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# Fear of missing out, price sensitivity, and customer online impulse buying: The role of scarcity cues

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## Abstract

This research aims to examine the effect of fear of missing out (FoMO) on impulse buying and the mediation effect of price sensitivity, and the moderator effect of scarcity cues in these relations. Three hundred and eighty-four students from two universities in Jakarta were involved in the study by completing a two-phase online questionnaire. Moderation and mediation procedure (MODMED) was applied to test the hypothesis with Macro Process 4.0. The empirical findings of this study demonstrate that fear of missing is negatively related to price sensitivity and positively related to impulse buying. Fear of missing out has also been confirmed to affect impulse buying through price sensitivity indirectly. Furthermore, according to expectations, scarcity cues were also verified to strengthen the effect of fear of missing out and price sensitivity on impulse buying.

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## Introduction

*An online impulse purchase* is a phenomenon that leads to spontaneous buying behavior in the context of online shopping. Along with changes in consumer behavior due to the COVID-19 pandemic (Zhang et al., 2020), which has increased online transactions, marketers are trying to apply various strategies to obtain spontaneous purchases through various promotions. It is a situation where a consumer makes an unplanned purchase without prior consideration or intent to buy the product. Marketers in retail trade depend highly on impulse buying because most sales are obtained from this behavior. In a report, it was stated that impulsive purchases even accounted for 80% of the proportion of sales (Zhang et al., 2020), so marketers must pay attention. Impulse buying is also very effective for new products, where marketers' expectations of sales depend on consumer impulse buying behavior (Zhang et al., 2020). Hence, along with the development of digital technology, the attention of researchers is also directed to understanding the determinants of online impulse buying behavior.

Impulsive buying is naturally based on hasty and irrational thinking about buying a product or service. As a result, marketers target these people to "push" customers to buy and make purchasing decisions without prior intention and planning (Pelau et al., 2018). In online mode, impulse purchases are typically triggered by a sudden desire or impulse to buy a product or service, often due to an emotional response to stimuli from social commerce, website quality, online ads, social media posts, internet celebrity, and limited-time or payment options (Akram et al., 2018; Aragoncillo & Orus, 2018; Chen et al., 2021; Xiang et al., 2022; Zafar et al., 2021). From the internal side, several consumer characteristics, including fear of missing out (FoMO), personality, and gender (Anindito & Handarkho, 2022; Çelik et al., 2019; Hashem, 2021; Parsad et al., 2019) are also believed to affect impulse purchase behavior.

Despite the large number of studies studying impulse purchases, there are several drawbacks to remedy. First, the present study modifies the model of Zhang et al. (2022), who places FoMO as a mediator of scarcity and impulse buying behavior. Using a different approach, we propose a process model of FoMO, price sensitivity, and impulse buying. Hence, our study further investigates the direct and indirect impact of FoMO on impulse buying behavior. Second, previous studies have shown that FoMO positively affects impulse buying (Ahmed et al., 2020; Çelik et al., 2019; Zhang et al., 2022), but there is a dearth of studies regarding its effect on price sensitivity. Accordingly, much of the research states that price sensitivity as a consumer reaction to price (change or difference with other products) is closely associated with the brand, including perceived credibility and loyalty (Erdem et al., 2002; Kwak et al., 2015; Ramirez & Goldsmith, 2009). In In this study, we argue that FoMO is a psychological condition that elicits emotional responses causing consumers to have an urgency and pressure to act quickly, which can lead individuals to prioritize getting a good deal over other factors such as brand loyalty or product quality (Erdem et al., 2002; Kwak et al., 2015; Ramirez & Goldsmith, 2009). In contrast, FoMO might cause customers with a strong desire for uniqueness to be less price sensitive. Drawing S-O-R (Stimulus-Organism -Response) mode (Mehrabian & Russell, 1974) and value theory in marketing (Gutman, 1982), this study provides evidence of the link between FoMO and consumer price sensitivity in online shopping.

Finally, our study offers new insights into the role of scarcity cues as a moderator of the FoMO, price sensitivity, and impulse purchase relationship models. Previous studies have confirmed the role of scarcity cues as impulse buying antecedents (Ahmed et al., 2020; Hajar & Musadik, 2021; Li et al., 2021; Zhang et al., 2022). In the present study, we used a different approach to studying the role of scarcity cues, where we argued that the combination of scarcity cues with FoMO and price sensitivity could encourage higher impulse buying. Moreover, the

findings may be helpful for new marketers operating in online media to maximize sales by understanding the characteristics of impulse-buying consumers and detecting their FoMO and price sensitivity to maintain sales performance and their brands in the future.

## Literature review

S-O-R (Stimulus-Organism -Response) mode (Mehrabian & Russell, 1974) and value theory (Gutman, 1982) are the frameworks we use to explain the relationship between FoMO, price sensitivity, and impulse buying behavior. This model provides a specific explanation of environmental factors (internal and external) as forming human behavior (Mehrabian & Russell, 1974), including for predicting consumer buying behavior. Both the internal and external environments are stimuli that can change consumer cognition and emotions (Y. Huang & Suo, 2021). in the context of online impulse buying, the stimulus is obtained from the urgency and anxiety caused by FoMO, which can result in a lack of consumer awareness of prices, pushing impulse buying intentions to a higher level. Moreover, external factors such as scarcity cues (i.e., scarcity in limited product and time) provide a more significant stimulus to the impulse behavior caused by FoMO.

On the other hand, value theory in consumer behavior is concerned with understanding the factors that influence consumers' perceptions of value and the role that these perceptions play in shaping their behavior. Value theory explains that consumers make decisions based on their perceptions of a particular product or service's value, considering price, quality, and convenience. Based on value theory, Gutman (1982) developed the Means-End Chain Model to explain consumer behavior. According to this model, consumers make decisions based on a hierarchy of values that link product attributes (e.g., quality, price) to consequences (e.g., personal satisfaction, social recognition), which in turn relate to higher-level personal values (e.g., self-respect, achievement). Perceived value can be influenced by various factors, including the consumer's previous experiences, social norms, and the marketing messages they receive from brands. Moreover, people judge a product's value based on its functional, social, emotional, and intellectual value. Impulse purchasing is when customers make purchases without giving them much thought or consideration. It may be motivated by hedonic or emotional impulses (e.g., FoMO) rather than a rational assessment (e.g., price sensitivity) to evaluate a product. Moreover, impulsive buying behavior may be driven by emotional or hedonic motives rather than rational evaluation of a product's functional value, especially when perceived risk is low or affective processes are more influential in decision-making.

### Fear of missing out, price sensitivity, and online impulse buying

Fear of missing out is a person's tendency to feel worried and anxious about losing experiences or opportunities considered essential or valuable. FoMO is an emotional pressure that causes individuals not to consider the long-term consequences of these purchases. When someone experiences FoMO, they may feel depressed and want to avoid feeling lost by buying something essential or trendy. This can lead to impulse buying behavior, in which a person buys goods or services without careful planning. For example, someone who feels FoMO might buy the latest popular product even though they do not need it or cannot afford it. This can cause long-term financial problems, especially if impulse buying behavior becomes habitual and repetitive.

FoMO and price sensitivity are two psychological factors often studied in consumer behavior research. FOMO refers to the anxiety or worries one misses out on a social experience or opportunity. In contrast, price sensitivity refers to how responsive consumers view prices,

especially the difference between the prices of similar or previous products. Although there are no studies that specifically examine the relationship between FOMO price sensitivity among consumers, this link might be explained as follows. First, customers may also be less price sensitive when strongly connecting to a brand, quality, and emotional attachment (Han et al., 2020; Walia et al., 2020; K. Zhang et al., 2020). In this case, the customer may have less attention to the price because of the emotional pressure and urgency caused by consumers' FoMO. Emotional values can affect consumer perceptions of product value and price. If a product has a substantial emotional value to consumers, they may be more willing to pay a higher price. In the context of FoMO and price sensitivity, perceived value comes from social and emotional causes customers have less awareness of price. Second, if customers feel that the product or service is essential, they may be less price sensitive and more willing to pay a premium. In the same vein, if the customer feels that the product or service is luxury or non-essential, they may be less sensitive on price and willing to pay a premium price. Research has shown that self-satisfaction needs can influence price perceptions among consumers. For example, a study by Kauppinen-Räisänen et al. (2018) found that consumers with high self-satisfaction needs (uniqueness, self-monitoring, social identity) are less sensitive to price. These consumers are more likely to focus on the value received from obtaining the product than its function, so they tend to be less aware of the price. Hence, drawing Means-End Chain Model (Gutman, 1982), consumers who experience FoMO are more likely to perceive a product as more valuable when associated with a social experience or opportunity.

**H1**: FoMO is negatively related to price sensitivity

Several studies have confirmed that FoMO is an essential predictor of impulse buying (Ahmed et al., 2020; Çelik et al., 2019; Zhang et al., 2022). For example, FoMO has proven to give rise to impulse buying during COVID-19 (Ahmed et al., 2020). Furthermore, the combination of fear of mission due to fear of lockdown and scarcity also gave rise to panic buying, especially commodity products. In the same vein, another study (Çelik et al., 2019) found that individuals who perceive FoMO have a higher tendency to buy products on impulse. In addition, impulse buying also raises post-purchase regret because purchases are in a hurry without considering the price and product quality factors when making a purchase, and focus more on the social and emotional experience obtained from the purchase. Moreover, Zhang et al. (2022) have also been confirmed to affect impulse buying of medical products and devices. This study also highlights the scarcity signal as a driving factor for FoMO, creating impulse buying behavior. Hence, impulse buying behavior is triggered by emotions and feelings such as FoMO, which makes a person feel pressured to buy something without rationally considering whether the purchase is necessary or according to their financial budget.

**H2**: FoMO is positively related to impulse buying

Price sensitivity refers to the extent to which consumers pay attention to the price of a product in purchasing decisions (Stefańska & Śmigielska, 2020). Highly price-sensitive consumers tend to buy a product or service when the price is low or when they find an attractive offer or discount (Hosseini et al., 2020; Xu & Huang, 2014). On the other hand, consumers who are less price sensitive tend to be less influenced by price changes in their purchasing decisions. Impulse buying, on the other hand, occurs when consumers buy products spontaneously without any prior planning. This situation can occur due to emotional factors such as the desire to satisfy particular desires or feelings that arise suddenly, which then encourage impulsive behavior (Aroean & Michaelidou, 2015; Dwivedi & Chaturvedi, 2020; Stefańska & Śmigielska, 2020; Yi &

Jai, 2020). Hence, a high level of price sensitivity will positively influence impulse buying. Furthermore, since FoMO has been proposed to influence price sensitivity (H1), and price sensitivity affects impulse buying (H3), we also look at the process relationship model created between FoMO to impulse buying through price sensitivity.

**H3**: Price sensitivity is significantly related to impulse buying behavior
**H4**: FoMO is indirectly related to impulse buying behavior via price sensitivity

### The role of scarcity cues

Scarcity cues indicate that a product or service is unavailable or will run out soon (Barton et al., 2022). This can increase the product's perceived value and make consumers feel compelled to buy it immediately before it runs out. Some examples of scarcity cues on online trading platforms include "only a few items left" messages, limited buying time, and limited edition products. Previous studies have confirmed scarcity cues are related to impulse buying (Ahmed et al., 2020; Hajar & Musadik, 2021; Li et al., 2021; Zhang et al., 2022) and FoMO (Huang et al., 2022; Zhang et al., 2022). Moreover, scarcity cues also have a relationship with perceived value. Consumers often perceive scarcity signals as high-value products because a product or service is limited in availability or supply. Thus, when consumers perceive that a product or service is scarce, they may value it more due to its exclusivity and desirability. Research has shown that scarcity cues can increase consumers' perceived value so that consumers are willing to pay higher ((Shi et al., 2020; Teubner & Graul, 2020). In this study, we argue that the effect of FoMO and price sensitivity on impulse buying will be more substantial when consumers receive scarcity messages.

**H5**: scarcity cues moderate the link FoMO and impulse buying
**H6**: scarcity cues moderate the link price sensitivity and impulse buying

## Methods

### Sample and procedure

The target sample is students at four private universities in Jakarta. A total of six lecturers were involved in the data collection process, and through them, the online questionnaire was distributed via WhatsApp groups. All respondents were involved voluntarily and obtained approval from their lecturers. A time-lag cross-sectional-based questionnaire was used in this study. Data were collected in two stages; first, respondents were asked to provide answers on personal information (gender, frequency of online purchases in the last three months, and age), FoMO, and scarcity cues. In this first stage, respondents with a purchase frequency of fewer than two times were not included in the second stage of the data collection process. Four hundred seventy-eight respondents from stage 1 were invited again based on the email recorded in the system to answer impulse buying and price sensitivity questions for stage 2. This separation is carried out to minimize respondents associating one variable with another, known as psychological separation (Podsakoff et al., 2012). Stage 2 received 392 responses, and after checking the completeness of the answers, the final sample in this study was 384 respondents.

Most respondents (75.26%) were female students, and 78.38% were undergraduates. 62.50% of respondents were management study program students, 34.63% were accounting, and 2.86% were not willing to answer information related to their major/primary. However, since primary related information will not be analyzed, we still include all respondents in the data analysis.

**Table 1.**
*Respondents' characteristics*

| | Frequency | Percent |
|---|---|---|
| Gender | | |
| Female | 289 | 75.260 |
| Male | 95 | 24.740 |
| Program | | |
| Undergraduate | 301 | 78.385 |
| Master/Magister | 83 | 21.615 |
| Major | | |
| Management | 240 | 62.500 |
| Accounting | 133 | 34.635 |
| n.a | 11 | 2.865 |

### Measurement

All scales used were adapted from previous studies to ensure validity and reliability. First, consumers' fear of missing out is measured using the 5-item (Kaur et al., 2020). Example item "Worried when others buy, while I do not." Second, price sensitivity is measured by eight items (Yue et al., 2020). Example item "When I choose a product, the price is the most important factor." Third, impulse buying is measured by a 3-item scale developed by Darrat et al. (2016) and retested by (Zhang et al. (2022). Example item "I often buy products without thinking." Finally, scarcity cues are measured with four items: time scarcity and product scarcity, two items each (Wu et al., 2021). Examples of items are "the product you purchased has a sales time limit" and "the number of products offered is limited." All respondents were asked to provide a 5-point Likert rating scale (1=never, 5=always).

Control variable. Since gender is often associated with impulse buying (Atulkar & Kesari, 2018; Cavazos-Arroyo & Máynez-Guaderrama, 2022; L. Zhang et al., 2021), we control this variable using the code (1 = male, 2 = female).

### Data analysis procedures

The first stage is to evaluate common method bias (CMB) to ensure data is free from bias because it from a single source (Podsakoff et al., 2012). The Harman' single factor is used (Kock et al., 2021). In the second stage, confirmatory factor analysis (CFA) was used to evaluate the scale with the Jamovi (The jamovi project, 2022); internal consistency is assessed by Cronbach alpha and composite reliability. Third, a moderating mediation procedure (MODMED) with macro process 4.0 (Hayes, 2017) was used to test the hypothesis. A 5000 samples were employed in the bootstrapping approach to provide a convincing and precise analysis (Hayes, 2017).

## Results and discussion

### Descriptive analysis

Preliminary descriptive statistical analysis provides an overview of the mean and standard deviation of all variables studied. As shown in Table 4, the mean score of the variable ranges from 2,868 to 3,574, which is at a moderate level when compared with a median score of 2.5. Furthermore, all standard deviations < mean score indicate that the variability of the data is relatively low.

**Table 2.**
*Descriptive analysis results and correlation matrix*

| No | | Mean | S.D | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| 1 | Gender | - | - | 1 | | | | |
| 2 | FOMO | 3.341 | 0.896 | -0.064 | 1 | | | |
| 3 | Price | 3.100 | 1.068 | 0.073 | -.149** | 1 | | |
| 4 | Impulse | 2.868 | 0.865 | 0.031 | .248** | 0.07 | 1 | |
| 5 | Scar | 3.574 | 0.765 | -0.039 | .171** | -.180** | .131* | 1 |

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Furthermore, the correlation between variables reported in Table 2 shows that FoMO has a significantly negative correlation with price sensitivity (r =--0.149, p < 0.01), positive with impulse buying (r =-0.248, p < 0.01), and scary cues (r = 0.171, p < 0.01). Price sensitivity is positively correlated but not significant with impulse buying (r = 0.07, p > 0.05) and significantly negative with scarcity cues (r =--0.180, p < 0.01). Impulse buying was found to have a positive and significant correlation with scarcity cues (r = 0.131, p <0.01). Gender in this study as a control variable displays various correlations with other variables, but none of these relationships is statistically significant.

**Table 3.**
*Moderation mediation analysis (macro process model 17)*

| | Coeff | SE | T | p | LLCI | ULCI |
|---|---|---|---|---|---|---|
| *Model 1:* price sensitivity | | | | | | |
| Gender | 0.158 | 0.125 | 1.258 | 0.209 | -0.089 | 0.404 |
| FoMo | -0.173 | 0.06 | -2.859 | 0.004 | -0.292 | -0.054 |
| *Model 2: impulse buying* | | | | | | |
| Gender | 0.102 | 0.098 | 1.047 | 0.296 | -0.090 | 0.295 |
| FoMO | 0.217 | 0.049 | 4.458 | 0.000 | 0.121 | 0.312 |
| Price | 0.095 | 0.040 | 2.340 | 0.020 | 0.015 | 0.174 |
| Scarcity | 0.154 | 0.057 | 2.682 | 0.008 | 0.041 | 0.267 |
| *Moderating* | | | | | | |
| Interaction 1 | 0.188 | 0.065 | 2.898 | 0.004 | 0.060 | 0.315 |
| Interaction 2 | 0.109 | 0.053 | 2.072 | 0.039 | 0.006 | 0.213 |
| *Mediation* | -0.016 | 0.009 | - | - | -0.038 | -0.002 |
| Index ModMed | -0.019 | 0.012 | - | - | -0.045 | -0.001 |

**Test for moderation and mediation**

Moderation and mediating procedures are analytical tools used to analyze complex models, where mediation and moderation tests are carried out in stages in one analysis process. First, gender as a control variable is not proven to affect price sensitivity and impulse buying significantly. Second, the hypothesis was tested using the bootstrapping procedure with 5,000 resamples with 95% confidence intervals (LL=lower limits; UL=upper limits). In Model 1, price sensitivity is the dependent variable. The analysis results show that FoMO negatively relates to

price sensitivity (β = -0.173, p <0.0; LLCI -0.292; ULCI -.0.54), supporting hypothesis 1. Model 2 places impulse buying as dependent. Based on Table 5, the coefficients of FoMO are positive and significant on impulse buying (β = 0.217, p < 0.05; LLCI 0.121; ULCI 0.312). Similarly, price sensitivity positively and significantly affects impulse buying (β = 0.095, p < 0.05; LLCI 0.015; ULCI 0.174). Hence, hypotheses 2 and 3 are supported.

Third, the moderation test of two interaction models. Interaction variable 1 (FoMO x scarcity cues) on impulse buying is significant (β = 0.188, p < 0.05; LLCI 0.060; ULCI 0.315). The interaction variable 2 (price sensitivity x scarcity cues) on impulse buying is also significant (β = 0.109, p < 0.05; LLCI 0.006; ULCI 0.213). Hence, the two moderation hypotheses have been supported. Finally, mediation analysis shows that the coefficient value is – 0.016 (LLCI – 0.038; ULCI – 0.002); the indirect effect has been supported since LLCI and ULCI are not zero.

**Table 4.**
*Conditional effect of FoMO and price sensitivity on impulse buying based on scarcities cues values*

| | Effect | SE | T | p | LLCI | ULCI |
|---|---|---|---|---|---|---|
| *FoMO as independent* | | | | | | |
| Low Scarcity cues | -0.073 | 0.074 | 0.988 | 0.324 | -0.072 | 0.218 |
| Mean Scarcity cues | 0.217 | 0.049 | 4.458 | 0.000 | 0.121 | 0.312 |
| High Scarcity cues | 0.360 | 0.065 | 5.582 | 0.000 | 0.233 | 0.487 |
| *Price sensitivity as independent* | | | | | | |
| Low Scarcity cues | 0.011 | 0.056 | 0.197 | 0.844 | -0.100 | 0.122 |
| Mean Scarcity cues | 0.095 | 0.040 | 2.340 | 0.020 | 0.015 | 0.174 |
| High Scarcity cues | 0.178 | 0.058 | 3.081 | 0.002 | 0.065 | 0.292 |

Table 4 then displays the conditional effect of FoMO and price sensitivity to impulse buying. Based on the comparison of the results, evidence was found that scarcity cues act as a moderator, strengthening the FoMO effect on impulse buying—specifically, the FoMO effect on impulse buying increases with increased scarcity cues (see Figure 2).

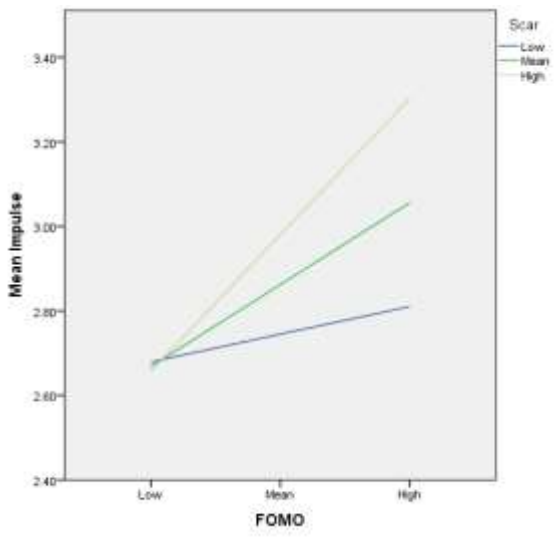


**Figure 2.**
*Conditional effect of FoMO on impulse buying base on scarcity cues value*

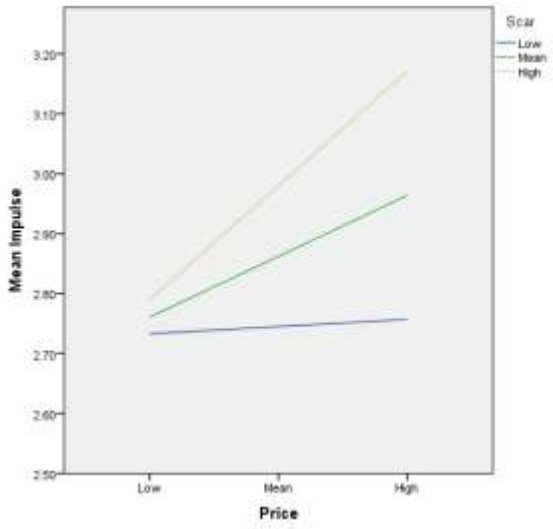


**Figure 3.**
*Conditional effect of price sensitivity on impulse buying based on scarcity cues value*

Similar findings were also obtained from the effect of price sensitivity on impulse buying, showing the role of scarcity cues as reinforcement. As shown in Table 6, the effect of price sensitivity on impulse buying dramatically increases along with the strengthening of scarcity cues (see Figure 3). The statistical evidence indicates that scarcity cues are an essential factor affecting the relationship between FoMO and price sensitivity on online impulse buying.

## Discussion

This study examines the effects of FoMO on price sensitivity and impulse buying, price sensitivity on impulse buying, and the moderating role of scarcity cues on the relationship. Based on two phases of data collection through questionnaires, 384 respondents who were university students in Jakarta were involved in this research. Overall, the relationship between FoMO, perceived value, and impulse buying behavior is well-established in consumer behaviors research, with the addition of this study uncovering the role of scarcity cues as a boundary condition in these relationships.

First, this study found a negative effect of FoMO on price sensitivity; this means that perceived FoMO on consumers is more likely to stimulate a decrease in price sensitivity. This study confirms that the anxiety and urgency generated from FoMO can increase the perceived value of a product or service, especially if the product is considered essential or valuable, to reduce the feeling of FoMO. In other words, when someone feels FoMO towards a particular product, they may be more likely to feel that the product's price is proportional to the social value obtained, so they are less sensitive to price and are willing to pay a higher price. Although there are no studies that specifically explore the relationship between FoMO and price sensitivity, this study supports the S-O-R mode (Mehrabian & Russell, 1974) and Means-End Chain Model (Gutman, 1982) which are the basis for thinking relevant to the relationship between the two. For example, the S-O-R mode provides a basis for justifying the internal environment (FoMO) as stimuli that can change consumer emotions. In the same vein, the Means-End Chain Model (Gutman, 1982) used in this study is also relevant to explain the relationship between FoMO and price sensitivity, where consumer price perceptions are closely related to personal satisfaction and social recognition), which in turn relates to higher -level personal values (e.g., self-respect, achievement). Hence, the results of this study provide new knowledge about a stimulus to price

sensitivity which previously was studied more from brand, quality, and emotional attachment (Han et al., 2020; Walia et al., 2020; Zhang et al., 2020).

Second, the results show that the FoMO has a significant positive impact on consumers' impulse buying, thus, supporting previous studies (Ahmed et al., 2020; Çelik et al., 2019; Zhang et al., 2022). In other words, when someone experiences FoMO, they tend to want to buy certain things that they believe will make them more involved in what is going on or make them more attractive in the eyes of others. The need to buy these goods appears suddenly and without careful planning, which triggers impulse buying behavior. For example, when someone sees his friends on social media posting statuses, photos, or videos of fun holidays, he feels anxious and worried that he does not experience the same thing. Individuals who experience FoMO tend to be burdened with meeting the needs of social recognition (external environment), so they may make purchasing decisions based more on emotion than needs. This study also supports the S-O-R mode (Mehrabian & Russell, 1974) and value theory (Gutman, 1982) framework, which logically explains purchasing decisions based on social needs and is based more on emotion.

Third, this study verifies that price sensitivity has a significant positive impact on impulse buying. This study extends the current understanding of the underpinnings of impulse buying on specific price sensitivity (Aroean & Michaelidou, 2015; Stefańska & Śmigielska, 2020). Unlike previous studies which directed the effect of impulse buying on price sensitivity (Aroean & Michaelidou, 2015; Stefańska & Śmigielska, 2020), this study succeeded in proving the opposite, where price sensitivity can be a predictor of impulse buying. In other words, when consumers are highly price sensitive, they tend to be more easily tempted to buy quickly, especially when they find an attractive offer or a low price. On the other hand, consumers with a low level of price sensitivity may not be swayed by similar discounts or offers, so impulse buying is less likely to occur to them.

Fourth, since H1 and H3 have been supported, the FoMO indirect relationship model on impulse buying through price sensitivity is also not supported. In the FoMO context, a person may be more inclined to buy products that are considered capable of satisfying wants without making rational considerations on price. This situation is because they need these products to get along and be accepted by their social environment. Therefore, the indirect relationship between FoMO and impulse buying through price sensitivity occurs when someone feels the need to have a product considered necessary by their social environment. Low price sensitivity makes them buy the product without considering the long-term consequences.

Finally, this study found that scarcity cues moderated the influence of FoMO and price sensitivity on impulse buying. Regarding the direction of the interaction variables (see Table 5), scarcity cues strengthen the effect of FoMO and price sensitivity to impulses. Previously, scarcity cues were more widely studied as antecedents of impulse buying (Ahmed et al., 2020; Hajar & Musadik, 2021; Li et al., 2021; Zhang et al., 2022) and also FoMO (Huang et al., 2022; Zhang et al., 2022). In the present study, we take a different perspective by consolidating and uncovering the role of scarcity cues in impulse buying, confirming its role as a boundary condition of FoMO and price sensitivity on impulse buying. Scarcity cues based on demand are information that indicates high demand but is not supported by supply and is therefore considered a popular product (Huang et al., 2020). In addition, consumers frequently use scarcity signals in their decision-making to infer the quality of service. For example, a restaurant full of visitors indicates both popularity and quality compared to a restaurant empty of visitors. This study provides convincing empirical support that scarcity cues can not only directly influence impulse buying but can also be effective moderators for other predictors (i.e., FoMO, price sensitivity). The empirical support presented in this study can provide new insights for developing impulse buying behavior models in the future.

**Managerial implications**

This study's findings inspire marketing management and online business practitioners. First of all, FoMO is a driver of price sensitivity and impulse buying. From this point on, marketers need to pay great attention to the factors that shape FoMO by utilizing social media; Consumers may

be more likely to make an impulse purchase if they see an advertisement or promotional post on their social media feed. Second, marketers need to pay attention to product appearance; a well-designed website that is visually appealing and easy to navigate may encourage consumers to impulse purchase. In addition, marketers need to maximize product review media on previous buyers. Consumers may be more likely to impulse purchase if they see positive reviews from other customers. Third, because scarcity cues are an essential driving factor for impulse buying, marketers can make two strategic choices: using limited-time offers and payment options strategies. Online retailers often use limited-time offers, such as flash sales or daily deals, to encourage impulse purchases. These time-sensitive offers create a sense of urgency and scarcity, making consumers more likely to purchase impulsively. Furthermore, the availability of different payment options, such as "buy now, pay later" or installment plans, can also encourage online impulse buying behavior.

## Conclusion

This research is intended to examine the effect of FoMO and price sensitivity on online impulse buying behavior and the moderating role of scarcity cues on these relationships. The results reveal that FoMO is positively related to price sensitivity and online impulse buying, and price sensitivity is positively related to impulse buying. Furthermore, the interaction effect of scarcity cues strengthens the FoMO and price sensitivity effect on impulse buying. This finding found that scarcity cues were a driving factor for price sensitivity and online impulse buying. This study has limitations, which may be a concern for future research. First, this study focuses on online impulse buying so that conventional buying behavior (e.g., store visits) cannot be applied. Future research could combine or explore specifically the differences in online and conventional impulse buying behavior. Second, the sample of this study is students or buyers aged between 19-25 years, so it does not reflect the preferences of more senior consumers. We also did not consider income levels, so online impulse buying in this study was studied more on simple products, not luxury products. Hence, future studies may consider income level/financial factors to investigate the relationship between FoMO and impulse buying. Third, the behavior learned in this study is post-purchase behavior, so there may be a bias in the context of the respondent's memory. In addition, the cross-sectional time-lag approach may still be a source of bias because the data are obtained from the same source. We suggest future studies use an experimental approach to investigate consumer impulse buying intentions and actual impulse buying.

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