fact that all judgments and decisions are made in reference to others (Asch, 1952), what other people do can shape all consumer decisions and actions. More clearly, the desire for either conflicting with or conforming to majorities' action can guide the behavior of consumers (Wood & Hayes 2012). In this context, comparing ourselves with others for our self-evaluation particularly when there is a lack of objective criteria, what the others do can feed our anxiety and lead to FoMO, if we feel that we miss out some opportunities. Based on drive reduction theory by Hull (1943), these anxieties and fears as a negative drive state can also motivate people to act in ways to mitigate these concerns. In order not to feel out of the loop, FoMO may stimulate the consumers to take an immediate and quick action (Fox & Moreland, 2015).

2.3. Panic Buying Behavior

With respect to survival psychology, behavioral changes can be frequently observed when major events potentially threaten the social lives and health of people (Loxton et al., 2020). Therefore, panic behavior is regarded as a normal response for many people during uncertain times such as calamities, disasters or pandemics (Arafat et al., 2020). Under such circumstances, people are more likely to develop unexplained behaviors because the primitive part of our brain, which has substantially lack of rational thinking, usually takes the control and lets us take an action to survive (Dodgson, 2020). One of the erratic behaviors observed in uncertain times is panic buying behavior which is popularly known as irrational stockpiling or hoarding (Chen et al., 2020).

Although panic buying is one of the oldest phenomena, it has received a renewed interest from academics and retail industry with the emergence of Covid-19 global pandemic (e.g., Prentice et al., 2020; Wang & Na, 2020). In relevant literature, panic buying is simply defined as a herd behavior that appears when consumers purchase unusually large amounts of products before, during or after a calamity or in an anticipation of shortage and shocking price increase (Yuen et al., 2020). In such context, panic buying can also be explained as a phenomenon which leads to lack of balance between supply and demand due to the sudden boost in purchasing of essential supplies in excess more than ever (Arafat et al., 2020). Accordingly, extant works on panic buying typically view the construct as a herd behavior (e.g., Singh & Rakshit, 2020) and supply chain disruption (e.g., Power et al., 2020; Tsao et al., 2019; Zheng et al., 2020).

One of the influential factors on panic buying is social psychology which makes the panic buying a herd behavior that is affected by the behaviors of others in society (Yuen et al., 2020). As a social human being, it is normal to expect that consumers' decisions and behaviors may be affected by the opinions, attitudes or behaviors of others in society (Solomon, 1994). Particularly under uncertain times, as a result of observational learning, consumers start to believe that action of majority is right because they think that they have a better assessment about the situation (Zheng et al., 2020). This makes them give the same decision and take the same action in a sequential way. With respect to social comparison theory by Festinger (1954), observational learning can provide an important cue to consumers for self-evaluation and stimulate them to adjust their behaviors with respect to the behavior of the majority. Therefore, social influences frequently structure the behaviors of individuals.

The relevant literature also suggests that panic buying is also driven by emotions such as fear of the unknown and anxiety (e.g., Ballantine et al., 2014; Sheu and Kuo; 2020; Taylor, 2019). Negative emotions such as fear and anxiety might motivate consumers to buy something because buying action would make them feel themselves with much more sense of security and comfort, momentarily escape from their current fear and anxiety and mitigate their stress level (Kenneth-Hensel et al., 2012). Each person has an innate drive to control uncertainty to survive (Kemp et al., 2014). In such context, panic buying behavior triggered by the fear or anxiety becomes coping behavior for many consumers and it can frequently be regarded as a control of deprivation or re-taking control over the uncertain situation (Arafat et al., 2020; Keane & Neal, 2021). Additionally, based on drive-reduction theory by Hull (1943), it is normal to expect that consumers' panic buying behaviors are not driven by their actual need for what they buy but a desire to diminish their negative drive states in order to reach sense of equilibrium. Thus, panic buying can be regarded as a reflection of self-protection and coping behavior by many consumers to mitigate their fear and anxiety regarding uncertain times like pandemics (Arafat et al., 2020). Accordingly, panic buying can be perceived as a mechanism which lets consumers compensate their psychological losses in some way (Ballantine et al., 2014).

Nevertheless, panic buying is often regarded as socially undesirable behavior (Steven et al., 2014) which results in stockout regarding daily necessity supplies because of large quantity purchases. Depending on panic buying, negative externalities can be observed in a society because panic buying prevents access to required supplies for many people who really need those supplies (Wessler, 2019). Panic buying action is more likely to pave the way for fragile supply chain and do harm consumers financially (Crabbe, 2020). Moreover, since consumers are not directly driven by their actual needs for purchased products in disasters or pandemics, panic buying might potentially lead to some post purchase behaviors such as post-purchase regret or cognitive dissonance for many consumers.

3. Theoretical Framework and Hypotheses Development

In this part of the study, theoretical framework of the study is constructed and hypotheses of the study are established on the basis of the associated relationship between the constructs.

3.1. The Link between FoMO and Panic Buying

When consumers think that they miss out the experience or opportunities that the others are benefiting, they tend to figuratively jump on the bandwagon of what the others do as a result of bandwagon effect (Kang & Ma, 2000). This tendency of consumers strengthens when they feel anxiety or fear that any delayed action may result in great loss for them. Thus, in order not to miss out anything that others do or buy, consumers can feel themselves as if they are obliged to make quick decision and take immediate action, which leads to irrational behaviors. Previous research has also empirically displayed that FoMO triggers the irrational behaviors of consumers because of the desire to be constantly informed of the experiences of others (e.g., Baker et al., 2016; Elhai et al., 2016). Thus, either it is right or not, due to the fear of missing out, consumers frequently emulate the majority's action in the society to feel themselves psychologically safe (Abel et al., 2016). Since the early days of Covid-19 pandemic, the circulated images regarding empty shelves, stockpiling and long consumer queues in front of the retailers in news and social media have tempted to fear of missing out of consumers which led to purchase and stock of essential and non-essential supplies from online and offline stores (Addo et al., 2020; Iyer et al., 2020). Accordingly, as the consumers feel an increasing fear of missing out in social life, this fear dramatically feeds excess consumption (Boström, 2020) and leads to panic buying as a way for coping with fear and regaining control over the crises during the pandemic (Yuen et al., 2020). On this basis of this discussion, we conclude that panic buying is triggered by FoMO. Hence, we posit:

H₁: FoMO has a significant positive impact on panic buying.

3.2. The Link between Panic Buying and Cognitive Dissonance

Behavioral theories such as drive reduction theory by Hull (1943) and social comparison theory by Festinger (1954) explain that individuals feel compelled to give quick decisions and take quick actions in order to mitigate their negative feelings such as fear and anxiety (Lim, 2016). Especially during calamities like pandemics, uncertainty initiates behavioral changes for consumers which in turn negative manifestations such as herding, stockpiling and panic buying (Loxton et al., 2020; Molyneaux et al., 2020; Yoshizaki et al., 2020). Particularly since the early months of Covid-19 pandemic, many consumers all over the world have suddenly started to purchase as much food and supplies like toilet paper as they could because they feel fear and anxiety that something bad might happen (Taylor, 2021). Misinformation about supply chain disruption in news media and posts and pictures circulated through social media about what others buy have fueled urge to buy food and supplies impulsively (Leung et al., 2021). Besides, social comparison and need for tension reduction have stirred up the panic buying as a coping behavior (Keane & Neal, 2021), although it is an unplanned behavior, as well. Since panic buying is an unplanned buying behavior (Saleh, 2012), it paves the way for greater cognitive dissonance relative to more planned and structured purchase (Shaifali et al., 2021). Hereby, it is clear that high degree of panic and fear felt by a consumer can

trigger excessive emotional instability which leads to more post-purchase comparison tendency. Hence, we posit that;

H₂: Panic buying has a significant positive impact on cognitive dissonance.

3.3. The Link between FoMO and Cognitive Dissonance

As well as it has an impact on emotional factors such as negative mood (Przybylski et al., 2013), FoMO also has a negative impact on cognitive and physical health of consumers (Reer et al., 2019). Particularly for consumers with high FoMO tendency, the drive to be continually connected with what others are doing lead to negative effects on mental health (Baker et al., 2016). In such cases, particularly social comparison triggers FoMO-driven consumption behaviors but unfortunately it leads to less overall satisfaction occurred as an undesired consumption outcome (Hill et al., 2012). Thus, when FoMO drives consumers to think that what others do is better than what they do, they more likely to feel that they preferred an inferior option (Jacobsen, 2021). This distress or unease that the consumers feel is the cognitive dissonance in the psychology context (McGregor et al., 2001). With respect to cognitive dissonance theory by Festinger (1957), if consumers experience two related but inconsistent cognitions, they will feel severe affective dissonance. According to Herman (2011), when consumers' conceived ability to exhaust their option is low relative to the majority, they are quite likely to perceive what they are missing out. Thus, as the perceived discrepancy between consumers' current experiences and majority's experiences intensify as happened during Covid-19 pandemic, consumers probably feel cognitive dissonance when they prefer one action over another (Milyavskaya et al., 2018). Hence, we posit that;

H₃: FoMO has a significant positive impact on cognitive dissonance.

3.4. The Mediating Impact of Panic Buying on The Link Between FoMO and Cognitive Dissonance

In the context of FoMO, fear emerges when consumers perceive that they fall behind the experiences of others (Przybylski et al., 2013). Particularly because of social comparison and tension reduction, FoMO stimulates the consumers to monitor the actions of others and take immediate action to deal with this fear (Baker at al., 2016). On the other hand, panic buying is a common instinctive human reaction which emerges due to the fear of running out of supplies (Yoshizaki et al., 2020). In this regard, both FoMO and panic buying are related to personal anxiety and both of these constructs urge consumers to take immediate and frequently impulsive action to cope with personal anxiety under uncertainty (Schwartz, 2010). Hereby, it is clear that both FoMO and panic buying lead to cognitive dissonance with respect to cognitive dissonance theory by Festinger (1957). The extant literature also indicates that consumers with high FoMO tendency have more cognitive dissonance because of the lack of involvement in the buying process (Shaifali et al., 2021). Moreover, because of the need for fear reduction, panic buying leads to more impulsive (Addo et al., 2020) and excessive consumption (Boström, 2020) which is more likely to turn into cognitive dissonance. Although panic buying has

not been set as a mediating variable in previous studies in the relevant literature, several studies suggested that impulsive buying behavior stimulated by panic is regarded as a mediating variable (e.g., Lahath et al., 2021; Shaifali et al., 2021). In this context, it can be assumed that when panic buying enters the relationship between FoMO and cognitive dissonance, the effect of FoMO can partially be reduced or completely finished. On the basis of this discussion, because of the increase in social comparison and need for drive reduction, we expect that panic buying has a mediating role on the link between FoMO and cognitive dissonance. Accordingly, we posit that;

H₄: Panic buying mediates the relationship between FoMO and cognitive dissonance.

Building on the foregoing discussion stated above, we depict the conceptual model of this study in Figure 1. Depending on the model, FoMO is set as an antecedent of cognitive dissonance and panic buying is postulated to mediate the relationship between FoMO and cognitive dissonance.

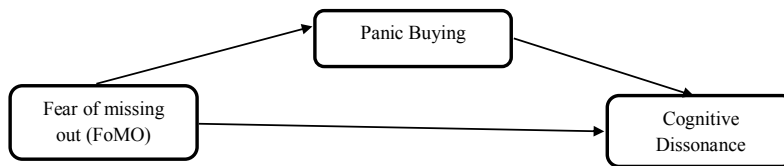


Figure 1: Theoretical Framework of the Study

4. Methodology

In this part of the study, sampling procedure, data collection process and questionnaire design of the study are elaborately discussed.

4.1. Sampling Method and Data Collection

This study was conducted by using a cross-sectional online survey-based method. The data was collected by employing self-administered questionnaires sent to Turkish respondents who have stocked any supplies (i.e., masks, disinfectants, toilet papers, flour, sugar, salt and so on) since the early days of Covid-19 pandemic. The online link of the questionnaire was shared with the respondents and they were asked to respond to each question. Before the final version of the questionnaire, a pilot study was carried out with 45 participants to check whether the items used in the study were understood well enough and ensured that the face and content validity were established. Based on the fruitful feedbacks of the pilot study, slight modifications and revisions were made to reach the final version of the questionnaire.

The data of the study was collected at the time period from 09.08.2021 to 19.08.2021. A total of 514 respondents were reached with convenience sampling method. Nevertheless, 49 of the questionnaires were excluded from the study because the respondents did not give “yes” answer to the first question which is “Have you ever bought any supplies more than one at the same time during the early days of Covid-19 pandemic?” Thus, a total of 465 valid questionnaires were used in data analysis.

4.2. Questionnaire Design

A structured-online questionnaire including four parts (i.e., demographics, FoMO, panic buying and cognitive dissonance) was administered in order to test the theoretical model of the study. In this process, respondents were initially asked that whether they have ever bought any supplies more than one at the same time during the early weeks of Covid-19 pandemic. If their responses were “yes”, then they were requested to reply rest of the items in the questionnaire.

The questionnaire employed in the study was developed from the relevant literature (See Appendix A). Accordingly, all of the scales used in this study were borrowed from existing scales but modified for this study. The eight items for measuring FoMO were adapted from Good & Hyman (2020). Panic buying was measured by using seven items adapted from Lins & Aquino (2020). Finally, eight items from Koller & Salzberg (2007) were employed and adjusted to measure cognitive dissonance. Before the items of all of these scales, respondents were asked to consider their hoarding behavior during the early months of outbreak of the Covid-19 pandemic.

In order to measure all constructs in the questionnaire, a five-point Likert type scale anchored from “1 = strongly disagree” to “5 = strongly agree” was adopted. All of the items in the questionnaire were initially outlined in English. Then, they were translated into Turkish through backtranslation procedure.

5. Research Findings

The findings regarding demographics of the respondents, measurement model and structural model are respectively presented in this part of the study.

5.1. Demographics of the Sample

Table 1 displays frequencies and percentage of sample of the study with respect to gender, age, household monthly income, education, occupation and marital status. The respondents’ gender profile indicates that a total of 55.48 percent are female and 44.52 percent are male. The age profile of the respondents shows that 35.70 percent and 34.62 percent of them range between 36-45 years old and 26 and 35 years old, respectively, whereas 14.62 percent, 7.10 percent, 4.73 percent and 3.23 percent range between 45-55 years old, 56-65 years old, 18-25 years old and 66 years old and older, respectively. The distribution of household income of the sample reveals that 36.13 percent

of the them have income level varying between 5001 TL and 7500 TL and 26.02 percent of them have income level ranging between 75001 TL and 10000 TL, while 17.85 percent, 15.05 percent and 4.95 percent having between 2501 TL and 5000 TL, 10001 TL and over and 2500 TL and lower, respectively. The education distribution of the sample presents that 48.39 percent have bachelor's degree, whereas 29.68 percent and 21.93 percent having postgraduate degree and high school degree, respectively. The occupation profile of the sample displays that a total of 33.12 percent and 32.47 percent are working as a government employee and a private firm employee, respectively, while 20.22 percent of them state that they are self-employed and 14.19 percent choose the other option. Finally, the marital status distribution of the respondents indicates that a total of 42.80 percent and 26.02 percent are married with children and single, respectively, while 23.87 percent of them is married without children and 7.31 percent of them choose the other option.

Table 1: Demographics of the Sample

	Frequency	Percentage		Frequency	Percentage
Gender			Education		
Female	258	55.48	High school	102	21.93
Male	207	44.52	Bachelor's degree	225	48.39
Total	465	100	Postgraduate	138	29.68
			Total	465	100
Age			Household monthly income		
18–25	22	4.73	2500 TL and lower	23	4.95
26–35	161	34.62	2501 TL-5000 TL	83	17.85
36–45	166	35.70	5001 TL-7500 TL	168	36.13
46–55	68	14.62	7501 TL-10000 TL	121	26.02
56–65	33	7.10	10001 TL and over	70	15.05
66 and older	15	3.23	Total	465	100
Total	465	100			
Occupation			Marital Status		
Government employee	151	32.47	Single	121	26.02
Private firm employee	154	33.12	Married without children	111	23.87
Self-employed	94	20.22	Married with children	199	42.80
Other	66	14.19	Other	34	7.31
Total	465	100	Total	465	100

5.2. Measurement Model

In this part of the study, the findings of confirmatory factor analysis, reliability and validity calculations and common method variance are discussed.

5.2.1. Confirmatory Factor Analysis

The items within the questionnaire were initially subjected to confirmatory factor analysis (CFA). The model fit indices (i.e., $\chi^2(227_{df}) = 423.44$ ($p=0.000$), GFI = 0.93, AGFI = 0.91, NFI = 0.99, NNFI

= 0.99, IFI = 0.99, CFI = 0.99, RMSEA = 0.043, RMR = 0.019, SRMR = 0.024) reveal that structure of the factor has a good fit with the data (Tabachnick & Fidell, 2013).

With respect to results of CFA, standardized factor loadings between observed and latent variables vary between 0.77 and 0.93. Referring to Table 2, all of the observed items are over the threshold value of 0.50 (Hair et al, 2013) and so they are accepted as statistically significant ($p \leq 0.05$). Moreover, since all of the t-values range from 19.89 to 26.39, it assures that all the links between latent and observed variables are statistically significant at the 0.05 level ($t > 1.96$). Thus, none of the items were eliminated from the study. Also, since each standardized factor loading has to exceed 0.5 and each t-value has to be greater than 3.0, convergent validity is reasonably established for this construct (Hair et al., 2013).

Table 2: Summary of Construct Measurement

Constructs	Scale Items	Standardized Loadings	t-value	α	CR	AVE	Mean score	Item mean score	Item SD
Fear of Missing Out (FoMO)	FoM1	0.77	*	0.945	0.94	0.68	1.62	1.59	0.78
	FoM2	0.81	21.02					1.71	0.83
	FoM3	0.78	19.89					1.73	0.85
	FoM4	0.83	21.87					1.61	0.82
	FoM5	0.85	22.40					1.48	0.76
	FoM6	0.84	22.16					1.61	0.81
	FoM7	0.87	23.44					1.57	0.84
	FoM8	0.85	22.44					1.66	0.87
Panic Buying	PB1	0.88	*	0.961	0.92	0.61	3.89	3.93	1.01
	PB2	0.90	25.14					3.83	1.01
	PB3	0.88	24.09					3.81	0.99
	PB4	0.93	26.19					3.83	1.01
	PB5	0.93	26.39					3.90	1.01
	PB6	0.82	21.44					4.04	0.94
	PB7	0.83	22.00					3.93	0.98
Cognitive Dissonance	CD1	0.81	*	0.956	0.93	0.62	3.08	3.10	0.88
	CD2	0.86	23.11					3.12	0.92
	CD3	0.86	23.29					3.12	0.92
	CD4	0.86	23.19					3.07	0.91
	CD5	0.87	23.39					3.08	0.89
	CD6	0.87	23.33					3.09	0.89
	CD7	0.84	22.35					3.03	0.85
	CD8	0.87	23.38					3.04	0.90

*Item fixed to set the scale

Fit statistics: $\chi^2(227_{df}) = 423.44$ ($p=0.000$), $GFI = 0.93$, $AGFI = 0.91$, $NFI = 0.99$, $NNFI = 0.99$, $IFI = 0.99$, $CFI = 0.99$, $RMSEA = 0.043$, $RMR = 0.019$, $SRMR = 0.024$.

CR = composite reliability, AVE = average variance extracted, SD = standard deviation

Respect to Table 2, since Cronbach alphas varying between 0.945 and 0.961 are above the threshold of 0.70, all constructs seem to have acceptable reliability (Nunnally, 1978). Additionally, composite reliabilities (CR) varying from 0.92 to 0.94 indicate a good construct reliability (Fornell & Larcker

1981). Also, since average variance extracted (AVE) values ranging between 0.61 and 0.68 are greater than 0.50 (Bagozzi & Yi, 1988; Fornell & Larcker, 1981) and all CR values are greater than AVE values (Anderson & Gerbing, 1988; Fornell & Larcker, 1981; Hair et al., 2013), convergent validity is met, as well. In order to be able to say that the scales are valid, divergent validity must also be checked for. In this context, the square root of the AVE values for latent variables are calculated and then they are compared with the correlations between latent variables. The square root of the AVE value for FoMO, panic buying and cognitive dissonance is 0.824621, 0.781024 and 0.7874400, respectively. The correlation coefficient between FoMO and panic buying, panic buying and cognitive dissonance, and FoMO and cognitive dissonance is 0.452, 0.779 and 0.408, respectively. Accordingly, since square root of the AVE values of each latent variable are higher than the correlation coefficients between the latent variable and other latent variables in the measurement model, divergent validity criterion is ensured, as well (Fornell & Larcker, 1981) (See Table 3).

Table 3: Divergent Validity Calculations

Latent Variables	FoMO	Panic Buying	Cognitive Dissonance
FoMO	*0.824621		
Panic Buying	0.452	*0.781024	
Cognitive Dissonance	0.408	0.779	*0.7874400

* The values given in the diagonal part of the table are square root values of AVE

5.2.2. Common Method Variance

Finally, the possibility of common method bias was also examined by using single-factor test of Harman (Podsakoff & Organ, 1986). Hence, all items were loaded on a single factor and then CFA was re-performed (Podsakoff et al., 2003). As respects to the result of Harman's one-factor test, the total variance extracted by one factor is 48.929 % and this value is less than the threshold value of 50%. Therefore, we conclude that common method bias does not lead to any problem for the study.

5.3. Structural Model

In order to examine the relations among the constructs in this study, the suggested model's hypotheses were analyzed through structural equation modeling (SEM). Before performing the main analysis, initially assumptions for SEM were checked and verified (i.e., sampling adequacy, normality, multicollinearity and linearity). In first place, the model fit indices ($\chi^2(227_{df}) = 423.44$ ($p = 0.000$), GFI = 0.93, AGFI = 0.91, NFI = 0.99, NNFI = 0.99, IFI = 0.99, CFI = 0.99, RMSEA = 0.043, RMR = 0.019, SRMR = 0.024) presents a good fit between the data and structural model (Hair et al, 2013; Tabachnick and Fidell, 2013). In line with H_1 , the association between FoMO and panic buying was found as statistically significant in a positive way ($\beta = 0.47$, $t = 10.05$, $p < 0.05$) and so H_1 is supported. As predicted in H_2 , panic buying has a significant positive impact on cognitive dissonance ($\beta = 0.78$, $t = 16.55$, $p < 0.05$) and accordingly H_2 is supported. Consistent with H_3 , FoMO positively influences

cognitive dissonance ($\beta = 0.43$, $t = 8.82$, $p < 0.05$) and thus, H_3 is supported. For H_4 , the four conditions proposed by Baron & Kenny (1986) are followed to test the mediating impact of panic buying on the link between FoMO and cognitive dissonance. The conditions suggested by Baron and Kenny (1986) are: there is a significant relationship a) between FoMO and cognitive dissonance ($\beta = 0.43$, $p < 0.05$); b) between FoMO and panic buying ($\beta = 0.47$, $p < 0.05$); and c) between panic buying and cognitive dissonance ($\beta = 0.78$, $p < 0.05$); d) when analyzing the mediating impact of panic buying statistically, the significant existing relationship between FoMO and cognitive dissonance as observed in the first condition ($\beta = 0.43$) has been considerably decreased and found as statistically insignificant ($\beta = 0.06$, $t = 1.71$, $p > 0.05$) (See Figure 2). Since the impact of FoMO on cognitive dissonance is insignificant when panic buying included in the model, this outcome specifies a full mediating impact of panic buying on the relationship between FoMO and cognitive dissonance. Finally, Sobel test was performed to examine the significance impact of mediation on the associated links. Sobel test results reveal that the mediating impact of panic buying was confirmed statistically (Sobel z-value = 8.56, $p < 0.05$). As a result, all hypotheses in the study are supported (See Table 4).

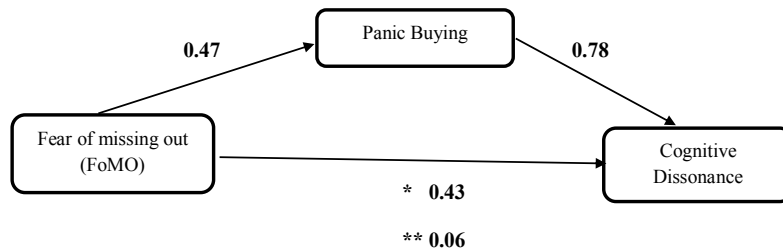


Figure 2: Theoretical Framework of the Study

Table 4: Structural Equation Modelling Results of the Hypotheses

Hypotheses	Standardized parameter estimates	t-value	p-value	Hypothesis status
H_1 : FoMO \rightarrow Panic Buying	0.47	10.05	<0.05	Supported
H_2 : Panic Buying \rightarrow Cognitive Dissonance	0.78	16.55	<0.05	Supported
H_3 : FoMO \rightarrow Cognitive Dissonance	0.43	8.32	<0.05	Supported
H_4 : FoMO \rightarrow Panic Buying \rightarrow Cognitive Dissonance	0.06	1.71	>0.05	Supported

Fit statistics: ($\chi^2(227_{df}) = 423.44$ ($p=0.000$), $GFI = 0.93$, $AGFI = 0.91$, $NFI = 0.99$, $NNFI = 0.99$, $IFI = 0.99$, $CFI = 0.99$, $RMSEA = 0.043$, $RMR = 0.019$, $SRMR = 0.024$).

6. Discussion and Implications

Since Covid-19 pandemic started infecting people all over the world, it has not only caused economic and health crisis for the world but also caused irrational consumer behaviors all around the world (Ahmed et al., 2020). It could alter the way how we see the world, how we conduct our lives, and what and how we buy. The fear and anxiety of consumers have been fueled by uncertainty during the early weeks of the Covid-19 pandemic (Leung et al., 2021). Accordingly, many people all over the world took an immediate action in order not to miss out what others do (Taylor, 2021) and hoarded supplies with panic (Wang and Na, 2020).

The present study examined how FoMO triggers the panic buying and cognitive dissonance from a combination of two theoretical perspectives; social comparative theory and drive reduction theory. The findings of the study revealed that FoMO triggers both panic buying and cognitive dissonance, as well as panic buying triggers cognitive dissonance. In this context, the findings of the study supported the findings of several studies which also examined the effect of FoMO on mental health (e.g., Baker et al., 2016, Herman, 2011; Hill et al., 2012, Jacobsen, 2021, Milyavskaya et al., 2018) and the effect of panic buying on mental health (e.g., Keane & Neal, 2021; Shaifali et al., 2021). On the other hand, different from the findings of Prentice et al. (2020), which did not support that fear of missing out has a significant positive effect on panic buying, empirical evidence provided by this study indicated that FoMO was significantly related to panic buying. In this context, this study disclosed that FoMO has been a driver of panic buying during the Covid 19 pandemic.

In relevant literature, panic buying has been frequently set as a dependent variable in several studies (e.g., Afifah et al., 2021; Ahmad, 2021; Prentice et al., 2020; Putri et al., 2021; Singh et al., 2021). So, it is the first time that panic buying was treated as mediating variable in this study. In this sense, full mediation impact of panic buying was found on the relationship between FoMO and cognitive dissonance. Thus, we concluded that the existing relationship between FoMO and cognitive dissonance was insignificant, if panic buying was included in the model. Referring to its results, this study ensures theoretical contributions to the literature and also suggests several practical implications to the policy makers and practitioners as follows.

6.1. Theoretical Implications

Studies that employ a single-theory approach have some limitations in explaining psychological motivation of behaviors (Hagger, 2009). Thus, theoretical synthesis is required to provide more comprehensive explanations to the different factors that affect behaviors. This present study provides contributions to consumer behavior research by integrating and also extending the theory of social comparison and drive-reduction theory within a different and previously untapped context within marketing literature. Social comparison theory and drive-reduction theory both suggest that individuals have personal anxieties which stimulate them to take an immediate action. Since the social comparison has increased due to extensive media consumption during the lockdowns, consumers have increasingly felt that they missed some things around them (Leung et al., 2021). Thus, seeking

for mitigating their negative state of tensions stimulated them to act with panic to reach balance (Taylor, 2021). In this context, under uncertain times like pandemics, both FoMO and panic buying could be influenced by the innate need of individuals to compare themselves to what others do and need to lower their negative tensions as a coping strategy. Consequently, the findings of the present study suggest a theoretical confirmation for social comparison theory and drive-reduction theory by postulating that FoMO and panic buying are influenced by social comparison and negative tensions and lead to undesirable outcomes such as cognitive dissonance in pandemics.

In addition, the findings of the study also extend the findings of previous research on the interaction between FoMO and mental health, and panic buying and mental health by indicating a significant and positive effect of FoMO and panic buying on cognitive dissonance. The findings of the study also contribute to the relevant literature by presenting the role of FoMO on panic buying during the Covid 19 pandemic. Additionally, it is important to note that it is the first time that panic buying is treated as a mediating variable in this study in extant literature. Accordingly, the findings of the study, which revealed the full mediation effect of panic buying on the link between FoMO and cognitive dissonance, contribute to relevant literature, as well.

6.2. Practical Implications

This study also suggests practical implications for consumers, marketers, all media communities, intermediaries like retailers and policy makers. The findings of the study reveal that FoMO and panic buying lead to cognitive dissonance for consumers during uncertain times like pandemics. Under such uncertain times, policy makers and authorities could calm down the public and mitigate their anxieties and fear by announcing their contingency plans clearly. Also, since consumers are more likely to be influenced by news, posts, pictures and conversations in social media particularly regarding scarcity and supply chain disruptions, policy makers could prevent sharing of these fake posts and pictures which trigger fear and panic.

Although increase in short-term sales because of stockpiling seems profitable by retailers, it will pave the way for negative outcomes such as supply chain disruptions, shortages and dissatisfied consumers in the long run. In order to deal with these negative consequences and protect themselves from severe losses, retailers should buy insurance against stockpiled inventory and business interruptions.

During uncertain times like pandemics, since individuals are more likely to compare themselves with others because of lack of much information, they should control their posts and conversations particularly in social media. They should not feed anxiety and fears of others by exhibiting their actions. Additionally, they should elaborate consequences of panic buying before taking an action in order not to experience some negative post purchase outcomes such as cognitive dissonance. Finally, marketers should design appropriate communication programs in order to lower FoMO and panic buying of consumers. In this regard, they should enhance long-term trustable relationship with its customers by ensuring continuous information and communication to protect the mental health of the consumers.

7. Conclusion, Limitations and Further Research

Covid 19 pandemics influence the behavior of consumers all over the world (Prentice et al., 2020). This present study also shows that FoMO and panic buying lead to cognitive dissonance. Besides, full mediation impact of panic buying on the relationship between fear of missing out and cognitive dissonance is empirically found. These findings provide applicable insights to policy makers and practitioners to reduce cognitive dissonance of consumers by mitigating their FoMO and panic buying. Nevertheless, there are also several limitations of the study that should be acknowledged. First, data were collected via survey method and so the respondents might have not felt themselves comfortable to provide answers to the items particularly regarding FoMO. To address this limitation, data should also be collected via qualitative methods like in-depth interviews in further studies to better understand the psychological motivation of the behavior. Second, the present study was a cross-sectional study, and accordingly data were collected at one specific point in time from the sample population. Instead of a cross-sectional study, a longitudinal study should be carried out in further studies to explore the causal relationship between the independent variable and its outcome while the pandemic is continuing. Third, irrational buying behaviors of consumers during Covid-19 pandemic were attempted to explain on the basis of the interplay between FoMO, panic buying and cognitive dissonance. However, the findings of the study show evidence that FoMO and panic buying may be fueled with anxiety, fear, panic and scarcity which could be tested in further studies. Fourth, the study was carried out in Turkey with 465 Turkish respondents. Thus, further studies should be conducted on a large scale including other countries to generalize the results to entire population. Finally, this study has drew upon social comparison theory and drive-reduction theory to explain how FoMO influences panic buying and cognitive dissonance. Besides these two theories, new psychological theories such as social cognition theory by Festinger (1954) or protection motivation theory by Rogers (1975) may be employed in further research to extend the present study.

Author Contribution

All stages of the study were conducted by the author.

Conflict of Interest

No conflict of interest was reported by the author.

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APPENDIX A: Survey items

Constructs	Operationalization	Source
FoMO	<ul style="list-style-type: none"> * I'm afraid later I will feel sorry I didn't do what my friends do. * I will worry about what I'm missing. * I will worry my friends are doing more rewarding things than me. * I will feel concerned that my friends are having more things without me. * I will feel left out. * I will feel sorry that I didn't do what friends do * I will feel anxious about not buying what my friends buy * I will feel bothered that I missed an opportunity to buy what my friends buy. 	Good and Hyman (2020)
Panic Buying	<ul style="list-style-type: none"> * Fear drives me to buy things to stock at home. * The fear of not having the products that I need leads me to buying more things. * I panic when I think that essential products may run out from the shelves, so, that is why I prefer to buy them in bulk. * Fear drives me to buy more than I usually do. * Panic makes me buy more things than I usually do. * One way to relieve the feeling of uncertainty is to make sure that I have a good amount of the products that I need at home. * The feeling of uncertainty influences my buying habits. 	Lins and Aquino (2020)
Cognitive Dissonance	<ul style="list-style-type: none"> * Perhaps I should have spent the money on something else. * I am not quite sure about my buying decision. * I am annoyed that I have to do without other things now. * When thinking of the buying decision, I feel uncomfortable. * I don't know whether the things I bought was right. * Now, after the things I bought, I feel uneasy. * I do not know whether this buying decision was the right choice. * I would like to undo my buying decision. 	Koller and Salzberg (2007)

Resume

İlkin YARAN ÖGEL (Ph.D.) is a Research Assistant (Ph.D.), and teaching marketing courses in Business Administration Program in English language, Afyon Kocatepe University, Turkey. She has B.A and Ph.D. degrees from Dokuz Eylül University and a M.B.A degree from Middle East Technical University. She has research assistant position since 2010. Her research interests are consumer behavior, brand management and sustainable marketing.