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How does time pressure shape impulsive buying behavior? Hedonic vs. utilitarian values emerges as a key driver on E-commerce platforms

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ABSTRACT

This study explores the dynamics of consumer impulsive buying behavior—both affective and cognitive—on e-commerce platforms by identifying key shopping motivation factors and examining the role of customer value, which includes both hedonic and utilitarian dimensions. Additionally, the research investigates the moderating effect of time pressure on the relationship between consumer value and impulsive buying behavior. This study uses structural equation modeling (SEM) with Smart-PLS software to analyze data from Indonesian ($N = 520$) e-commerce buyers. The results indicate that shopping motivations, particularly ‘best deal’ and ‘social’ factors, significantly enhance consumers’ hedonic value but do not impact utilitarian value. Hedonic value, in turn, strongly influences affective impulsive buying behavior, whereas utilitarian value does not. Additionally, time pressure moderates the relationship between hedonic value and affective impulsive buying, while having no effect on the link between utilitarian value and cognitive impulsive buying. This study provides a comprehensive look at impulsive buying behavior in e-commerce, focusing on consumer value and the role of time pressure. The findings show that exclusive deals and social interactions boost hedonic value, which has a stronger effect on affective impulsive buying than utilitarian value on cognitive impulsive buying. These insights help e-commerce platforms refine strategies to increase consumer engagement and impulsive purchases.

1. Introduction

The growth of the e-commerce industry has progressed alongside the development of information technology and the widespread application of the online shopping environment (Zhao et al., 2022). Moreover, 59.3 % of Indonesian consumers already use e-commerce, and this number is expected to continue growing (Kemp, 2024). Gandhudi et al. (2024) assert that the shift in customer online buying behavior toward e-commerce is driven by exclusive offers and the convenience of e-commerce platforms, where customers can shop anytime and anywhere. Recent advances in technology—like one-click payments, personalized recommendations, easy returns, and social media integration—have made online shopping smoother and more engaging. By reducing friction and increasing exposure to persuasive content, these features create an environment where spontaneous, emotion-driven purchases happen more easily. As a result, impulsive buying behavior, often described as

irrational and spontaneous (Huang, Dastane, et al., 2024), has become increasingly common in the digital shopping landscape. Given the increasing exposure to visual stimuli and promotions on e-commerce platforms, this phenomenon is becoming increasingly relevant, as it exacerbates impulse behavior among consumers. Consequently, it is crucial to investigate impulsive buying behavior in the e-commerce model to understand the psychological dynamics influencing consumer purchasing in online shopping settings.

Although impulsive buying is becoming more common in e-commerce, many theories still rely on offline assumptions. Prior research tends to focus on internal traits like emotional reactivity or personality (Chen et al., 2022; Gulfranz et al., 2022; Miao et al., 2020), without fully considering how online environments shape consumer behavior. In reality, consumers respond to dynamic features like personalized offers, instant access, and time-limited deals that influence how they perceive value (Gandhudi et al., 2024). However, there is still little

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understanding of how hedonic and utilitarian motivations translate into value perceptions and drive different types of impulsive behavior. These values may be shaped by platform features such as consumer roles, best deal, social interaction, product information, monetary saving, convenience, and perceived ease of use. Yet, these factors are rarely explored together in relation to value creation. Time pressure adds further complexity, as it can shift how consumers process value during fast-paced decisions (Liu et al., 2022). Without updating theoretical models to reflect this interplay, key insights about digital impulse buying may be overlooked.

Urgency has become a common strategy in e-commerce. Platforms often use flash sales, countdown timers, and stock alerts to push consumers to decide quickly (Gandhudi et al., 2024). However, these strategies are usually applied the same way to everyone, without considering what different consumers actually value. Some are influenced by emotional factors like social interaction or the excitement of getting the best deal. Others care more about product information, convenience, or perceived ease of use, which reflect practical needs. If these urgency tactics don't match what consumers are looking for, they can be less effective—or even backfire, leading to hesitation or regret (Liu et al., 2022). This creates a practical gap. To design more effective strategies, it's important to understand how elements like consumer roles, monetary saving, and platform features shape value, especially when decisions are made under pressure.

Understanding consumer impulsive purchasing decisions is essential for marketers and researchers in the e-commerce industry. This study explores consumer motivation and decision-making dynamics under time pressure to uncover the complexities of impulsive buying behavior. To achieve this, we formulate three key research questions that guide our investigation into the relationships between shopping motivation, consumer value, and the impact of time pressure on purchasing decisions. First, *how do hedonic and utilitarian motivations shape consumer value perception in e-commerce, and how do these motivations differently influence the creation of hedonic and utilitarian value?* By examining how emotional (hedonic) and functional (utilitarian) motivations generate distinct value perceptions, this research enriches the consumer behavior literature by identifying critical factors differentiating pleasure-driven shopping experiences from need-based ones. This contribution is vital for marketers seeking to design shopping experiences that align with consumer preferences, ultimately enhancing engagement and customer satisfaction on e-commerce platforms.

Second, *how does hedonic value drive affective impulsive buying, and to what extent does utilitarian value influence cognitive impulsive buying on e-commerce platforms?* These findings deepen our understanding of how hedonic and utilitarian values shape both the emotional and rational aspects of impulsive decision-making. The research shows that hedonic value triggers quick emotional responses, while utilitarian value prompts more rational evaluations. This not only enriches academic insights but also offers marketers a basis for crafting personalized strategies by targeting either emotional or rational factors, depending on customer profiles and preferences.

Third, *how does time pressure moderate the relationship between hedonic value and affective impulsive buying, as well as utilitarian value and cognitive impulsive buying, and does this moderating role strengthen or weaken the influence of consumer value in the context of quick decision-making in e-commerce?* By examining how time pressure accelerates or alters the impact of consumer values, this research provides detailed insights into how urgency strategies are effectively used to trigger purchasing decisions. This contribution is crucial for e-commerce companies in designing marketing campaigns that leverage time as a tool to enhance product appeal and expedite consumer purchasing decisions.

2. Literature review

2.1. Previous studies and gaps identification

Table 1 summarizes previous studies that examine the role of hedonic and utilitarian values in shaping consumer behavior—including both impulsive buying and repurchase intention—across various e-commerce settings, while highlighting the moderating effects of different contextual factors. Chiu et al. (2014) emphasize the role of perceived risk in shaping repurchase intentions, highlighting how utilitarian and hedonic values are both critical in determining consumer behavior. Their findings suggest that consumers weigh these values alongside perceived risk, which can either encourage or hinder repurchase decisions. Similarly, Lavuri et al. (2022) provide empirical evidence from survey-based quantitative research, demonstrating that perceived trust and risk are key moderators in online impulsive buying. Their study indicates that while utilitarian and hedonic motivations positively influence impulsive purchases, perceived trust plays a mitigating role by reducing the perception of risk, thereby facilitating more impulsive buying tendencies. However, these studies primarily focus on trust and risk factors without considering situational variables such as time pressure that could further influence consumer decision-making.

Extending the discussion, Hu et al. (2023) integrate a cultural dimension into the analysis, showing that cultural context significantly moderates the impact of both hedonic and utilitarian motivations on mobile shopping platforms. Their cross-cultural quantitative research underscores the variability of consumer responses across different cultural settings, suggesting that global e-commerce strategies must account for cultural differences in value perception. Huang, Silalahi, et al. (2024) further refine the understanding of moderating effects by exploring how gender influences impulsive buying behavior during live-streaming events. Their survey-based research reveals that gender

Table 1
Previous Studies and Gaps.

Reference	Moderating Effect	Theories	Main Findings
Chiu et al. (2014)	Perceived risk	Utilitarian and hedonic value theory	Utilitarian value, hedonic value, and perceived risk determine repurchase intentions.
Lavuri et al. (2022)	Perceived trust and perceived risk	Hedonic and utilitarian motivation theory	Utilitarian and hedonic values have a positive effect on online impulsive buying, with perceived trust reducing risk perception.
Hu et al. (2023)	Cultural Context	Hedonic and utilitarian motivation theory	Both utilitarian and hedonic motivations significantly affect shopping outcomes, with culture moderating these effects.
Huang, Dastane, et al. (2024)	Gender	Hedonic value theory	Gender significantly moderates the relationship between hedonic value and impulsive buying.
This study	Time pressure	Shopping motivation	Hedonic motivation (best deal and social) has a dominant effect on consumers' hedonic value, which subsequently influences affective impulsive buying behavior. Time pressure successfully moderates the relationship between hedonic value and affective impulsive buying.

moderates the relationship between hedonic value and impulsive buying, with men and women responding differently to hedonic stimuli. However, while these studies contribute to the understanding of demographic and cultural moderators, they overlook the critical role of situational factors, such as time pressure, in impulsive buying behavior.

This study contributes to the literature by addressing the overlooked role of time pressure as a moderator in the relationship between consumer value (hedonic and utilitarian) and impulsive buying behavior on e-commerce platforms. While previous research has largely focused on factors like perceived risk, trust, and cultural differences, the inclusion of time pressure provides a more comprehensive understanding of how situational dynamics shape impulsive buying tendencies. Unlike earlier studies, which emphasize long-term motivators or demographic variables, this research highlights the immediate and situational nature of impulsive behavior. Time pressure intensifies the effect of hedonic value, particularly social factors and the appeal of securing the best deal, on affective impulsive buying decisions. This unique focus not only expands the theoretical framework of shopping motivation by integrating situational urgency but also offers actionable insights for marketers. By demonstrating how time-sensitive promotions can amplify emotional responses linked to hedonic motivations, the study equips e-commerce platforms with strategic tools to design more effective sales campaigns. Hence, this research fills a gap in the existing literature while offering practical recommendations for leveraging time pressure to drive consumer behavior in competitive online environments.

2.2. Impulse buying behavior

Since the 1950s, impulsive buying behavior has emerged as a significant aspect of consumer behavior, driven by unplanned purchasing actions (von Böhm-Bawerk, 1959). Impulsive buying is an instinctive reaction, influenced by internal or emotional impulses. Bayley and Nancarrow (1998) describe impulsive buying as a sudden and complex form of hedonic purchasing, in which the decision-making process overlooks careful evaluation of information and alternatives. Consequently, this behavior is seen as spontaneous and irrational, with consumers prioritizing immediate satisfaction over logical reasoning when making purchasing decisions (Verplanken & Herabadi, 2001). This understanding suggests that impulsive buying is largely driven by the pursuit of satisfaction, pleasure, or escape, which are key motivators of hedonic consumption. In other words, consumers are more drawn to the emotional experience associated with a purchase than to the practical benefits or functionality of the product or service (Ahn & Kwon, 2022).

Impulsive buying behavior has been extensively studied in marketing, particularly in the context of online shopping (Chen et al., 2022; Gulfraz et al., 2022). Digital platforms offer numerous triggers that lead to quick, unplanned purchases, such as flash sales, limited-time offers, and personalized recommendations (Lim et al., 2017). Huang, Silalahi, et al. (2024) pointed out that e-commerce sites, unlike physical stores, remove physical and time restrictions, providing more chances for consumers to shop impulsively. Common strategies like limited-time offers create urgency, encouraging consumers to act fast before the deal vanishes (Sun et al., 2023). When faced with an irresistible offer, emotional impulses take over, and with less careful thought, impulsive buying on e-commerce platforms becomes more likely (Kimiagari & Malafe, 2021).

Liu et al. (2022) and Sun et al. (2023) propose that impulsive buying behavior can be categorized into two key dimensions: affective and cognitive. The affective dimension is tied to consumers' emotional responses, such as excitement and pleasure, which are amplified by hedonic factors like personalized offers, social validation through product reviews, and the ease of comparing items on e-commerce platforms (Gulfraz et al., 2022). These elements strengthen the emotional impulse to make immediate purchases. In contrast, the cognitive dimension involves a lack of rational consideration and minimal information processing during decision-making (Kimiagari & Malafe, 2021). Instead of

thoroughly evaluating their options, consumers make quick decisions based on perceived usefulness or the pressure to act quickly on limited-time offers. Research shows that impulsive purchases are often dominated by affective factors (Ameer Hussain et al., 2024). Therefore, this study emphasizes the need to integrate both the affective and cognitive dimensions as essential components in understanding impulsive buying behavior.

2.3. Research on shopping motivation

The pioneer in understanding consumer motivation for shopping is Tauber (1972). According to To et al. (2007), consumers are motivated not only by the functional value of products but also by the satisfaction derived from the shopping experience itself. For instance, consumers who visit stores to buy products also seek to fulfill social desires, such as spending time with friends or enjoying the store environment. As a result, researchers have found that shopping is not a mundane activity to be completed quickly, but rather an experience rich in emotional satisfaction and enjoyment (Adaji et al., 2020). Therefore, although consumers may initially shop for utilitarian reasons, their motivation often shifts toward hedonic experiences.

Hirschman and Holbrook (1982) revealed that utilitarian motivation is a shopping approach focused on achieving efficient goals and effective outcomes. In contrast, the concept of hedonic motivations is regarded as the emotional experience and enjoyment derived from the shopping process itself. This concept extends beyond utilitarian motivation, and both motivations have become increasingly relevant for maintaining competitive advantage in the online marketplace (Totawar & Nambudiri, 2014). Furthermore, academic findings indicate that both motivations play a key role in attracting consumers to shop, especially on online shopping platforms (Lo et al., 2016).

Many studies show that people shop online not just to get things done quickly, but also to enjoy the process. Some look for detailed product info and price comparisons to make smart choices (Kang & Namkung, 2024), while others enjoy reading reviews or watching videos that make shopping feel more engaging (Lee & Wu, 2017). However, many platforms still focus more on functionality than on emotional satisfaction (Song et al., 2023). Recent research shows that both sides matter. Zheng et al. (2019) found that hedonic browsing—looking around for fun—directly encourages impulse buying, while utilitarian browsing supports it in a more indirect way. Arul Rajan (2020) also found that both motivations can lead to impulsive and rational buying. This means that in online shopping, people are often influenced by both how useful something is and how it makes them feel.

This study views shopping motivation in e-commerce as shaped by specific platform features that influence how consumers perceive value. Hedonic motivation is driven by elements such as consumer roles, where users actively search for products, interact with content, and engage in online communities (Elgammal et al., 2024); the appeal of a best deal, which creates excitement and satisfaction through time-limited promotions or discounts (Chiu et al., 2014); and social interaction, where consumers find enjoyment through feedback and shared experiences with others (Wu et al., 2018). In contrast, utilitarian motivation is supported by access to detailed product information (Kang & Namkung, 2024), opportunities for monetary saving (Mou et al., 2020), the overall convenience of the shopping process (Lee & Wu, 2017), and perceived ease of use, which reflects how intuitive and efficient the platform is to navigate (Qu et al., 2023). Together, these factors guide whether consumers engage with the platform emotionally or functionally, and form the basis for analyzing their influence on impulsive buying behavior in this study.

On the other hand, the combination of utilitarian and hedonic motivation in shopping activities on e-commerce platforms tends to lead to impulsive buying. Interactive features like videos and reviews stimulate a spontaneous desire to own products (Huang, Silalahi, et al., 2024). Additionally, when consumers are faced with time-sensitive

promotions, they are further encouraged to engage in impulsive buying (Parsad et al., 2021). This indicates that e-commerce strategies are not yet fully effective in attracting and revealing the key factors behind consumers' shopping motivations. Addressing this gap, the study investigates the driving factors of utilitarian and hedonic motivation to uncover consumer impulsive buying behavior.

2.4. Hypothesis development

2.4.1. Factors influencing the hedonic shopping value

2.4.1.1. Role. Roles demonstrate how consumers engage with products and services offered by e-commerce platforms (Chiu et al., 2014). Consumers take on different roles, such as information seekers, buyers, and even sellers. E-commerce platforms provide review videos or product guides that capture consumers' attention by offering the information they need (Elgammal et al., 2024). Easily accessible, clear, and engaging information gives consumers a sense of accomplishment and enjoyment (Kumar & Ayodeji, 2021). Once their informational needs are met, consumers interact directly with the product and platform through the interface design, interactive features, and product offerings. When this sense of enjoyment is achieved, consumers often share positive reviews with other buyers or online communities (Lavuri et al., 2022). The inclusion of the "role" variable is based on its established significance in prior research, where consumer roles such as information seekers, buyers, or social influencers have been identified as essential components influencing consumer enjoyment and shopping experiences (Chiu et al., 2014). To ensure consistency between theoretical conceptualization and empirical measurement, this study operationalizes the "role" variable by measuring consumer engagement in product searching, interaction, and contribution to online communities (Elgammal et al., 2024). These measurement items directly reflect consumer engagement in online shopping, supporting their impact on hedonic shopping value. Based on these considerations, we propose the following hypotheses:

H1a. : Consumer roles positively influence hedonic value in e-commerce platforms.

Best Deal.

Best deal refers to an offer or discount perceived as the most advantageous for consumers (Chiu et al., 2014). E-commerce platforms provide various product offers, such as product bundling, cashback, discounts, and flash sales during specific events within a limited time frame to capture consumer attention (Santo & Marques, 2022). Consumers who find these offers feel pleased to acquire desired products at relatively low prices (Chiu et al., 2014). They are even likely to share these deals with friends and family, enhancing their shopping experience. This process makes shopping more enjoyable and fosters a sense of connection, thereby increasing the hedonic value of their shopping experience, making it more engaging and entertaining (Kim et al., 2020). Hence, we propose the following hypothesis:

H1b. : Perceived best deals positively influence hedonic value in e-commerce shopping experiences.

2.4.1.2. Social interaction. E-commerce provides a space for consumers to interact with other consumers or online communities, such as forums or discussion groups (Lee & Wu, 2017). This allows consumers to seek advice by exchanging information, experiences, and recommendations related to the products or services they need from other users. Sharing shopping experiences adds enjoyment, creates a sense of connection, and gives consumers the feeling that they are making informed decisions (Huang, Dastane, et al., 2024). These social interactions contribute to an increase in hedonic value (Wu et al., 2018). Therefore, we posit the following hypothesis:

H1c. : Social interactions positively influence hedonic value in e-commerce

shopping experiences.

2.4.2. Factors influencing the utilitarian shopping value

2.4.2.1. Product information. To et al. (2007) described goal-oriented consumers who actively search for and gather information in advance about the products they are interested in. In this context, e-commerce platforms provide detailed product information, such as descriptions, specifications, images, videos, product reviews, and ratings. In contrast, sellers aim to meet specific consumer demands by showcasing product information in a live environment (Bradley & LaFleur, 2016). Delivering relevant product information in a comprehensive and transparent manner is key. Furthermore, high-quality product information can serve as a guide or tutorial, helping consumers use products effectively (Hidayanto et al., 2017). This enables consumers to make more informed decisions while ensuring the product is used to its maximum efficiency, delivering on its promised value. The presence of higher perceived benefits increases the utilitarian value of the product (Kang & Namkung, 2024). Hence, we propose the following hypothesis:

H2a. : High-quality product information positively influences utilitarian value in e-commerce shopping experiences.

2.4.2.2. Monetary saving. Monetary savings attract consumers due to the direct benefit of obtaining products at a lower cost (Chiu et al., 2014). For example, e-commerce platforms display product or service prices by offering discounts or bundling deals. Consumers who find these offers have the opportunity to save money, which ultimately encourages them to maximize their spending (Mou et al., 2020). Not only do they receive a lower price, but the functional value of the product also increases (Geng & Chang, 2022). As a result, consumers acquire quality products at relatively competitive prices, enhancing the utilitarian value (Kesari & Atulkar, 2016). Hence, we propose the following hypothesis:

H2b. : Monetary savings positively influence utilitarian value in e-commerce shopping experiences.

2.4.2.3. Convenience. The greatest benefit perceived by consumers when shopping online on e-commerce platforms is convenience (Lee & Wu, 2017). E-commerce offers features such as product filters, one-click purchase, various shipping options, and return policies to consumers. When consumers feel that these features provide convenience and a functional shopping experience, the utilitarian value increases (Kumar & Ayodeji, 2021). The essence of utilitarian value is fulfilled when consumers experience increasing levels of convenience during their shopping experience, resulting in greater perceived utilitarian value. Based on these considerations, we propose the following hypotheses:

H2c. : Perceived convenience positively influences utilitarian value in e-commerce shopping experiences.

2.4.2.4. Ease of shopping. When faced with access to online shopping, consumers expect ease in achieving their shopping goals (Qu et al., 2023). E-commerce platforms offer the convenience of finding products that match their preferences, provide fast transaction options, and offer other features that simplify purchasing. Consumers who experience ease of shopping on these platforms perceive the platform as highly valuable from a functional standpoint. This more efficient shopping experience increases utilitarian value (Kang & Namkung, 2024). Therefore, we posit the following hypothesis:

H2d. : Ease of shopping positively influences utilitarian value in e-commerce shopping experiences.

2.4.3. Hedonic and utilitarian values

Kang and Namkung (2024) state that consumers' evaluation of value

focuses on shaping shopping motivation, shopping experiences, and especially online purchase decision-making. According to Liu et al. (2022), consumers' decision-making patterns vary depending on the type of value they seek from a product. Value is divided into two dimensions: hedonic value and utilitarian value. The first dimension, hedonic value, arises from the pleasure and enjoyment experienced during the shopping process (Lee & Wu, 2017). E-commerce platforms entice consumers with attractive discounts (Liu et al., 2021), supported by visually appealing designs. Additionally, interactions between sellers and users evoke positive emotional responses, encouraging consumers to make impulsive purchases. These positive emotions fuel affective impulsive buying, where purchases are driven by intense emotional reactions without prior planning (Liu et al., 2022). When consumers are presented with major promotional offers like flash sales, paired with limited-time opportunities, they experience urgency and excitement, creating a fear of missing out. This emotional response compels consumers to engage in affective impulsive buying to enhance their emotional state (Sun et al., 2023). Hence, we propose the following hypothesis:

H3. *Hedonic value positively influences affective impulsive buying behavior on e-commerce platforms.*

Utilitarian value, the second dimension, is evaluated based on the practical or functional benefits a product offers (Lavuri et al., 2022). For instance, when consumers encounter a product promotion during a flash sale and perceive that the product meets their technical specifications, they are more likely to make a purchase driven by rational and practical considerations. This type of rational decision-making is referred to as cognitive impulsive buying, which is driven by logical or rational thought processed instantly (Sun et al., 2023). Consumers who did not initially plan to make a purchase but recognize high utilitarian value in a product offered at a reasonable price are ultimately led to engage in cognitive impulsive buying (Gong et al., 2024). Thus, consumer decision-making patterns based on utilitarian value can trigger cognitive impulsive buying (Liu et al., 2022). Hence, we propose the following hypothesis:

H4. *Utilitarian value positively influences cognitive impulsive buying behavior on e-commerce platforms.*

2.4.4. Moderating effect of time-pressure

Research by Sohn and Lee (2017) and Liu et al. (2022) states that the effect of time pressure depends on the type of consumption (hedonic vs. utilitarian) and that this effect increases impulsive buying. When time pressure is present, consumers feel urgency to make quick decisions due to the limited opportunity offered by e-commerce platforms (Huang, Silalahi, et al., 2024). This situation triggers an emotional response as consumers realize the limited window to experience satisfaction. The fear of missing out on a great offer, known as the 'Fear of Missing Out' (FOMO) effect (Ahmad, 2024), further drives this behavior. Emotional impulses (hedonic value), reinforced by time pressure, lead to affective impulsive buying without consideration of actual needs (Gong et al., 2024). In other words, consumers feel that if they do not make the purchase immediately, they will miss out on an enjoyable opportunity (Godinho et al., 2016). For instance, a flash sale promotion on certain e-commerce products with a limited time frame makes consumers feel pressured to buy. The emotional impulse, amplified by time pressure, causes consumers to engage in affective impulsive buying (Liu et al., 2022). Hence, we propose the following hypothesis:

H5a. *Time pressure positively moderates the relationship between hedonic value and affective impulsive buying behavior on e-commerce platforms.*

On the other hand, time pressure pushes consumers to quickly evaluate the practical aspects of a product with a cognitive approach (Li et al., 2021). This situation forces consumers to decide more swiftly that the product has high utilitarian value and to make a purchase decision

based on logic (Chang & Chen, 2015). Under time pressure, they rely more on utilitarian value to make quick decisions, ultimately driving cognitive impulsive buying. Thus, time pressure acts as a catalyst in reducing uncertainty during the decision-making process for cognitive impulsive buying (Sun et al., 2023). Therefore, we posit the following hypothesis:

H5b. *Time pressure positively moderates the relationship between utilitarian value and cognitive impulsive buying behavior on e-commerce platforms.*

In line with the proposed hypotheses, Fig. 1 illustrates the theoretical framework of this study, outlining the relationships among the key variables.

3. Methods

3.1. Measures

The study exercised measurement scales built on previously used items to evaluate the study's constructs. In Table 2, the authors exhibit the details of all the items used, together with their definition, and the sources we referenced. The study's constructs measured are: Role, Best Deal, Social Interaction, Product Information, Monetary Saving, Convenience, Perceived Ease of Use, Hedonic Value, Utilitarian Value, Affective Impulsive Buying, Cognitive Impulsive Buying, and Time Pressure. All items on the survey were assessed using a 7-point Likert scale with 1 (strongly disagree) to 7 (strongly agree). Table 2 includes an explanation of every construct and its items so that readers can clearly see how the study operationalized its variables.

3.2. Sampling technique and data collection

In this study, purposive and non-probability sampling methods were used to examine consumer impulsive buying behavior in e-commerce. By focusing on hedonic and utilitarian value dimensions, the study explores their antecedents and the moderating role of time pressure. An online survey was conducted using a questionnaire created with Google Forms, which was randomly distributed via social media platforms to ensure broad coverage. The questionnaire consisted of three sections: (1) Respondents were first screened for eligibility, identifying participants who were Indonesian residents, active users of e-commerce platforms, and had previously made online purchases. (2) Eligible respondents provided basic demographic information, including age and frequency of online shopping. (3) In the final section, participants responded to items on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) to assess their attitudes toward impulsive buying. Data collection was carried out between October 2023 and February 2024, yielding 520 complete responses from participants who voluntarily agreed to participate. The data collection procedure was adapted from established methodologies found in previous research (Huang, Silalahi, et al., 2024) to ensure reliability and robustness.

3.3. Analysis technique

Due to its effectiveness in handling complex models and latent variables, Structural Equation Modeling (SEM) using Smart PLS 4.0 software was employed, as it is well-suited for exploratory research. PLS-SEM enables the estimation of multiple relationships simultaneously, aligning with the study's objective of analyzing different factors influencing consumption behavior concurrently. The first step in evaluating the measurement model was validity, where the Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach's Alpha (CA) values were assessed using the criteria outlined by Hair et al. (2017) to test convergent validity. Discriminant validity was then examined using the Fornell-Larcker criterion, the heterotrait-monotrait (HTMT) ratio, and the cross-loading matrix (Fornell & Larcker, 1981;

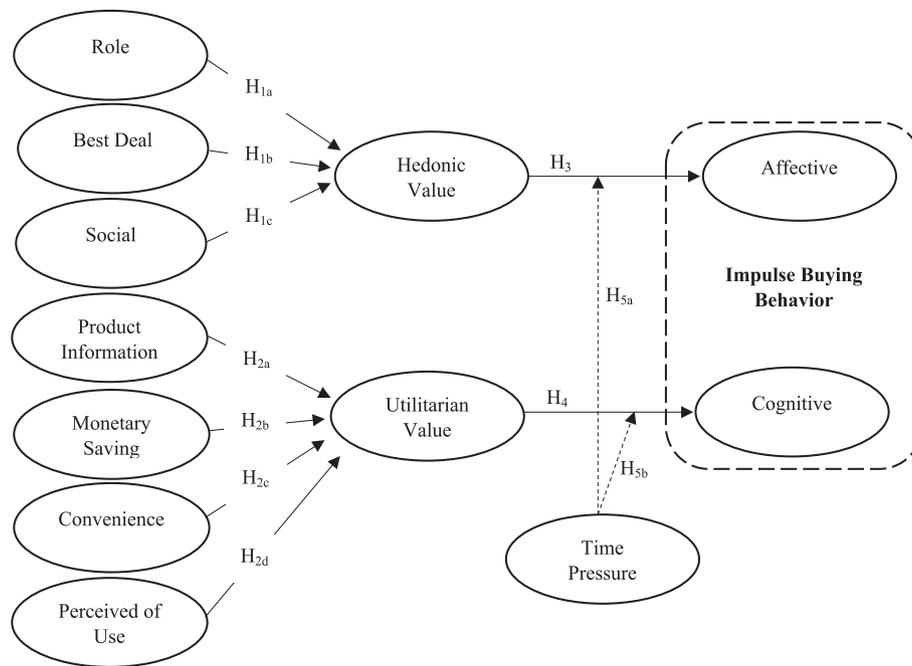


Fig. 1. The Study's Conceptual Framework.

Henseler et al., 2015). Once convergent and discriminant validity were established, the structural model was analyzed by adjusting the R-square value to assess the model's explanatory power, and its overall fit was determined using SRMR, d_{ULS} , d_G , and NFI (Falk, 1992; Hair et al., 2017). By meeting these rigorous criteria, the study advanced to hypothesis testing, enabling the generation of robust and reliable results.

4. Results

4.1. Sample profile

Of the 520 respondents, the majority were female (62.7 %), suggesting that women are more likely to shop online than men (37.3 %). The age distribution shows that 89.2 % of participants fall within the 19–29 age group, highlighting the dominance of young consumers in the e-commerce market. Given that this age group is generally more tech-savvy and comfortable with digital transactions, marketers should tailor their strategies to meet the preferences of younger shoppers. Regarding educational background, 56.5 % of respondents have a senior high school education, and 73.1 % are university students, indicating that focusing on this user base could enhance e-commerce engagement in the future.

In terms of shopping experience, an overwhelming majority (95.4 %) of participants reported previous experience with online shopping, further validating the relevance of this study within the context of experienced users. The analysis of preferred e-commerce platforms reveals that Shopee is the most favored choice, with 87.9 % of respondents indicating they have shopped there, followed by Lazada (32.4 %) and Tokopedia (17.7 %). This preference indicates a potential area for competition among these platforms. Additionally, the data on product categories shows a diverse range of interests, with women's clothing (49.3 %) and mobile phones and accessories (41.8 %) leading as popular choices. The significant interest in beauty and care products (40.9 %) further emphasizes the trend of young consumers gravitating toward fashion and personal care items. This detailed demographic and behavioral profile provides essential context for understanding consumer impulsive buying behavior and highlights key factors for marketers aiming to engage effectively with this audience in the Indonesian e-commerce landscape. Sample profile is presented on Table 3.

4.2. Common method variance

This study assessed Common Method Variance (CMV) using Harman's single-factor approach, in which all measurement items were loaded onto a single factor. Following Baumgartner et al. (2021), CMV is not considered a concern if the total variance explained is below 50 %. The results of the CMV test, performed using SPSS, indicated a variance of 33.684 %, well below the 50 % threshold. Therefore, it can be concluded that CMV is not an issue in this study. These findings provide a solid foundation for the credibility of the subsequent analyses, ensuring that data interpretation and research results are both reliable and valid. The low CMV percentage further enhances the research's validity, reinforcing the integrity of the findings and their implications.

4.3. Validity and reliability assessment

This study commenced with an evaluation of validity and reliability. The results of the convergent validity tests indicated that each Outer Loading (OL), Cronbach's Alpha (CA), and Composite Reliability (CR) value exceeded the recommended threshold of 0.70 (Hair et al., 2017). Moreover, the Average Variance Extracted (AVE) values were above the 0.50 threshold (Hair et al., 2017), further confirming the adequacy of the model. Thus, the constructs in this study meet the established standards for convergent validity and reliability. The results of convergent validity are presented in Table 4.

Discriminant validity was then assessed using three approaches. First, the Fornell-Larcker criterion (Table 5) demonstrated that all square root values (italicized) were greater than the inter-construct correlations, in line with the recommendations of Hair et al. (2017). Second, the HTMT values were found to be below the 0.85 threshold, as presented in Table 5, further confirming strong discriminant validity (Henseler et al., 2015). Third, the cross-loading matrix (shown in Table 6) validated that the outer loadings on each construct exceeded those between constructs. These combined results affirm that discriminant validity is robust. Therefore, it can be concluded that this study successfully meets the established criteria for discriminant validity.

Table 2
Summary of Measurement Items.

Variable	Definition	Measurement Items	Source
Role	The feelings of joy and positive mood experienced by consumers when shopping online for others	I like shopping on this e-commerce platform for others because, when they feel good, I feel good I enjoy shopping on this e-commerce platform for my friends and family I enjoy browsing on this e-commerce platform to find the perfect gift for someone	Chiu et al. (2014)
Best Deal	The offers or discounts provided by e-commerce platforms that capture consumers' attention	I enjoy looking for discounts when I shop on this e-commerce platform I enjoy hunting for bargains when I shop on this e-commerce platform	Chiu et al. (2014)
Social Interaction	The degree to which consumers exhibit a communication tendency to seek acceptance from like-minded individuals when making purchasing decisions	I can easily exchange opinions with other streamers or viewers Streamers know that I am concerned about them I feel closer to the streamer The streamer provides an opportunity to ask questions	Chiu et al. (2014)
Product Information	The quality of the information displayed on an online platform that aids consumers in making high-quality purchasing decisions	In my opinion, this e-commerce platform provides detailed information about the products displayed This e-commerce platform provides a complete list of superior product technical specifications This e-commerce platform provides information on a large number of attributes for each superior product The information provided by this e-commerce platform is up to date	Chiu et al. (2014)
Monetary Saving	The extent to which consumers realize financial savings through competitive prices, discounts, or special offers on products	I save money when shopping on this e-commerce platform I make inexpensive purchases through this e-commerce platform I get my purchases cheaper through this e-commerce platform than if I used other platforms	Chiu et al. (2014)
Convenience	The ease and comfort of online shopping, particularly in terms of time and effort saved	Shopping on this e-commerce platform allows me to save time Using this e-commerce platform is a convenient way to shop I can use this e-commerce platform to	Chiu et al. (2014)

Table 2 (continued)

Variable	Definition	Measurement Items	Source
Perceived of Use	How much consumers believe an e-commerce platform is easy to navigate and helps them quickly achieve their purchasing goals	shop anywhere This e-commerce platform allows me to shop whenever I choose The e-commerce platform's features are simple, easy to learn, and operate I can use the platform efficiently I can quickly find the product information I need through the platform's organized sections	Qu et al. (2023)
Hedonic Value	The emotional value that consumers derive from fulfilling their needs for pleasure, enjoyment, or satisfaction through online shopping experiences	Browsing on this e-commerce platform is truly a joy Shopping on this e-commerce platform allows me not only to purchase products but also to feel happy Shopping on this e-commerce platform makes me feel that the product search function is really fun	(Lee & Wu, 2017)
Utilitarian Value	The functional or practical value that consumers derive from their shopping experience, such as time efficiency, money savings, and convenience	Shopping on this e-commerce platform is very convenient for me Shopping on this e-commerce platform makes shopping much simpler The products and services offered on this e-commerce platform can satisfy my needs	(Lee & Wu, 2017)
Time Pressure	The sense of urgency or time constraint experienced by consumers during the purchase decision-making process	I have to hurry if I want to finish my shopping on time on this e-commerce platform I feel pressured to finish my shopping quickly on this e-commerce platform I don't have enough time to shop on this e-commerce platform	(Huang, Silalahi, et al., 2024)
Affective Impulsive Buying	A sudden purchase decision driven by momentary emotional feelings during online shopping	I sometimes cannot suppress the feeling of wanting to buy something If I see something new, I want to buy it I always see something nice whenever I browse on e-commerce platforms I sometimes feel guilty after having bought something I can become very excited if I see something I would like to buy I am a bit reckless in buying things I find it difficult to pass up a bargain I sometimes buy things because I like buying	(Sohn & Lee, 2017)

(continued on next page)

Table 2 (continued)

Variable	Definition	Measurement Items	Source
Cognitive Impulsive Buying	A consumer's quick purchase decision evaluation that includes some rational considerations, even when the purchase is unplanned	them, rather than because I need them	(Sohn & Lee, 2017)
		Before I buy something, I always carefully consider whether I need it	
		I usually only buy things that I intended to buy	
		I only buy things that I really need	
		Most of my purchases are planned in advance	
		It is not my style to just buy things	
		I like to compare different brands before I buy one	
		I usually think carefully before I buy something	
		I am used to buying things 'on the spot'	
		I often buy things without thinking	

Table 3
Sample Profile.

Measure	Items	Frequency	%
Gender	Male	194	37.3
	Female	326	62.7
Age (years old)	18 or Below	33	6.3
	19–29	468	89.2
	30–39	23	4.4
Educational Background	Senior High School	294	56.5
	Undergraduate	223	42.9
	Master	3	0.6
	High School Students	41	7.9
Occupation	University Students	380	73.1
	Civil servant and Private Employee	81	15.6
	Entrepreneurs	13	2.5
	Housewife	5	1
E-commerce Platforms	Shopee	485	87.9
	Tokopedia	92	17.7
	Lazada	169	32.4
	Bukalapak	25	4.8
	Bibli.com	26	5
	Electronic Equipment	130	25
	Computers & Accessories	137	26.3
	Mobile Phones & Accessories	218	41.8
	Menswear	205	39.3
	Women's clothing	257	49.3
	Product Categories on E-commerce Platforms	Men's Shoes	161
Women Shoes		189	36.3
Men's Bags		103	19.8
Women's Bags		177	34
Care & Beauty		213	40.9
Hobbies & Collections		73	14
Mother & Baby Supplies		37	7.1
Household Equipment	156	29.9	

4.4. Hypothesis testing

The results of the hypothesis testing, as presented in Table 7, indicate that the “best deal” (H1b) significantly contributes positively to hedonic value, whereas the “social” factor (H1c) exerts a significant negative relationship on hedonic value, thus not supporting the original hypothesis (H1b: $\beta = 0.559$; $t = 8.716$; H1c: $\beta = -0.128$; $t = 2.662$). This

Table 4
Convergent Validity.

Constructs	Items	OL	CA	CR	AVE
Role	RO-1	0.869	0.892	0.966	0.817
	RO-2	0.922			
	RO-3	0.921			
Best Deal	BD-1	0.947	0.895	0.897	0.905
	BD-2	0.956			
Social Interaction	SO-1	0.967	0.844	0.964	0.843
	SO-2	0.876			
	SO-3	0.647			
Hedonic Value	HV-1	0.691	0.782	0.783	0.821
	HV-2	0.874			
	HV-3	0.848			
Product Information	PI-1	0.886	0.960	0.968	0.863
	PI-2	0.937			
	PI-3	0.941			
	PI-4	0.933			
	PI-5	0.947			
Monetary Saving	MS-1	0.956	0.958	0.958	0.922
	MS-2	0.961			
	MS-3	0.963			
Convenience	CO-1	0.928	0.956	0.957	0.884
	CO-2	0.952			
	CO-3	0.933			
	CO-4	0.947			
Perceived of Use	POU-1	0.912	0.940	0.945	0.848
	POU-2	0.902			
	POU-3	0.891			
	POU-4	0.892			
	POU-5	0.755			
Utilitarian Value	UV-2	0.739	0.523	0.872	0.646
	UV-3	0.807			
	AIB-1	0.741			
Affective Impulsive Buying	AIB-2	0.727	0.903	0.904	0.837
	AIB-3	0.723			
	AIB-4	0.823			
	AIB-5	0.725			
	AIB-6	0.666			
	AIB-7	0.728			
	AIB-8	0.787			
	AIB-9	0.786			
Cognitive Impulsive Buying	CIB-1	0.786	0.921	0.922	0.679
	CIB-2	0.800			
	CIB-3	0.848			
	CIB-4	0.864			
Time Pressure	CIB-5	0.742	0.773	0.860	0.692
	CIB-6	0.770			
	CIB-7	0.828			
	CIB-8	0.746			
	CIB-9	0.361			
Time Pressure	TM-1	0.842	0.927	0.773	0.860
	TM-2	0.927			
Time Pressure	TM-3	0.720	0.927	0.773	0.860
	TM-3	0.720			

Notes: OL, Outer Loadings >0.70; CA, Cronbach's Alpha >0.70; CR, Composite Reliability >0.70; AVE, Average Variance Extracted >0.50.

means that social interactions reduce rather than increase emotional enjoyment in e-commerce. Possible reasons include feelings of social pressure, comparison with others, or too much information, which can lessen the fun of online shopping. Therefore, although H1c is significant, the negative direction means the hypothesis is not supported. Meanwhile, role (H1a) is also not supported, as it shows no significant effect ($\beta = 0.074$; $t = 0.995$). This suggests that activities like buying for others or joining group discussions not create strong emotional responses during impulsive purchases.

Additionally, factors such as product information (H2a), monetary savings (H2b), convenience (H2c), and perceived ease of use (H2d) were found to lack statistical significance concerning utilitarian value, resulting in a rejection of hypotheses H2a, H2b, H2c, and H2d ($\beta = 0.079$; 0.093; 0.068; 0.109 and $t = 0.651$; 0.675; 0.547; 1.135). H2a is not supported, potentially due to although product information is typically expected to support rational decision-making, it may have been perceived as secondary in impulsive purchases. Consumers making quick, emotion-driven decisions may not prioritize detailed

Table 5
Fornell-Larcker Criterion and Heterotrait-Monotrait Ratio.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Affective Impulsive Buying (1)	0.915											
Best Deal (2)	0.544 (0.603)	0.951										
Cognitive Impulsive Buying (3)	0.374 (0.407)	0.391 (0.429)	0.824									
Convenience (4)	0.709 (0.762)	0.655 (0.708)	0.453 (0.482)	0.940								
Hedonic Value (5)	0.507 (0.602)	0.554 (0.661)	0.296 (0.345)	0.644 (0.745)	0.906							
Monetary Saving (6)	0.688 (0.738)	0.690 (0.745)	0.447 (0.476)	0.864 (0.903)	0.684 (0.791)	0.960						
Perceived of Use (7)	0.682 (0.738)	0.604 (0.657)	0.450 (0.484)	0.853 (0.897)	0.601 (0.696)	0.795 (0.835)	0.921					
Product Information (8)	0.698 (0.747)	0.710 (0.767)	0.439 (0.467)	0.849 (0.885)	0.699 (0.810)	0.916 (0.953)	0.816 (0.856)	0.929				
Role (9)	0.522 (0.568)	0.797 (0.868)	0.365 (0.400)	0.576 (0.602)	0.441 (0.501)	0.590 (0.617)	0.548 (0.577)	0.617 (0.647)	0.904			
Social (10)	0.304 (0.342)	0.501 (0.546)	0.338 (0.383)	0.317 (0.337)	0.197 (0.206)	0.351 (0.376)	0.343 (0.362)	0.374 (0.403)	0.613 (0.692)	0.918		
Time Pressure (11)	0.616 (0.681)	0.434 (0.459)	0.448 (0.547)	0.592 (0.613)	0.477 (0.535)	0.598 (0.620)	0.614 (0.658)	0.623 (0.647)	0.424 (0.458)	0.388 (0.496)	0.832	
Utilitarian Value (12)	0.238	0.227	0.120	0.308	0.279	0.310	0.305	0.311	0.151	0.080	0.265	0.803

Notes: a. Italicized diagonal values are the square roots of the AVE; b. Values in parentheses represent the Heterotrait-Monotrait Ratio with thresholds of <0.85 (strong), < 0.90 (moderate), and < 0.95 (weak).

Table 6
Cross-Loadings Matrix.

Constructs	Items	AIB	BD	CIB	CO	HV	MS	POU	PI	RO	SO	TM	UV
Affective Impulse Buying	AIB3	0.908	0.509	0.392	0.703	0.479	0.68	0.681	0.677	0.516	0.301	0.541	0.213
	AIB4	0.904	0.412	0.274	0.541	0.396	0.525	0.527	0.536	0.405	0.271	0.581	0.198
Best Deal	AIB5	0.933	0.567	0.36	0.697	0.513	0.679	0.663	0.697	0.509	0.263	0.568	0.241
	BD1	0.5	0.949	0.359	0.609	0.513	0.643	0.549	0.663	0.763	0.476	0.407	0.217
Cognitive Impulse Buying	BD2	0.534	0.954	0.384	0.636	0.539	0.669	0.6	0.686	0.754	0.477	0.419	0.215
	CIB1	0.262	0.358	0.819	0.416	0.229	0.401	0.412	0.393	0.294	0.249	0.349	0.152
	CIB2	0.265	0.259	0.807	0.296	0.18	0.307	0.328	0.289	0.282	0.282	0.343	0.078
	CIB3	0.28	0.31	0.873	0.371	0.24	0.356	0.365	0.351	0.28	0.271	0.347	0.132
	CIB4	0.282	0.31	0.883	0.362	0.202	0.355	0.372	0.342	0.308	0.274	0.373	0.073
Convenience	CIB5	0.316	0.272	0.743	0.321	0.262	0.32	0.323	0.319	0.277	0.277	0.427	0.061
	CIB6	0.355	0.351	0.781	0.411	0.264	0.4	0.384	0.404	0.325	0.299	0.353	0.109
	CIB7	0.378	0.387	0.854	0.43	0.312	0.432	0.404	0.422	0.333	0.287	0.368	0.094
	CO1	0.665	0.622	0.436	0.93	0.612	0.829	0.797	0.816	0.525	0.296	0.574	0.282
Hedonic Value	CO2	0.689	0.614	0.42	0.952	0.598	0.82	0.822	0.801	0.539	0.288	0.554	0.288
	CO3	0.666	0.602	0.419	0.932	0.591	0.789	0.772	0.774	0.557	0.342	0.57	0.285
	CO4	0.647	0.625	0.431	0.948	0.622	0.813	0.816	0.801	0.544	0.27	0.533	0.304
Monetary Saving	HV2	0.461	0.502	0.296	0.577	0.91	0.607	0.55	0.632	0.406	0.165	0.407	0.221
	HV3	0.457	0.502	0.24	0.591	0.902	0.633	0.539	0.635	0.393	0.193	0.458	0.286
Product Information	MS1	0.674	0.67	0.42	0.827	0.649	0.957	0.75	0.895	0.56	0.289	0.567	0.305
	MS2	0.645	0.656	0.435	0.819	0.665	0.961	0.76	0.869	0.574	0.375	0.59	0.292
	MS3	0.66	0.661	0.434	0.843	0.656	0.963	0.781	0.872	0.565	0.348	0.568	0.297
	PI1	0.619	0.684	0.425	0.743	0.696	0.792	0.734	0.885	0.613	0.381	0.547	0.241
	PI2	0.655	0.647	0.399	0.811	0.619	0.849	0.765	0.937	0.57	0.333	0.573	0.291
Perceived of Use	PI3	0.641	0.645	0.426	0.798	0.641	0.859	0.79	0.942	0.567	0.363	0.587	0.292
	PI4	0.646	0.657	0.394	0.769	0.646	0.848	0.744	0.932	0.568	0.356	0.592	0.276
	PI5	0.676	0.671	0.402	0.815	0.658	0.896	0.76	0.946	0.562	0.318	0.594	0.33
	POU1	0.651	0.592	0.423	0.844	0.638	0.782	0.93	0.786	0.526	0.266	0.554	0.293
	POU2	0.653	0.567	0.397	0.819	0.605	0.78	0.937	0.806	0.489	0.3	0.59	0.297
Role	POU3	0.585	0.522	0.428	0.734	0.469	0.667	0.905	0.685	0.492	0.366	0.542	0.242
	POU4	0.618	0.54	0.411	0.737	0.486	0.688	0.911	0.719	0.513	0.342	0.573	0.286
	RO1	0.412	0.59	0.31	0.395	0.289	0.416	0.384	0.433	0.865	0.533	0.313	0.077
Social	RO2	0.451	0.705	0.337	0.514	0.35	0.515	0.471	0.53	0.922	0.596	0.392	0.133
	RO3	0.525	0.815	0.341	0.602	0.5	0.619	0.583	0.656	0.923	0.542	0.422	0.175
Time Pressure	SO1	0.299	0.513	0.323	0.323	0.225	0.353	0.357	0.376	0.609	0.98	0.373	0.078
	SO2	0.255	0.371	0.308	0.24	0.086	0.274	0.239	0.293	0.501	0.852	0.348	0.072
Utilitarian Value	TM1	0.655	0.527	0.406	0.695	0.568	0.696	0.683	0.719	0.476	0.325	0.899	0.301
	TM2	0.578	0.383	0.34	0.539	0.45	0.547	0.557	0.57	0.375	0.343	0.94	0.256
	TM3	0.181	0.041	0.41	0.075	0.017	0.085	0.156	0.099	0.115	0.325	0.62	0.03
	UV2	0.086	0.075	0.119	0.098	0.108	0.119	0.089	0.099	0.066	0.071	0.086	0.616
	UV3	0.25	0.241	0.098	0.329	0.29	0.324	0.329	0.331	0.154	0.069	0.283	0.955

Table 7
Summary of Direct Hypothesis Testing.

Hypothesis	Path Coefficients	T-value	Conclusion
H1a: Role → Hedonic Value	0.074	0.995	Unsupported
H1b: Best Deal → Hedonic Value	0.559***	8.716	Supported
H1c: Social Interaction → Hedonic Value	-0.128**	2.662	Unsupported
H2a: Product Information → Utilitarian Value	0.079	0.651	Unsupported
H2b: Monetary Saving → Utilitarian Value	0.093	0.675	Unsupported
H2c: Convenience → Utilitarian Value	0.068	0.547	Unsupported
H2d: Perceived of Use → Utilitarian Value	0.109	1.135	Unsupported
H3: Hedonic Value → Affective Impulse Buying	0.218***	4.631	Supported
H4: Utilitarian value → Cognitive Impulse Buying	-0.019	0.421	Unsupported

Notes: Significance level determined by p -value of *** $P < 0.001$; ** $P < 0.010$; * $P < 0.050$.

specifications or technical content during their shopping experience. H2b is not supported, potentially due to consumers may interpret discounts more as part of a hedonic experience (“scoring a deal”) rather than as a functional economic benefit. Thus, the perception of savings may contribute more to emotional satisfaction than to rational evaluation. H2c is not supported could be due to its normalization in the e-commerce environment. Since convenience is an expected baseline feature, it may no longer differentiate user experiences or contribute notably to perceptions of functional value in impulsive contexts. H2d is not supported, potentially due to users already consider most e-commerce platforms easy to navigate. As with convenience, ease of use may now be taken for granted, limiting its impact on perceived functionality in decision-making processes.

Furthermore, the findings indicate that hedonic value significantly influences affective impulsive buying (H3: $\beta = 0.218$; $t = 4.631$). It suggests that emotional drivers such as enjoyment and excitement during online shopping play a key role in triggering affective impulsive purchases. In contrast, utilitarian value does not have a significant impact on cognitively impulsive buying (H4: $\beta = -0.019$; $t = 0.421$). The findings will be lead to the rejection of H4. These results underscore that in fast-paced environments, impulsive buying is more strongly influenced by emotional cues than by rational considerations. As a result, functional attributes such as efficiency or product utility appear less effective in triggering cognitively driven impulsive behavior.

The findings related to the moderating effect of time pressure are detailed in Table 8. The analysis reveals that only one hypothesis concerning the role of time pressure as a moderating factor is supported. Specifically, time pressure significantly and positively moderates the relationship between hedonic value and affective impulsive buying, thereby supporting hypothesis H5a ($\beta = -0.082$; $t = 2.350$). This suggests that increased time pressure enhances the positive influence of hedonic value on affective impulsive purchasing decisions, indicating that consumers may experience increased emotional engagement when faced with time constraints. Conversely, time pressure does not moderate the relationship between utilitarian value and cognitive impulsive buying, leading to the rejection of hypothesis H5b ($\beta = -0.003$; $t = 0.054$). This finding implies that utilitarian considerations, such as practical benefits and functionality, remain consistent regardless of the time pressure experienced by consumers when making cognitive

Table 8
Summary of Moderating Hypothesis.

Hypothesis	Path coefficients	T-value	Conclusion
H5a: TM x HV → AIB	-0.082*	2.35	Moderated
H5b: TM x UV → CIB	-0.003	0.054	Nonmoderated

Notes: Significance level: * $P < 0.050$.

purchasing decisions. These results highlight the distinct impacts of hedonic and utilitarian values in impulsive buying scenarios, emphasizing the need for marketers to consider the influence of time pressure on consumer behavior when designing strategies to enhance engagement and drive sales. Summary of the moderating hypothesis presented on Table 8.

4.5. Model robustness testing

The model testing process evaluated both model fit and R-square values. The analysis showed an SRMR value of 0.121, a chi-square value of 3901.034, and an NFI of 0.827, all falling within the recommended thresholds set by Hair et al. (2017). Additionally, R-square values were calculated to assess how well the independent constructs predicted the dependent ones. Specifically, the R-square values for affective impulsive buying, cognitive impulsive buying, hedonic value, and utilitarian value were 0.446, 0.210, 0.317, and 0.108, respectively, collectively explaining 27 % of the variance in impulsive buying behavior on e-commerce platforms. These values meet Falk (1992) criterion, where R-square values should exceed the minimum threshold of 0.10. The results indicate that the model not only fits well but also that the identified factors significantly explain impulsive buying behavior. Therefore, the tested model demonstrates strong validity and reliability in explaining the variables under investigation.

The Goodness of Fit (GOF) metric was calculated to evaluate the reliability of the developed model. GOF is determined by taking the square root of the product of the Average Variance Extracted (AVE) and the mean R-square (R^2) values, as outlined in Eq. (1). Following the guidelines of Tenenhaus et al. (2005) and Wetzels et al. (2009), a GOF value above 0.36 indicates a high fit, values between 0.25 and 0.36 represent a medium fit, and values between 0.10 and 0.25 reflect a low fit. In this study, the calculated GOF value was 0.492, which surpasses the threshold for high fit, demonstrating the robustness and reliability of the constructed model. This GOF approach was similarly applied in the research by Huang, Silalahi, et al. (2024), which also confirmed the model’s strength using the GOF metric. These findings further reinforce the validity of the research model, ensuring that its structure is statistically sound and effectively explains the variables under investigation.

$$GOF = \sqrt{AVE} \times \sqrt{R^2} = \sqrt{0.896 \times 0.270} = 0.492 \quad (1)$$

5. Discussion

While the study offers meaningful contributions to understanding impulsive buying behavior in e-commerce, the findings only partially confirm the research objectives. Specifically, the model successfully validates the influence of hedonic motivations—such as the “best deal” and “social” factors—on hedonic value and affective impulsive buying behavior. However, the study also reveals a key limitation: all proposed utilitarian factors failed to significantly influence utilitarian value. This outcome suggests that the model may not fully capture how functional benefits operate in contemporary e-commerce impulsive buying contexts. These findings provide a deeper understanding of the predominant factors shaping consumer behavior in online shopping, particularly highlighting the strong role of emotional and social influences in driving impulsive purchases. Thus, while the study advances understanding of hedonic influences, it also signals the need to reconceptualize how utilitarian value is theorized within impulsive buying frameworks.

The results show that only the “best deal” factor (H1b) significantly increases hedonic value. This confirms that promotional tactics like flash sales and limited-time offers trigger emotional excitement and drive impulsive behavior. Consumers feel pleasure when they believe they are getting a great deal, reinforcing the emotional appeal of the purchase (Chiu et al., 2014). In contrast, social interaction (H1c) shows a significant negative effect on hedonic value, thus not supporting the hypothesis. This suggests that too much exposure to others’ opinions or

discussions may reduce the spontaneity needed for impulsive buying. Instead of creating enjoyment, social input may cause hesitation or overthinking, especially for hedonic products. Likewise, role factor (H1a) was not significant. Buying for others or fulfilling social roles may not produce the personal excitement required for emotionally driven purchases. These results highlight that impulsive buying in e-commerce is more about personal emotion than social influence. These findings differ from prior studies like [Qu et al. \(2023\)](#), suggesting that quick emotional triggers matter more than peer interaction.

In contrast, none of the utilitarian factors—product information (H2a), monetary savings (H2b), convenience (H2c), or perceived ease of use (H2d)—showed a significant influence on utilitarian value, resulting in the rejection of all related hypotheses. This finding stands in contrast to prior studies (e.g., [Kesari & Atulkar, 2016](#)) and reveals a potential theoretical gap in how utilitarian value is conceptualized and measured within impulsive buying models. It indicates that consumers in e-commerce settings may treat functional features as baseline expectations rather than active value drivers, thus diminishing their role in shaping impulsive decisions.

The findings provide insights into incorporating hedonic elements—such as social engagement and exclusive promotions—on e-commerce platforms to effectively entice and retain impulsive buyers. Although product information and convenience remain utilitarian factors in online shopping, these factors do not trigger impulsive purchases as strongly as emotional and social elements. By understanding these dynamics, marketers can better refine their strategies to address consumer emotional needs, crafting shopping experiences that foster impulsive buying and ultimately result in higher customer satisfaction.

The results on consumer value confirm that this study has effectively achieved its goal of investigating how hedonic values shape impulsive buying behavior. Specifically, hedonic value was found to significantly influence affective impulsive buying significantly, thereby supporting hypothesis H3. This finding reinforces that consumers are more inclined to make impulsive purchases driven by emotions—such as excitement or pleasure—when they perceive high levels of hedonic value. Consistent with [Nghia et al. \(2022\)](#), this study demonstrates that the more emotionally appealing a product or shopping experience is, the greater the likelihood that consumers will engage in impulsive buying for emotional gratification. These insights underscore the crucial role of visual appeal, excitement, and emotional engagement in driving impulsive purchases on e-commerce platforms, highlighting the need for marketers to focus on hedonic elements to stimulate impulsive behavior strategically.

Conversely, the utilitarian value did not significantly affect cognitive impulsive buying, as indicated by the rejection of H4. This finding suggests that consumers place less emphasis on practical or functional benefits, such as product utility or efficiency when making impulsive purchase decisions. Instead, they are more driven by hedonic factors, including aesthetics, social validation, and immediate pleasure. These results imply that cognitive, rational decision-making processes are less central to impulsive purchases. Rather than conducting detailed evaluations of product functionality or long-term advantages, consumers may respond more to emotional cues that prompt spontaneous buying behavior. For marketers, this underscores the importance of developing emotionally engaging and visually stimulating e-commerce platforms, where hedonic value takes precedence over utilitarian aspects to attract and retain impulsive buyers.

Time pressure plays a crucial role in shaping the relationship between consumer value and impulsive buying behavior, especially when it comes to hedonic value. The study reveals that as consumers encounter time constraints, they increasingly rely on emotional factors such as excitement and pleasure, which drive them toward affective impulsive purchases. This supports the idea that limited time frames amplify the urgency of making quick decisions, pushing consumers to act on emotional impulses rather than carefully evaluating their options. This dynamic is consistent with [Huang, Dastane, et al. \(2024\)](#), who

observed that time pressure intensifies the emotional triggers behind impulsive buying. Marketers can take advantage of this by implementing time-sensitive promotions, such as flash sales or limited-time offers, to heighten the emotional appeal of their products and encourage impulsive buying behavior.

The study reveals that time pressure does not have a significant impact on the relationship between utilitarian value and cognitive impulsive buying, resulting in the rejection of H5b. This suggests that even when consumers face time constraints, they are not more inclined to make impulsive decisions based on practical considerations like product functionality or utility. Instead, the urgency created by time pressure tends to evoke emotional responses rather than rational evaluations. This supports the notion that impulsive buying is more closely tied to hedonic value than to utilitarian value, particularly when consumers feel pressed for time. For e-commerce platforms, this emphasizes the need to create emotionally engaging, time-sensitive shopping experiences that focus on hedonic elements, as these are more likely to trigger impulsive purchases in time-constrained scenarios.

6. Implications

6.1. Implication for theory

These findings challenge conventional assumptions about the social underpinnings of impulsive buying behavior. While previous studies have positioned both personal and social motivations as key to hedonic value creation, this study nuances that view by revealing that not all socially oriented drivers maintain significance in fast-paced e-commerce settings. The significant influence of the “best deal” supports the idea that impulsive purchases are largely triggered by emotionally charged, self-relevant incentives ([Chiu et al., 2014](#)). However, the non-significance of social interaction and role suggests that communal influence and role-based consumption may dilute the emotional spontaneity that typically drives hedonic value. This contradicts prior assertions (e.g., [Qu et al., 2023](#)) and underscores a need to reconceptualize hedonic value as more affectively autonomous and less socially constructed in digital commerce environments. Theoretically, this pushes forward a more refined understanding of hedonic value that centers on immediacy, personal gratification, and emotional salience rather than socially shared experiences.

Additionally, this study extends the work of [Lavuri et al. \(2022\)](#) and [Hu et al. \(2023\)](#) by challenging the established notion that utilitarian motivations always play a significant role in influencing consumer behavior. Contrary to what has been found in other contexts, the utilitarian factors investigated in this study—such as product information, monetary savings, convenience, and perceived ease of use—did not significantly affect utilitarian value in the e-commerce setting. This divergence suggests that in online environments, hedonic factors may overshadow utilitarian considerations, an insight that enriches the theory of utilitarian value. The findings suggest a shift in consumer priorities, where digital platforms increasingly cater to emotional and experiential needs rather than purely functional benefits. This extends existing theory by offering new insights into the diminished role of utilitarian motivations in impulsive buying decisions in the digital age.

Moreover, this study further supports and extends the theory that hedonic value significantly impacts affective impulsive buying, a finding that aligns with research by [Nghia et al. \(2022\)](#). However, our study extends this understanding by providing empirical evidence from an e-commerce context, where emotional and social motivations are heightened due to the nature of online platforms. This work enriches the understanding of how pleasure-driven consumption influences spontaneous buying behavior, particularly in environments where the user experience is designed to be engaging and emotionally stimulating. The contribution of this study is crucial in showing how the digital shopping experience amplifies hedonic motivations, leading to higher levels of affective impulsive buying than previously explored in traditional retail

settings.

In addition, this study expands upon moderation theory by providing new insights into how time pressure influences consumer behavior. Specifically, it shows that time pressure significantly moderates the relationship between hedonic value and affective impulsive buying, a result that builds on previous work by Huang, Silalahi, et al. (2024). While earlier research established that factors such as gender can moderate the relationship between hedonic value and impulsive buying, this study extends the theory by demonstrating that situational factors like time pressure can enhance the urgency of emotional decision-making. This finding contributes to a deeper understanding of how urgency accelerates emotional purchases, offering a new perspective on how hedonic motivations can be amplified in high-pressure situations. By showing that time pressure does not moderate the relationship between utilitarian value and cognitive impulsive buying, this study also extends the understanding of how emotional responses are more sensitive to situational factors than cognitive or rational decision-making processes.

6.2. Implication for E-commerce practice

Emotional triggers often outweigh rational thinking in driving impulse buying. The significant impact of best deal on hedonic value underscores the urgency for e-commerce platforms to implement price-driven strategies that provoke quick emotional responses. Rather than appealing broadly, platforms should deploy time-limited promotions, such as flash sales and scarcity cues, to generate a sense of urgency and excitement that directly fuels impulsive purchases (Lăzăroiu et al., 2020). These should be highly visible—through push notifications, homepage banners, or personalized “deal of the day” sections—particularly for hedonic product categories like fashion and beauty, where emotional appeal plays a central role (Chiu et al., 2014). Features like countdown timers at checkout or one-click coupon application can reduce friction and enhance emotional momentum.

In contrast, the finding that *social interaction* and *role* do not significantly influence hedonic value suggests that social input might sometimes inhibit impulsive responses. This contradicts prior assumptions and implies that too much social exposure—such as excessive peer reviews or group-buying features—may introduce deliberation rather than spontaneity (Qu et al., 2023). To preserve impulsivity, platforms could strategically minimize real-time social feedback during flash promotions or delay social features until after checkout. Rather than emphasizing community or social validation in these contexts, design and marketing should concentrate on personal emotional stimulation, urgency, and visual appeal to enhance conversion.

To enhance emotional engagement, e-commerce platforms need to invest in highly immersive, visually appealing interfaces. Gamification elements—such as point systems, badges, or interactive challenges—can captivate consumers and encourage them to shop repeatedly (Rodrigues et al., 2016). Additionally, visually rich content, exemplified by 360-degree product views, high-quality videos, and personalized recommendations, can increase hedonic value, which may stimulate impulsive behavior (Puccinelli et al., 2009). These strategies address the emotional aspects of shopping, thereby increasing the likelihood of spontaneous purchases.

A key strategy highlighted by this study is the use of time-limited promotions to amplify the effect of hedonic value on affective impulsive buying. Imposing time pressure heightens consumers' emotional engagement by creating urgency, compelling them to act swiftly. E-commerce platforms that incorporate flash sales, countdown timers, and limited-stock alerts can effectively stimulate impulsive buying behavior (Ding & Tseng, 2015). For example, when a countdown timer indicates how soon an offer will expire, it fosters a sense of urgency, motivating consumers to complete their purchases before the opportunity vanishes (Ram et al., 2024). However, these tactics should be strategically applied to products that appeal to emotionally-driven decision-making,

such as fashion and beauty items, rather than goods that are typically evaluated through rational analysis, like electronics or appliances.

Given the lack of significant influence from utilitarian factors, platforms should reassess how they deliver functional features. These features may be perceived as standard utilities rather than as contributors to perceived value. To reposition utility as an engaging component of the user experience, e-commerce platforms can implement innovative enhancements such as AI-powered search assistants (e.g., Tokopedia's “Chat AI” for product recommendation), personalized delivery estimations, or real-time customer chatbots that resolve issues instantly. For instance, Lazada's integration of one-click checkout and adaptive payment options—like BNPL (Buy Now Pay Later)—not only improves convenience but can also subtly influence purchasing behavior by reducing friction at critical decision points (Puspitasari et al., 2023). These utility-driven enhancements may help shift utilitarian value from a background function to a strategic driver of satisfaction and potentially even impulsive action, particularly when embedded within emotionally resonant shopping journeys.

The study also reveals that time pressure has a diminished effect on cognitive impulsive buying, which is primarily influenced by utilitarian value. For utilitarian products, such as household appliances or electronics, e-commerce platforms should give consumers sufficient time for thorough evaluation. Providing features like product comparison tools, comprehensive descriptions, and expert reviews can facilitate rational decision-making processes (Chopdar et al., 2018). This more structured approach for utilitarian purchases enables consumers to make well-informed decisions, thereby minimizing the risk of post-purchase regret and ultimately enhancing customer satisfaction and loyalty.

E-commerce businesses must ultimately customize their promotional strategies based on the types of products they sell. For high hedonic value items like fashion, luxury goods, or cosmetics, emotionally engaging content, social validation, and time-sensitive offers are more effective at triggering impulsive buying behavior (Kang & Park-Poaps, 2010). Conversely, for utilitarian products such as electronics or household essentials, marketers should focus on providing comprehensive product details, offering comparison tools, and ensuring consumers have sufficient time to make informed decisions. By strategically balancing these approaches and aligning them with consumers' unique motivations, e-commerce platforms can effectively optimize their strategies to cater to both impulsive and rational buyers.

7. Conclusion, limitation and future research

While this study offers valuable insights into impulsive buying behavior, the findings only partially confirm the proposed model—particularly in the absence of significant relationships between utilitarian antecedents and utilitarian value. The research extends the body of work on consumer behavior in digital environments by examining the effects of hedonic motivations, such as social influences and “best deal” offers, on affective impulsive buying under time pressure. The findings indicate that practical impulsive purchases are predominantly driven by hedonic value, mainly when time constraints are applied to consumers. By contrast, the absence of significant effects from product information, monetary savings, convenience, and perceived ease of use on utilitarian value suggests that these elements may be treated as expected baseline features rather than active motivators in impulsive buying. These insights are essential for marketers and e-commerce platforms aiming to refine their strategies, as they confirm that emotionally engaging and socially validated marketing approaches should be prioritized. Moreover, time-limited deals effectively generate a sense of urgency, prompting impulsive buying behavior, especially when consumers consider hedonic products.

Despite its contributions, this study has several limitations that should be acknowledged. First, the research focused on time pressure as a moderating factor between consumer value (hedonic and utilitarian) and impulsive buying. While time pressure is an essential situational

factor, other variables may also significantly influence impulsive behavior. For example, factors such as self-control, individual mood, or personality traits were not examined, and their omission limits the scope of the study. Prior research has suggested that characteristics like self-regulation (Sun et al., 2024) and mood (Zhang et al., 2022) can further explain variations in impulsive buying tendencies.

In addition, all utilitarian antecedents—product information, monetary savings, convenience, and perceived ease of use—were found to be statistically insignificant. This indicates that these functional factors are no longer central motivators for impulsive buying in e-commerce, where consumers expect such features as a given. This limitation highlights a critical gap in the traditional conceptualization of utilitarian value, suggesting that existing theoretical models may not fully capture the evolving expectations of online consumers. It offers an opportunity for theoretical refinement by encouraging future studies to reconceptualize utilitarian value in ways that better reflect behavioral patterns in modern digital environments. Practically, this implies that marketers should not rely solely on functional benefits to trigger impulsive buying, but rather integrate utility with emotionally resonant elements—such as convenience enhanced by personalization, automation, or interactivity—to make functional aspects more behaviorally impactful. Future research can explore more contemporary utilitarian triggers, such as AI-driven personalization, express delivery options, or platform trust, which better reflect current consumer priorities as suggested by Sun et al. (2025).

Another limitation is the generalizability of the findings, as the study's sample was drawn primarily from a specific demographic—Indonesian e-commerce users, with the majority being young adults. This narrow demographic focus may not fully capture the diversity of online shopping behaviors across different age groups, income levels, or cultural backgrounds. Given that impulsive buying behavior may vary significantly across these segments (Chiu et al., 2014), future research should aim to include a more representative sample, ensuring that the results apply to broader consumer populations.

Building upon these limitations, there are several opportunities for future research to enhance the understanding of impulsive buying behavior in e-commerce contexts. First, future studies should explore additional moderating factors beyond time pressure. Variables such as gender, age, past shopping experiences, or personality traits could provide a more nuanced understanding of how different consumer segments respond to various marketing stimuli (Zhang et al., 2022). For instance, previous research has shown that gender can influence impulsive buying patterns, with men and women responding differently to emotional and rational triggers (Sun et al., 2024). Including these factors in future studies could offer more targeted insights for marketers.

Furthermore, expanding the research to include a more diverse sample would yield more generalizable findings across different demographics. Future studies could incorporate cross-cultural comparisons to examine whether the findings on hedonic and utilitarian motivations hold across different cultures and market contexts. In addition, the role of evolving technologies—such as AI-driven personalized marketing and virtual shopping experiences—could also be explored as factors that might influence impulsive buying behavior. As personalized AI recommendations become more common in online shopping, future research could investigate how these technologies enhance or mitigate impulsive purchasing behavior. Lastly, future studies could investigate the long-term effects of impulsive buying behavior on customer satisfaction and loyalty. While this study primarily focused on the immediate decision-making process, understanding how impulsive purchases impact long-term consumer attitudes and repeat purchase behavior would provide further insight into consumer-brand relationships in e-commerce.

CRedit authorship contribution statement

Andri Dayarana K. Silalahi: Investigation, Data curation, Writing –

review & editing, Validation, Writing – original draft, Formal analysis, Conceptualization. **Do Thi Thanh Phuong:** Methodology, Data curation, Writing – original draft, Writing – review & editing, Conceptualization. **Adi Prasetyo Tedjakusuma:** Writing – original draft, Methodology, Data curation, Resources, Software, Investigation. **Ixora Javanisa Eunike:** Software, Visualization, Methodology, Formal analysis, Writing – original draft, Investigation. **Dalianus Riantama:** Visualization, Data curation, Writing – review & editing, Software, Writing – original draft, Investigation, Methodology.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data used to support the findings of this study are available from the corresponding author upon request to andridksilalahi@gmail.com and s11337912@gm.cyut.edu.tw

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