

FoMO as Mediator of Flash Sales on Impulsive Buying: A Study Among Students in Social Commerce

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ABSTRACT

The growth of social commerce in Indonesia has transformed how students, most of whom are young people, engage with digital promotions, including flash sale strategies that can trigger impulsive purchases. This study aims to analyze the influence of flash sales on impulsive behavior with Fear of Missing Out (FoMO) as a mediator, using the Stimulus-Organism-Response (S-O-R) framework. The respondents in this study were 242 students and university students who are active e-commerce users in Bogor City who had participated in flash sales of beauty products through social media. Data was collected through an online survey and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4. The analysis results indicate that flash sales have a positive effect on FoMO and impulsive purchasing, and FoMO significantly mediates the relationship between flash sales and impulsive buying. These findings reinforce the role of social and emotional pressure in shaping digital consumer behavior and underscore the importance of digital literacy and promotional ethics among students and university students, who are predominantly digital natives. This research contributes theoretically to the development of the S-O-R model in the realm of social commerce and has practical implications, particularly for small and medium-sized enterprises (SMEs).

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INTRODUCTION

The growth of e-commerce in Indonesia over the past five years has shown a significant trend. The proportion of businesses selling online increased from 15.08% in 2019 to 41.15% in 2023, with dominant product categories including fashion, food and beverages, and beauty (Badan Pusat Statistik, 2019, 2020, 2021, 2022, 2023). Transaction value jumped from USD 25 billion to USD 62 billion, while the number of users increased from 38.72 million (2020) to 58.63 million (2023), and is projected to reach 99.1 million by 2029 (Kementerian Perdagangan, 2023). This transformation demonstrates a significant shift in Indonesian consumption patterns toward digital transactions.

The digital market was initially still dominated by conventional marketplaces such as Tokopedia and Shopee (Kementerian Perdagangan, 2023). However, Indonesia's e-commerce landscape is now evolving toward social commerce, integrating social media as a digital transaction platform. Indonesia itself was home to 143 million social media user identities as of January 2025, equivalent to 50.2% of the total population (Kemp, 2025). This growth opens up huge opportunities, especially among students and college students who are the digital native generation, to conduct online transactions through social media (Indrawati et al., 2023).

The phenomenon known as social commerce (s-commerce), is an evolutionary form of e-commerce that combines buying and selling activities with direct social interaction through digital platforms such as social media and instant messaging services, thus enabling two-way communication between sellers and buyers (Baghdadi & Pulparambil, 2025; Huwaida et al., 2024). In practice, s-commerce users not only interact with products but also actively engage in discussions, reviews, and share content that can influence other users' purchasing decisions. Platforms like TikTok, Instagram, and YouTube have become dominant channels for facilitating these interactions (Maghfiroh et al., 2023).

Social commerce is increasingly relevant in everyday life, especially for students who are quickly adapting to digital trends. For this group, online shopping is not only valued for its convenience but also as a form of self-expression (Theocharis et al., 2025). This is reinforced by the appeal of easy access, product variety, and promotional strategies such as flash sales and on-the-spot payments (Hossain et al., 2025; Yang & Yan, 2023). However, high intensity of digital exposure can also trigger impulsive purchases influenced by emotional and social pressures (Suyanto et al., 2025).

One of the effective promotional strategies in the digital ecosystem is the flash sale, which is a product offering for a limited time and in limited quantities that creates a sense of urgency through the perception of scarcity and perishability (Lamis et al., 2022; Martaleni et al., 2022). This urgency often triggers Fear of Missing Out (FoMO), which is the fear of missing out on an opportunity that is considered valuable because it has already been obtained by someone else (Kaddouhah, 2024). FoMO is triggered by the anticipation of regret and reinforced by social pressure from the surrounding environment, thus encouraging individuals to make immediate purchasing decisions because the product is assumed to be rare and of high value (Feng et al.,

2024). In this context, FoMO is one of the main triggers for impulsive buying, namely buying actions that are made suddenly, emotionally, and without careful planning (Lamis et al., 2022; Martaleni et al., 2022).

Previous research on s-commerce design shows that impulsive buying is triggered by various factors such as social support, system quality, and user content that create experiences that encourage unplanned purchases (Baghdadi & Pulparambil, 2025). Diani et al. (2021) also found that female students aged 17–21 often make impulsive purchases of fashion and beauty products, which often leads to dissatisfaction. In this context, social media plays a crucial role through influencer credibility, engaging visuals, and social interactions that shape perceptions of product trustworthiness and quality (Hossain et al., 2025). Indrawati et al. (2023) revealed that online reviews and recommendations (eWOM) also influence purchase intentions, but their limited predictive power suggests that other variables may be more influential in purchasing decisions in social commerce. This confirms that social commerce is not just a transaction medium but also a psychological space that influences consumption behavior.

To understand these dynamics, the Stimulus-Organism-Response (SOR) framework is used as a theoretical foundation. Within this framework, flash sales function as an external stimulus that influences the consumer's (organism's) internal state, such as emotions and cognitive perceptions, which then results in a response in the form of impulsive behavior (Feng et al., 2024; Zhang, 2024). Study from Martaleni et al., (2022) also shows that emotions can fully mediate the relationship between flash sales and impulse buying intentions.

Previous research has shown varying findings in explaining the psychological mechanisms linking promotional strategies to impulsive behavior. Some studies highlight hedonic and utilitarian motivations, while others emphasize emotional responses such as pleasure, arousal, and dominance. However, these approaches do not fully explain why digital natives, particularly students, are more susceptible to scarcity-based promotions in social commerce ecosystems that combine social interaction and online shopping activities, rather than just the broader e-commerce landscape. Theoretically, there is still room to expand our understanding of how social comparison theory interacts with the scarcity principle to trigger impulsive buying behavior. Furthermore, studies on FoMO generally focus on the psychological well-being of social media users, rather than on aspects of consumer behavior; while classical research on impulsive buying has not yet examined the influence of social comparison in today's digital context.

To address this gap, this study offers novelty by extending the SOR model by integrating social comparison elements into the FoMO mechanism, which serves as a mediator between flash sales and impulsive buying. The goal is to understand how flash sale characteristics trigger FoMO, the extent to which FoMO influences impulsive buying decisions, and whether FoMO significantly bridges the relationship between the two. The focus on high school and college students as a representation of digital natives is based on this group's high social media usage,

affinity for e-commerce promotions, and tendency to compare themselves with others online (Theocharis et al., 2025). Thus, this study not only broadens the theoretical foundation of digital consumer behavior, but also provides practical contributions to the development of more ethical and adaptive marketing strategies, as well as supporting digital literacy education policies and the protection of young consumers in the era of increasingly developing social commerce.

RESEARCH METHODS

The data for this study was collected from 242 respondents consisting of students who met the criteria as e-commerce users in Bogor City and had purchased beauty products through the Flash Sale feature. The operationalization of variables was conducted using a five-point Likert scale to assess the constructs. The instrument was developed based on relevant theoretical indicators to explore respondent perceptions of their shopping experiences.

The data analysis applied in this research is quantitative, using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS version 4 software. This method was chosen for its advantages in estimating predictive and exploratory models and its ability to handle non-normal data (Hair et al., 2020, 2022). The analysis was conducted in two stages: evaluation of the measurement model (outer model) to test validity and reliability, followed by evaluation of the structural model (inner model) to test the hypotheses.

RESULTS & DISCUSSION

Integrated Analysis of Digital Native Consumer Profiles. The empirical investigation, involving 242 active social commerce users in Bogor City, reveals a respondent profile dominated by the digital native generation. Based on the demographic data, the majority of participants are university students (76.45%) followed by high school students (23.55%), with a significant concentration in the 17–20 age range (52.07%) and 21–24 age range (37.19%). This demographic composition provides a unique vantage point for this research, as this segment exhibits high sensitivity toward social media trends and promotional triggers. The high intensity of digital interaction among these students creates a "psychological arena" where promotional tactics like flash sales are not merely seen as discounts but as social events requiring immediate participation to maintain peer-group relevance (Theocharis et al., 2025; Kemp, 2025).

Measurement Model Rigor and Validity Justification. The evaluation of the measurement model was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) to ensure that the constructs met international standards of reliability and validity. In the initial stage, indicator refinement led to the removal of two items (FS5 and FS10) from the Flash Sale construct because their loading factors were below the required threshold, thereby enhancing the overall model fit (Hair et al., 2019). Subsequent analysis confirmed that all remaining

indicators possessed strong convergent validity, with factor loadings exceeding the recommended level (Hair et al., 2022).

Internal consistency across all constructs was found to be robust. Fear of Missing Out (FoMO) and Impulsive Buying exhibited high reliability with Cronbach’s alpha and Composite Reliability (CR) values well above 0.85. Fornell and Larcker (1981) and Hair et al. (2022) suggest an Average Variance Extracted (AVE) threshold of 0.50; in this study, FoMO (0.686) and Impulsive Buying (0.522) easily met this criterion. Notably, while the Flash Sale construct yielded an AVE of 0.407, its inclusion remains statistically justified. According to the foundational logic of Fornell and Larcker (1981), supported by the findings of Lam (2012), a construct with an AVE below 0.50 is still considered to have adequate convergent validity provided its CR is higher than 0.60. Given that the Flash Sale construct achieved a CR of 0.844, it remains a valid and reliable predictor within the model. Discriminant validity was further verified using the Heterotrait-Monotrait (HTMT) ratio, where all values were below the conservative 0.85 threshold, proving that the three constructs are conceptually distinct (Hair et al., 2019; Hair et al., 2022).

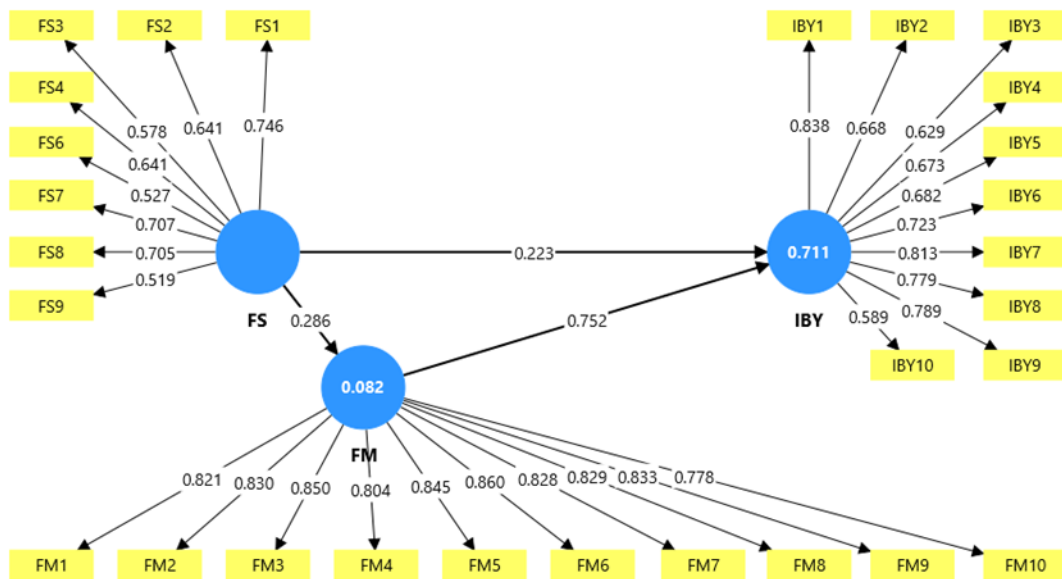


Figure 1. Construct diagram of flash sale, FoMO, and impulsive buying variables in SmartPLS

Structural Dynamics and the Predictive Power of S-O-R. The structural model evaluation confirms the strength of the proposed Stimulus-Organism-Response (S-O-R) framework in the social commerce context. The model explains a substantial 71.1% of the variance in Impulsive Buying behavior (R-square = 0.711). This strong predictive power exceeds common benchmarks in behavioral science, indicating that the combination of promotional stimuli and social-psychological states is a dominant driver of spontaneous consumption among digital natives. Furthermore, the absence of multicollinearity issues—with Variance Inflation Factor

(VIF) values ranging between 1.331 and 3.494—ensures the stability of the path estimates (Hair et al., 2022).

Hypothesis testing through bootstrapping reveals that Flash Sales exert a positive and significant influence on both FoMO ($\beta = 0.286$, $p < 0.001$) and Impulsive Buying ($\beta = 0.223$, $p < 0.001$). However, the most striking finding is the powerful impact of FoMO on Impulsive Buying ($\beta = 0.752$, $p < 0.001$). These coefficients indicate that while marketing stimuli (Flash Sales) initiate the process, the internal psychological state of the consumer (FoMO) is the primary engine driving the final behavioral response. The mediation analysis further confirms that FoMO acts as a significant partial mediator ($\beta = 0.215$, $p < 0.001$), effectively bridging the gap between external sales pressure and unplanned purchasing decisions.

Synthesis: FoMO as the Psychological Engine of Social Commerce. The novelty of this study lies in its identification of FoMO as a critical psychological mediator that is more influential than the promotional stimulus itself. This finding advances the S-O-R theory by demonstrating that in highly interactive social commerce environments, the "organism" (internal state) carries more weight than the "stimulus" (external promotion). While previous research by Gusriani et al. (2026) in Bogor emphasized the role of "spontaneity" as a mediator for skincare purchases, our results specifically highlight the "social anxiety" aspect represented by FoMO. This suggests that for students, the fear of missing a trend or being excluded from a shared peer experience is a stronger catalyst for impulsivity than the actual financial discount offered in a flash sale.

Our findings align with the "Scarcity Theory" of Cialdini (2009), which posits that time and quantity limitations increase the perceived value of an object. However, this study adds a social dimension to that theory: in s-commerce, scarcity is not just a logistical constraint but a social trigger. The significant path from Flash Sale to FoMO confirms that limited-time offers deliberately provoke anticipated regret (Kaddouhah, 2024; Feng et al., 2024). This is consistent with Karunia et al. (2025), who noted that FoMO amplifies the effect of promotional cues in Indonesia's digital landscape.

Furthermore, the high impact of FoMO on impulsivity ($\beta = 0.752$) supports the Social Comparison Theory (Festinger, 1954), showing that digital natives constantly evaluate their status through consumption. The "real-time" nature of social commerce—characterized by viral content and social proof—intensifies this comparison, making impulsive buying a mechanism to alleviate the anxiety of being "left behind" (Przybylski et al., 2013; Kaddouhah, 2024).

Theoretical and Practical Contributions. Theoretically, this study contributes to the literature by integrating FoMO into the S-O-R model specifically within the burgeoning field of social commerce. It provides empirical evidence that psychological triggers related to social exclusion are paramount in explaining impulsive behavior in digital natives. Practically, the results suggest that for MSMEs to succeed in social commerce, they must go beyond simple discounting and focus on creating "exclusive social experiences" that leverage urgency and social proof. However, the study also highlights a critical ethical implication: the exploitation

of FoMO can lead to post-purchase dissatisfaction (Diani et al., 2021). Thus, digital retailers should balance aggressive promotion with ethical engagement to foster long-term brand loyalty rather than short-term impulsive gains.

CONCLUSION & SUGGESTION

This study analyzes the influence of flash sales on impulsive buying behavior among college students using e-commerce in Bogor City, with fear of missing out (FoMO) serving as a mediator. A PLS-SEM analysis of 242 students revealed that flash sales encourage FoMO, which directly and indirectly influences impulsive buying behavior. FoMO is a powerful psychological mechanism that bridges the gap between the influence of urgency-based promotional strategies and consumption decisions. These findings align with the Stimulus-Organism-Response (S-O-R) framework, which positions flash sales as a stimulus, FoMO as a consumer's psychological state, and impulsive buying as a behavioral response.

Theoretically, this study strengthens the relevance and applicability of the S-O-R model in the context of digital marketing and broadens the understanding of the role of FoMO as a psychological mediator. Practically, this research finding can provide strategic guidance for micro, small, and medium-sized enterprises (MSMEs) in adapting digital promotions that are effective and ethical. However, low digital literacy among young consumers is a challenge that requires ongoing education. A two-pronged approach encompassing consumer empowerment and business capacity building is essential for building an inclusive and sustainable social commerce ecosystem.

This study makes a significant contribution to the field by offering an in-depth examination of the impact of promotional strategies on impulsive buying behavior through the psychological mechanism of FoMO. However, it is important to note that the study is not without its limitations, which require careful consideration to ensure its overall robustness. While a focus on students and college students can be a strength in understanding the digital behavior of the younger generation, it can also limit the generalizability of the results to a broader demographic. Moreover, the present study examined a specific type of promotion, namely flash sales, leaving room for exploration of other promotional variations. The selection of FoMO as a mediating variable may also provide relevant insights; however, further research could consider other psychological factors to broaden our understanding of the impulsive buying decision process.

For the future research, it is recommended that researchers employ a more diverse array of approaches, including interviews or direct observation, to capture the emotional and motivational aspects of consumers. The scope of research could be expanded to encompass diverse geographical regions, varied age demographics, and a more extensive array of products. The implementation of state-of-the-art technologies, including artificial intelligence and digital data analysis, has the potential to yield significant advancements in the scope and depth of the results obtained. Additionally, the implementation of the model across a range of digital

promotional strategies and various social media platforms could offer a more comprehensive understanding of the efficacy of online marketing methodologies. The researchers also anticipate that subsequent studies will concentrate on the context of micro, small, and medium enterprises (MSMEs) to assess the real-world impact of digital promotion strategies on consumer behavior and business sustainability in this sector.

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