

EXPLORING THE DETERMINANT FACTORS OF IMPULSIVE BUYING BEHAVIOR DURING THE COVID-19 PANDEMIC AMONG INDONESIAN CONSUMERS

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ABSTRACT: The COVID-19 pandemic has ravaged the global economy, igniting much fear and panic that disrupted buying patterns and behavior. This study aims to investigate the phenomenon of impulsive buying behavior during the COVID-19 crises by exploring the influences of panic buying, perceived scarcity, and the mediation role of fear appeals. This study uses path analysis which is processed by using the Preacher-Hayes technique. A total of 243 respondents participated in the study. The result of this study revealed that perceived scarcity and panic buying were successfully proved to be significant predictors of impulsive buying behavior. However, the direct effect of fear appeals and the mediation role of fear appeals and panic buying on the relationship between perceived scarcity and impulsive buying behavior were failed to prove in this study.

Keywords: Impulsive buying; Panic buying; Perceived scarcity; Fear appeals; COVID-19

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INTRODUCTION

The COVID-19 pandemic is one of the most complex and multi-faceted challenges that businesses have faced since first reported in Wuhan, China, in late December 2019. Not only it has ravaged the global economic stability, but it also igniting much fear and panic that disrupted buying patterns and shopping habits of consumers (Donthu & Gustafsson, 2020; Naeem, 2020; Sheth, 2020). Even worse, the lack of vaccination and unreliable data on the disease's cessation made people more vulnerable and super-defensive to COVID-19 issues (Khuzaini & Zamrudi, 2021; Omar, Nazri, Ali, & Alam, 2021). The lockdown (which is known as the large-scale social restriction in Indonesia) and social distancing policies, therefore, were implemented by the government to limit the massive spread of COVID-19.

As an outcome of this highly uncertain situation, consumers exploit all online and offline channels to buy a considerable amount of products in anticipation of a hefty price increase due to the pandemic (Chua, Yuen, Wang, & Wong, 2021). Thereby causing an enormous shortage not only of medical supplies (Liu, Zhang, Huang, Zhang, & Zhao, 2020; Xiao, Zhang, & Zhang, 2020) but also food and daily (groceries) supplies such as toilet paper (David, Visvalingam, & Norberg, 2021). Interestingly, Carr (2020) even added that the US sales of guns and ammunition soar amid COVID-19. This phenomenon may happen in response to the fear of scarcity, biased information, social learning, lack of trust, and unconfident feelings with authorities (Arafat et al., 2020). Wei, Wen-wu, & Lin (2011) recognized this behavior as panic buying. Consumers purchase exceptionally vast amounts of products or an uncommonly diverse range of products in anticipation of, during, or after a disaster or perceived disaster or in anticipation of shortage or a significant price increase. Furthermore, Yuen, Wang, Ma, & Li (2020) stated that panic buying could be influenced by perception, fear of the unknown, coping behavior, and social psychological factors. Lins & Aquino (2020) added that men buy more panic than women during the COVID-19 pandemic. They also found that there is a positive correlation between panic buying scale and impulse buying, which means that the higher the tendencies of panic buying that scaled by consumers, the higher the possibilities of them to buy impulsively.

Many studies have revealed impulsive buying behavior during public emergencies and crises like the COVID-19 pandemic (Sim, Chua, Vieta, & Fernandez, 2020; Xiao et al., 2020). However, panic buying behavior studies remained niche in the context of consumer behavior research (Yuen et al., 2020). Lins & Aquino (2020) even added that the results from search in the Scopus database that contain panic buying term only ended 32 results (the number of results drastically decreases when searching panic buying and impulsive buying combined in a single input criterion). A limited number of studies use panic buying and impulse buying in a single framework. Therefore, it is necessary to investigate the phenomenon of impulsive buying during COVID-19 crises by examining the influences of panic buying on impulsive buying behavior.

Moreover, this study aims to extend the existing framework model by including perceived scarcity and the mediation role of fear appeals as additional predictors of impulsive buying behavior. According to Chua et al. (2021), in a crisis like COVID-19, consumers' perceived scarcity will likely increase perceived price insecurity and stock unavailability. Thus, it will increase their degree to buy impulsively immediately as they will foresee themselves regretting if they do not get their products before they are stocked up. Fear appeals, therefore, will mediate the effect of panic buying, perceived scarcity on impulsive buying behavior. Lang, Davis, & Öhman (2000) and Naeem (2020) stated that fear is the universal trigger of impulsive buying behavior that may be enhanced because of the threat of harm, especially during the COVID-19 pandemic.

THEORETICAL REVIEW

Impulsive Buying Behaviour

Although many researchers have been studied impulse buying for nearly 80 years, impulsive buying behavior remains a mystery and prevalent phenomenon that is still worthy of attention in today's marketing activities. Hausman (2000) even stated that the finding of recent studies shows that impulse buying behavior is much more complex than previously thought since it arises from a desire to meet multiple needs that underpin different sorts of buying activity. Impulsive buying, which is familiar with unplanned purchase term can be defined as an individual tendency that shows the extent of an irrational, spontaneous, thoughtless, intense, and irresistible desire to buy (Huang, 2016; Leonard, Zhang, & Howell, 2019; Parsad, Prashar, Vijay, & Kumar, 2021). Moreover, Lee & Song (2011) described that not only influenced by consumer individual internal factors perspective (such as positive psychological states and cognitive condition). Impulsive buying behavior is also influenced by external factors (such as marketing strategy and situational environment). Impulsive buying behavior is often viewed as a way for marketers to increase their profits. Barakat (2019), Hashmi, Attiq, & Rasheed (2019), Terblanche (2018) even reported that 30-80% of retail sales are mainly dependent on impulsive buying.

Related to the recent COVID-19 situations, previous studies from Naeem (2020) and Xiao et al. (2020) revealed that impulsive buying behavior increased when fear of COVID-19, fear of illness, fear of shortage, fear of high prices, and perceived uncertainty are considerably high. Furthermore, Gupta, Nair, & Radhakrishnan (2021) also revealed that the COVID-19 pandemic significantly affects consumer behavior patterns denoted by stockpiling and impulse buying behavior. Due to stay-at-home protocol obligations, many people began to make purchases impulsively to fulfill their daily needs for a more extended period. As a result, stockouts are exacerbated, and consumer product prices frequently increase.

Perceived Scarcity

Since the massive spread of COVID-19 news worldwide, retailers tend to maximize their inventory stock to anticipate the boom of customer demand for essential and non-essential products. However, the enormous shortage of various retail products is unavoidable because of the explosion of aggressive consumer behavior influenced by environmental panic. Moreover, along with the excessive amount of out-of-stock shelves and long queues of retail stores shared images, this situation further stimulated the increasing demand for essential items and enhanced the impulsive behavior (Addo, Jiaming, Kulbo, & Liangqiang, 2020; Iyer, Blut, Xiao, & Grewal, 2020; Suryaningsih, 2020). Thus, the shortage of particular products due to excessive demand also makes consumers fear, so it can stir up their purchase to buy products excessively (Keane & Neal, 2021). Academically, this behavior is known as the effect of perceived scarcity. Perceived scarcity is the term that is used to refer individual's perception and conception of product shortage or limited availability that resulted in anticipated regret behavior by acquiring large quantities of items (Aggarwal, Jun, & Huh, 2011; Chua et al., 2021; King & Devasagayam, 2017). Perceived scarcity is more common than actual scarcity. Previous studies from Addo et al. (2020), Iyer et al. (2020), Keane & Neal (2021), Suryaningsih (2020) indicates that there were positive relationships between perceived scarcity, panic buying, fear appeals, and impulsive buying. Therefore, the proposed hypotheses of this study can be seen as below.

H1: Perceived scarcity has a positive impact on panic buying.

H2: Perceived scarcity has a positive impact on fear appeals.

H3: Perceived scarcity has a positive impact on impulsive buying behavior.

Panic Buying

Panic buying is a complex behavior driven by multiple motives and psychological processes (Yuen et al., 2020). It is usually formed as the psychological reaction in response to perceived scarcity, stress, sense of losing control, insecurity in certain situations (Arafat et al., 2020; Hendrix & Brinkman, 2013). Clee & Wicklund (1980) stated that panic buying could be explained as a psychological reaction to a perceived need for a threatened object when a buyer perceives a threat of a product stock out as loss control. Panic buying is also infected by two significant aspects such intention and behavior, which is mass psychology plays an important role (Xie, Chen, & Zhang, 2013). Panic buying is a socially undesirable herd behavior when consumers' large quantities of essential products or medicine affect the scarcity of products (Stevens, Weinberg, Nelson, Meissel, & Shankman (2018). A perception of scarcity is closely related to panic buying of a specific product item, while this behavior can be driven by lack of trust and reduced consumption (Wei et al., 2011).

When the World Health Organization declared the COVID-19 pandemic, many shelves in superstores were emptied because of panic buying (David et al., 2021). Panic buying has caused the purchasing of huge consumer goods. Psychologically, stockpiling storable goods could give consumers a sense of aegis

from the crisis (Grohol, 2020). However, because of panic, consumers' buying behavior can create supply effect disruption (Peels et al., 2009). When other consumers are seen to do panic buying, they may increase their motivation to do panic buying and herd behavior (Baddeley, 2010; Loxton et al., 2020; Zheng, Shou, & Yang, 2021). Iyer et al. (2020) added that panic buying would increase the fear of stockpiling and create another serial panic resulting from the increasing number of consumers buying groceries and other essential or non-essential products.

H4: Panic buying has a positive impact on fear appeals.

H5: Panic buying has a positive impact on impulsive buying behavior.

H6: Panic buying positively mediates the relationship between perceived scarcity and impulsive buying behavior.

The Mediation Role of Fear Appeals

Fear is one of the basic emotions of a human. Fear may be felt after a conscious assessment in dangerous conditions (Poels & Dewitte, 2006) and grows as an instrument to protect oneself from threatening situations (Addo et al., 2020). A fear appeal can be classified into three dimensions: fear of illness, fear of empty shelves, and fear of price increases (Naeem, 2020). Tannenbaum et al. (2015) even added that fear appeals encourage consumers to deal with a depicted threat cognitively, and the outcome of this processing effort may bias their decision. The pandemic of COVID-19 (for example) is a matter of grave concern in which the attraction of this fear can easily trigger impulse buying behavior (Lin & Chen, 2012). Especially, as there were no outward signs of remedial and altering the COVID-19 pandemic, people have to deal with, or prevent, and counter it. They responded in several ways: buying more essential items, overstocking, isolating themselves from the community, and being intensely involved in buying groceries, beer, sanitizers, and toilet papers (Addo et al. (2020). Several studies suggested that fear appeal is an important mediating factor of the effect of perceived scarcity and panic buying on impulsive buying behavior (Addo et al., 2020; Iyer et al., 2020). Therefore, the proposed hypotheses of this study can be seen as below.

H7: Fear appeals have a positive impact on impulsive buying behavior.

H8: Fear appeals to mediate the relationship between perceived scarcity and impulsive buying behavior positively.

H9: Panic buying and fear appeals mediate the relationship between perceived scarcity and impulsive buying behavior positively.

To summarize, the proposed conceptual framework in this study can be seen in Figure 1.

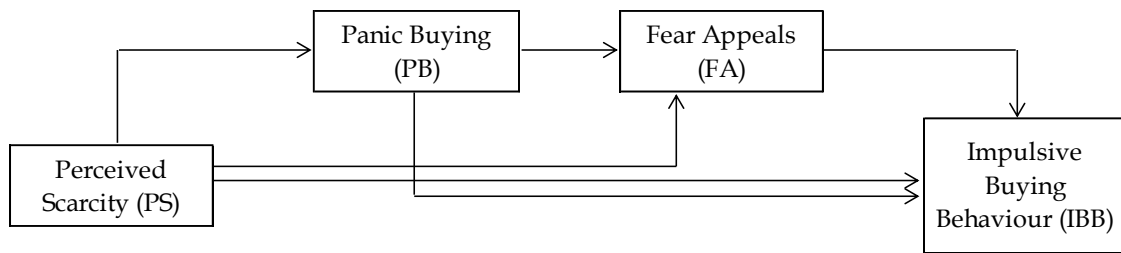


Figure 1. Conceptual Framework

METHODOLOGY

The nature of this study can be categorized as exploratory research with a quantitative approach. As the objective of this study that wants to investigate and examine the influences of panic buying, perceived scarcity, and the mediation role of fear appeals on impulsive buying behavior with survey questionnaire as the primary tool in gathering data, the following inclusion criteria were established: (1) they must be 18 years or above, (2) living in Indonesia, (3) having a monthly income, and (4) having their own mobile devices that connected to the internet. Thus, due to the COVID-19 protocols situations, convenient sampling was used to get potential target respondents following the guidance of Du, Derks, Bakker, & Lu (2018). Qin, Huang, Johnson, Hu, & Ju (2018), Xiao et al. (2020) argues that convenient sampling was often used in studies of the behavior of consumers to achieve an adequate sample recovery rate. Besides, a snowball sampling technique was also employed in this study. Respondents were invited to participate in an online survey and would be encouraged to recruit others by sending the study's online link. A total of 384 respondents were gathered in the study. Out of the 384 respondents, 270 completed the survey assignments, with only 243 of them were classified as valid respondents that met the survey criteria.

A total of three-item measurements to operationalize panic buying construct were adopted from Addo, Jiaming, Kulbo, & Liangqiang (2020), Ahmed, Streimikiene, Rolle, & Duc (2020), Gupta, Nair, & Radhakrishnan (2021). They included "As a result of the massive spread of COVID-19, I rush to purchase grocery and other essential items", "The panic buying of other consumers made me also do the same," "I tend to buy compulsively; stocked huge amounts of items when I see other people panic shopping." All the items of this construct were answered on a five-point Likert Scale (5- Strongly Agree, 4- Agree, 3-Neutral, 2- Disagree, and 1- Strongly Disagree). Thus, the Cronbach's α of panic buying amounted to 0,81.

Perceived scarcity was measured using three items developed from (Addo et al. (2020), Allon & Bassambo (2011), Gupta & Gentry (2019). They consist of "While shopping in this store, I thought that the limited product quantity for a particular category is due because of COVID-19 situations", "I found that many stores both online and offline sell out faster during COVID-19 pandemic ", and "I think that the scarcity of particular product nowadays was due because of COVID-19 situations". The scale was measured from 1 (Strongly Disagree) to 5 (Strongly Agree). The average Cronbach's α of this construct was 0.85.

Another three measures (fear of illness, fear of empty shelves, and fear of price increases) were employed by Limaye et al. (2020), Naeem (2020), Zhang, Qin, Wang, & Luo (2020) to operationalize the mediator construct of fear appeals. Example items were as follows: "The fear of contiguous coronavirus pushed me to buy and stock items," "I experience the fear of shortages of items during the COVID-19 situations", and "I feel the fear of increasing prices for particular items due to the COVID-19". Thus, the items were answered on a five-point Likert Scale (5- Strongly Agree to 1- Strongly Disagree). The average Cronbach's α of this construct was 0.88.

Finally, this study measured impulsive buying behavior using Ahmed et al. (2020), Marot & Lins (2018) items. They consist of "I often buying things without planning during the COVID-19 situations", "Because of the COVID-19 situations, I couldn't resist buying impulsively", and "The massive spread of COVID-19 is the biggest reason for my impulsive buying" and were answered on five-point Likert Scale (5- Strongly Agree to 1- Strongly Disagree). The scale yielded a Cronbach's α of 0.67. To summarize the result of Cronbach's α approach, it can be concluded that all constructs (panic buying, perceived scarcity, fear appeal, impulsive buying behavior) that proposed in this study had sufficient reliability and classified to be processed to further analysis, as the value of Cronbach's α for each construct in this study was higher than 0.60 (Hair, Ringle, & Sarstedt, 2013).

For further exploration, the descriptive analysis and the bootstrap method developed by Hayes & Preacher (2014), Hayes & Scharkow (2013) were conducted to analyze the serial mediation model statistically. The model was estimated using PROCESS (Model 6) for SPSS, with perceived scarcity as an independent variable, panic buying as a first mediator, fear appeals as a second mediator, and impulsive buying behavior as a dependent variable. This study uses a 95% confidence level interval (CI) with 5,000 bootstrap samples gained. The Sobel test was applied in this study to determine whether a specific variable mediates the effect of an independent to the dependent variable. Miswanto, Arifin, & Murniyati (2020) and Hadi (2018) stated that Preacher and Hayes bootstrapping (resampling) technique has an advantage over Sobel's test for mediation analysis in that it does not rely on normality assumptions and is suitable for small sample sizes. Hayes, Montoya, & Rockwood (2017) even declared that for a model solely dependent on observed variables, the outcome results produced by the structural equation model (SEM) and PROCESS were substantively identical.

We evaluate the direct effect by the value of p-tested between variables should be lower than 0.05 (Hayes & Preacher, 2014). Furthermore, Hayes & Scharkow (2013) and Primanto & Rahman (2019) argue that the result of the cut-off of p-value should be lower than 0.01 to determine statistical significance. For indirect evaluation, Sama & Trivedi (2019) stated that "the absence of zero value between the bootstrapped lower level confidence interval (LLCI) and upper-level confidence interval (ULCI) confirmed that there was a mediation effect between variables." Therefore, the existing mediation role should also

follow Wong's (2015) guidance which stated that the mediation effect could prove whenever the direct impact between variables is significant.

RESULTS

The study sample included all socio-economic classes, where 49.8% of respondents were classified as lower-middle class, 39.9% belonged to the middle-middle class, and 10.2% belonged to the upper-middle class. This study included a similar proportion of male (47.7%) and female (52.3%) representatives to fulfill the validity and reliability of the online questionnaire proposed by Vallejo, Jordán, Díaz, Comeche, & Ortega (2007). In addition, the distribution of respondent ages also gathered in this study with the majority of them can be categorized as Y generation/millennial (85.6%), followed by Z generation (10.3%) and X generation (4.1%). Supriatna (2020) explained that while X generation is a term to refer to those born between 1965-1979, Y (millennial) and Z generation is a group term category for people born between 1980-2001 beginning after the year 2000.

Table 1. Demographic Profiles

Profiles	Frequency	Percentages
Gender :		
Male	116	47.7%
Female	127	52.3%
Age :		
> 41 Year Old	10	10.3%
20 – 41 Year Old	208	85.6%
< 20 Year Old	25	4.1%
Socio-Economic Class :		
Upper-Middle	25	49.8%
Middle-Middle	97	39.9%
Lower-Middle	121	10.3%

The proposed hypotheses in this study were tested through the sequential mediation analysis using Hayes PROCESS (Model 6) for SPSS. The results of the serial mediation analysis (Table 2) indicate that there was a significant positive relationship between perceived scarcity, panic buying, fear appeals, and impulsive buying behavior, thereby supporting Hypotheses 1, 2, and 3 ($p < 0.01$). Also, the result showed a positive effect of panic buying on fear appeals and impulsive buying behavior, thereby supporting Hypotheses 4 and 5 ($p < 0.01$). However, this study failed to prove Hypotheses 7, which stated a positive direct effect of fear appeals and impulsive buying behavior. The p -value of the relationship between fear appeals and impulsive buying behavior higher than 0.01 resulted in a rejection of Hypotheses 7.

Table 2. Result of the PROCESS Bootstrapping Test

Hypotheses	Path	SE	p	95% of CI		Decision
				LLCI	ULCI	
Direct Effect						
H ₁	PS – PB	0.05	0.00	0.57	0.76	Supported
H ₂	PS – FA	0.06	0.00	0.39	0.61	Supported
H ₃	PS – IBB	0.07	0.00	0.11	0.39	Supported
H ₄	PB – FA	0.05	0.00	0.32	0.53	Supported
H ₅	PB – IBB	0.07	0.00	0.20	0.47	Supported
H ₆	FA – IBB	0.72	0.82	-0.12	0.16	Rejected
Indirect Effect						
H ₇	PS – PB – IBB			0.12	0.33	Supported
H ₈	PS – FA – IBB			-0.08	0.10	Rejected
H ₉	PS – PB – FA – IBB			-0.47	0.06	Rejected

Furthermore, Hypotheses 6 were supported by multivariate analysis reported in Table 2. Hypotheses 8 and 9 were not significant as there is a zero value between the bootstrapped lower level confidence interval (LLCI) and upper-level confidence interval (ULCI) and the insignificant bivariate effect between fear appeals and impulsive buying behavior (Hypotheses 7). Specifically, panic buying significantly mediates the effect of perceived scarcity and impulsive buying behavior positively (Hypotheses 6). In contrast, adding fear appeals to the model resulted in a non-significant relationship between perceived scarcity and impulsive buying (Hypotheses 8). The serial mediation model with panic buying and fear appeals as mediators also showed an insignificant effect in this study, not supporting Hypotheses 9.

DISCUSSION

Consumers were forced to adopt new shopping habits during the COVID-19 pandemic, especially when the local government implemented lockdown (large-scale social restriction) and social distancing. As a result of these massive restrictions, many people purchased much more than were they needed (Hall, Prayag, Fieger, & Dyason, 2020; Hobbs, 2020). They also exploit all channels for both online and offline, to get the product they need. Wei et al. (2011), therefore, defined this behavior as panic buying in which “consumer purchase exceptionally huge amounts of product or an uncommonly diverse range of products in anticipation of, during, or after a disaster or perceived disaster or in anticipation of shortage or a large price increase.” The concept of panic buying is different from impulsive buying. Badgaiyan & Verma (2014), Dhandra (2020), Sofi & Nika (2017) explained that impulsive buying is an outcome of marketing stimuli to make a spontaneous, sudden, on-the-spot purchase decision. Panic buying often occurred in anticipation of the disaster (Ardayan, Kurniawan, Istiatin, & Luhgiatno, 2021).

Previous studies related to panic buying behavior shows that there was a positive relationship between perceptions of scarcity, panic buying, fear appeal (Li, Zhou, Wong, Wang, & Yuen, 2021; Omar et al., 2021; Wiedmer, Whipple, Griffis, & Voorhees, 2020), and impulsive buying behavior (Addo et al., 2020; Iyer et al., 2020; Kim & Su, 2020). The result of direct and indirect hypotheses testing in Table 2 shows that most of the proposed premises (six of nine) in this study are in line with the conclusion of previous works. However, the direct effect of fear appeals on impulsive buying behavior, the mediation role of fear appeal on the relationship between perceived scarcity and impulsive buying behavior, also the mediation role of panic buying and fear appeal on the relationship between perceived scarcity and impulsive buying behavior were failed to prove in this study. This study's insignificant effect of fear appeals may occur because of COVID-19 situations. Chi et al. (2021) argue that consumers have more sense of anticipated danger of future events rather than the presence of threat during crises like the COVID-19 pandemic. Instead of cowering in fear, they tend to expect regret by making immediate purchases to prevent an unwanted outcome like the increase of price and shortage shortly (Prentice, Quach, & Thaichon, 2021). As a result, panic buying is becoming a recent trend of shopping behavior (Yuen et al., 2020).

The majority of the respondents categorized as Y (millennial) and Z have more anxiety than other generations (Dahlen, Teate, Ormsby, & Schmied, 2020). This finding strengthens that revealed the fear of panic that exhausted consumer minds is enough to trigger their action to buy impulsively. In a simple word, it also means that they are too easy to buy impulsively just by seeing other people panic (doing rush-shopping) without feeling any fear, especially during crises like COVID-19. Previous studies from Dedeoglu & Ventura (2017), Shen, Lee, Pan, & Lee (2021), Wu, Deng, & Liu (2021), Islam et al. (2021), Naeem (2020), Primanto, ABS, & Slamet (2018), Radwan, Radwan, & Radwan (2020), Wang, Tauni, Zhang, Ali, & Ali (2020) highlighted this issue by stating that the low degree (or even the insignificance) of fear appeals during a crisis were mainly caused by rumors, conflicting word of mouth communication, hoaxes stories, fake news, and misinformation. At the beginning of the crisis period, people tend to believe the information they read and hear without validating and checking with alternative sources of information. However, as time goes by, with the higher information sources and the longer experiences, they feel confident to re-evaluate their past decision. Thus, any false past exposures will lead their future maladaptive responses, including threat denial such as the thought of COVID-19 hoax, COVID-19 vaccines malfunction, product shortages is a fake, capitalism pricing manipulation, and others. People are more likely to ignore messages and remain in their current behavior whenever they perceive that the threat is irrelevant/insignificance (Kang & Lin, 2015; Shin, Ki, & Griffin, 2017). Based on the explanation, it can be assumed that the study respondents have a low degree (or even insignificance) of fear appeal. They tend to have no motivation to process all the fear appeals messages that were asked in this study due to the massive rumors and unclear information during the COVID-19 pandemic

situation in Indonesia. However, once they experience threats by themselves, they will voluntarily adopt and imitate others' new behavior to minimize risks and adjust to others' expectations (Xu et al., 2017). Aljanabi (2021) strengthened the argument by stating that people tend to imitate their peer's behavior during crises due to the exploding of rumors and misinformation.

FURTHER STUDY

The result of this study revealed that panic buying, perceived scarcity, and fear appeal were successfully proved to be significant predictors of impulsive buying behavior. Furthermore, while the mediation role of fear appeals on the relationship between government stimuli, perceived scarcity, and impulsive buying was able to prove in this study, the effect of panic buying on impulsive buying behavior with the mediation of fear appeal were failed to prove. The majority of respondents in the Y (millennial) and Z generation, who are more anxious than other generations, support the findings of this study, which revealed that the fear of panic in exhausted consumer minds is enough to trigger impulsive purchases, especially during crises like COVID-19. Panic and impulsive buying also may be developed through misinformation, fake news, rumors, perceived arousal, and marketing stimuli. Therefore, future studies should conduct variables not included in this study, such as hoaxes information, perceived arousal, and marketing stimuli.

Another limitation is that our study does not represent the majority of the Indonesian population regarding age distribution. The high percentages of Y (millennial) generation in this study may indicate bias, as it does not represent the reality of Indonesia's demographic. Future studies should be conducted with a more representative population sample utilizing alternate methodologies. Furthermore, we recommend a similar study to extend their geographical coverage globally to understand the results better.

Finally, this study revealed that the massive of hoaxes stories, fake news, conflicting word of mouth communication, and misinformation caused the Y (millennial) and Z generation to have no motivation to process all the fear appeals messages related to COVID-19. They adopt others' behavior to minimize risk and adjust the expectation of their peers. It indicates that during crises like the recent COVID-19 pandemic, organic peer influences of the Y (millennial) and Z generation should be harnessed to activate their sense of risk and prevent their negative responses to panic and impulsive behavior. This take is to minimize promoting the fear of COVID-19 into various media like television, social media, and any else.

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