Effects of Sentiment on Impulsive Buying Behavior: Evidence of Covid-19 in Indonesia

Ali Mursid

Department of Management Bank BPD Jateng School of Economics and Business, Semarang, Central Java, Indonesia

A R T I C L E I N F O

A B S T R A C T

This study aims to investigate the effects of positive and negative sentiment on impulsive buying behavior among Indonesian people based on the theory of stimulus organism response (S-O-R). First, it examines how COVID-19 information, information credibility, and scarcity affects positive sentiment and negative sentiment. Second, it studies the influence of positive sentiment and negative sentiment on impulsive buying tendencies and impulsive buying behavior. Third, it examines the impulsive buying tendency impacts on impulsive buying behavior. Data was collected from Indonesian residents living in a COVID-19 red zone using an online survey via Google form. There were 320 respondents completed the survey. The data were analyzed using confirmatory factor analysis (CFA) and structural equation modeling (SEM). The study found that COVID-19 information and information credibility have a positive effect on positive sentiment, while it has an insignificant effect on negative sentiment. Scarcity has a positive effect on negative sentiment, but it has no significant effect on positive sentiment. Both positive sentiment and negative sentiment have positive effects on impulsive buying tendencies. Only positive sentiment has a positive effect on impulsive buying behavior, while negative sentiment does not. Finally, impulsive buying tendencies have a positive effect on impulsive buying behavior. This suggests that marketing managers examine the characteristics of customers who have an impulsive buying tendency to become promotional targets because this will encourage buying behavior.

A B S T R A K

Penelitian ini bertujuan untuk menginvestigasi pengaruh positif sentimen dan negative sentimen terhadap perilaku pembelian tidak terencana masyarakat Indonesia berpijak pada teori stimulus organism response (S-O-R). Pertama, penelitian ini menguji bagaimana pengaruh informasi tentang COVID-19, kredibilitas informasi, dan kelangkaan terhadap sentimen positif dan sentimen negatif. Kedua, penelitianinimengkajipengaruhsentimen positif dan sentimen negatif terhadap kecenderungan untuk melakukan pembelian tidak terencana dan perilaku pembelian tidak terencana. Ketiga, penelitianinimengkaji pengaruh kecenderungan untuk melakukan pembelian tidak terencana dan perilaku pembelian tidak terencana. Pengumpulan data penelitian ini dilakukan terhadap penduduk Indonesia yang tinggal di zona merah COVID-19 melalui survey online dengan Google form. Terdapat 320 responden berpartisipasi dalam survey ini. Data dianalisis menggunakan analisis confirmatory (CFA) dan struktural equation modeling (SEM). Hasilnya menunjukan bahwa informasi tentang COVID-19 dan kredibilitas informasi mempunyai pengaruh positif terhadap sentimen positif, tetapi tidak mempunyai pengaruh yang signifikan terhadap sentimen negatif. Kelangkaan mempunyai pengaruh positif terhadap sentimen negatif, sebaliknya tidak mempunyai pengaruh yang signifikan terhadap sentimen positif. Baik sentimen positif maupun sentimen negatif mempunyai pengaruh positif terhadap kecenderungan untuk melakukan pembelian tidak terencana. Hanya sentimen positif yang mempunyai pengaruh positif terhadap perilaku pembelian tidak terencana, sedangkan sentimen negatif tidak berpengaruh. Terakhir, kecenderungan untuk melakukan pembelian tanpa rencana mempunya pengaruh positif terhadap perilaku pembelian tidak terencana. Hasil penelitian ini menyarankan manajer pemasaran untuk mengkaji karakteristik pelanggan yang memiliki kecenderungan pembelian impulsive untuk dijadikan sasaran promosi karena hal tersebut akan mendorong perilaku membeli.

1. INTRODUCTION

The phenomena of panic buying—which has happened in many countries affected by COVID-19—also took place in Indonesia. One example of panic buying that occurred in the capital city of Indonesia was the time when people queuing up to buy daily necessities items such as rice, sugar, and so on, in order to restrain the fluctuation of price whenCOVID-19 cases were increasing rapidly (Jakarta Post, 2020). Due to the rapidly rising number of COVID-19 cases, the government implemented remote work for workers and promoted social distancing policies for the people. Responding to the government's COVID-19 warnings, many shopping malls in Jakarta shut down their operation (Setiawan, 2020), thus potentially stimulating panic buying before closing.

With the spread of COVID-19 information in the media, only a few researchers have quickly responded by carrying out studies focusing on this topic. Some studies related to COVID-19 have emphasized health or medical perspectives. For example, Amariles et al. (2020) proposed a way to link suspected COVID-19 cases to the health systems and community pharmacies. In other studies, the implications of surveillance and reactions were examined in relation to three COVID-19 clusters in Singapore (Pung et al., 2020) and an overview of major decisions and uncertainty was carried for the COVID-9 response in Italy (Lazzerini & Putoto, 2020). Another study in the area of transportation examined the impact of the COVID-19 pandemic on global supply chain risk (Ivanov, 2020). Although some previous studies have explored the theme of COVID-19, the majority of studies has been based on the health perspective, and has rarely linked the effects of COVID-19 and customer behavior. Consequently, this study attempts to fill the gap by investigating the effect of COVID-19 information on impulsive buying behavior.

On the contrary, scholars have elucidated many aspects of impulsive buying. The previous studies have not explored the effects of COVID-19 information, information credibility, and scarcity. Badgaiyan & Verma (2014) verified the key factors determining impulsive buying behavior include personality, culture, shopping enjoyment tendencies, materialism, and impulsive buying tendencies. In addition, other scholars have investigated the effects of personality traits on customers' impulsive buying tendencies (Dhaundiyal & Coughlan, 2016), customers' personality traits and impulsive buying behavior (Atulkar & Kesari, 2017), and the determinant roles of money, attitude and personality in influencing chronic of impulsive buying Fenton-O'Creevy, Dibb, & Furnham (2018). They attempted to understand chronic impulsive buying from the perspective of dysfunctional self-regulation. Based on the latent state-trait theory, it suggests the effect of celebrity post authenticity, sentiment polarity, and observational learning on impulsive buying tendencies. A recent study investigated the technological innovation of Amazon and impulsive buying behavior (Farah & Ramadan, 2020). In addition, many studies have investigated the effects of store atmospherics on customers' impulsive buying behavior (Barros et al., 2019; Boutsouki, 2019; Hashmi, Shu, & Haider, 2020).

Considering the effects of the recent phenomena of COVID-19 and the discussions of previous scholars focusing on customers' impulsive buying, this study investigates COVID-19 information and impulsive buying behavior. This study looks at customers' impulsive buying behavior based on the conception of stimulus organism response (S-O-R) to verify the processes and decisions of customer behavior (Liu, et al., 2013; Verhagen & Van Dolen, 2011). Previous works have elucidated customer behavior from the perspective of stimulus organism response (S-O-R), however, they have not focused on impulsive buying behavior (Arora et al., 2020; Roux et al., 2020; Watson at al., 2018; Zhu at al., 2019). This study builds its research framework based on previous studies that reported attractive store stimuli affects affective and sensory store brand experiences (Bhat et al., 2020). Also, another study showing that buying behavior can be stimulated by emotional models such as pleasure, arousal, and dominance (Chang et al., 2014) and psychological mechanisms and personalized advertisements can cause impulsive buying behavior (Setyani et al., 2019).

The framework presented here hypothesizes that COVID-19 information, information credibility, and scarcity may influence positive sentiment and negative sentiment. Subsequently, both positive and negative sentiment may affect impulsive buying tendencies and behavior. It was reported that information and its credibility affect utilitarian click-through motivation (Setyani et al., 2019). Moreover, scarcity determines the journey of customer-purchasing decision making (Hamilton et al., 2019)

* Corresponding author, email address: ali.mursyid14@gmail.com

and polarity sentiments, including positive and negative sentiments, affect impulsive buying (Zafar et al., 2019). Explicitly, this study aims to answer the following questions. First, how do COVID-19 information, information credibility, and scarcity affect positive and negative sentiment? Second, how do positive and negative sentiments impact impulsive buying tendencies and impulsive buying behavior? Third, how do impulsive buying tendencies impact impulsive buying behavior?.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

The Theory of Stimulus Organism Response

There have been some researchers that proposed the conception of stimulus organism response in relation to individual cognitive and emotional reaction. Mehrabian and Russell (1974) purposed the conception of stimulus organism response, which assumes that, as the consequence of environmental factors; personal consumption behavior affects individual cognitive and emotional reaction. In the S-O-R theory, Bagozzi (1986) explained that stimuli (S) come from environmental factors, while the organism (O) is related to the internal process, including perceptual, psychological, feeling, and thinking activities. The consequences of stimuli and organism represent the final actions, decisions, and reactions as a response (R). Hence, this theoretical model assumes that the stimulus (S) can be the environment or an external factor, which triggers customers' passions. Moreover, the organism (O) refers to the internal process happening between the awareness of the provocation and the consequential actions, comprising different perceptual, passionate, psychological and mental accomplishments. The SOR principle encourages customers' emotions to attain the preferred reactions from customers so as to foster customer-buying behavior as a consequence (Thang & Tan, 2003).

COVID-19

A novel coronavirus was first identified in Wuhan, Mainland China. The name COVID-19 stands for coronavirus disease 2019 and this new virus is similar to the Severe Acute Respiratory Syndrome (SARS) virus and several forms of common cold. According to the World Health Organization (WHO), COVID-9 has spread almost all over the world and has become a global pandemic that requires serious response (UNICEF, 2020). When this article was written, the latest update information from the World Health Organization

(WHO) confirmed 8,525,042 COVID-19 cases worldwide, with 456,973 deaths and this pandemic has impacted almost all the nations of the world, including 216 countries (WHO, 2020). Indonesia's latest information reported 45,029 COVID-19 infections nationally. A total of 2,429 deaths have been reported, while the total amount of recovered patients has risen to 17,583 (Jakarta Post, 2020).

Impulsive Buying Behavior

The conceptual essence of impulsive buying has been asseted by some proponents. Impulse buying refers to unplanned purchasing behavior as a sudden, desirable, emotional, and irrational choice (Beatty & Ferrell, 1998). Hence, it is defined as the state of desire that is experienced upon encountering an object in an environment (Beatty & Ferrell, 1998). Previous studies have explored some antecedents of impulsive buying such as situation cues, marketing cues, and impulsive traits, and social factors, the environment, and individual conditions like the store environment, the existence of other consumers, and customer characteristics (Dholakia, 2000). Moreover, prior surveys related to impulsive buying behavior have reported that environmental aspects determine customer traits and emotions and subsequently impact customers' impulsive buying behavior (Liu, Li, & Hu, 2013; Verhagen & Van Dolen, 2011). This study intends to identify the determinant factors, focusing particularly COVID-19 information and impulsive buying behavior occurring recently in Indonesia.

COVID-19 Information, Information Credibility, Scarcity, and Positive Sentiment

Based on study by Setyani et al. (2019) that focused on personalized advertisement, this study predicts that COVID-19 information and information credibility of COVID-19 affect positive sentiment. Furthermore, perceived in formativeness and perceived credibility have been described based on the utilitarian click-through motivation. Some scholars have argued that the values created by personalized ads fuel users' motivation to click through an advertisement and find out more about it on social media (Setyani et al., 2019). Moreover, Liang, Lai, & Ku (2006) stated that personalized advertisement consists of content based on customers' preferences. Such advertisements can increase the availability of relevant information while decreasing the overflow of information. According to the concept of cognitive response, persuasive interactions are perceived as being more credible, with both cognitive responses and

attitudes toward advertisement being more favorable (Petty, Cacioppo, & Schumann,1983). Perceived credibility of the source can determine the next action to be undertaken by users, including willingness to receive further information (Li & Suh, 2015).

D'Avanzo and Pilato (2015) described sentiment is an important element referring to an emotional expression providing context-focused of individual feelings related to consumption involvement. Wang et al., 2017) suggested that two elements of sentiments should be adopted, including positive and negative sentiments. Behavioral research has shown that positive sentiment can enhance the shopping experience (Huang & Chen, 2006). Furthermore, polarity of positive sentiments leads to encouragement, happiness, virtue, goodness, greatness, and wonderful (Gui et al., 2017). Previous studies have reported that in formativeness positively affects utilitarian shopping motivation (Burke, 1997; To, Liao, & Lin, 2007). Moreover, altruistic motivations increase an audience's positive emotions (Foreh & Grier, 2003; Vlachos et al., 2009). A recent study reported that personalization impacts perceived informativeness and perceived credibility, which are cognition-based constructs related to utilitarian click-through motivation (Setyani et al., 2019). Hence, the above discussion leads this study to purpose the following hypotheses.

H₁: COVID-19 information positively and significantly affects positive sentiment.

H₂: Information credibility positively and significantly affects positive sentiment.

Scarcity refers to a real or perceived threat to the customers' competency to fulfill their needs and wants, due to the customers' fear of lacking of access to obtain goods and services. Furthermore, customers may face a lack of products and services in the short or long-term due to various circumstances (Hamilton et al., 2019). Scarcity can happen to every customer since the stock of goods is limited; government regulations towards certain goods or other obstacles may cause stocks to run out (Botti et al., 2008). Moreover, product scarcity can increase affective responses, where consumers make positive or negative judgments about certain products. In addition, scarcity tends to enhance customers' intention to buy more of their favorite products and reduces desire for less preferred products (Zhu & Ratner, 2015). Hence this study states the following hypothesis.

H₃: Scarcity positively and significantly affects positive sentiment.

COVID-19 Information, Information Credibility, Scarcity, and Negative Sentiment
There are some factors which affects negative sentiment in which one of them is extrinsic attribution. As it is described, negative sentiment refers to expression of emotion related to loss of consumption that stimulates a negative attitude (Weisstein at al., 2017). These emotions can be expressed as failed, awful, negated, bad, and worse (Gui et al., 2017). Scholars have shown that negative sentiments are more attractive and useful in shopping activities (Sen & Lerman, 2007). Vlachos et al. (2009) also argued that extrinsic attributions may stimulate negative responses. Previous theory related to negative emotions reported that strong attributions influence negative emotions (Du, Fan, & Feng, 2011). Taking this into account, this study attempts to identify these possible relationships and purposes the following hypotheses.

H₄: COVID-19 information positively and significantly affects negative sentiment.

H₅: Information credibility positively and significantly affects negative sentiment.

Scarcity is predicted by some scholars that it has an effect on negative sentiment. Scholars also have suggested that long-lasting resource scarcity can enhance unpredictability and uncertainty, thus affecting customer behavior choice (Griskevicius et al., 2011). Moreover, customers who experience resource scarcity tend to have fewer psychological responses when they do not have access to their preferences (Snibbe & Markus, 2005). Likewise, product scarcity decreases satisfaction that results from the repeated consumption of the same product. For instance, the perception of scarcity towards various kinds of grapes reduces customer enjoyment (Sevilla & Redden, 2014). Therefore, this study puts forward the following hypothesis.

H₆: Scarcity positively and significantly affects negative sentiment.

Positive Sentiment, Impulsive Buying Tendencies, and Impulsive Buying Behavior
Sentiments are vital dimensions of user reviews. Such reviews are a vehicle to express emotions and context-focused reviewers' feelings are relevant to the consumption experience. Impulsive buying

behavior, which is related to unplanned purchased behavior, involves sudden, desirable, emotionally without rational of consideration, choices observation, and unselfish (Beatty & Ferrell, 1998; Rook & Hock, 1987). While, impulse buying tendencies are customer traits that refer to the level of personal preference to perform unintentional, instant, and unreflective purchasing (Flight, Rountree, & Beatty, 2012; Foroughi et al., 2013). This attitude represents an implementation of common impulsiveness (Dholakia, 2000; Punj, 2011; Sharma, Sivakumaran, & Marshall, 2010). The impulse-buying tendency has been described as an unconscious reaction to original stimuli that happens at the preconscious level due to natural propensity (Sharma, Sivakumaran, & Marshall, 2010).

Sentiments, which have positive, negative, and neutral dimensions, significantly affect peer behavior (D'Avanzo & Pilato, 2015), but neutral reviews do not have a significant effect on buying behavior (Mo, Li, & Fan, 2015). Therefore, scholars have focused on the positive and negative dimensions of sentiment (Wang et al., 2017). Behavioral studies have shown that positive reviews enhance the shopping experience (Huang & Chen, 2006) and express sentiments such as encouraging, happiness, virtue, good, great, and wonderful (Gui et al., 2017). Positive sentiment reviews grab more attention from consumers and affect them positively (Schindler & Bickart, 2012). Therefore, this study purposes the following hypotheses.

H_7: Positive sentiment positively and significantly affects impulse buying tendencies.

H_8: Positive sentiment positively and significantly affects impulse buying behavior.

Negative Sentiment, Impulse Buying Tendencies and Impulse Buying Behavior
Extant literature has identified the conflicting results of negative sentiments. For instance, Sen and Lerman (2007) found that negative comments are more attractive and helpful when shopping. Conversely, Schindler and Bickart (2012) did not find a significant relationship between comment helpfulness and negative sentiments. Though negative sentimental reviews decrease the likelihood of purchasing Huang and Chen (2006) and their polarity is expressed fail, awful, negate, bad, worse etc. (Gui et al., 2017). The previous scholar stated that negative comments express feelings of consumption loss and lead to negative

attitudes (Weisstein et al., 2017). According to previous findings, personality traits, namely shyness, and sociability, significantly affect impulsive buying tendencies (Dhaundiyal & Coughlan, 2016). Therefore, this study purposes the following hypotheses.

H_9: Negative sentiment positively and significantly affects impulsive buying tendencies.

H_{10}: Negative sentiment positively and significantly affects impulse buying behavior.

The relationship between impulse buying tendencies and impulse buying behavior shows that customers with high impulse buying tendencies are more prone to buy impulsively than those with low tendencies (Foroughi et al., 2013; Herabadi et al., 2009). Moreover, Beatty and Ferrell (1998) and Foroughi et al. (2013) showed that marketing stimuli such as advertisements, gift and promotions tend to effectively influence customers who have strong impulse buying tendencies. Badgaiyan and Verma (2014) reported that several factors, including impulse buying tendencies, significantly and positively impact impulse buying behavior. Therefore, this study purposes the following hypothesis.

H_{11}: Impulse buying tendencies positively and significantly affect impulse buying behavior.

3. RESEARCH METHOD
Research framework
This framework investigates the effect of COVID-19 information and impulsive buying behavior based on the theory of stimulus organism response (S-O-R). First, this study attempts to verify that COVID-19 information, information credibility, and scarcity impact either positive sentiment or negative sentiment. Second, it examines the influence of positive sentiment and negative sentiment on impulsive buying tendencies and impulsive buying behavior. Finally, this framework explores the effects of impulsive buying tendencies on impulsive buying behavior. Figure 1 depicts the purposed model.

Sample and data collection
This survey employs structured questionnaires to identify customers' impulsive buying behavior based on the S-O-R theory. The framework includes seven constructs that were measured by multiple items. All the responses of the respondents were

measured using a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). For the data collection, Google Forms were distributed to participants selected using the purposive sampling methods via online media such as WhatsApp, Face books, or email from March to May 2020. The criteria

for the respondents include people who have a permanent income and live in COVID-19 red zones in all the provinces of Java, Indonesia, including Jakarta, Bogor, Depok, Bekasi, Tangerang, Banten, Bandung, Semarang, Solo, and Surabaya.

Stimulus
- COVID-19 Information
- Information Credibility
- Scarcity

H1; H2; H3
H4; H5; H6

Organism
- Positive Sentiment
- Negative Sentiment

H7; H8
H9; H10

Response
- Impulsive Buying Tendency
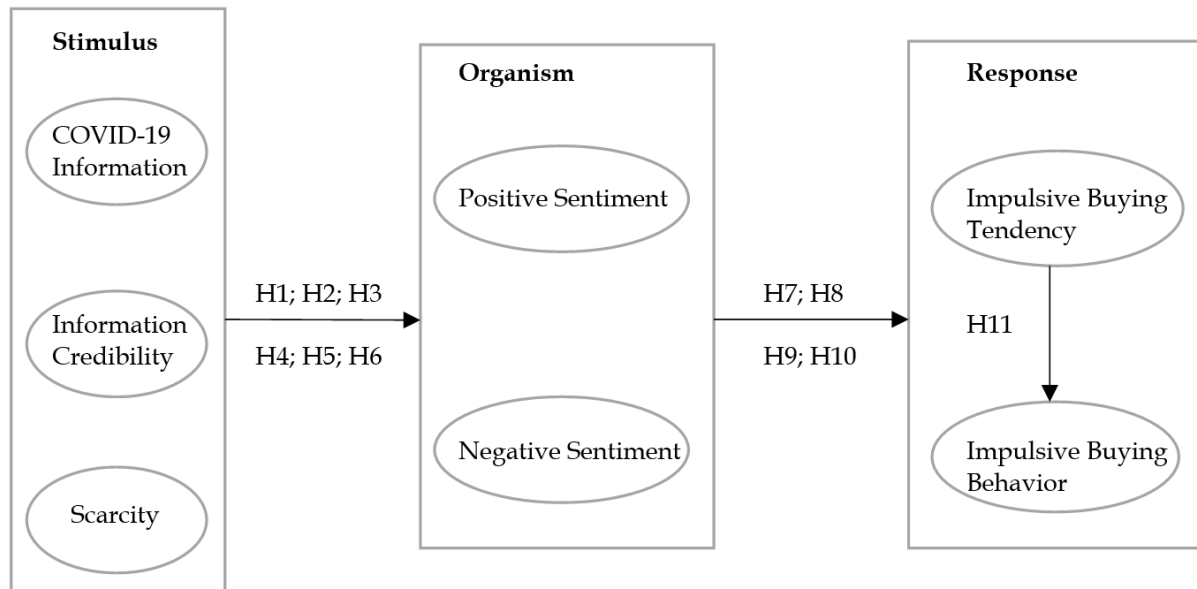- Impulsive Buying Behavior

H11

Figure 1. A Conceptual Framework of Covid-19 Information and Impulsive Buying

Before the real survey, this study conducted a pilot test in which 50 respondents filled out questionnaires related to COVID-19 information and impulsive buying behavior. According to the analysis of the pilot test results, Cronbach alpha (>0.70) and KMO-MSO (>0.60) fulfilled the recommended criteria. After revising the questionnaire to make it easier for respondents to understand, the researcher distributed the questionnaires in the real survey. Seventeen students helped this survey and one junior lecturer coordinated and managed the data collection. Before collecting the data, the researcher explained to the junior lecturer and the students related to the content of the questionnaires, the target respondents and how to assist the respondents to fill out the questionnaires. Then, the junior lecturer informed the task of each student to share the questionnaires with the target respondents. The questionnaires in Google Forms were distributed to approximately 600 respondents via WhatsApp, Face book, Instagram, and email and each student to share to 35 until 36 respondents; however, only 53 percent

responded, leading to a total of 320 respondents participating in this survey. All the data are complete and available for analysis.

Measurement

This framework adopted a measurement scale from previous studies with high reliability and validity for all constructs. The construct of COVID-19 information was adapted from Lee, information credibility was derived from Lee, and scarcity was modified from Wu et al. (2012) and Chang et al. (2014). Furthermore, the measurement scales for positive sentiment and negative sentiment were taken from Lee and Youn (2009). The items for impulsive buying tendencies and impulsive buying behavior were adapted from the measurement scale of Huang (2016)and Kacen and Lee (2002). All the items of each construct and the Cronbach alpha exceeded 0.70. The values of Cronbach alpha fell between 0.848 and 0.952, indicating reliability and validity. Table 1 shows the items scale and the Cronbach alpha of each construct.

Table 1. Item-Scale of Each Construct

Dimension	Measurement	Cronbach alpha
COVID-19 Information	The news of COVID-19 on mass media supplies relevant information The news of COVID-19 in mass media provides accurate information The news of COVID-19 in mass media is a good source of information	0.871
Information Credibility	I feel that the news related to COVID-19 is convincing. I feel that the news related to COVID-19 is believable. I feel that the news related to COVID-19 is credible	0.952
Scarcity	I worried about limited time to buy my daily needs. I am concerned about limited quantity. I become anxious when I see a "sold out" sign.	0.848
Positive Sentiment	Comments content about COVID-19 information are excellent Reviews regarding COVID-19 information are good. Comment content related to void 19 information is outstanding.	0.882
Negative Sentiment	Reviews about various posts are terrible Comments content concerning to COVID-19 information are unpleasant Comment content is disappointing	0.883
Impulsive Buying Tendency	I often buy without thinking. I sometimes buy things because I like buying things, rather than I need them. I buy what I like without thinking about consequences.	0.921
Impulsive Buying Behavior	I wanted to buy even though they were not on my shopping list. I want to buy things even though I had not planned to purchase after hearing the news of COVID-19. I want to buy things even though I do not really need it after hearing the news of COVID-19.	0.862

4. DATA ANALYSIS AND DISCUSSION
Descriptive statistics of respondents
The description of respondents' profiles consists of gender, age, marital status, education level, and average monthly income. There were more female participants in this survey than male ones: 58.9 percent female and 40.8 percent male respondents. The respondents aged between 20 and 30 years old dominated this survey, reaching 72.9 percent, followed by 13.4 percent of the respondents who were between 31-40 years old. As for the marital status of the participants, 63.8 percent were single and 36.2 percent were married. When it comes to the education background of the respondents, 58.1 percent had pursued undergraduates' degrees, while 24.7 percent of the participants finished their master degrees. Regarding the monthly income of the respondents, 74.7 percent had an income of less than IDR 5,000,000, following by 13.4 percent who received income between IDR 5,000,000 and IDR 7,500,000. Details related to the socio-demographic profiles of the respondents are displayed in Table 2.

Table 2. Socio-Demographics Profile of the Respondents

		N	Percentage	Cumulative Percentage
Gender	Male	131	40.8	41.1
	Female	189	58.9	100.0
Age	20~30 years old	234	72.9	73.1
	31~40 years old	43	13.4	86.5
	41~50 years old	29	9.0	95.5
	51~60 years old	14	4.2	99.7
	>60 years old	1	0.3	100.0

		N	Percentage	Cumulative Percentage
Marital Status	Single	204	63.8	36.4
	Married	116	36.2	100.0
Education Level	Senior High School	44	13.75	13.75
	Undergraduate	186	58.12	71.87
	Master	79	24.70	96.60
	Doctor	11	3.40	100.0
Monthly Income (IDR)	< 5,000,000	239	74.7	74.7
	5,000,000 - < 7,500,000	43	13.4	88.1
	7,500,000 - < 10,000,000	19	5.9	94
	10,000,000 - < 12,000,000	7	2.1	96.2
	> 12,000,000	12	3.8	100.0

Confirmatory factor analysis

Analysis of the data was then continued by using confirmatory factor analysis (CFA) and structural model analysis or two-step approaches, following the criteria of a good model of fitting data recommended by Anderson and Gerbing (1988). The result of the measurement model shows a good model fit, χ^2/ (df = 166) = 1.698, (p <0.001), good fit index (GFI) = 0.924; comparative fit index (CFI) = 0.977, incremental fit index (IFI) = 0.978, Tucker Lewis index (TLI) = 0.971; Normed fit index (NFI) = 0.947, and a root mean square error of approximately (RMSEA) = 0.047. The values of GFI, CFI, IFI, and TLI, ranged between zero and one with values close to 1.00 which achieved >0.90, confirming an acceptable model fit. The RMSEA achieved good fit of <0.08 and the Standard RMR (SRMR) = 0.0385, which is less than 0.8 (Hu & Bentler, 1998).

Following Koufteros, Babbar, & Kaighobadi (2009), the researchers calculated the convergent and descriminat validity by CFA, showing that all items of the variable performed well. Table 3 depicts the results of construct and item reliability, standard factor loading, error variance, SMR, CR and AVE indices. The construct reliability (CR) shows high reliability among the values greater than the minimum requirement of 0.70 (ranging from 0.835 to 0.953). This demonstrates the high reliability of the entire latent variable. Moreover, the average variance extracted (AVE) was higher than the minimum value of 0.50 (ranging from 0.636 to 0.872), showing that convergent validity was acceptable. Table 4 shows that the square root of the AVE (average of variance extracted) in the diagonal is higher than the correlation among the constructs (Fornell & Larcker, 1981).

Table 3. The Result of CFA Model

Construct	Factor Loading	Error Variance	CR	AVE
COVID 19 Information				
IF1	0.828	0.314		
IF2	0.810	0.344	0.872	0.694
IF3	0.860	0.260		
Information Credibility0				
IC1	0.909	0.174		
IC2	0.958	0.082	0.953	0.872
IC3	0.934	0.128		
Scarcity				
SC1	0.783	0.387		
SC2	0.859	0.262	0.851	0.657
SC3	0.787	0.381		
Positive Sentiment				
PS1	0.849	0.279		
PS2	0.890	0.208	0.884	0.717
PS3	0.799	0.362		

Construct	Factor Loading	Error Variance	CR	AVE
Negative Sentiment				
NS1	0.814	0.337		
NS2	0.857	0.226	0.883	0.716
NS3	0.866	0.250		
Impulsive Buying Tendency				
IBT1	0.818	0.331		
IBT2	0.930	0.135	0.928	0.812
IBT3	0.949	0.099		
Impulsive Buying Behavior				
IBB1	0.629	0.604		
IBB2	0.750	0.438	0.835	0.636
IBB3	0.974	0.051		

Note: χ^2= 281.827; χ^2/ (df = 166)= 1.698 (p<.001); RMSEA= 0.047; NFI= 0.947; RFI= 0.933; IFI= 0.978; TLI= 0.971; CFI= .0977; RMR= 0.103; GFI= 0.924; AGFI= 0.894; PGFI= 0.664; SRMR= 0.0358, and PNFI= 0.749.

Table 4. Correlation Matrix of Discriminant Validity

Construct	IF	IC	SC	PS	NS	IBT	IBB
IF (COVID 19 Information)	**0.833**						
IC (Information Credibility)	0.736	**0.934**					
SC (Scarcity)	0.050	0.009	**0.811**				
PS (Positive Sentiment)	0.540	0.548	0.057	**0.847**			
NS (Negative Sentiment)	0.028	0.015	0.045	0.035	**0.846**		
IBT (Impulsive Buying Tendency)	0.009	0.010	0.074	0.012	0.062	**0.866**	
IBB (Impulsive Buying Behavior)	0.015	0.021	0.064	0.028	0.034	0.643	**0.797**

Structural model analysis and hypothesis testing
Based on Anderson and Gerbing (1988), the second step of this analysis evaluated the structural model to test the hypotheses. The structural model obtained a good model fit with Chi-Square = 296.002, Chi-square/(df =173) = 1.711, (p <.001); RMSEA (Root Mean Square Error of Approximation) = 0.047; GFI = 0.921; NFI (Normed fit index) = 0.945; IFI (Incremental fit index) = 0.976; TLI (Tucker Lewis index) = 0.971; CFI (Comparative Fit Index) = 0.976. The values of GFI, CFI, IFI, and TLI, were close to 1.00, reaching>0.90, and fulfilling the criteria of model fit. Moreover, RMSEA reached a close fit value with a value between 0.04 and 0.08. Furthermore, SRMR (Standardized RMR) = 0.0576, leading to an acceptable model fit (Hu & Bentler, 1998).

The convergent and descriminat validity were calculated in a structural model, indicating that every item of all constructs displayed adequate criteria (Koufteros et al. (2009). The results of construct and item reliability, standard factor loading, error variance, SMR, CR and AVE indices fulfilled the minimum criteria. Some value indications, such as construct reliability (CR), exceeded 0.70 and thus achieved high reliability, with results between 0.835 and 0.953. Furthermore, the value of average variance

extracted (AVE) was greater than 0.50, which is as the minimum criteria (ranging from 0.636 to 0.872), showing acceptable convergent validity.

Finally, the hypotheses testing showed that COVID-19 information positively and significantly affects positive sentiment (hypothesis 1), while COVID-19 information insignificantly impacts negative sentiment (hypothesis 2). Similarly, information credibility has a significant and positive effect on positive sentiment (hypothesis 3) and it has an insignificant effect on negative sentiment (hypothesis 4). Conversely, scarcity has no significant effect on positive sentiment (hypothesis 5), but it has a significant and positive effect on negative sentiment (hypothesis 6). Positive sentiment has a significant and positive effect on impulsive buying tendencies (hypothesis 7) and impulsive buying behavior (hypothesis 8). Moreover, negative sentiment only has a significant and positive effect on impulsive buying tendencies (hypothesis 9), but not for impulsive buying behavior (hypothesis 10). Finally, impulsive buying tendencies have a significant and positive effect on impulsive buying behavior (hypothesis 11). Table 5 displays the results of hypothesis testing.

Table 5. The Results of Hypothesis Testing.

Hypothesis	Relationship	Estimate	S.E.	C.R	Result
H1	IF → PS	0.391***	0.109	3.607	Supported
H2	IF → NS	-0.252	0.163	-1.550	Not Supported
H3	IC → PS	0.386***	0.105	3.677	Supported
H4	IC → NS	-0.015	0.158	-0.095	Not Supported
H5	SC → PS	0.025	0.039	0.634	Not Supported
H6	SC → NS	0.246***	0.061	4.033	Supported
H7	PS → IBT	0.235**	0.084	2.785	Supported
H8	PS → IBB	0.122**	0.060	2.029	Supported
H9	NS → IBT	0.358***	0.076	4.685	Supported
H10	NS → IBB	0.005	0.056	0.091	Not Supported
H11	IBT → IBB	0.818***	0.052	15.852	Supported

Note: *p≤ .1 ** p≤ .05 and ***p≤ .001

Dicussion

The COVID-19 information and COVID-19 information credibility significantly and successfully stimulate positive sentiments. This finding agrees with a prior study conducted by Setyani et al. (2019) that explained how perceived informativeness affects utility click motivation. In addition, relevant information or the credibility of information can reduce information overflow (Liang et al., 2006)and promote willingness to receive further information (Li & Suh, 2015). This finding confirms that most people in Indonesia living in red zones respond positively to the information presented by the government through the media. The positive favorable response from people supports previous statements of Petty et al. (1983) related to credible advertisements and cognitive responses.

More evidently, this study failed to show that COVID-19 information and information credibility affect negative sentiment. This means that most people in Indonesia do not think negatively about COVID-19 information and information credibility; this information does not increase their sadness, fear, and bad moods. This finding contradicts the argument that extrinsic attribution (Vlachos et al., 2009) and strong attribution (Du et al., 2011) trigger negative emotions or responses. Some potential explanations for this insignificant relationship could be that people in Indonesia do not think that COVID-19 has become the monster to be afraid of. Although the government policy has implemented social distancing in the large scale during the COVID-19 pandemic and recommended staying at home, people still intend to perform their social activities just like under normal conditions.

On the contrary, scarcity only impacts negative sentiment and insignificantly affects positive sentiment. This finding supports previous studies showing that long-lasting resource scarcity can enhance unpredictability and uncertainty, thus affecting customer behavior choices (Griskevicius et al., 2011). This is in line with the statement that resource scarcity leads customer to perform fewer psychological response when they do not obtain their preferences (Snibbe & Markus, 2005) and product scarcity reduces customer enjoyment of their consumption (Sevilla & Redden, 2014). The insignificant effects of scarcity and positive sentiment show that the lack of products or services the period time response by various evidences (Hamilton et al., 2019) such as positive or negative product evaluation (Zhu & Ratner, 2015).

The positive and significant effect of positive sentiment on impulsive buying tendencies and impulsive buying behavior is related to the findings of behavioral studies showing that positive reviews enhance the shopping experience (Huang & Chen, 2006) and positive sentiment reviews grab more attention from consumers and affect them positively (Schindler & Bickart, 2012). Conversely, negative sentiment only influences impulsive buying tendencies, not impulsive buying behavior. This also indicates the important role of impulsive buying tendencies in the relationship between negative sentiment and impulsive buying behavior. This finding supports the previous argument of Dhaundiyal and Coughlan (2016) that reported personality traits, namely shyness and sociability, significantly impact impulsive buying tendencies.

Yet, the finding above is not related to the work of Huang and Chen (2006) stating that negative sentiment reviews decrease purchase likelihood and previous scholars who stated that negative comments express the feeling of consumption loss and generate

461

negative attitudes (Weisstein et al., 2017). Finally, impulsive buying tendencies are the key factor influencing customers' impulsive buying behavior. This finding describes clearly the important role of impulsive buying tendencies in determining impulsive buying behavior, and show that the effects of both positive sentiment and negative sentiment on impulsive buying are more significant through impulsive buying tendencies. In other words, whether people respond with positive or negative sentiment related to COVID-19 information, information credibility, and scarcity, they do not perform impulsive buying behavior unless they have impulsive buying tendencies.

Following Bagozzi (1986), this framework of COVID-19 information and impulsive buying behavior considers the conception of stimulus organism response (S-O-R) and consists of stimulus that come from the environment. Organism here refers to the psychological feeling and response as an action. According to the results, COVID-19 information and information credibility successfully stimulate customers' positive sentiment, and both positive sentiment and negative sentiment affect impulsive buying tendencies and subsequently, impulsive buying tendencies impact impulsive buying behavior. This finding agrees with the theory of stimulus organism response (SOR), which assumes personal consumption behaviorist a consequence of environmental factors that affect individual cognitive and emotional reaction (Mehrabian & Russell, 1974). Our findings also agree with the principle of stimulus organism responds (S-O-R) that boosting customers' emotions to accomplish the desired responses may foster customer-buying behavior (Thang & Tan, 2003). Moreover, impulsive buying happens in response to marketing cues, impulsive traits, social factors, the environment, and individual conditions such as the store environment, the existence of other consumers, and customer characteristics (Dholakia, 2000). In addition, the results support previous findings reporting that environmental aspects determine customer traits and emotions and subsequently impact customers' impulsive buying behavior(Liu et al., 2013; Verhagen & Van Dolen, 2011).

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

This study, on the one hand, confirms both COVID-19 information and COVID-19 information credibility positively and significantly impact positive sentiment. On the other hand, COVID-19 information and COVID-19 information credibility

insignificantly affect negative sentiment. Positive sentiment positively and significantly impacts impulsive buying tendencies and impulsive behavior. Conversely, negative sentiment only impacts impulsive buying tendencies but it does not affect impulsive buying behavior. Finally, impulsive buying tendencies positively and significantly impact impulsive buying behavior.

There are some practical implications of this study. Impulsive buying has attracted the manager of the malls or retails and distribution since it can increase significant sales. Considering the theory of stimulus organism response, these findings point to several strategies for the manager in order they implement it and manage people's related consumption behavior. First, the COVID-19 pandemic becomes the opportunity for the managers to create the promotion of products and services as stimuli to affect customers' psychologies and enhance their impulsive buying. It can be done by implementing positive words to stimulate impulsive buying behavior, for instance, "safe your daily needs to anticipate the scarcity" or " your supplies to fulfill your daily needs are limited". Second, this finding reported that both positive sentiment and negative sentiment impacts customer impulsive buying tendency and in turn support impulsive buying behavior. Based on this finding that customer impulsive buying tendency is important to push impulsive buying behavior, consequently, the manager has to learn the characteristic of customers who have impulsive buying tendency to become the target of the promotion. The continuous observation, survey or research focusing on customer impulsive buying tendency would contribute to the right decision or policy for the manager to treat the various customers.

This study has explored several aspects that stimulate impulsive buying behavior. However, some limitations should be addressed. First, the sample of this study only represents impulsive buying in the scope of Indonesia, which has special characteristics that may differ from other counties. Consequently, this study suggests exploring broader samples beyond Indonesia. For examples, studies of impulsive buying in Asia, Europe, the USA, or Africa would represent the characteristics of people character worldwide. In addition, it would be interesting to review the effects of COVID-19 on the consumption behavior of people in each country. Other perspectives of COVID-19 beyond information and consumption behavior such as sociological, psychological and cultural aspects

would further enrich our understanding of the impact of COVID-19 on customer behavior. Effects of government policies in each county in response to this pandemic, such as lockdowns, the new normal, and so on, on people's consumption should also be elucidated. Finally, this study recommends investigating people's consumption behavior during this pandemic, including not only impulsive buying behavior, but also compulsive buying behavior, since people's purchasing power is decreasing around the world.

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