Historical and Theoretical Perspectives of Panic Buying: Consumer Behavior at Its Worst?

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Panic Buying (PB) is an old phenomenon but has been in the news mostly because of the pandemic but in 2021 for other reasons. While there are supply-side reasons that make it difficult for marketers to sell, the demand-side reasons cause psychological difficulties in consumers. While there have been a few attempts to smooth over these situations, it would seem that every PB situation is different. This limits the applicability of lessons learned from one instance to another in the future. The paper attempts to provide (1) a historical perspective for PB, layout the nature of PB and (2) provide an overview of the various theoretical perspectives that can utilized to potentially to understand the consumer psychology behind PB. This is followed by a brief section on the implications of PB and discussion.

Keywords: panic buying, pandemic, consumer behavior, shortages

INTRODUCTION

As COVID set in during earlier months of 2020 in the U.S., there were wide-spread media reports of panic buying (PB) for all sorts of products. These products usually referred to as the FMCGs (Fast Moving Consumer Goods) were disappearing from store shelves. For instance, bathroom tissue was nearly impossible to find. The "Great Toilet Paper Shortage of 2020" was dubbed so because in March 2020, some of the paper manufacturers reported a 700 percent increase in sales of the product (Prior 2020). Media reports on the shortage also exacerbated the PB situation. Before the virus hit American shores, there were instances of the phenomenon in China and Hong Kong. Early in 2020 there were shortages of basic items in Hong Kong according to media reports (BBC News 2020). There were instances of armed gangs stealing 600 rolls of bath tissue, worth around $130 from stores in the district of Mong Kok, Hong Kong. Similarly, stores in Tokyo were limiting purchases to one roll per customer in March 2020 even though they were not related to the virus (Mainichi 2020). About that time in Australia, a customer ordered 2,304 rolls accidently and later began selling them to raise money for their children's schooling (Williams 2020). There were other incidents around the world including fights over the rolls in stores, newspaper publishing blank pages to be used as bath tissues, sales of bidets increasing, huge lines for bulk purchases of bath tissues, etc. (Jankowicz 2020).

Panic buying or stockpiling is defined by Cambridge Dictionary as "a situation in which many people suddenly buy as much food, fuel, etc. as they can because they are worried about something bad that may happen (Cambridge Dictionary 2020). Some have theorized that technically there does not need to be a panic situation for panic buying to happen (Taylor 2021a). Nevertheless, the terms have been closely associated with situations that are enhancing consumers fear or anxiety. Similarly, panic buying is used

synonymously with the term, 'hoarding,' although the Diagnostic and Statistical Manual of Mental Disorders characterizes it differently (American Psychiatric Association 2013). Hoarding is a persistent type of behavior that results in accumulation of things that are not discarded because of their perceived need.

PANIC BUYING – A HISTORICAL PERSPECTIVE

Panic buying as a phenomenon is not new and has manifested itself multiple times during the past century. There have been numerous documented instances of panic buying during times of war, infectious outbreaks, and also during the days & weeks leading up to natural calamities such as hurricanes, in Florida and other Gulf Coast states, and in areas affected by flooding occurrences. (Kulemeka 2010).

At the start of World War I, panic buying broke out in numerous countries and food supplies became extremely scarce. In Britain, a country that relied heavily on imports for key staple items like meat and wheat, implemented a sugar rationing scheme. Shortages, high prices, and inequalities of distribution of food elevated concerns to a level that required government involvement by appointing a national Food Controller position, with broad-based food rationing being implemented. ("Food and the First World War – Everyday Lives in War" n.d.)

Panic buying was also evident during the Spanish flu outbreak of 1918. It was then that "consumers ravaged drug stores in search of products and potions to prevent influenza and relieve symptoms" (Taylor 2019). Newspapers were reporting how anxious shoppers were crowding stores and demanding the pharmacists provide them with gargling solutions, germicides, atomizers, inhalers, pills, cough drops, detergents, preventives, and all sorts of cures (Taylor 2019). This pandemic killed an estimated fifty million people world-wide, in less than two years.

Overbuying of fabric and clothing was indicated in the US in 1941, when the country entered WWII. This behavior was an off shoot of remembering the scarcities of WWI. The federal government established an Office of Price Administration in January 1942, in an effort to prevent price hikes of retail goods and services, and to ration materials needed for the war. The United States had implemented the rationing model used previously by Britain, to circumvent some of the hoarding. (Merrefield 2020).

The Cuban Missile Crisis in 1962 also caused panic buying of canned foods by Americans fearful of possible nuclear war. In 1968, the Hong Kong flu pandemic was another panic buying instance, when consumers in Guangzhou, China resorting to panic buying of medications. Then in 1973, as the United States experienced a significant stock market crash, with the market losing over 45% of its value, along with an Arab oil embargo, which saw gasoline rise to $12/barrel from $3 per barrel, panic buying of toilet paper ensued, as consumers hoarded every roll they could acquire. Toilet paper was bartered, traded, and a black market even developed, before the public realized that the shortage was artificially created, and even further fueled accidently by a popular nighttime talk show host (Crockett 2014). The 1979 oil crisis also led to panic buying of oil. Significantly higher prices and concerns about supply led to panic buying in the gasoline market. During this time, crude oil prices nearly doubled to almost $40 per barrel in twelve months. Due to near term memories of the oil shortage of 1973, motorists began panic buying, and long lines appeared at gas stations, to secure any fuel they could get.

The arrival of New Coke during April 1985 led many consumers to panic buy the original Coke. The Coca-Cola Company had released a reformulation of its popular Coca-Cola brand, due to concerns over losing market share to rival Pepsi Cola. It seemed that the Coca-Cola Company had significantly underestimated the high level of brand love the original formula possessed. A public outcry ensued, and many consumers began to "panic buy" the traditional Coke. They overwhelmed the Company with complaints, and some lawsuits were even filed. Coca-Cola was forced to apologize and brought back the original, branded as Coke Classic, which then led to a significant sales resurgence of Coca-Cola, charting a new trajectory for the brand (Morris 2015).

During 1999 panic buying around the world seemed to be about preparing for a potential disaster termed Y2K. Fears of global computer crashes abound, thinking the turning over from 1999 to 2000 could lead to

significant negative outcomes, due to year dates in computers having been coded with two instead of four digits. Batteries, cash, gas, canned goods, and toilet paper were being hoarded again throughout the world.

The major terrorist attacks of September 11, 2001 on the United States caused panic buying of metals, gold, and oil on international commodity markets. Then, in January and February 2003, during the SARS outbreak in China, several rounds of panic buying of various products (including salt, rice, vinegar, vegetable oil, antibiotics, masks, and traditional Chinese medicine) took place in the Chinese province of Guangdong and in neighboring areas such as Hainan and Hong Kong.

During 2013, at the height of the Venezuelan Economic Crisis, their government temporarily took over the Aragua-based Paper Manufacturing Company toilet paper plant to manage the "production, marketing and distribution" of toilet paper following months of depleted stocks of basic goods and foodstuffs, such as rice and cooking oil. Blame for the shortages was placed on government policies, including price controls on basic goods, tight restrictions on foreign currency, and also hoarding. (Keating 2015) Additionally, during the SARS outbreak in 2013, PB was observed for food items, disinfectants, and anti-viral meds.

Between 2008 and 2013 there was some panic buying by gun owners who feared tougher gun control laws under then President Barack Obama was one blamed cause of ammunition shortages. The US is experiencing a similar situation in 2021 albeit at a lower scale.

From the past incidents, it is it sufficiently clear that times of war, pandemics, and infectious disease outbreaks contributed to consumers' PB of products in mass quantities, to hoard and alleviate/cure disease. Thus, PB seems to be a natural human reaction to certain distress-inducing events in history. The pandemic of 2020 did not seem to be much different from the past in terms of PB. The common wisdom is that these reactive purchases, whether buying medicines in the past or paper products during 2020, provided some level of perceived comfort or relief.

Analysts discussed of potential PB situations due to the Suez Canal blockage in March-April 2021.The cargo vessel named Evergiven, carrying about 17,600 containers with a $1 billion worth of products, slowed down 12 percent of 2021 global trade, including 14 percent of daily demand for crude and other items. Auto manufacturers, already facing semi-conductor shortages, were faced with shortages of petroleum-based goods such as seat foams (Eisenstein 2021). The vessel, traveling between Malaysia and Rotterdam, was traveling through the Canal for a shorter passage between Asia and Europe. About 50 ships per day sail through the Canal. The canal blockage lasted nearly a week until it was moved on March 29, 2021 at a cost of $400 million per hour in trade, based on the approximate value of goods that are transported through the Suez Canal every day (LaRocco 2021). Lloyd's of London values the canal's westbound traffic at around $5.1 billion a day, while eastbound traffic is about $4.5 billion per day (LaRocco 2021). Rerouting vessels around the continent of Africa adds up to 2-3 weeks more to transit time and increases both logistical and insurance related costs. Sao Paulo-based Suzano SA ships its wood pulp in cargo vessels through the Suez Canal. Wood pulp is the raw material for many products including bath tissue or toilet paper (Batista 2021). With higher demand for ships that carry the containers along with the current blockage, the company is concerned about exporting less in March and rolling over shipments to later months.

Finally, during May 2021 the east coast of the United States (Texas to New Jersey) experienced panic buying of gasoline, due to the Colonial pipeline cyber/ransomware attack. The Colonial pipeline runs for 5550 miles, transporting nearly 50% of the gasoline used on the east coast. This pipeline transports over 100 million gallons of gasoline a day and services over 50 million people. (Danner 2021a) Upon word of the attack and the subsequent shutting down of the pipeline, many American's quickly moved to fill their vehicles, causing long lines at the pumps, and forcing many gas stations to close as a result of fuel outages. The pipeline came back online after five days of frustration for many drivers in the impacted states. (Danner 2021b).

Why Is Panic Buying a Problem?

While PD does not last long, it clearly is problematic in the short run. For one it creates artificial shortages in the near term. Secondly, it might be an indication of consumers in distress. Thirdly, if PB is occurring during a pandemic, then consumers thronging to stores could enhance the infection spread risk. Fourth, PB seems to be the result of misinformation spread through social media while at the same time

images of consumers' PB in store can generate more PB creating a vicious cycle of events. Finally, if the messages from civic authorities are not clear or consistent, consumers might lose confidence in them in similar situations in the future. This is evident in the U.S. with significant sections of society not trusting the government, other civic officials, or some of the government bodies such as the Centers for Disease Control (Robson 2020). Yet, at the outset of the pandemic, Canadian consumers seemed to have responded to their officials' advice to stock up on a two-week supply of groceries and household goods (Donnelly 2020; Payne 2020). Some researchers feel that these pronouncements, sharing of pictures/videos, and peoples experiences might have led to the spread of PB to other countries (Laato et al. 2020; Sim et al. 2020; Taylor 2021b).

Beyond the discussion of PB from a historical perspective, the manuscript attempts to examine various elements related to PB and later explore various theoretical frameworks that could possibly be tested to explain the phenomenon.

Panic Buying – The What and Who

PB does seem to be agnostic to the cause of events. Whether it is natural or man-made events, there is a tendency for consumers to panic and exhibit irrational behavior (Johnson 1987). Beyond the infectious disease and natural calamity situations, there was panic related to the Y2K crisis when people were buying and hoarding necessities (Russo 1999). Recently Google published data on search trends, and it revealed the top five ways consumer search behavior is changing during COVID-19. These included, collecting critical information; exploring new connections; adapting to the new normal; appraising frontline warriors; and taking care of themselves and others around (Bhatt 2021).

During COVID, given the prevalence of social media and peoples' propensity to generate and consume misinformation, the panic levels kicked into high gear. But not all behaviors were panic-driven. Some of the demand spikes for items to protect one's health such as masks, sanitizers, etc. were justifiable. According to research, demand increases of more than 25 percent were noticed in 30 of the 138 product categories such as soap, soup, canned good, pasta, etc. (Smith, de Paula, and O'Connell 2020). These were mostly products that had longer shelf-life.

Researchers reported a survey of over 50 countries between January and April of 2020 and suggested that the PB bursts can occur for 7-10 days (Keane and Neal 2021). The authors indicated that consumers are receiving information cues from government pronouncements both within their countries and sometimes from actions of other governments. There might have been a couple of PB bursts during 2020 and toilet paper buying was prominent in both (Baertiein and Fares 2020; Drury 2020). Temporary limits on quantities by retailers tempered some of the demand increases (Toh 2020). To some extent product purchase limits per trip were somewhat neutralized by increasing frequency of trips and resultant hoarding behaviors (Smith, de Paula, and O'Connell 2020).

Then, there were many instances of non-safety related products being bought around the world during COVID (Altstedter and Hong 2020). These products included paper products, Twinkies, etc. Brand or product switching were also observed by the media when consumers could not find their regular brands (Altstedter and Hong 2020).A study of PB conducted early in the pandemic in the U.S. and Canada found that there was PB of other items such as food, toiletries, cleaning products, prescription medications, cold/flu medicines, etc. (Taylor, Landry, Paluszek, Fergus, et al. 2020).Other research indicated PB for health oriented supplements in the US and for herbal remedies in countries such as China (Kostev and Lauterbach 2020; Liu et al. 2020).With stay-at-home orders, restaurant closings, and work-from-home conditions there were also reports of increases in demand for meal kits for cooking at home (Standridge and Ray 2021).While there are documented cases of PB of many CFMGs, the paper products under consideration seem to be unique as they frequently are the targets for stockpiling when consumers perceive threatening circumstances (Garbe, Rau, and Toppe 2020). Studies indicate that these paper products serve as a symbol of safety to alleviate perceived threats (Ellson 2020). Furthermore, media reports during 2020 also seemed to focus of these products extensively (Kavilanz 2020).

Consumers who are likely to panic buy, demographic variables does not seem to be correlated to this purchase behavior (Taylor 2021b). But the same study indicated minor correlation between the behavior

and the adults' socio-economic status in the sense that those with greater financial means were more likely to engage in PB.

In the next section discusses some of the potential theoretical frameworks that could be used to study the phenomenon. This is not to suggest that these can explain the phenomenon solely. In some cases, one would need to combine the frameworks to comprehensively understand the nature of PB.

POTENTIAL THEORETICAL FRAMEWORKS

Besides delving into the historical perspectives, the paper also attempts to study the pandemic consumer PB phenomenon and its psychological underpinnings. PB by consumers under various circumstances have multiple influences and researchers have tried to explain these behaviors using various theoretical frameworks.

There might be several internal psychological factors and external inducements at play during a PB panic. Their individual and interactive influences lead to changes in consumer anxiety resulting in PB. A previous study revealed that the Big Five personality traits did not have any effect on the propensity for PB (Taylor 2021a). Yet, the same study indicated other psychological factors such as intolerance of uncertainty, disgust proneness, perceived threat, etc. seemed to have some effect on PB. Some have indicated traits such as selfishness, lack of empathy, exploitativeness, etc. for such actions (Paulhus 2014). Others have indicated mere profit motives for buying large quantities for resale (Lufkin 2020).

Forbes reported that a model based on animal-foraging theory attempted to explain PB behavior (Varanasi 2021). Based on survey of households in U.K. and Ireland shortly after strict social distancing measures were enacted, researchers posited that PB, and hoarding behaviors occurs when consumer perceptions are stimulated by scarcity cues from the media. In many instances, PB was associated with "higher income, presence of children in the household, depression/death anxiety, and mistrust of others or paranoia" (Varanasi 2021).

Some suggested is the theory of fear as a lens to study PB. A catastrophe or prolong pandemic that could lead to death might trigger feelings of fear of the unknown among consumers - fear of lockdowns, others buying, scarcity of products, sharp swings in impulse buying patterns, social media news, etc. have a positive impact on impulse buying (Ahmed et al. 2020).Lack of awareness of the situation causes the fear of the unknown and consumers are likely to imagine variety of acceptable scenarios (Freeland 2020).There is some evidence that increases in spending might occur to prevent distress situations during disasters and possible lowering their stress levels (Kennett-Hensel, Sneath, and Lacey 2012). Research shows that about 12-13 percent of adult consumers are distressed and intolerance to uncertainty are likely to perceive COVID-19 as being very dangerous (Asmundson and Taylor 2020). These consumers are more likely to engage in PB.

Consumers' perceived scarcity might also lead to panic buying. Studies have indicated that when needed goods are perceived as inaccessible in the future, it sets off a mental reaction that causes a sense of emergency and thus an urgency to buy at once (Sterman and Dogan 2015). This phenomenon can also be related to anticipated regret of not possessing the items (Wang, Liu, and Zhang 2019). Some researchers call this panic buying (Pan et al. 2020).

Dis or misinformation in general or social media can amplify the scarcity perception resulting in consumers engaging in PB (Prentice, Chen, and Stantic 2020). While some of images of empty store shelves might have been factual in certain location, the widespread use of the imagery via. social media might have been the work of those who were trying to create a hysteria around shortages (Patrick 2020).The objective of the mis-informers in this case might have been to create chaos and play out their psychopathic traits (Buckels, Trapnell, and Paulhus 2014) Fear could also lead to herd behavior and the related bandwagon effect (Perry 2020) .In this case, the belief is risk reduction can be achieved by acting collectively as part of a group and making group-consistent decisions (Patrick 2020).This behavior calls for imitating actions of others while ignoring one's own information and belief (Dholakia 2020). A related concept is the bandwagon effect in which people do things because others are doing them regardless of what they know or believe. In other words, people ignore their own information or override them with what they see or hear

as others' behaviors (Schmitt-Beck 2015). In this case, when consumers see or hear of panic buying in their towns or elsewhere, they tend to follow the pattern of behavior there by hoping to mitigate risks of going without (Fernando et al. 2021). These psychological behaviors might also explain the panic buying activities during 2020.

Yet another perspective in trying to explain panic buying is by reviewing consumers reliance on decision heuristics. Heuristics as explained in marketing and psychology relates to consumers using short cuts or simple strategies or mental processes to make evaluations and judgements when faced with rather complex situations (Hogarth and Karelaia 2006). As in the case of describing attitudes, fear seems to have three components – cognitive/belief components, affective or psychological component, and conative or behavioral component (Hodes, Cook, and Lang 1985). Fear results in emotional reactions and that in turn results in consumers ignoring logical information and decision making (Kuruppu and De Zoysa 2020). Fear can be a powerful motivator of certain behaviors and these behaviors can be intensified by available information or misinformation (Frijda 1986). Combining misinformation along with exaggerations found on social media and other popular outlets (Greco 2005) with the lack to authoritative information from credible experts reinforces health-related fears and phobias (Taylor 2019). Also, when emotional impact of media stories are greater than consumers tend to perceive, the situation as more risky (Finucane et al. 2000). The media portrayals of people suffering/dying in China and elsewhere and images of consumers leaving the store with loads of food and paper products and emptying the shelves, etc. could trigger the heightened sense of risk (Madarang 2020). Therefore, consumers had to make hasty decisions to buy and store in order to prepare for the impending lockdowns (Sharot 2011).

Buyers likely to assess the risk of getting COVID and generally take measures to minimize the risk. This assessment relates to the time and degree to which they are likely to contract the disease (Yuen et al. 2020). Hedging against these risks might involve certain mitigating behaviors and hoarding of large quantities of certain supplies (Kaur and Malik 2020). Research postulates three types of risk reduction behaviors – preventive behaviors such as hand washing; avoidance behavior such as social distancing; and management of disease behaviors (Bish and Michie 2010). Overbuying and related panic buying is part of these behaviors (Kaur and Malik 2020).

Avoiding risk taking combined with fears of lockdown might lead individuals to make quick decisions in their attempt to get some sense of control or safety (Barlow 2004; Harris and Mowen 2001). There have been mentions of the availability of toilet paper provides consumers a sense of comfort (Osumi 2020) and possibly a metaphor of safety (Strait Times 2021). Risk aversion and possible regret for not buying immediately could also explain panic buying (Perry 2020).

Researchers also view fear and anxiety as the result of framing bias (Peters, Lipkus, and Diefenbach 2006). In this instance, what consumers hear and see on social media and from neighbors are mostly negative in scope with respect to the effects of the pandemic. This leads to negative framing of information that in turn leads to fear of scarcity or what could happen and thus panic buying (Kuruppu and De Zoysa 2020).Media framing of out-of-stock situations, confusion, anticipated job losses, etc. lead to word-of-mouth and peer pressure that can influence panic buying (Frank and Schvaneveldt 2016).Sometimes, even devoid of peer pressure, consumers are likely to consider themselves to be aware of the situation and behave similar to how others might during a stressed period (Sheu and Kuo 2020).

The literature has provided many other justifications for panic buying phenomenon. There is research that indicates that consumers want to gain control over the pandemic situation. This need motivates them to control certain aspects of their life that are controllable such as overbuying or panic buying (Chen, Lee, and Yap 2017). Although the study was conducted in a non-distress situation, others have reported certain intrinsic personality and interpersonal factors such as emotional attachment and materialism might lead to immediate purchases (Atulkar and Kesari 2018).Given that people look to the government or other legitimate authorities to provide information regarding the pandemic (Han, Hu, and Nigg 2011), a study revealed that consumers who exhibit high levels of trust in their government might not consider hoarding (Arafat et al. 2020; Drury 2018).

Some researchers have tried to explain PB using game theory (Stiff 2020). In a book titled, *Prisoners Dilemma*, the author laid out the paradox in decision analysis in which two consumers who act on their own

self-interest would not produce optimal outcomes (Poundstone 1993).In other words, the parties find themselves worse-off compared to a situation in which they cooperated with each other. Applied to the PB situation due to a pandemic, consumers have two choices – shop responsibly or stockpile. Shopping responsibly, in this case, means buying so as to meet ones' normal demand for the item. If all consumers do this, then there will be enough supplies for every consumer. But if only one consumer is responsible and others stockpile, then that consumer will be at a loss (also known as "sucker's payoff").If this consumer believes that others are going to stockpile when supplies are limited, then this consumer is likely to exhibit the same behavior to avoid being a "sucker." Of course, if all consumers try to stockpile, the result is PB i.e., a zero-sum game.

Then there are attempts at using social learning theory to explain the PB phenomenon (Chadwick 2020). The basic idea here is that when many consumers prepare for a lockdown and go shopping for necessities, there will be a few that exhibit a sense of urgency or FOMO resulting in PB. These are likely to be consumers who eschew uncertainty because of the mental distress it causes (Yang et al. 2015). Such behavior by a few consumers is likely to cause others who observe the behavior to wonder if they would miss out or if those panic buyers know something they do not (Zheng, Shou, and Yang 2021). Such PB behaviors when broadcast over social media tend to spread the anxiety leading more consumers to carry out the same actions. In effect, the actions of a few can snowball into a national phenomenon. News that show empty shelves tend to fuel anxiety and spread fears causing widespread PB (Arafat et al. 2020).

Researchers have also sought to explain PB as a case of goal-directed behavior (Taylor 2021a). There seems to be some indication that some of the goal-directed purchases are non-conscious processes in consumers triggered by situational cues such as watching others do the same (Aarts, Gollwitzer, and Hassin 2004). Another related phenomenon is the idea of goal contagion in which consumers are likely to adopt others' goals for themselves and following the same behaviors (Laurin 2016). The copycat behaviors in turn become PB.

A few potential theoretical perspectives in trying to explain PB were discussed in this section. In the next, some of the implications for marketing and public policy are discussed. As mentioned earlier, situations that cause PB are varied in nature and thus, lessons learned during one situation might not apply to another.

MANAGING PB: IMPLICATIONS FOR MARKETING AND PUBLIC POLICY

Overbuying by consumers is welcomed by retailers and marketers during the normal times, there might be adverse consequences not only for consumers (ex. financial) but also for the value chain that includes retailers, wholesalers, manufacturers, and suppliers. In this section, the authors examine some of the implications that might have bearing on handling PB during future catastrophic events.

A quick fix for PB, from the retailers' perspective, is limiting number of items being bought per customer per visit (Martin-Neuninger and Ruby 2020). While this noble act of allowing more consumers to acquire the product might be socially benign, it might irritate consumers and they might simply try to buy the product at the next convenient outlet. Some consumers perceive gouging motives on the part of the retailer who are limiting supplies (Taylor 2021b).

Some vendors have tried to assure consumers about the normality of grocery shopping during the pandemic and that PB is unnecessary (BBC News 2020; Welle (www.dw.com) 2020).Government officials in some instances have exhorted consumers not be overbuy (ABC News 2020).Yet, these have not persuaded consumers from PB but might have in fact resulted in the opposite effect (Taylor 2021b).Instead of politicians or officials, community leaders and social influencers might be more effective if the messages are more altruistic in nature (Stiff 2020). If the messages foster kindship among consumers, showcases the plight of the less fortunate as a result of PB, etc. there might be a more positive effect on the phenomenon. A study suggested that messages such as those suggesting that over buying is understandable to some extent but exhorting consumers to think about those who are left without might have some positive effect on reducing PB (Naeem 2021). There is evidence in literature about framing the advice or exhortation from

retailers and public officials. Framing it with negative words might be less effective compared to positive framing (Earp et al. 2013; Wirth, Kunde, and Pfister 2019).

There are therapies that can be prescribed for those with excessive fears, it might take a while to get calmer and in the meanwhile PB might continue (Taylor, Landry, Paluszek, Rachor, et al. 2020). Minimizing fears and distress might reduce the need for PB. But for this effect to work in reducing shortages, society's anxieties need to be lowered. This seems like a tall order giving that few will opt for such calm-inducing therapies.

DISCUSSION

This an exploratory attempt to understand the concept of panic buying both from historical and theoretical perspectives. While all the news about PB might make it seem like it is a new phenomenon associated with COVID-19, the situation has been experienced by consumers for over 100 years. While the earliest documented instance was in conjunction with the Spanish flu of 1918, there have been many such situations usually connected to wars, natural catastrophes, or pandemics. But as we have seen twice in 2021, minor PB situations can be caused by shipping channel blockages or ransomware attack. It would seem that cyber security related disruptions are likely to be a recurring.

Of course, not all over-buying is PB, this paper focused mostly on consumer products and some of the psychological causes for it. Over the years, the psychological literature focused on a variety of factors for PB as presented in the paper. But it would seem that none of them individually explained all the aspects of PB. So, the authors feel that a comprehensive investigation combining many of the factors might be useful to determine the relative strength of each of the factors in explaining PB. This might be a promising study for the future. Another potential study could examine the relative role of various traditional and social media in creating anxiety or maybe in calming the public during the occurrence of PB.

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