

Click, Ship, Regret: E-Commerce Strategies Behind Compulsive Fashion Buying

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ABSTRACT

E-commerce has become a widely used platform around the world to obtain fashion products in an easy and efficient way. However, there is a negative impact on consumer behaviour, namely excessive consumption. It can harm the environment and consumers' mental health if not addressed. The research aimed to examine the roles of free shipping and Cash on Delivery (COD) in Fear of Missing Out (FOMO) and compulsive buying, as well as the mediating role of FOMO on e-commerce sites such as Shopee, Tokopedia, Lazada, and Zalora. A quantitative approach was used, with an online survey via Google Forms distributed via social media such as WhatsApp, Instagram, and Facebook, involving 467 e-commerce customers selected through purposive sampling. Data were analyzed using Structural Equation Modeling Partial Least Squares (SEM-PLS). The results show that free shipping does not significantly encourage FOMO or compulsive buying. In contrast, the COD feature has a significant impact on FOMO and compulsive buying. In addition, FOMO positively mediates the relationship between COD and compulsive buying, but not between free shipping and compulsive buying. These findings make important contributions to the theory of FOMO and compulsive buying in e-commerce, to consumer and e-commerce education on digital marketing strategy algorithms, and to the development of environmentally friendly waste management strategies. The research is particularly novel in the context of Indonesian e-commerce, as it simultaneously examines four. Furthermore, FOMO is tested as a mediating variable.

Keywords: free shipping, Cash on Delivery (COD), Fear of Missing Out (FOMO), compulsive buying, e-commerce

INTRODUCTION

Compulsive buying in fashion e-commerce is on the rise due to technology, social media, and smartphone use, which encourage convenience and impulsivity (Lau, 2024). Short-term trends and visual stimuli on social media encourage unnecessary purchases (One World Direct, n.d.). This overconsumption damages the environment through textile waste, plastic use, and

carbon emissions (Net Impact, n.d.; Millstein, 2026). According to the World Economic Forum, e-commerce packaging accounts for 165 billion packages annually, and this number is expected to continue to grow as e-commerce platforms such as Shopee, Tokopedia, Lazada, and others expand (EARTH5R, n.d.). For example, Amazon alone generated 465 million pounds of plastic packaging waste into the ocean in 2019. This waste included air pillows, bubble wrap, and other

plastic packaging items added to the approximately 7 billion Amazon packages shipped in 2019 (Oceana, 2024). Therefore, the packaging waste generated by online fashion shopping has a significant impact on the environment (Koul & Jasrotia, 2025). Moreover, around 70.59% of respondents experience impulsive online shopping behavior, especially among young adults who frequently access e-commerce platforms such as Tokopedia and Shopee (Aluwi, 2023). A survey by Populix reveals that 67% of Indonesians are exposed to compulsive buying behavior (Hayashi, 2023). Fashion e-commerce also encourages over-purchasing through model photos, influencer promotions, and limited-time offers, which can lead to unused items and personal debt (Fuqoha & Firmansyah, 2023).

Meanwhile, psychological factors, such as Fear of Missing Out (FOMO), play a significant role in purchasing decisions for fashion products, particularly among younger generations who are driven to follow Outfit of the Day (OOTD) trends on social media (Ananda et al., 2023). Platforms, like Instagram, TikTok, and Shopee Live, intensify FOMO by showcasing the latest fashion trends and making consumers feel the urgency to buy so they do not miss out (Bekman, 2022). Despite the rise of digital payments, Cash on Delivery (COD) remains popular for fashion purchases, especially among consumers who remain skeptical about the authenticity or quality of products sold online (Shandilya, 2024). At the same time, promotions, such as free shipping and flash sales on platforms like Shopee, have proven effective in increasing purchase interest in fashion products, triggering impulsive buying decisions, and driving sales spikes (Andriyana et al., 2024).

Recent studies on the drivers of overconsumption or compulsive buying remain largely limited to content-based triggers, such as videos, photos, influencers, and live streaming in the context of mukbang commerce in China (Lee & Wan, 2023), as well as the use of Buy Now, Pay Later (BNPL) in New Zealand (Ah Fook & McNeill, 2020). In Indonesia, Pay Later services are popular among Gen Z consumers, driven by digital financial literacy, self-control, and promotional campaigns (Juita et al., 2023). In China, live streaming in e-commerce has become a prominent factor (Sun & Bao, 2023), while in Vietnam, cashless payments and consumer mindfulness are significant (Doan et al., 2024). Shopping frequency has been shown to influence behaviour in Poland (Brojak-Trzaskowska et al., 2022), personality traits such as trigunas in India (Kakkar et al., 2022), while mental health and consumption behaviours during the pandemic have impacted consumers in the United States, Ecuador, and Dhaka (Kabir et al., 2022). Materialism and mindful consumption also shape behaviour in Sri Lanka (Wickramasekara & Jayawickrama, 2022; Rais et al., 2025).

Furthermore, excessive consumption is commonly linked to Compulsive Buying Disorder (CBD) and shopping addiction (Sohn & Choi, 2014),

while dark patterns in e-commerce have influenced digital consumption patterns, as observed in Singapore (Koh & Seah, 2023). In the meantime, FOMO in e-commerce and social media platforms across China, India, Malaysia, Thailand, Vietnam, Surabaya, and Pakistan is influenced by several factors, including flash sales, social self-efficacy, covert narcissism, social comparison, consumer susceptibility to interpersonal influence, social media addiction, self-control failure, scarcity perception, hedonic motivation, live streaming, informational incentives, novelty seeking, visual appeal, price, product variety, influencers, and self-esteem (Nasr et al., 2023; Febrianty et al., 2025; Mahmud et al., 2023; Hakim & Farid, 2025; Doan et al., 2023).

Although FOMO, COD, and free shipping have been identified as important factors in purchasing decisions, most research still focuses on general consumer behavior. Then, the influence of COD, free shipping, and psychological factors such as FOMO on impulsive/compulsive behavior in e-commerce remains relatively understudied. This situation is particularly relevant in Indonesia, which has become the world's 8th largest e-commerce market, with projected revenues exceeding USD 100 billion by 2025 (Uzunoglu, 2024). Therefore, the proposed research question is: Do COD, free shipping, and FOMO contribute to compulsive buying on e-commerce, particularly in fashion products? The research offers a novel contribution to the compulsive buying literature, especially within the context of Indonesian e-commerce, by simultaneously examining four variables: COD, free shipping, FOMO, and compulsive buying of fashion products. Moreover, FOMO is tested as a mediating variable. The research is expected to enrich the psychological marketing literature on compulsive buying and serve as a guide for consumers to recognize the drivers of overconsumption in e-commerce, thereby promoting more mindful and informed consumption of fashion products.

Free shipping has been identified as a highly effective strategy to boost sales and enhance customer satisfaction (Oláh et al., 2023). It can strengthen brand trust, which ultimately influences loyalty and repurchase intentions (Anindya et al., 2025). Free shipping incentives positively influence consumer purchase decisions, especially among consumers with narcissistic traits. Around 58% of consumers reportedly add more items to their cart to qualify for free shipping (Yendola & Windasari, 2023). The dimensions of free shipping include increased purchase volume, cost savings, shopping convenience, positive emotional responses, and a tendency to buy when shipping is free (Astuti & Susila, 2022). Furthermore, 9 out of 10 consumers prefer to shop online when free shipping is available, leading to an average 30% increase in order volume, according to sellers (Humairoh & Annas, 2023).

Meanwhile, FOMO is a psychological phenomenon characterized by anxiety or unease that others may be enjoying rewarding experiences in

one's absence (Przybylski et al., 2013). In the context of e-commerce, FOMO arises when consumers feel they may miss out on time-limited or quantity-limited opportunities, such as flash sales or exclusive promotions (Aziz et al., 2025). This emotional response often leads individuals to stay connected with others' activities, particularly via social media and digital platforms (Brailovskaia & Margraf, 2024). During the COVID-19 pandemic, FOMO has been associated with negative emotional outcomes such as anxiety, stress, and even depressive symptoms, especially among young adults and university students (Dong et al., 2024). FOMO can also lead to compulsive behaviours, such as addictive use of social media, as individuals strive to stay updated and included in social or informational circles (Jabeen et al., 2023). When e-commerce frames free shipping as a limited-time offer or ties it to a minimum purchase threshold, it creates a sense of urgency and scarcity (Bartosiak et al., 2025). It directly triggers FOMO, as consumers fear missing out on a deal that may not be available later (Zahoor, 2022).

Moreover, the effect of free shipping on consumer behaviour varies depending on the social context, platform, and promotional strategy. Free shipping promotions on TikTok significantly stimulate FOMO-driven behaviour in Surakarta, Indonesia (Vitara & Sari, 2024). On Shopee, free shipping increases FOMO and purchase decisions among consumers in Surabaya (Gunawan et al., 2024). In contrast, in Texas, the accessibility of free shipping is more closely tied to materialistic values that align with FOMO tendencies (Sun et al., 2022). In West Java, Indonesia, the framing of "free shipping" for Wardah products creates a perception of greater value, leading to more impulsive consumption rather than FOMO (Rosadi et al., 2024). Conversely, another Shopee-based study finds that perceived value from such promotions does not correlate with FOMO but rather with practical purchasing motivations (Prayitno, 2023). The first hypothesis is proposed as follows.

H1: Free shipping has a significant effect on FOMO

The COD is a payment method in which the customer pays at the time of delivery, using cash, a card, or an e-wallet, depending on the seller's policy. The buyer is required to pay in full upon receiving the item (Hamed & El-Deeb, 2020). COD is regarded as the most preferred method, facilitating easy returns, increasing shopping confidence, and allowing customers to inspect products before payment. COD reduces perceived risk and friction, encouraging FOMO-driven purchases by making it easier to act on limited-time offers (Surya & Nasution, 2025). While this situation can boost sales and conversions, it may also lead to impulsive buying and high return rates (Nasution & Surya, 2025). COD combined with FOMO is effective in low-trust markets (Prastyanti & Rusdiana, 2023) and influences consumer behaviour across regions and platforms like Shopee and

Tokopedia (Nampira & Chairy, 2022). COD is linked to instant gratification (Yulianto et al., 2021), though its effect on FOMO may vary by segment, such as showing no influence among some female consumers (Bakar et al., 2025). Further studies are needed to examine moderating factors. Hence, the second hypothesis is as follows:

H2: COD has a significant effect on FOMO

Compulsive buying, also known as CBD, refers to a behavioural addiction characterized by an overwhelming urge to shop and an inability to control excessive purchases, often resulting in significant distress or impairment in personal, social, or financial functioning (Rachubińska et al., 2024). Individuals with CBD repeatedly make purchases despite negative consequences and often feel unable to stop (Rachubińska et al., 2024). According to David et al. (2024), shopping is frequently used as a coping mechanism for negative emotions such as anxiety, depression, or stress. Feelings of guilt, shame, or regret typically follow compulsive buying episodes (Laskowski et al., 2024). Some studies have found a higher prevalence among women who shop online, although it is not universally observed (Basit et al., 2024).

On the other hand, free shipping vouchers reduce perceived costs and purchase risks, thereby increasing consumers' motivation and interest in shopping more frequently and uncontrollably (Ramdhani & Maulina, 2023). Free shipping, when combined with flash sales, contributes significantly to impulsive buying behaviour among Gen Z (Aqsa et al., 2024). Moreover, free shipping, combined with other promotional offers, contributes to a hedonic shopping experience and drives spontaneous buying behaviour among young consumers (Verawati, 2025). Such incentives have become normalized and often account for a substantial portion of total online shopping activity, including among Muslim consumers in West Java (Yudha et al., 2025). However, not all studies show a positive effect. In some contexts, free shipping has no significant impact on purchasing decisions due to high product prices or complicated purchase processes (Humairoh & Annas, 2023). Additionally, free shipping is also found to have no significant impact on compulsive buying among university students in Jakarta (Laksmawan & Handayani, 2024). The third hypothesis is suggested as follows:

H3: Free shipping has a significant effect on compulsive buying

The COD is commonly viewed as a boon for consumers, making online shopping more accessible, especially for individuals who are hesitant about digital payments or who have limited access to credit (Yulianto et al., 2021). Payment methods that delay or reduce the "pain of paying", such as COD, credit cards, or BNPL options, can weaken self-regulation

mechanisms, thereby making it easier for individuals to engage in impulsive and compulsive spending (Bakar et al., 2025). COD, in combination with other e-commerce features such as free shipping, has been shown to positively influence consumer behaviour among students, including impulsive buying (Rugu & Setyorini, 2024). COD may support cycles of compulsive shopping among Chinese consumers (Wang & Zhai, 2022). However, other studies suggest that COD does not significantly increase impulsive buying compared to other payment methods. In fact, for some consumers, COD may foster greater self-control and reduce negative feelings post-purchase, possibly because payment is only made after physically inspecting the product (Bakar et al., 2025). The fourth hypothesis is as follows:

H4: COD has a significant effect on compulsive buying

FOMO triggers obsessive attachment to brands as symbols of social belonging, thereby promoting compulsive buying behaviour as individuals attempt to avoid social exclusion (Hussain et al., 2023). Socially excluded individuals may resort to compulsive buying to mimic their peers' consumption patterns, with FOMO acting as a mediating factor (Mert & Tengilimoğlu, 2023). FOMO is positively correlated with anxiety, depression, and materialism, which exacerbate compulsive buying tendencies as a form of emotional coping (Hussain et al., 2023). FOMO has also been found to significantly drive excessive consumption through social media marketing, parasocial relationships, and digitalization (Sijabat, 2024). Additionally, FOMO significantly influences impulsive buying behaviour (Jumarni & Azhar, 2025).

However, contradictions exist. Financial literacy may amplify the effects of FOMO among adolescents in Jakarta, raising questions about whether such knowledge mitigates or exacerbates compulsive consumption (Putri et al., 2024). Furthermore, previous research on Muslim women's cosmetic purchasing decisions reveals a gender gap in FOMO-related studies, with limited exploration across other demographic groups (Permana et al., 2023). FOMO's impact is frequently studied on platforms such as TikTok and live streaming (Kao & Huang, 2025), without cross-platform comparisons. Geographic limitations are also evident, as most studies focus on urban settings such as Jakarta and China (Putri et al., 2024), leaving rural areas understudied. Finally, the cultural implications of FOMO in Indonesia have yet to be compared across other cultural or social contexts, indicating opportunities for future cross-cultural research (Sijabat, 2024). The fifth hypothesis is as follows:

H5: FOMO has a significant effect on compulsive buying.

FOMO has been shown to significantly mediate excessive buying behaviour by amplifying consumers' urgency to acquire trendy or exclusive products, particularly through social media platforms (Charandas & Tiwari, 2022). In Indonesia and Turkey, individuals experiencing FOMO are more likely to engage in impulsive purchases to avoid feelings of exclusion or regret (Solaiman & Pangaribuan, 2024; Kim & Wongs, 2025). FOMO is found to mediate impulsive buying behaviour for fashion-related products, especially when consumers are influenced by social media and peer pressure (Mahmud et al., 2023). In China, FOMO positively correlates with the influence of fashion influencers on excessive purchasing decisions (Koren et al., 2024). Similarly, research in Germany reveals that social media intensifies FOMO by constantly showcasing others' purchases and experiences, triggering consumer anxiety about missing out on social opportunities (Bekman, 2022; Hussain et al., 2023). FOMO also encourages conspicuous consumption, contributing to excessive buying as individuals seek validation and a sense of belonging within their social circles (Oktavia, 2024). While international studies have explored the mediating role of FOMO in various contexts, Indonesian research remains limited, often focusing only on impulsive buying and neglecting excessive buying behaviour in broader e-commerce contexts. The sixth and seventh hypotheses are as follows:

H6: COD has a significant effect on compulsive buying mediated by FOMO

H7: Free Shipping has a significant effect on compulsive buying mediated by FOMO

METHODS

The research uses a quantitative online survey with purposive sampling, targeting Indonesian consumers who have purchased fashion products from e-commerce sites with a strong fashion focus, including Shopee, Tokopedia, Lazada, and Zalora. Data are collected via a Google Forms questionnaire distributed through Instagram, Facebook, X (Twitter), and WhatsApp between December 2024 and April 2025. To ensure that respondents meet the research criteria focusing on fashion product purchases, validated screening questions are included in the questionnaire. These questions are: Have you ever purchased fashion products from an e-commerce platform? Have you ever purchased fashion products from an e-commerce site that you do not actually need? Only individuals who answer "yes" to the first question are directed to the next page, while those who answer "no" receive a thank-you message. A total of 553 responses are collected, of which 467 responses (87%) meet the criteria, while the remaining are deemed inconsistent with the defined guidelines.

A Likert scale is employed, ranging from 1 (strongly disagree) to 5 (strongly agree). The research

utilizes four operational variables. COD is measured with items such as best payment method, most preferred payment method, ease of product returns, increased shopping confidence, and unboxing before payment (Hamed & El-Deeb, 2020). Free shipping is measured by factors such as increased purchase volume, cost savings, shopping convenience, a good feeling, and a tendency to buy with free shipping (Astuti & Susila, 2022). FOMO is measured using scales such as fear that others have more valuable experiences, fear that friends have more valuable experiences, the importance of understanding friends' jokes, and the importance of sharing fun moments online (Przybylski et al., 2013). Compulsive buying is measured with items such as finding it hard to pass up deals, feeling guilty after buying, buying out of desire rather than necessity, feeling very excited if it is what they want, buying all the products in their carts, and buying without thinking if there are promotions and discounts (Ah Fook & McNeill, 2020).

The data are analyzed using Partial Least Squares-based Structural Equation Modeling (PLS-SEM) with SmartPLS software (Sarstedt et al., 2022; Hair & Alamer, 2022). The analysis follows two stages: the outer model (measurement model) to assess

construct reliability and validity using factor loadings (>0.70), Composite Reliability (CR) (>0.70), Average Variance Extracted (AVE) (>0.50), and discriminant validity with Heterotrait–Monotrait (HTMT) ratio (<0.90). The inner model (structural model) evaluates hypothesized relationships using path coefficients (β), R^2 (≥ 0.25), and bootstrapping (5,000 resamples) to test significance (t -value > 1.96 ; $p < 0.05$).

RESULTS AND DISCUSSION

Table 1 shows that most respondents are female (61.9%), aged 28–45, and students (43.7%) with at least a bachelor's degree (56.5%). Shopee is the most used platform (78.0%), with mobile banking (45.0%) and COD (31.9%) as the preferred payment methods. These patterns reflect the habits of educated, tech-savvy consumers in their productive years who value convenience and security in online fashion shopping.

Next, the measurement model demonstrates strong validity and reliability. Convergent validity is confirmed with factor loading >0.7 and >0.5 (Hair & Alamer, 2022). CR and Cronbach's alpha values exceed 0.7, indicating internal consistency (Henseler & Schuberth, 2020). Thus, the model is

Table 1 Respondents' Demographics

Classification	Category	Total	%
Gender	Female	289	61.9
	Male	178	38.1
Age	16–21	56	12.0
	22–27	93	19.9
	28–33	107	22.9
	34–39	89	19.1
	40–45	101	21.6
	46–51	9	1.9
	52–57	6	1.3
	> 58	6	1.3
Job Type	Student	204	43.7
	Government employees	42	9.0
	Private sector employees	117	25.0
	Self-employment	104	22.3
Formal Education Level	High school	100	21.4
	Bachelor's degree	264	56.5
	Master degree	88	18.9
	Doctoral degree/Ph.D	15	3.2
E-commerce Platform Often Used	Lazada	3	0.6
	Tokopedia	98	21.0
	Shopee	364	78.0
	Zalora	2	0.4
Preferred Payment Method	Cash on Delivery (COD)	149	31.9
	E-wallet	87	18.6
	Mobile banking	210	45.0
	Credit card	21	4.5

Source: Authors' Creation (2025)

valid and reliable, with all loadings > 0.70 , CR > 0.70 , AVE > 0.50 , and Cronbach's alpha > 0.70 (see Table 2 and Figure 1). Moreover, the Standardized Root Mean Square Residual (SRMR) value of 0.07 indicates a good fit between the hypothesized model and the observed data, as it is below the recommended threshold of 0.08. Additionally, the Normed Fit Index (NFI) value of 0.90 shows that the model has strong explanatory power and fits the data well, meeting the standard cutoff for acceptable model fit (Sarstedt et al., 2022). Together, these indices confirm that the structural model is well-specified and suitable for hypothesis testing.

Next, the researchers assess the extent to which the relationships between constructs in the structural

model by examining path coefficients and R^2 . The evaluation of the structural model uses SmartPLS bootstrapping ($n = 467$) to assess path significance and model fit. Path coefficients and R^2 values indicate the model's explanatory power, with R^2 values of 0.131 for FOMO and 0.322 for compulsive buying, both considered acceptable (Hair & Alamer, 2022). The R^2 value of 0.131 indicates that COD and free shipping explain 13.1% of the variance in FOMO. Meanwhile, the R^2 value of 0.322 shows that COD, free shipping, and FOMO jointly explain 32.2% of the variance in compulsive buying behavior, indicating a moderate and acceptable level of explanatory power in consumer behavior research. The results can be seen in Table 3 and Figure 1.

Table 2 Results of Factor Loading (FL), Composite Reliability (CR), Average Variance Extracted (AVE), Cronbach's alpha (CA) of the Research Indicators

Variable	Instrument	FL	CR	AVE	CA
Cash on Delivery (COD) (Hamed & El-Deeb, 2020)	CoD1. COD is the best/always chosen payment method in e-commerce CoD2. The COD facility makes it easy to return products if they are damaged or not suitable CoD3. Using COD payment increases confidence in shopping CoD4. COD provides an opportunity to unbox the product and pay	0.852 0.838 0.909 0.838	0.919	0.739	0.887
Free Shipping (Astuti & Susila, 2022)	Fs1. If there is a free delivery facility, it increases the number of purchases Fs2. It is more cost-effective if there is a free shipping feature Fs3. The convenience of shopping on e-commerce increases if there is free shipping Fs4. I feel happy if there is free shipping Fs5. The free shipping feature tends to encourage accelerated purchases in e-commerce	0.862 0.893 0.899 0.882 0.878	0.916	0.601	0.877
Fear of Missing Out (FOMO) (Przybylski et al., 2013)	Fm1. I feel FOMO about experiences that others enjoy or items that are trending in e-commerce Fm2. I fear losing the pleasure or satisfaction that others have felt when shopping in e-commerce Fm3. I feel afraid of being left behind in sharing e-commerce shopping experiences on social media Fm4. I fear running out of stock and limited-time promotions	0.913 0.907 0.906 0.828	0.938	0.791	0.901
Compulsive Buying (Ah Fook & McNeill, 2020)	CB1. If there is a promotion/discount in e-commerce, I find it difficult to miss the offer and buy immediately CB2. I feel guilty and regret buying products on e-commerce CB3. I often buy products in e-commerce due to desire (eye hunger) rather than need CB4. I will buy all the products in my cart CB5. I often buy products in e-commerce without thinking and looking at prices, if there are promotions and discounts	0.836 0.738 0.823 0.741 0.821	0.882	0.690	0.830
Standardized Root Mean Square Residual (SRMR)		0.070			
Normed Fit Index (NFI)		0.900			

Source: Authors' Creation (2025)

Table 3 Results of R2 Value

Variable	R ²	Interpretation
Fear of Missing Out (FOMO)	0.131	Weak (acceptable)
Compulsive Buying	0.322	Moderate (acceptable)

Then, discriminant validity is confirmed using the square root of AVE and HTMT. All indicator loadings are higher than their respective construct loadings (Fornell & Larcker, 1981). Then, the HTMT values are below 0.90, meeting the recommended threshold (Henseler & Schuberth, 2020). Based on Table 4 for the Fornell Larcker criterion, the square root of AVE for each construct, COD (0.859),

Compulsive Buying (0.871), FOMO (0.889), and Free Shipping (0.831), is higher than the correlations with other constructs. The results indicate that discriminant validity is established. In addition, all HTMT values between constructs are below the threshold of 0.90 (e.g., COD → compulsive buying = 0.429; COD → FOMO = 0.389; COD → free shipping = 0.606), confirming the absence of construct overlap. Thus, the

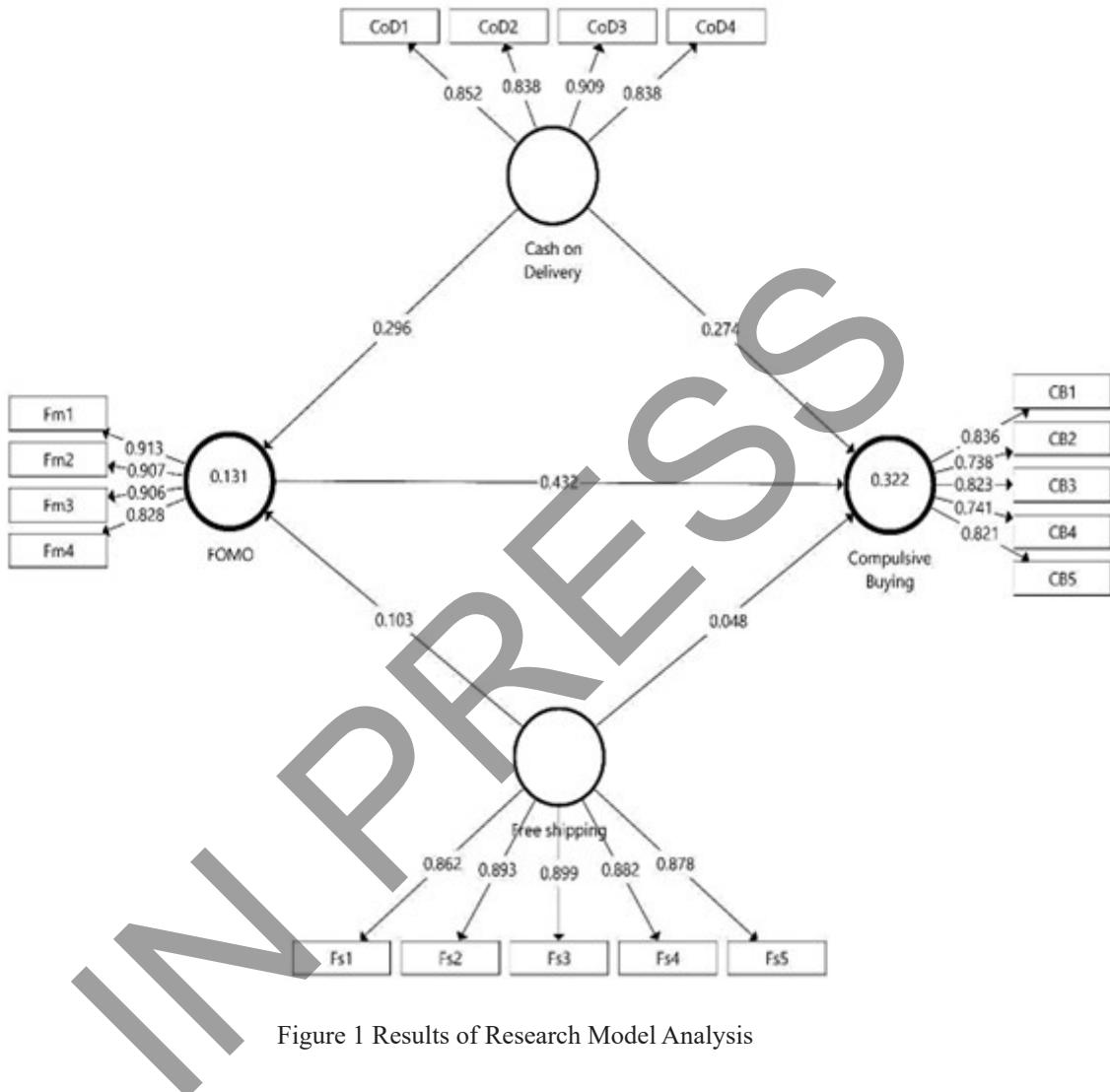


Figure 1 Results of Research Model Analysis

Table 4 Results of Average Variance Extracted (AVE)-Fornell and HTMT

AVE-Fornell	COD	CB	FOMO	Free shipping
COD	0.859			
CB		0.871		
FOMO		0.233	0.889	
Free shipping		0.725	0.263	0.831
HTMT	COD	CB	FOMO	Free shipping
COD				
CB	0.429			
FOMO		0.567		
Free shipping		0.229	0.285	

Note: Cash on Delivery (COD), Free Shipping, Fear of Missing Out (FOMO), and Compulsive Buying (CB).

Source: Authors' Creation (2025)

model is valid for further analysis.

The model presented in Figure 1 depicts the hypothesized relationships tested in the research. These relationships are represented through path coefficients (β), which indicate their influence on compulsive buying behaviour among e-commerce customers in Indonesia. Based on Figure 1, FOMO has the largest influence on compulsive buying, with a path coefficient of 43%, followed by COD at 28%. The factor that most influences FOMO is COD, with a path coefficient of 30%, followed by the free shipping program at 10%.

Table 5 presents the results of the direct relationships between variables. The results indicate that free shipping does not significantly affect FOMO ($\beta = 0.103$, $p\text{-value} = 0.116 > 0.05$), H1 is not supported. In contrast, COD significantly influences FOMO ($\beta = 0.296$, $p\text{-value} = 0.002 < 0.01$), supporting H2. Additionally, free shipping does not have a significant effect on compulsive buying ($\beta = 0.048$, $p\text{-value} = 0.532 > 0.05$), H3 is not supported. COD has a positive and significant effect on compulsive buying ($\beta = 0.274$, $p\text{-value} = 0.001 < 0.01$), supporting H4. FOMO also has a positive and significant impact on compulsive buying ($\beta = 0.432$, $p\text{-value} = 0.000 < 0.01$). H5 is supported. The mediating effect of FOMO on the relationship between COD and compulsive buying is positive and significant ($\beta = 0.128$, $p\text{-value} = 0.011 < 0.05$), supporting H6. However, the mediation of FOMO in the relationship between free shipping and compulsive buying does not show a positive and significant effect ($\beta = 0.045$, $p\text{-value} = 0.166 > 0.05$). H7 is not supported.

The research offers new insights into e-commerce consumer behaviour by examining how COD and free shipping influence FOMO and compulsive fashion buying, with FOMO acting as a mediator. First, COD significantly triggers compulsive buying and FOMO in fashion purchases, while free

shipping does not. It extends past research that links compulsive buying to digital content, influencers, and visual platforms (Lee & Wan, 2023; Sun & Bao, 2023), payment tools like BNPL (Ah Fook & McNeill, 2020), and psychological or cultural factors (Doan et al., 2024; Brojak-Trzaskowska et al., 2022; Kakkar et al., 2022). The findings highlight COD's role in driving compulsive fashion buying across markets, supporting the findings of Bakar et al. (2025), Yulianto et al. (2021), Rugu and Setyorini (2024), and Wang and Zhai (2022). The research shows that beyond advanced tools like e-wallets or influencers, simple features like COD can strongly trigger FOMO in emerging markets like Indonesia. For many people, especially in non-urban areas, COD offers trust, ease, and emotional gratification, making fashion shopping both accessible and pleasurable. The research broadens understanding of FOMO triggers by showing that practical factors, such as COD, can induce FOMO in fashion shopping, supporting Nampira and Chairy (2022) and Yulianto et al. (2021). While previous research links FOMO to psychological, social (Nasr et al., 2023; Mahmud et al., 2023), digital (Febrianty et al., 2025; Hakim & Farid, 2025), and motivational factors (Doan et al., 2023), this finding highlights that Indonesian consumers often associate COD with ease, affordability, and limited-time offers. Unlike self-image-driven consumers in developed countries, Indonesian buyers respond emotionally to the practicality of COD, showing that FOMO may stem more from "cheap and easy" than "everyone has it."

Second, free shipping does not significantly impact FOMO or compulsive fashion buying, supporting Gunawan et al. (2024), Sun et al. (2022), and Rosadi et al. (2024). On Indonesian platforms like Shopee, Tokopedia, and Lazada, free shipping is seen as a standard feature, not an exclusive offer, especially by price-sensitive middle- to lower-income consumers, thereby reducing its psychological urgency

Table 5 Hypothesis Testing Results (Direct and Mediating Effects)

Hypothesis	Structural Path	IV/ β	TS	PV	Information
H1	Free Shipping \rightarrow Fear of Missing Out (FOMO)	0.103	1.384	0.166	Rejected
H2	Cash on Delivery (COD) \rightarrow Fear of Missing Out (FOMO)	0.296	3.176	0.002	Accepted
H3	Free Shipping \rightarrow Compulsive Buying	0.048	0.626	0.532	Rejected
H4	Cash on Delivery (COD) \rightarrow Compulsive Buying	0.274	3.183	0.001	Accepted
H5	FOMO \rightarrow Compulsive Buying	0.432	6.464	0.000	Accepted
H6	Cash on Delivery (COD) \rightarrow Fear of Missing Out (FOMO) \rightarrow Compulsive Buying	0.128	2.530	0.011	Accepted
H7	Free Shipping \rightarrow Fear of Missing Out (FOMO) \rightarrow Compulsive Buying	0.045	1.385	0.166	Rejected

or impulsive appeal. Consumers, especially outside urban youth segments, prioritize economic value over social appeal in fashion purchases. Free shipping has no significant impact on compulsive buying, aligning with Yendola and Windasari (2023), Humairoh and Annas (2023), and Laksmawan and Handayani (2024). In Indonesia, where free shipping is standard, it is seen as a rational cost-saving measure rather than an emotional trigger, unlike FOMO, urgency, or time-limited offers that more strongly drive impulsive fashion buying.

Third, FOMO significantly drives compulsive fashion purchases on Indonesian e-commerce platforms, in line with the findings of Sijabat (2024), Jumarni and Azhar (2025), Permana et al. (2023), and Putri et al. (2024). Among young, digitally active consumers, especially in the apparel, shoes, and accessories categories, FOMO acts as a powerful psychological driver, especially when combined with social media, time-limited promotions, or immersive digital experiences. FOMO is also shown to mediate the relationship between COD and compulsive buying, but not free shipping, supporting the results of Solaiman and Pangaribuan (2024), Mahmud et al. (2023), Koren et al. (2024), and Bekman (2022). These findings confirm that FOMO is not only a psychological phenomenon but also a strategic tool in influencing consumption behavior in e-commerce. The research shows that FOMO in Indonesian e-commerce is triggered by limited discounts, low stocks, and positive reviews, encouraging consumers to buy immediately so as not to miss out. COD provides a sense of security, while FOMO creates urgency, a combination that triggers compulsive buying. The rapid growth of online fashion shopping is accompanied by promotions that emphasize FOMO, and COD makes it more accessible. Free shipping, on the other hand, does not trigger FOMO or compulsive buying, as it is seen more as a rational incentive rather than an exclusive or urgent offer.

The research also provides practical implications for e-commerce marketing managers of fashion products. Promotional strategies can combine the COD method with time-limited or stock offers to trigger FOMO, such as "COD Today Only!" or "COD + 50% Discount for First 100 Buyers". This strategy is effective for consumers in non-urban areas or first-time buyers who are not familiar with digital payments. Ads should emphasize the ease of COD and the risk of missing out, with narratives such as "Do not Miss the Latest Jacket Collection!" or "Only 3 Left, Pay on the Spot!" that are relevant to Indonesian consumer behavior.

Market segmentation by payment method is also important, especially for COD promotions targeting consumers without access to e-wallets or credit cards. This segmentation needs to consider location, technology access, and consumer behavior, especially in the fashion category. Visual features, such as countdowns or limited-stock notifications, can heighten psychological urgency and encourage

impulse purchases.

Since free shipping is not strong enough to trigger FOMO, it should be combined with emotional elements, such as "Free Shipping + COD for the Next 2 Hours". For price-sensitive consumers, free shipping remains a useful rational incentive in loyalty programs. Meanwhile, young and digitally-savvy consumers are more interested in trend-based promotions and exclusivity, such as contemporary streetwear and accessories. Free shipping is more suitable for building long-term loyalty, rather than as a trigger for quick purchases. Viral campaigns through influencers, user-generated content, and social media trends are effective for marketing limited-edition fashion products. Narratives such as "Ramadan Special" or "This Season's Must-Have Product" can reinforce FOMO. However, e-commerce needs to balance these strategies with ethical responsibilities, such as providing wise shopping reminders and spending control features for consumers who are prone to compulsive shopping.

Consumers need to realize that the impulse to buy driven by FOMO is often not a real need but an emotional reaction to marketing strategies, especially for fashion products that are easily influenced by trends. To prevent impulsive decisions, it is advisable to delay the purchase for a few hours or a day. If the item is still necessary, decisions tend to be more rational. Making a shopping list and budget before opening an e-commerce site can help to avoid the temptation of sudden promotions. Understanding how algorithms and digital marketing work is also important so that consumers realize that emotional pressure is often intentionally created. Questions like "Do I really need this or am I just afraid of missing out on a promo?" can be an effective way to avoid compulsive shopping.

For managerial and practical implications to e-commerce managers, it indicates that COD, which is often considered a consumer-friendly payment option, needs to be managed more responsibly. Platforms should consider implementing spending alerts, purchase reminders, or maximum transaction limits for COD users to prevent impulsive purchases that may cause financial and psychological pressure. To address FOMO, managers can apply ethical marketing practices by balancing promotional tactics with consumer well-being. For instance, companies can shift campaigns toward value-based appeals or smart shopping rather than overemphasizing scarcity and urgency.

From a broader perspective, these findings also carry implications for public policy and consumer education. Policymakers (Indonesian government) can collaborate with e-commerce platforms to design digital literacy campaigns that educate consumers about the psychological impact of COD and FOMO-based marketing. Such programs may include budget management guidelines, financial planning tips, and awareness of the risks of compulsive buying. Consumers themselves also need to be aware of their vulnerability to persuasive digital marketing

strategies. Practical interventions, such as personal spending trackers, cooling-off periods, or opt-out options from urgency-based notifications, can help to reduce tendencies toward compulsive buying.

CONCLUSION

The research finds that consumer behavior in purchasing fashion products on Indonesian e-commerce is influenced by psychological factors such as FOMO in addition to rational considerations. An analysis of 467 users shows that COD significantly triggers FOMO and compulsive buying, while free shipping has no effect. COD provides a sense of security but also creates emotional pressure that encourages impulsive buying, especially when combined with urgency or limited stock.

From a managerial perspective, these results confirm that COD can be used as a marketing strategy to increase conversion through the psychological mechanism of FOMO. E-commerce players are advised to integrate COD with limited-time promotions or limited stock notifications, while maintaining transparency and marketing ethics. The government and industry associations also need to establish digital promotion guidelines that balance business interests and consumer protection. The finding that free shipping is no longer significant underscores the need for promotional innovations grounded in experience, emotional value, and personalization to maintain consumer appeal.

The research has several limitations. The use of a cross-sectional survey design limits the ability to capture changes in consumer behavior over time and draw strong causal conclusions. Furthermore, the research focus on fashion products and the Indonesian context limits the generalizability of the findings to other product categories and countries. The research also fails to consider other psychological and situational factors that can potentially influence compulsive shopping behavior. Therefore, future research is recommended to use a longitudinal or experimental approach, expand the research context, and incorporate additional variables such as self-control, digital financial literacy, trust, and AI-based personalization to improve understanding of consumer behavior in the evolving e-commerce ecosystem.

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AUTHOR CONTRIBUTIONS

Conceived and designed the analysis, L. T. P. and N.; Collected the data, L. T. P., N., A. A., A., and R. A. M.; Contributed data or analysis tools, N., A. A., and A. Performed the analysis, N. and R. W.; and Wrote the paper, N. and R. W.

DATA AVAILABILITY

The data that support the findings of the research are available from the corresponding author, Nofrizal, upon reasonable request, to maintain respondent confidentiality, ensure adherence to research ethics, and protect data privacy. The survey data contain sensitive information related to consumer behavior and preferences. Therefore, providing open public access may lead to potential misuse or ethical violations.

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