


## Panic Buying: A Theoretical and Conceptual Review

### *Panik Satın Alma: Teorik ve Kavramsal Bir İnceleme*

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#### Abstract

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**Anahtar Kelimeler:** Panik satın alma, panik satın alma davranışı, teori, tüketici davranışı.

**Purpose:** Panic buying is a consumer behaviour that can be complex and difficult to explain in critical, urgent, uncertain and crisis situations. This phenomenon has yet to be fully explored in research on consumer behaviour. Panic buying may have many causes and consequences. Determining the causes of panic buying and understanding consumer psychology in crisis and disaster situations in various theories can guide government officials, businesses, marketing practitioners and researchers in case it occurs again in consumer behaviour in the future. This study aims to conduct a conceptual and theoretical examination of panic buying and to focus on its causes. **Material and Method:** Panic buying was discussed conceptually and theoretically within the literature review framework and inferences were made. **Findings:** This study focuses on the conceptual and theoretical examination of panic buying and its causes. Theories such as Compensatory Control Theory, Social Influence Theory, Social Proof Theory, Scarcity Theory, Herd Behavior, Survival Psychology and Motivation Theory have been intensively studied on panic buying. It is more common in the literature to try explaining the reasons for panic buying during crises, pandemics and disasters. **Results:** The reasons for panic buying can mostly be shown as environmental, sociological and psychological factors such as pandemics, risks, disasters, perception of scarcity, herd mentality, social influence, social media, expert opinion, anxiety about uncertainty, and fear. It is suggested for future research to measure the emotional states such as regret, sadness, empathy, satisfaction after panic buying and the intention to buy panic again, and what strategies can be used to control panic buying.

#### Öz

**Amaç:** Panik satın alma kritik, acil, belirsiz, kriz gibi durumlarda açıklanması karmaşık olabilen bir tüketici davranışıdır. Bu olgu henüz tüketici davranışı araştırmalarında tam olarak araştırılmamıştır. Panik satın almanın birçok nedeni ve sonucu olabilir. Panik satın almanın nedenlerini belirlemek ve kriz ve felaket durumlarında tüketici psikolojisini çeşitli teoriler açısından anlamak, gelecekte tüketici davranışlarında tekrar meydana gelmesi durumunda hükümet yetkililerine, işletmelere, pazarlama uygulayıcılarına ve araştırmacılara rehberlik edebilir. Bu çalışmada panik satın almanın kavramsal ve teorik bir incelemesi yapılarak nedenleri üzerinde durulması amaçlanmıştır. **Gereç ve Yöntem:** Panik satın alma, literatür taraması çerçevesinde kavramsal ve teorik açıdan ele alınmış ve çıkarımlar yapılmıştır. **Bulgular:** Panik satın alma ile ilgili çalışmalara "Telafi Edici Kontrol Teorisi", "Sosyal Etki Teorisi", "Sosyal Kanıt Teorisi", "Kıtlık Teorisi", "Sürü Davranışı", "Hayatta Kalma Psikolojisi" ve "Motivasyon Teorisi" gibi teoriler yoğun olarak konu olmuştur. Literatürde, panik satın almanın kriz, salgın ve afet gibi durumlar esnasında ele alınarak nedenlerinin açıklanmayı çalışıldığı daha çok görülmektedir. **Sonuç:** Panik satın almanın nedenlerine çoğunlukla pandemi, risk, felaketler, kıtlık algısı, sürü psikolojisi, sosyal etki, sosyal medya, uzman görüşü, belirsizliğe yönelik kaygı, korku gibi çevresel, sosyal ve psikolojik faktörler gösterilebilmektedir. Panik satın alma sonrası pişmanlık, üzüntü, empati, tatmin gibi duygu durumları ile tekrar panik satın alma niyetlerinin ölçülerek panik satın almayı kontrol edebilecek stratejilerin neler olabileceği gelecek araştırmalar için önerilmektedir.



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## 1. Introduction

Fear, an essential motivator in human behaviour, emerges during both individual and collective crises, and its effects on purchasing behaviour are being investigated (Lins & Aquino, 2020). In individuals who are particularly susceptible to crises situations, the experience of fear, anxiety, insecurity, and panic is a common phenomenon (Singh et al., 2021). In the event of a major earthquake, fire or flood, individuals may exhibit a range of panic behaviours, which can manifest in different ways and varying degrees. While the underlying interaction processes remain consistent across these forms of panic behaviour, the specific behavioural manifestations may vary (LaPiere, 1938).

Panic buying, which is not sufficiently analysed in the literature but has a presence in various areas of human life, can occur during or as a result of a challenging disaster for people (Shoib & Arafat, 2021). For example, panic buying of salt during the SARS outbreak in China in 2003 and the earthquake in Japan in 2011 demonstrate that panic buying is not a novel purchasing pattern (Lins & Aquino, 2020). Another example is the COVID-19 pandemic. COVID-19, the 'New Coronavirus Disease', emerged in China for the first time in December 2019 and spread globally and became an epidemic as a virus that manifests itself with respiratory symptoms such as cough and fever (Republic of Türkiye Ministry of Health, 2020). The ongoing uncertainty surrounding the global pandemic has resulted in a range of psychological impacts, including chronic distress, severe anxiety and extreme behavioural patterns. Therefore, panic buying refers to consumers reactions to high uncertainty in the COVID-19 pandemic (Prentice et al., 2022).

Since the COVID-19 pandemic creates an uncertain environment, it triggers negative emotions such as panic and fear in people and affects consumers' purchasing behavior. For example, during the pandemic, products ran out quickly in supermarkets, shelves were empty, and consumers exhibited stockpiling behavior

(Lins & Aquino, 2020). For example, due to the effect of global travel restrictions during the COVID-19 pandemic, sectors such as tourism and travel and the closure of retail stores led to a decline in retail trade. This situation led to an increase in online shopping (Statista, 2024a). In addition, in March 2020, consumers in Türkiye experienced fear and anxiety, postponed some of their expenses, turned to savings, and demanded price comparison websites due to increased price sensitivity (Deloitte Türkiye, 2020b). Therefore, against possible product supply shortages during the COVID-19 pandemic, consumers stockpiled products that could contribute to their survival (Singh et al., 2021). For example, during the COVID-19 pandemic, panic buying occurred for staple foods such as pasta, canned food, rice, and products such as toilet paper, disinfectant, masks, and medicine (Barnes et al., 2021; Keane & Neal, 2021, Li et al., 2021). Because consumers exhibited panic buying behavior in order to increase their safety to prevent contracting the coronavirus and reduce contact (Chua et al., 2021). Factors such as media, peer, and government measures also influenced consumers' panic buying (Prentice et al., 2022).

The COVID-19 pandemic has caused a global reaction and sensitisation towards uncertain, destructive, complex and volatile societal situations. As a consequence of this reaction and sensitivity, panic buying has become a global consumer behaviour (Lim et al., 2024). Furthermore, panic buying has had a deleterious effect on the market economy and the supply chain, resulting in societal damage. Because it caused hoarding behaviour, price increase and consumer stress (Li et al., 2021). Consequently, the phenomenon of panic buying can be approached from many disciplinary perspectives, including economics, sociology, media studies, behavioural psychology and supply chain management, and can be a complex phenomenon that develops depending on these (Singh et al., 2021). In this respect, panic buying, which can be observed globally, has the potential to affect many countries and many consumers. It can be triggered by several crises

and disasters, and can exert a negative influence on both the economy and society. However, this phenomenon has yet to be fully explored in research on consumer behaviour, and further investigation is required across a range of scientific fields. This research aims to contribute to the understanding of consumer behavior in times of crisis and disaster, and to provide strategic guidelines that can be used in both academic and practical applications. Panic buying may have many causes and consequences. Determining the causes of panic buying and understanding consumer psychology in crisis and disaster situations in various theories can guide government officials, businesses, marketing practitioners and researchers in case it occurs again in consumer behaviour in the future. It is therefore essential to gain an understanding of panic buying, which can have significant and far-reaching effects on the economy, supply chain and society. This will enable the development of effective strategies for managing panic consumer behaviour, and provide guidance for authorities and businesses in the future. It is anticipated that this study will make a significant contribution to both practitioner and researchers in terms of elucidating the underlying factors that precipitate panic buying and the theoretical frameworks that can explain this phenomenon.

## 2. The Concept of Panic

The concept of panic is based on mythology. While Pan, known as the Greek god of nature, was sleeping in a cave by the roadside in a rural area, he let out a very frightening scream because his sleep was interrupted by a traveller and caused the traveller to be terrified and die. The sudden and intense fear or terror experienced in this situation began to be called panic (Beck, 1996). LaPiere (1938) dealt with the concept of panic based on the variables of theatre, audience and the noise of the fire truck. According to the author, panic behaviour occurs as a result of the noise created by a fire truck during the theatre, which distracts the attention of the theatre audience and the noise stimulus is perceived as a danger. Likewise, the smoke in the theatre space is seen as a source of danger by

the audience, blocking the exit from the space, and the panic situation turns into a mass situation with the screams of the audience. According to the author, panic in this case is a collective solution to a sudden adaptation problem caused by a crisis.

Although panic is regarded as a typical behavioural response with a tendency to spread in fields such as sociology and business administration, it can be defined as a sudden onset of fear, terror, anxiety or discomfort psychology (Beck, 1996). It is posited that panic, which is frequently defined as an unwarranted or excessive flight behaviour or fear, occurs predominantly during periods of crisis (Quarantelli, 2001). The concept of panic, which can also be used in conjunction with concepts such as crushing and stampede, represents a situation that can occur abruptly in the initial stages of an event and can prompt individuals to flee due to the fear of being infected (Rogsch et al., 2010). The fact that the concept of panic is defined as a sense of impending disaster, fear or terror that starts suddenly and in a very short time shows that it differs from anxiety (Barlow & Craske, 2013). In addition, panic occurs due to any environmental disaster, a virtual or biological virus, terrorism and disease, a random and extraordinary event that people are not used to. At the same time, it is an experience that becomes more and more catastrophic with the lack of resilience in social relationships (Tester, 2013). This panic behaviour that occurs during any disaster or catastrophe is a reaction that can threaten people's ability to cope with the disaster or catastrophe by disrupting in the balance of the current situation (Arafat et al., 2020). Panic, an integrated reaction to a crisis or disaster, can be related to individual and socio-economic situations such as gender, economic security, personality, culture and any source of risk (Hall et al., 2021).

## 3. The Concept of Panic Buying

Panic buying refers to a process in which consumption is widely displaced during an epidemic or a disaster. The change in consumption that occurs here occurs in the event

of an external event and as a result of the change that consumers encounter in the supply of products. In addition, the change in consumption is the change in the time and place points where consumption occurs (Hall et al., 2021).

Panic buying is a non-rational (Arafat et al., 2021; Li et al., 2021), cognitive and emotional (Hall et al., 2021), bizarre and social consumer behaviour during any emergency (Shoib & Arafat, 2021). Panic buying is a behaviour that usually involves various negative emotions such as panic, uncertainty and fear caused by crises and makes consumers buy more than usual with these emotions (Lins & Aquino, 2020). In a crisis, consumers make larger purchases than the amounts they purchase in regular times. In these large purchases, which are panic purchases, consumers act with fear of scarcity and anxiety. This situation disrupts the supply chain and stock depletion (Erkan et al., 2023). The behaviour of consumers who expect scarcity to purchase a large amount of products is called panic buying (Leung et al., 2021). Panic buying can last for a short or long time. During this time, stockpiling behavior occurs when external factors influence consumers and internalize these factors (Li et al., 2021).

It is also stated that panic buying, which refers to purchasing large amounts of products by consumers to prevent scarcity-related threats, is a compulsive behaviour (Singh et al., 2021). However, it can also be stated that panic buying is different from compulsive buying. It is stated that the consumer experiences distress after compulsive buying, but this situation does not occur in panic buying (Sharma et al., 2020). However, it is explained that panic buying cannot be defined only by looking at the sales volume, and it is better determined by the level of deviation seen in the daily average expenditure value of the population in retail transactions (Hall et al., 2021). In addition, while panic buying may be a hoarding disorder, bulk purchases in situations such as festivals or disaster preparedness may not be panic buying (Sharma et al., 2020). Because panic buying can be considered as a different behavioral pattern

than hoarding disorder. Panic occurs as a result of a random and unusual event that people are not accustomed to, such as an environmental disaster, a virtual or biological virus, terror and disease (Tester, 2013) and is defined as a state of fear, terror and anxiety (Beck, 1996). Panic buying behavior also contains fear in urgent moments and is survival-oriented (Kaur & Malik, 2020). In addition, panic buying is a behavior that refers to consumers making more purchases than usual (Lins & Aquino, 2020) in the event of an epidemic, disaster or crisis (Arafat et al., 2021; Li et al., 2021; Hall et al., 2021; Yuen et al., 2021). Hoarding behavior refers to the accumulation of items that have lost their functionality (Frost et al., 2000). Therefore, panic buying differs from hoarding behavior and disorder in that it occurs as a result of a sudden event such as a crisis, disaster, or epidemic and more products are purchased than normal daily purchases. Consumers' panic buying in large quantities due to the perception of scarcity is also defined as herd behavior (Chua et al., 2021). Herd behavior is when a person follows a group (Rook, 2006). From this, it can be understood that not every herd behavior is panic buying. Because panic buying refers to consumers buying more than usual in sudden situations (Lins & Aquino, 2020). However, consumers can be affected by herd mentality in their panic buying decisions (Wang & Hao, 2020; Yuen et al., 2020). Based on this, it can be understood that not every hoarding disorder and herd behavior will be panic buying behavior, but these behaviors can affect the causes and consequences of panic buying. Thus, when panic buying is approached as a social phenomenon, it is also stated that it is not pathological mass behaviour (Sharma et al., 2020). Panic buying, a rapid rise in consumers' purchasing behaviours, is survival-oriented by harbouring fear in emergencies (Kaur & Malik, 2020). Therefore, especially during the COVID-19 pandemic, people who were more susceptible, anxious and fearful of contracting coronavirus were more likely to exhibit panic buying behaviours (Chua et al., 2021). Thus, panic buying may have a role in ensuring food safety and reducing consumer anxiety (Singh et al., 2023). In addition to being

a tool to reduce negative emotions such as fear and anxiety caused by uncertainty, panic buying also has a function in controlling any health crisis (Yuen et al., 2020). Therefore, panic buying can be a reaction to a reflective thought and environmental factors (Li et al., 2021).

Panic buying, which left the supply chain unprepared for the COVID-19 pandemic, is related to the increased purchase of products for utility purposes (Barnes et al., 2021). Panic buying can be addressed with economic, hedonic, functional and social utility. From an economic standpoint, panic buying can serve as a means of combating the increased level of consumer competition and price uncertainties that have arisen the ongoing pandemic. When hedonic utility and panic buying are analysed, it can offer consumers a sense of control and purpose against high uncertainty. When panic buying is examined from a functional benefit perspective, it has the feature of being a reliable option against the risk of running out of product stocks in the future. When considered with social benefit, panic buying can provide both social acceptance and social identity (Chua et al., 2021). However, panic buying also has features such as causing clutter, accumulation of items, loss of value and disposal of items (Herjanto et al., 2021).

### 3.1. Factors Affecting Panic Buying Behaviour

#### 3.1.1. Environmental Factors

The factors that cause panic buying behaviour have been addressed in various ways in the literature. These factors are explained in the studies in the literature as a perceived disaster, threat, rapid and extreme change in the environment such as pandemics or natural disasters, perceived sensitivity and perceived severity of pandemics that are social stimuli, lack of control or loss of control over the environment, and the desire for control (e.g., Arafat et al., 2020; Li et al., 2021; Sharma et al., 2020; Shoib & Arafat, 2021; Wang & Hao, 2020; Yuen et al., 2020; Yuen et al., 2021). In the event of an environmental change such as a threat, disaster, pandemic or natural disaster, a change in consumer behavior may also be observed.

However, consumers' cognitive abilities may need to be improved to cope with a sudden, rapid and extreme environmental change. This situation causes consumers to react with intense emotion. Thus, consumers expect an increase in the price of products during or after these environmental changes and their thoughts about scarcity increase. Therefore, consumers exhibit panic buying behaviour by purchasing products excessively (Yuen et al., 2021).

#### 3.1.2. Psychological Factors

Some studies in the literature indicate that consumers' panic buying behavior is driven by factors such as anxiety, fear, uncertainty, individuals' self-protective goals, risk, vulnerability caused by fear, and insecurity (e.g., Arafat et al., 2020; Sharma et al., 2020; Shoib & Arafat, 2021; Singh et al., 2021; Kaur & Malik, 2020; Leung et al., 2021; Li et al., 2021; Lins & Aquino, 2020; Yuen et al., 2020; Zheng et al., 2021). Some studies have also indicated that coping behaviour such as reducing anxiety level, not having control over the environment, emotional contamination, not being able to tolerate stress as a personality trait, bad mood, herd psychology, and psycho-social problems are among the causes of panic shopping. (e.g., Shoib & Arafat, 2021; Yuen et al., 2020, Kaur & Malik, 2020; Wang & Hao, 2020).

Consumers buy more products than they usually buy to cope with uncertainty and protect themselves (Lins & Aquino, 2020). Because people are motivated to protect themselves to reduce risk. In this case, consumers believe that stocking up and reducing their visits to shopping places, especially during pandemic times, reduces their risk of disease (Kaur & Malik, 2020). Fear of the unknown arises from, for example, the lack of information regarding the crisis related to any disease. In order to mitigate the fear of the unknown and the associated risk, consumers engage in panic buying behaviour to protect themselves and cope with the situation (Yuen et al., 2020). Therefore, panic buying behaviour is a primitive human response (Arafat et al., 2020; Sharma et al., 2020).

A number of studies have suggested that panic buying behavior is driven by consumers' perception of a disruption in product supply, the risk associated with a supply disruption, a cue related to past experiences with food insecurity, and a coping mechanism to improve food security (Chua et al., 2021; Kaur & Malik, 2020; Singh et al., 2021; Zheng et al., 2021; Wang & Hao, 2020). Therefore, the perception or fear of scarcity of products (Arafat et al., 2020; Chua et al., 2021; Li et al., 2021; Leung et al., 2021; Sharma et al., 2020; Singh et al., 2023; Yuen et al., 2020; Zheng et al., 2021; Yuen et al., 2021) can explain the reason for panic buying. In addition, consumers' attitudes, subjective norms, time pressure, perceived competition (Singh et al., 2023) and the expectation of an increase in the prices of products (Leung et al., 2021) also lead consumers to panic buying. In situations such as natural disasters, consumers perceive supply disruption and this leads them to panic buying (Wang & Hao, 2020). Consumers engage in panic buying behaviour by stockpiling products because they are uncertain about supply disruptions and interruptions and want to reduce the possibility of future shortages (Zheng et al., 2021).

### 3.1.3. Social Factors

It is stated in the studies in the literature that the panic buying behavior of consumers is affected by factors such as social influence, social learning, observational learning, social norm, social acceptance and sense of social identity, perceived social detection risk, peer, social insecurity and negative social utility (e.g., Arafat et al., 2020; Chua et al., 2021; Kaur & Malik, 2020; Li et al., 2021; Sharma et al., 2020; Singh et al., 2023; Yuen et al., 2020; Yuen et al., 2021; Zheng et al., 2021). Consumers fear that if their social insecurity increases, other consumers may buy more and take their share from their share. This situation leads to panic buying behaviour. If social trust increases, consumers may be more considerate by not hoarding limited products (Yuen et al., 2020). Consumers can also be affected by the decisions of peers during panic buying. Consumers who see that their peers are stocking panic buying by thinking about the

shortage in the future product supply with the effect of social learning. For example, prior to the snowstorm in New York, consumers engaged in panic purchasing, citing the presence of other individuals in lengthy queues outside of markets as a significant factor influencing their decision-making. They also stated that news such as panic buying on the internet caused them to behave like stockpiling consumers and feel pressure in this direction (Zheng et al., 2021). In addition, when consumers see a post of their peers about panic buying on social media, they make panic buying in order to develop a sense of belonging, social identity and social acceptance related to their peers (Chua et al., 2021). It is explained in studies that factors such as social media, mass media, expert opinion, communication of authorities, the presence of excessive information, and cyberchondria may also be effective in panic buying behavior (Chua et al., 2021; Deveci & Yıldız, 2022; Laato et al., 2020; Leung et al., 2021, Zheng et al., 2021). Therefore, the presence of videos and images on social media related to panic buying leads consumers to panic buying (Chua et al., 2021).

## 3.2. Theories Related to Panic Buying

Various theories that can explain panic buying are available in the literature. This study examines the theories 'Compensatory Control Theory', 'Social Influence Theory', 'Social Proof Theory', 'Scarcity Theory', 'Herd Behaviour', 'Survival Psychology', 'Motivation Theory' and 'Consumer panic buying theory', which are frequently discussed in research to explain panic buying.

### 3.2.1. Compensatory Control Theory

A fundamental and motivating factor in human life is the desire to struggle against uncertainty and to sustain control. In addition, this desire is an important factor regulating both physical and psychological health. For example, when people manage to control the duration of a painful shock, or perceive that they do so or when they learn about a painful medical process, both their anxiety decreases. Their recovery processes may decrease. Because if people experience a lack of control, this situation

can lead to a deterrent and uncomfortable situation by revealing the fear response (Whitson & Galinsky, 2008, p. 115). Therefore, people are motivated by the perception that they have control over their lives. In such a situation, people turn to compensatory strategies to perceive that they are in control again. Thus, they can react to situations that reduce their control (Landau et al., 2015).

In order to prevent chaos and randomness and to create a defence mechanism, people are motivated to maintain control in their social environment (Kay et al., 2008, pp. 18-19). Rather than being a goal, this perceived personal control may be a means to fulfil one's desire to see the world more organised, away from randomness. However, some vital conditions and constraints may lead to irregularities and threats in people's perceptions of control. In this situation where people experience a lack of control, they utilise compensatory sources of control to eliminate randomness and provide order in their physical, metaphysical and social environment. These sources can be in the form of believing in conspiracies, superstitions, accepting the existence of socio-political controlling institutions such as the state or believing in the power of God. Thus, people can create a sense of order in their environment through compensatory control resources (Kay et al., 2009, pp. 265-266). Therefore, compensatory control theory suggests that people who perceive randomness and disorder adopt ideologies that can fulfil both social, religious and personal control in order to relieve their anxiety (Kay & Eibach, 2013, p. 566).

Situations such as a worldwide pandemic, climate, and attacks threaten people's level of control. In the face of this threat, people may accept some religious, economic or political ideologies in order to compensate for the lack of control and to perceive the world in a more orderly and controllable way (Ponce de Leon & Kay, 2020, p. 112). An example of reducing one's control over the environment is a health crisis. According to the compensatory control theory, in case of a health crisis, the person will try to ensure and increase control in other areas to

increase control in the discomfort. In this case, people can gain environmental control through problem solving. Panic buying behaviour is an example of problem solving. Thus, with panic buying behaviour, people can compensate for control (Yuen et al., 2020). Additionally, consumers who face a lack of control in challenging situations such as natural disasters experience negative emotions. Consumers can reduce these negative emotions through consumption (Kemp et al., 2014). Therefore, the panic buying behaviour of consumers during the COVID-19 pandemic can be handled in terms of compensatory control theory. This pandemic causes fear, uncertainty and anxiety in consumers, creating a lack of control over them. Consumers who experience a lack of control purchase utilitarian products to ensure control. This purchase is perceived as a solution to the problem of control and uncertainty (Barnes et al., 2021).

Despite no information or indications of shortages during the COVID-19 pandemic, consumers have panic-buying some products. The first examples of panic buying occurred in countries such as China, Italy, France, and Indonesia (Barnes et al., 2021). In these countries, as well as in many other countries, basic products such as pasta, rice, and toilet paper were overstocked, panic-bought, and store shelves were emptied (Keane & Neal, 2021). The stock-outs of these products and the emptying of store shelves prevented fair shopping and worried consumers looking for these basic products (Barnes et al., 2021). In addition, stock-outs of basic products were not only costly, but also challenging and costly for consumer groups such as low-income consumers, the elderly, and the disabled (Keane & Neal, 2021). However, emptying store shelves and running out of these products not only disturbs other consumers but also sends a panic signal to society (Wang & Hao, 2020), leading to price increases and supply chain disruptions (Li et al., 2021).

### 3.2.2. Social Influence Theory

Latané (1981) states that the theory that analyses the influence of other people on an

individual is the social influence theory. The concept of social influence can be defined as a function of four key factors: the likelihood of a person adopting the influence, the importance of the influence, the power of the influencer and the dominance of the induced response (Kelman, 1958). How an individual manages their behaviour by taking into account the wishes of their social environment reflects social influence (Yuen et al., 2020).

Kelman (1958) stated that different changes occur in people's attitudes with social influence and are based on motivational processes. The author stated that these motivational processes include the elements of compliance, identification, and internalization. According to the author, compliance is a person's adoption of an influence to obtain a favourable reaction from a group or other people. As posited by the author, identification refers to a person's adoption of the influence to maintain an existing relationship with other individuals or a group or to establish a new relationship. According to the author, internalisation refers to a person's adoption of the influence because the behaviour recommended through the influence is rewarding. Complying with the information shared by other people on social media, the behaviors of important people such as friends and family, and meeting their expectations reflect the compliance and identification in social impact theory. In addition, social impact also shows compliance and internalization of information to avoid punishment and obtain rewards (Li et al., 2021). For example, during the COVID-19 pandemic, toilet paper was the symbolic consumption example of panic buying (Yoshizaki et al., 2020). Many consumers fought to buy toilet paper, emptied the shelves of shopping stores, and videos and images about this spread on social media (Naeem, 2021). As posts about consumers stockpiling products on social media intensified, the perception of scarcity in consumers was strengthened, which led to panic buying (Leung et al., 2021). Therefore, being affected by posts on social media and acting similarly to the consumption behaviors of other consumers seem to be related

to the compliance and identification elements of social impact. Another example is that in countries such as the US and China, consumers share socially responsible videos about what precautions are important to take to protect their families from the risk of coronavirus. In addition, consumers have purchased food such as rice, pasta, drinks and auxiliary products such as gloves, masks and disinfectants in order to prevent life-threatening risks and maintain social distance. In addition, the fact that consumers reacted to the advice given by experts and authorities in the UK to stay home by stockpiling and panic buying is also a reflection of social influence (Naeem, 2021). In this example, performing the positive behavior of staying home and following the advice of authorities may be related to the internalization and compliance elements of social influence. In addition, curfews and restrictions were imposed in Türkiye during the COVID-19 pandemic at certain times (Ministry of the Interior of the Republic of Türkiye, 2020). In order to comply with these prohibitions and restrictions and to avoid punishment, consumers exhibited panic buying behavior. This situation can be shown as an example of the internalization element of social influence. Therefore, since social influence affects a consumer's attitude and behaviour, it can factor in consumers' panic buying (Chua et al., 2021; Kaur & Malik, 2020). In this respect, during the COVID-19 pandemic, social influence can trigger consumers' emotional responses and perceptions of scarcity, leading to panic buying (Li et al., 2021).

Yuen et al. (2020) stated that three forms of social influence can explain panic buying behaviour. They stated that these are three social effects: self-fulfilling prophecy, normative effect and observational learning. According to the authors, social media and mass communication channels enable consumers to obtain information easily and quickly, and support the struggle of government and health institutions in the event of a pandemic and their communication with the public. While these communication channels may provide consumers with suggestions and up-to-date



information on any health crisis, they may also include false information, such as stock-outs of products. Inaccurate information conveyed in these communication channels may lead consumers to panic buying behaviour by creating fear of missing out. Therefore, this behavioural pattern in consumers can create prophecy that was previously accepted as false. The study by Ali et al. (2023) on the impact of misinformation spread through social media on consumers during the pandemic can also be cited as an example. Ali et al. (2023) investigated the relationship between the spread of fake news shared on Twitter during the COVID-19 pandemic and the panic buying behavior of consumers in the UK. The authors analyzed the content on Twitter using text mining and artificial intelligence. As a result of the study, a relationship was found between fake news spread on Twitter and panic buying. The study shows that fake news spread on social media during the pandemic elicits panic buying behavior on consumers. Yuen et al. (2020) posit that a normative effect is produced due to peer influence and word-of-mouth communication. Accordingly, to be accepted by their peers and as a consequence of the stocking recommendations of influencers, consumers may be directed to panic buying. According to the authors, consumers make panic buying decisions sequentially and perform herding behaviour through observational learning. Consumers observe the choices and behaviours of panic buyers and think that panic buying behaviour is the most appropriate decision by imitating these people. The authors state that the basis of this is only observational learning and therefore lack of information. Zheng et al. (2021) stated that consumers update their beliefs about future supply shortages as a result of observing their peers' stockpiling decisions. The authors stated that social learning has an effect on panic buying decisions.

### 3.2.3. Social Proof Theory

People tend to behave the way their peers and friends behave (Cialdini et al., 1999). The tendency to behave in this way is based on situations such as uncertainty about the value of

a behaviour (Rao et al., 2001), a product decision with technical complexity or a high price (Amblee & Bui, 2011), and lack of familiarity with a situation (Cialdini, 2021).

Social proof theory refers to a heuristic form in which a person perceives and sees correctly how an action is performed. For example, other people's behaviours can answer questions about how to eat a chicken dish in a restaurant or how fast to drive on a motorway (Cialdini, 1993 as cited in Rao et al., 2001). Therefore, in the social proof theory, the previous behaviours of peers and other people are information that motivates the individual (Cialdini et al., 1999). In addition, according to the social proof theory, in case of uncertainty about the value of a behaviour, the behaviours of other people related to this behaviour are monitored. Therefore, the value of a behaviour is determined by monitoring their people's behaviour (Rao et al., 2001). However, if an individual does not trust his or her own decisions in a situation of uncertainty about any issue and lacks familiarity with that situation, the theory is that an individual is affected by social proof (Cialdini, 2021). For example, evaluations of any product can be social evidence. In this regard, in the context of a product decision characterised by technical complexity or a high price point, the recommendation of an expert in the field is more likely to influence consumer behaviour than the opinion of a close friend who lacks the requisite product knowledge (Amblee & Bui, 2011). Consumers' panic buying behaviour may be influenced by several factors, including social proofs such as expert opinion, the dissemination of misinformation through social media, sensationalism, social influence due to disinformation, recommendations, uncertainty, and the prevalence of similar comments. These social proofs lead to social shopping, hoarding, and thus panic buying behaviour (Naeem, 2021). During the COVID-19 pandemic, consumers quickly emptied shelves in markets to protect themselves and combat uncertainty, over-purchased products, and exhibited panic buying behavior (Lins & Aquino, 2020). In addition, evidence of uncertainty and insecurity spread

through social media, creating social proof in panic buying. For example, many consumers emptied shelves in markets by fighting over paper towels. Videos of consumers' fights and empty shelves were shared on social media, creating tension and uncertainty in other consumers regarding panic buying. Therefore, social media and uncertainty can have a social proof role for panic buying (Naeem, 2021).

### 3.2.4. Scarcity Theory

Scarcity represents both a prerequisite for economic behaviour and a comprehensive aspect of human life (Lynn, 1991). Scarcity reflects the big difference between the unlimited demands of consumers and the limited resources and, thus, an economic problem (Shi et al., 2020). The theory of scarcity explains people's decisions and behaviours in the event of scarcity in any area. In making this explanation, the theory is based on cognitive psychological studies that influence people's economic decisions when faced with scarcity (de Bruijn & Antonides, 2022).

The psychological impact of scarcity is addressed through the commodity theory put forward by Brock (1968). The theory posits that scarcity enhances the desirability and value of any useful item, transferable to others, and owned by people (Lynn, 1991). Thus, scarcity has an essential social effect in raising the personal desire for any product (Jung & Kellaris, 2004). For example, 'limited time', 'limited production', 'running out of stocks' (Lynn, 1991) and mostly empty shelves in supermarkets can often be cited as examples to raise this desire (Shi et al., 2020). In this respect, the basis of scarcity theory is that scarcity motivates an understanding how people think and make decisions and impacts on behaviour (de Bruijn & Antonides, 2022). For example, the difficulty of economically anxious people to control their impulses shows an understanding created by scarcity (Mullainathan & Shafir, 2013).

In the COVID-19 pandemic, products and resources to meet the basic needs of consumers have become inaccessible and scarce in a short time. This leads to a perception of loss of

freedom in consumers and thus to a perception of scarcity. A person's field of interest may be restricted may result in loss of freedom. Consumers who encounter such a situation may perceive products as scarce and have a psychological reaction that may harm their cognitive control (Yuen et al., 2021). The increasing threat posed by COVID-19 increases the perception of scarcity, leading to panic buying (Bayır, 2022). Panic buying is based on excessive purchases driven by the expectation of scarcity. These scarcity expectations are especially strengthened by the sharing of videos of consumers stockpiling products on social media (Leung et al., 2021). Scarcity caused by panic buying can also cause effects such as anxiety, stress, and time costs in consumers (Keane & Neal, 2021). In addition, panic buying and FoMO can cause post-purchase reactions such as cognitive dissonance in consumers. Because in the pandemic, consumers cannot behave in line with their real needs, and this situation causes them to experience post-purchase regret and cognitive dissonance (Yaran Ögel, 2022). Therefore, they can make inconsistent decisions by being affected by emotions such as fear, tension, and anxiety, far from rationality (Deveci & Yıldız, 2022). Therefore, perceiving product unavailability will lead consumers to panic buying behaviour (Chua et al., 2021). In addition, during the pandemic, consumers are more likely to regret rather than be happy that they did not make panic purchases. This regret is due to the perception of scarcity (Yuen et al., 2020). In addition, the perception of scarcity is also influenced by social cues, any perceived threat, advantage and decisions made for survival (Chua et al., 2021). It is suggested in the literature that perceived scarcity and anxiety have a positive effect on panic buying (Erkan et al., 2023).

### 3.2.5. Herd Behaviour

Humans are the most interdependent and social herd species (Kameda & Hastie, 2015). Because people constantly interact with each other by behaving and thinking similarly to each other. This interaction and similar patterns of

thought and behaviour reflect herd behaviour (Shiller, 1995). Herd behavior is also related to consumers adopting the decisions of others and imitating others due to their perception of uncertainty rather than their own beliefs in decision-making behavior (Sun, 2013). This situation may indicate that herd behavior may be based more on trust and social approval.

Herding is the alignment of behaviours and thoughts of people in a community as a result of the interaction between them (Kameda & Hastie, 2015). Herd behavior is also addressed in the field of finance as a behavior in which consumers believe in and follow the decisions of others in their investment decisions. In this regard, it is stated that the high reliability of the stock influencer has a positive effect on herd behavior and the probability of following the herd is high (Trisno & Vidayana, 2023). Herd behaviour refers to an individual following a community for any period (Rook, 2006). Therefore, although herd behaviour is seen as a good defence mechanism for the community, it is an element that ensures the survival of an individual (Ajraldi et al., 2011). In addition, herd behavior, which originates from the primitive part of the brain, also represents an impulsive state (Prechter, 2001).

Herd behaviour can be found at the root of many issues such as consumption choices, political situations, people's daily social lives, and economic bubbles (Kameda & Hastie, 2015). For example, in finance, herd behavior is an irrational or rational investor behavior (Chang et al., 2000). Here, herding behaviour is a correlation that occurs in financial transactions due to the interaction between investors. Because herd behaviour prevents investors from benefiting from their own financial knowledge. Instead, it causes investors to think that they act rationally by following and imitating successful people and finance expert (Chiang & Zheng, 2010). When herd behaviour is considered from the perspective of consumer behaviour, a change in purchasing behaviour as a result of the influence of other people refers to herd behaviour (Chen, 2008). For example, it is herd behaviour when consumers adopt a

technological innovation or a fashionable product in a similar way among themselves and abandon this adoption behaviour after a while. Therefore, in herd behaviour, consumers put their own decisions in the background by imitating other consumers in their decision to adopt a product with technological innovation or fashion (Sun, 2013). Therefore, herd behaviour is to do the behaviours of other people instead of benefiting from their own knowledge (Banerjee, 1992).

It is stated that panic buying is caused by herd psychology (Wang & Hao, 2020). Because consumers exhibit herd behaviour by panic buying excessive amounts of products with the perception of scarcity (Chua et al., 2021). Concurrently, since there is observational learning in panic buying, consumers make purchasing decisions influenced by herd behaviour (Yuen et al., 2020). Panic buying can also be effective in situations of stress and uncertainty that consumers feel in their decision-making processes. In particular, in shocking and sudden situations such as a crisis, the fear experienced by consumers changes their spending habits and can lead them to purchase behaviors that they would never exhibit. Panic buying behavior is also shown as an example of this situation. Because the COVID-19 pandemic has posed a threat to consumers' safety and increased uncertainty in the market. This situation has increased irrational herd behavior and led consumers to overconsumption. Therefore, in stressful, shocking situations such as the COVID-19 pandemic, herd behavior can lead to undesirable effects on both consumers' purchasing behavior, stock prices, and social anxiety (Loxton et al., 2020).

### 3.2.6. Survival Psychology

Humans are faced with physical injury and threats to their lives at any time. Faced with a vital threat at any moment, a human can become a victim (Leach, 1994). There are many life threats in human life, such as environmental degradation, population explosion, depletion of food and resources, and nuclear weapons (Walsh, 1989). Therefore, while disasters occur

in various forms in human life, the common feature of all disasters is a threat to survival (Leach, 1994).

The human brain contains various mechanisms including psychological, neural and behavioural. These mechanisms are evolutionary formations that ensure human survival (Kameda & Hastie, 2015). For example, survival psychology is involved in many psychological anxieties and many threat situations such as war, earthquake, and fire (Leach, 1994). The primitive part of the human brain becomes dominant in times of extreme stress and causes changes in behaviour for the purpose of survival and self-protection (Yuen et al., 2021). For example, during the COVID-19 pandemic, survival was more dominant than other needs for people and they exhibited panic buying behaviour for physiological needs (Eva et al., 2020). While purchasing behaviour to meet basic needs in a threat to life is a customizable behaviour, this behaviour is panic buying behaviour because it is affected by uncertainty, fear of loss of control and excessive anxiety (Rajkumar, 2021). In stressful, shocking and crisis-like events, consumers react emotionally and tend to overconsume certain products in a way that is far from rationality. These consumption patterns, such as panic buying, are also far from logical cognitive evaluations. In particular, perceptions of scarcity can increase fear in consumers in stressful, shocking and crisis-like events, leading to an increase in demand for ordinary products and irrational consumption behaviors (Loxton et al., 2020). Therefore, with the fear of survival in an emergency, a change in consumers' behaviour such as panic buying occurs (Kaur & Malik, 2020). Survival psychology can be a factor that initiates panic buying and spreads it (Somani & Kumar, 2021). Survival psychology may cause similar psychological reactions in people during the COVID-19 pandemic and thus herd behaviour (Yuen et al., 2021). Because survival psychology creates changes in consumer behavior in situations such as a health crisis or disaster. This behavioral change can manifest itself in the form of panic buying, especially

when influenced by herd psychology. Especially in the early stages of a health crisis or disaster, consumers panic-buy cleaning products such as water, nonperishable food, and paper towels, which meet physiological needs and enable survival (Loxton et al., 2020). For example, 12 million new consumers in the US opted for online shopping during the pandemic. In addition, during the pandemic period, more than 20% of consumers in the US increased their online shopping intensity in March 2020, the first months of the COVID-19 pandemic. Furthermore, the demand for hygiene products, including hand sanitiser and toilet paper, increased at the outset of the pandemic in the USA. In addition, the product category experiencing the most rapid growth in e-commerce in the US during March 2020 was that of disposable gloves, followed by bread makers and cold medicine (Statista, 2024b). In Türkiye, there has been a notable surge in demand for a range of products, gloves and masks, nutritional supplements, herbal remedies, and honey, during the ongoing pandemic. In addition, goods that allow enormous quantities and long-term stockpiling have also experienced high demand in Türkiye (Deloitte Türkiye, 2020a).

### 3.2.7. Motivation Theory

According to Maslow's 'Human Motivation Theory' proposed in 1943, humans organize their needs based on a previously defined power hierarchy. The theory states that the emergence of a need is based on the satisfaction of a different need. In other words, when the most dominant need for a person is satisfied, a more dominant need takes its place in the following processes (Maslow, 1943). Therefore, Motivation Theory states that after a person satisfies his/her most basic needs, different desires reoccur in the person in order to feed his/her motivation (Navy, 2020). This situation shows that humans constantly want (Maslow, 1943).

Motivation Theory states that a hierarchy of needs reflect the gradual satisfaction of human needs. As a result of satisfying the physiological needs that are dominant in this hierarchy, needs that contain a higher level are formed. In this respect, the dominance of needs at a low level

proves the existence of a hierarchy of needs (Bridgman et al., 2019, p. 83). Moreover, the theory suggests that each need is not isolated from other needs and is related to their satisfaction (Maslow, 1943). Therefore, inhibiting of human needs, which are motivated by maintaining and satisfying more needs and desires, constitutes a psychological threat (Maslow, 1958). Although Maslow did not present a pyramid showing the hierarchy of needs, the situation of being motivated by the satisfaction of different levels of needs is widely shown in the form of a pyramid (Bridgman et al., 2019, p. 81). In the dominance hierarchy in motivation theory, there are five interrelated needs, namely physiological, safety, love, esteem and self-actualization needs. These needs are explained respectively as follows (Maslow, 1943):

- **Physiological Needs:** Physiological needs, which express physiological drives, are at the beginning of motivation theory. In considering of physiological needs, homeostasis and the needs necessary for the body in food selection are considered. For example, homeostasis is the human body's endeavour to maintain the normal state of water, salt, sugar, oxygen, acid-base balance, fat, calcium, constant temperature, vitamins, hormones and minerals in the blood. The most pressing of needs are physiological needs. In addition, physiological needs and the consumption behaviour that includes these needs also serve as a channel for all other needs.

- **Safety Needs:** Security needs come into existence as a new need that needs to be satisfied as a result of the satisfaction of physiological needs. In practice, the need for security may be seen as more important than other needs. For example, a person whose need for security is chronic and excessive may be living his/her life only for security. In addition, people with obsessive neurosis have an excessive striving for order against unexpected danger. These people may show a panic reaction to an unexpected danger beyond their control. In addition, neurosis, illness, increase in criminal behaviour, war, natural disasters, brain damage, social disorder and a bad situation are also conditions

that stimulate people to satisfy their need for security.

- **Love Needs:** After satisfying of physiological and security needs, people tend to satisfy their needs such as affection, belonging and love. Thus, people will face the absence of their spouse, children, lover or friends at a more intense level than they have ever experienced before. In this respect, people will concentrate on satisfying this need by needing a place in the group they belong to or a relationship of affection. However, love needs reflect not only the need to receive love but also the need to give love.

- **Esteem Needs:** People need both self-esteem and respect from others. Therefore, esteem needs are addressed in two ways. The first esteem need is related to the desires for success, independence, power, freedom, competence and trust. The second is related to the desires for reputation, importance, appreciation and attention.

- **Self-actualisation Needs:** Even if physiological, safety, love and esteem needs are satisfied, a person may experience a restlessness when he/she does not realise anything he/she wants to be or deems appropriate. For example, an artist should paint if he wants to be happy or to be an artist, a person should make music to be a musician, or a person should be a mother if he wants to be a mother. Therefore, these desires or needs defined as the need for self-actualisation vary from person to person. The need for self-actualisation arises after the satisfaction of all other needs.

In times of any crisis or pandemic, consumers prioritize satisfying their physiological needs and purchasing non-durable basic goods in accordance with the hierarchy of needs in Maslow's Motivation Theory. Therefore, as the needs at the lower hierarchical level are met, consumers turn to the needs at the higher level (Loxton et al., 2020). For example, in the early days of the COVID-19 pandemic, demand for staple foods such as pasta, canned food, rice, and other products such as toilet paper, disinfectant, masks, and medicine increased in the world, and

panic buying occurred (Barnes et al., 2021; Keane & Neal, 2021, Li et al., 2021). This situation can be given as an example of the prioritization of physiological needs in the COVID-19 pandemic, in accordance with Maslow's Motivation Theory, and consumers experiencing a reversal in the hierarchy of needs in times of crisis.

A study (Yuen et al., 2021) in the literature deals with panic buying behaviour within the scope of Maslow's Motivation Theory. Yuen et al. (2021) stated that in situations such as a crisis or an emergency event, vital needs are exposed to danger, so human have strong instinctive behaviour towards the satisfaction of vital needs. The authors suggest that the hierarchy of needs may be appropriate for explaining panic buying. For this purpose, they explained the representation structures of the four needs in the hierarchy of needs in panic buying. The authors stated that the representation of physiological needs is perceived scarcity; the representation of safety needs is perceived severity; the representation of social needs is social influence, observational learning and social trust; and the representation of esteem needs is control. Consumers exhibit panic buying behavior in order to cope with situations such as crisis, uncertainty, shocking events or pandemics where they lose control. Because consumers may resort to behaviors such as panic buying in order to find the control they have lost in other areas. In addition, social influence and social trust elements can cause consumers to react to the views and behaviors of communities and government officials. This reaction emerges as panic buying behavior (Loxton et al., 2020).

### 3.2.8. Consumer Panic Buying Theory

Studies on panic buying have been conducted based on many theories. Among these theories, theories such as 'Compensatory Control Theory', 'Social Influence Theory', 'Social Proof Theory', 'Scarcity Theory', 'Herd Behaviour', 'Survival Psychology' and 'Motivation Theory' have been intensively studied with panic buying. The studies in which these theories are discussed with panic buying have been mentioned in detail in the previous chapters of this study. Apart from these theories,

the theory of panic buying was found in Naeem's (2021) study in the literature.

Naeem (2021) stated in his study that the internet and social media are one of the main factors in the formation of the global risk society due to their global reach. As a result of the global risk society, it is explained in the study that recommendations and social reviews expressed as social evidence can lead consumers to a collective behavior in avoiding risks such as threats and uncertainty towards the future. Therefore, it is stated that social media increases panic buying by leading to social shopping. An example of this situation is the videos shared on social media during the COVID-19 pandemic, which show many consumers arguing and panic buying for products such as toilet paper and paper towels. It is stated that the empty shelves in these videos increase both uncertainty and tension in consumers. In addition, in many countries, such as China and the US, consumers have shared socially responsible videos on social media describing useful measures to keep their families away from risk. It was also reported that these people bought more and stocked up on products such as rice, pasta, masks, gloves and disinfectants to protect themselves from life-threatening risks. Naeem (2021) said that the recommendations of medical experts, scientists, community leaders and government officials regarding social distancing due to the pandemic are effective in these purchases of consumers. In addition, the author explained that friends in the close circle of consumers share audio, posts, tweets and videos on social media that contain suggestions about the pandemic, and these posts sometimes affect other consumers in the form of sensationalism and disinformation. Therefore, it is stated that the information shared on social media about COVID-19 causes consumers to react collectively.

It is stated by the author that social evidences, such as the abundance of similar responses and uncertainty, is a factor in the collective response of consumers such as stockpiling behavior. It is explained that this social evidence increases panic among consumers, causing stock shortages in products, and this situation creates

a social impact on society. As an example of this social effect, pictures of product stocks and empty shelves spread around the world, especially through social media, are shown. The author states that this situation can be associated with the conformity dimension of social influence. In this regard, it has been stated that consumers tend to stock up to avoid stock shortages. Therefore, it is stated that this social evidence on social media creates social influence, leading to attitudes and beliefs in consumers, and their subsequent behaviors can be influenced by reference persons. Therefore, Naeem (2021) stated in his study that social media, social shopping and experts' warnings about staying at home to prevent the spread of the pandemic were effective in panic buying behavior in the COVID-19 pandemic. In addition, the author states that the perception of expert guidance from the perspective of risk aversion and hoarding, global logic, persuasive buying, uncertainty, the presence of evidence of product unavailability, and communication with authorities also lead to panic buying. The author also suggested that social media can be cited as social proof. At the same time, the author stated that this will lead to collective and panic buying reactions of consumers in the fight against the pandemic. Therefore, Naeem (2021) argues that social media has a remarkable function as the main factor in panic buying and social proof theory is the most appropriate theory for explaining this behaviour. Naeem (2021) explained that social media is a reaction to the COVID-19 pandemic, creating a digital global society, and inaccurate, shocking, emotional information creates social impact in panic buying as social evidence. Therefore, according to the author, misinterpretation of expert opinions, uncertainty, and excess of

similar thoughts constitute social evidence and create social influence on panic buying in consumers. The result that misinformation on social media leads to panic buying is also stated in Ali et al. (2023) and Kar et al. (2023) studies. Ali et al. (2023) investigated the relationship between fake news and panic buying in the UK on Twitter during the COVID-19 pandemic. As a result of the study, the existence of a relationship between panic buying and fake news was determined. Kar et al. (2023), on the other hand, investigated the effect of false, fake news and information on stocking, spending and panic buying by creating a fear effect in the COVID-19 pandemic. The study found that social media has a significant impact on the spread of fake news and misinformation, and that misinformation causes panic buying by creating a perception of scarcity in consumers, which leads to disruption in the supply chain. Therefore, the findings of Ali et al. (2023) and Kar et al. (2023) support Naeem's (2021) 'Consumer Panic Buying Theory'. Figure 2 shows Naeem's (2021) 'Consumer Panic Buying Theory'.

In Naeem's (2021) 'Consumer Panic Buying Theory' in Figure 2, it is seen that the main factor in panic buying behaviour is the exchange of information through social media. It can be seen that the information exchange created by social media is a social proof and affects production, reproduction, coordination and diffusion. It can be seen in Figure 2 that the information exchange created by social media affects consumers' perceptions, expectations and experiences, leading to panic buying, while social proof affects consumer attitudes and attitudes leading to panic buying.

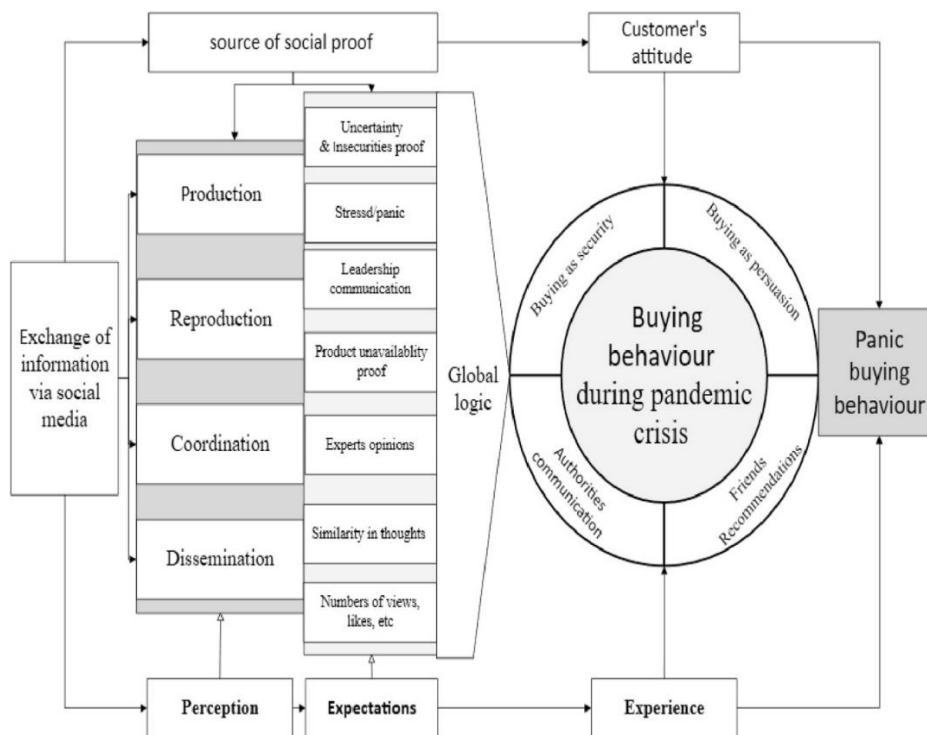


Figure 1. Consumer Panic Buying Theory

Source: Naeem, M. (2021).

#### 4. Panic Buying Scales

A number of scales have been developed in the literature on panic buying. These scales were developed by Lins and Aquino (2020), Chua et al. (2021), Omar et al. (2021), Singh et al. (2021), Alfuqaha et al. (2022), Cham et al. (2023), and Nakić et al. (2024).

Lins and Aquino (2020) developed a scale called "Panic Buying Scale (PBS)" consisting of 7 items and a single dimension. The scale, which consists of items such as "Fear drives me to buy things to stock at home" and "Panic makes me buy more things than I usually do", is applied as a 7-point Likert scale. Chua et al. (2021) developed a scale called "Panic Buying", adapted from Byun and Sternquist's (2008) study, consisting of 3 items and a single dimension. The scale, which consists of items such as "I had the urge to grab products immediately", "I snapped things up during the shopping trip in this shop", is applied as a 7-point Likert scale. Omar et al. (2021) developed a 3-item, single-dimensional scale called "Panic purchasing" adapted from Locke et al. (2015); Frost et al. (2004) and Van et al. (2010). The scale, which consists of items such as "Stock up

groceries and/or other necessities", "Unusual purchase of groceries", is applied as a 5-point Likert scale. Singh et al. (2021) developed a scale named "Panic buying intention" consisting of 5 items and one dimension. The scale consists of items such as "I intend to buy more items than I need during the COVID-19 crisis", "I predict that I would buy more items than I need during the COVID-19 crisis" and is applied as a 5-point Likert scale. Alfuqaha et al. (2022) developed a scale named "Panic-buying behavior scale" consisting of 12 items and one dimension. The scale consists of items such as "I purchased basic and non-basic needs to keep myself and my family away from hunger", "Social media is the main reason why I buy a lot of basic and non-basic needs" and is applied as a 4-point Likert scale. Cham et al. (2023) developed a scale called "Panic buying", which consists of 17 items and three dimensions: anxiety, stress, and excessive buying. The scale consists of items such as "I felt tensed when thinking or buying groceries", "I bought more groceries than usual".



### 5. Literature Review on Panic Buying

In the studies on panic buying, it is mostly seen that variables such as scarcity perception, social learning, social media, uncertainty, herd psychology, risk perception and price increases

are effective. Therefore, environmental, social, psychological and situational factors have been found to be effective in panic buying. The studies in the literature on panic buying are given in Table 1 according to the author/s, year and findings of the study.

Table 1.  
Studies on panic buying in the literature

Author/s and year of the study	Findings of the Study
Arafat et al. (2020)	Media reports on panic buying published in English language were analyzed. The report found that the most influential factor in panic buying is the feeling of scarcity, followed by increased demand, importance of the product, expectation of price increase, COVID-19 and related factors. In addition, psychological factors such as rumor, uncertainty, anxiety reduction, taking control and safety-seeking behavior; factors such as social learning, lack of trust, government action and past experiences were also reported to have an impact on panic buying.
Laato et al. (2020)	It was stated in the study that there is a relationship between unusual purchases and self-isolation intention, thus, the time spent in self-isolation is a factor. In addition, information overload occurs as a result of consumer exposure to online information sources and this leads to cyberchondria. It was explained that cyberchondria is also effective on unusual purchasing.
Lins & Aquino (2020)	Panic buying is positively related to past and future orientation, risk perception and impulse buying, but negatively related to age and optimism. In addition, it was also stated that men have higher panic buying behavior.
Wang & Hao (2020)	It was stated that the expectation of the possibility of infection as a result of COVID-19 and the amount of food available were the main reasons for rational hoarding. In panic buying, herd psychology and bad mood were found to have an effect.
Yoshizaki et al. (2020)	Toilet paper sales were compared with per capita income in Brazilian grocery stores. It was found that there was a positive relationship between panic buying and average per capita income, and that panic buying was observed in all income groups, including those with low income.
Yousaf et al. (2022)	The relationship between dark triad personality traits and panic buying was investigated. Consumers with high levels of narcissism had lower panic buying, while consumers with high levels of Machiavellianism and psychopathy had higher panic buying. It was stated that psychological vulnerability played a mediating role between these variables.
Arдын et al. (2021)	Negative electronic word-of-mouth attitudes were found to have a positive effect on panic buying and brand switching. It has also been revealed that there is a relationship between brand switching regarding customer satisfaction and panic buying.
Chua et al. (2021)	It was found that perceived product scarcity mediated the effect of the health belief model consisting of perceived severity, outcome expectation, perceived susceptibility, self-efficacy and cues to action on panic buying. It was also found that anticipation of regret mediated the effect of perceived scarcity on panic buying.
Herjanto et al. (2021)	Situational uncertainty and perceived risk were found to have an effect on panic buying.
Naeem (2021)	It was found that social media played a role in the panic buying that emerged in the COVID-19 pandemic, thus, social media encourages social shopping.
Singh et al. (2021)	Subjective norm, attitude, time pressure, scarcity and perceived competition variables were found to have a positive effect on panic buying intention. It was stated that perceived social detection risk had a negative effect on panic purchase intention.
Yuen et al. (2021)	The variable with the highest effect on panic buying is normative social influence, followed by perceived scarcity, control, social trust, observational learning and perceived severity, respectively.
Zheng et al. (2021)	It was stated in the study that social learning is effective in consumers' panic buying decisions.
Atılgan & Koç (2022)	The study finds that price increases increase consumers' stockpiling intentions and lead to panic buying behavior.
Bayazıt & Saygılı Akkaya (2022)	Panic buying was examined according to demographic variables and it was found that panic buying behaviors of bachelor's degree graduates were higher. There was no relationship between panic buying and gender, income, occupation and marital status.
Yaran Ögel (2022)	Fear of missing out and panic buying behavior have a positive effect on cognitive dissonance. The mediating role of panic buying between fear of missing out and cognitive dissonance was also determined in the study.

Tablo 1. (devamı)

Bozacı & İşcan (2023)	It is stated in the study that perceived scarcity, output value and self-efficacy have an effect on panic buying. It was determined in the study that anticipated regret mediates the effect of perceived scarcity and output value on panic buying.
Diyadin Lenger (2023)	In the literature review on "Social Science Citation Index" and "Emerging Science Citation Index", it was determined in the study that social media and scarcity perception had the most effect on panic buying. In addition, time pressure, attitude, subjective norm, anxiety and risk perception variables were also found to be effective on panic buying.
Erdugan & Yurt Öncel (2023)	It was determined in the study that those who showed panic buying behavior felt more nervous in crowds and those over the age of 41 were more likely to make panic purchases. It was also revealed that those who did not exhibit panic buying behavior had lower anxiety levels and were more tolerant.
Erkan et al. (2023)	The study found that anxiety and perceived scarcity are effective on panic buying.
Aslan et al. (2024)	The study revealed that e-cross-buying behavior in the COVID-19 pandemic is explained by panic buying.

## 6. Conclusion and Discussion

People exhibit behaviours that are difficult to understand or incomprehensible in some situations and times. These behaviours can take various forms in different cultures and countries (Arafat et al., 2020). One of these behaviours is panic buying. Panic buying is a consumer behaviour that can be complex to explain in critical, urgent, uncertain, and crisis situations.

Panic buying refers to bizarre and social consumer behaviour (Shoib & Arafat, 2021) that includes displacement of consumption during a disaster or epidemic (Hall et al., 2021), negative emotions such as panic, uncertainty and fear (Lins & Aquino, 2020), non-rational (Arafat et al., 2021; Li et al., 2021), and overstocking due to fear of not finding products (Li et al., 2021; Yuen et al., 2020). When the literature is examined, it is seen that the factors that lead to panic buying are mostly sudden environmental changes such as disasters, pandemics, uncertainty, risk, perception of a disruption in product supply, risk related to supply interruptions, past experiences with food insecurity, perception of scarcity towards products, expectation of an increase in the prices of products and perceived competition. In addition, psychological factors such as fear of the unknown, anxiety, vulnerability, insecurity, fear, emotional contagion, inability to tolerate stress, bad mood, herd psychology, psycho-social problems, attitude, subjective norms, and desire for control have also been seen in the literature to lead to panic buying. In addition, according to the literature, social influence, social learning,

observational learning, social norms, social acceptance and sense of social identity, perceived social detection risk, peer, social insecurity, and negative social benefit are also factors that cause panic buying. In addition, according to the literature, information elements such as social media, mass media, expert opinion, communication from authorities, the presence of excessive information and cyberchondria can also cause panic buying in consumers.

It has been seen in the literature that the theories that are used extensively in explaining panic buying behavior are 'Compensatory Control Theory', 'Social Impact Theory', 'Social Proof Theory', 'Scarcity Theory', 'Herd Behavior', 'Survival Psychology', 'Motivation Theory' and 'Consumer Panic Buying Theory'. When panic buying is considered in terms of Compensatory Control Theory, in times of crisis, consumers may lose control due to anxiety and uncertainty and purchase utilitarian products through panic buying in order to regain control (Barnes et al., 2021). When panic buying is considered in terms of Social Influence Theory, consumers exhibit panic buying behaviour by being influenced by the behaviours of other consumers as a result of factors such as peer influence, recommendations of influencers, social media, mass media channels, observational learning, word-of-mouth communication (Yuen et al., 2020). When panic buying is considered in terms of Social Proof Theory, social evidence such as expert opinion, misinformation on social media, sensationalism,

disinformation, recommendations, uncertainty and excess of the same comments can lead to panic buying behaviour in consumers (Naeem, 2021). When panic buying is considered in terms of Scarcity Theory, the fact that essential products become scarce and inaccessible during the COVID-19 pandemic leads to the perception of scarcity in consumers. It causes panic buying (Yuen et al., 2021). When panic buying is considered in terms of Herd Behaviour, the purchasing behaviour of other consumers leads to herd behaviour through observational learning, and panic buying behaviour occurs (Yuen et al., 2020). When panic buying is considered in terms of Survival Psychology, survival motives have become more dominant than other consumers needs in the COVID-19 pandemic, which has led consumers to panic buying to satisfy physiological needs (Eva et al., 2020). When panic buying is considered in terms of Motivation Theory, situations such as crises jeopardise the vital needs of consumers and there is a powerful motivation in consumers to meet vital needs. For example, physiological needs are perceived as scarcity in panic buying behaviour (Yuen et al., 2021). When panic buying is considered in terms of Consumer Panic Buying Theory, social evidence such as information exchange on social media, evidence of uncertainty/insecurity, stress/panic, leadership communication, evidence of product unavailability, expert opinions, like-minded people, the number of views and likes on social media affects consumers' attitudes, perceptions, expectations and experiences, leading to panic buying (Naeem, 2021).

In addition to the factors that lead to panic buying, panic buying can affect on the economy, society and individuals. The economic effects of panic buying can be such as disruption of market functioning, scarcity, stockpiling, disruptions in the supply and demand process, and price increases in the literature. At the same time, it can create adverse effects on society such as panic, anxiety, fear, uncertainty, complexity, and deterioration in social welfare. Panic buying triggers emotions such as panic, fear, anxiety and stress in individual consumer psychology

and can affect consumer well-being. The effects of panic buying can also be addressed in the literature. For example, Keane and Neal (2021, p. 87) state that a significant increase in consumer demand that may arise in response to any crisis may cause retail products to run out quickly. Based on this explanation, the increase in consumer demand seen in times of crisis can be exemplified by panic buying. Because panic buying causes disruption and scarcity in the supply and demand process due to consumers' stockpiling behaviour, and increases the prices of scarce and stockpiled products. This situation may indicate panic buying is a problem (Kaur & Malik, 2020; Singh et al., 2021). For example, during the COVID-19 pandemic, pasta, rice, and toilet paper have become scarce in most countries due to increased stockpiling. This situation creates economic costs, especially for the disabled, the elderly, and consumers who have difficulty purchasing (Keane & Neal, 2021, p. 87). In addition, the rapid emptying of store shelves by consumers, especially seen during the COVID-19 pandemic, not only disrupts the market but also transmits a panic signal to the general public (Wang & Hao, 2020). In addition, this panic situation can lead to a deterioration in social welfare as it spreads throughout society and affects other consumers (Zheng et al., 2021). In addition, the scarcity caused by panic buying can increase consumer stress and anxiety (Keane & Neal, 2021, p. 87). Therefore, panic buying is also understood to a psychological phenomenon due to the negative effects it creates on consumer psychology (Sharma & Pokharel, 2021).

## 7. Limitations and Future Studies

The study only addressed panic buying behaviour from a conceptual and theoretical perspective. Therefore, there is still a need for research that will provide an in-depth examination of panic buying in terms of consumer psychology and behaviour. Apart from the theories frequently mentioned in the literature, topics such as consumers' panic buying behaviour, the factors that motivate this behavior, psychological states and post-purchase consumer psychology can be included in the research topics. It is more common in the

literature to try explaining the reasons for panic buying during crises, pandemics and disasters. Consumers who panic buy should be measured more in terms of their post-purchase feelings such as regret, sadness, empathy, satisfaction, and their intention to panic buy again. Future studies can improve their work in this direction. In addition, whether factors such as personality traits, and the presence of mental illnesses such as depression and anxiety lead to panic buying can also be examined in terms of consumer behaviour. In addition, which marketing messages and strategies cause panic buying the most and which strategies can be more beneficial to control panic buying can also be the subject of research. Considering that panic buying results from a shortage resulting from product stockpiling, businesses should act agilely and take the necessary precautions regarding stock and supply, especially in times of crisis, pandemic and disaster. Marketing messages should be conveyed to consumers that businesses have taken these precautions and that there will be no stock or supply problems. As seen in Consumer Panic Buying Theory and panic buying studies in the literature, social

media has a significant effect on panic buying. Future studies should examine the role of social media in more depth. In particular, examining the effects of social media and information dissemination on panic buying through experimental research can be the subject of future studies.

#### 8. Statement of Research and Publication

Since this study does not require ethics committee approval, ethics committee approval was not obtained.

#### 4. Authors' Contribution Rates to the Article

This study was prepared by Assist. Prof. Dr. İlknur SARAL.

#### 9. Declaration of Interest

This research is not subject to any conflict of interest.

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