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Factors Influencing Attitudes and Online Purchase Intentions in E-Commerce: Evidence from Indonesian Millennials

Inayati Nasrudin[1*], Kaswan[2], Usman Bahtiar[3]
[1]Faculty of Egineering, Universitas Sangga Buana, Bandung
[2]Faculty of Languange Education, IKIP Siliwangi, Bandung
[3]Faculty of Economics and Business, Universitas Trisakti, Jakarta
Corresponding Author: Inayati Nasrudin nasrudin.inayati@gmail.com

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ABSTRACT
This research examines the key factors influencing millennials' perceptions of e-commerce platforms in Indonesia and how these perceptions affect their willingness to make online purchases. A cross-sectional research design was employed, involving a survey of 397 active e-commerce platform users. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) and Partial Least Squares Multi-Group Analysis (PLS-MGA). The results reveal that perceived usefulness, self-efficacy, perceived risk, and emotional overreaction significantly shape users' perceptions, whereas social norms have a minimal influence. Furthermore, users' attitudes, self-efficacy, and emotional tendencies are positively associated with their purchase intentions, while social norms and perceived risk do not have a significant direct effect. User attitudes also serve as a mediating variable, linking most of the examined factors to purchase intention. Ultimately, gender does not significantly moderate the relationship between attitude and purchase intention. These findings highlight the importance of e-commerce providers focusing on optimizing users' experiential and psychological aspects rather than relying primarily on demographic segmentation strategies.

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INTRODUCTION

In the past few years, Indonesia's e-commerce sector has experienced significant expansion, with transaction values increasing from IDR 205.5 trillion in 2019 to IDR 487.01 trillion in 2024 (Pusatdata.kontan.co.id, 2025; Ngadimin, 2024). This rapid expansion reflects changing consumer behavior, driven by convenience, broad product offerings, and aggressive promotional strategies. As digital commerce becomes increasingly embedded in daily life, online marketplaces face growing pressure to maintain consumer trust and engagement through high service quality, particularly in terms of information accuracy, transaction security, and delivery reliability, as well as personalized and data-driven marketing efforts.

Understanding the psychological and behavioral factors that influence online shopping decisions is essential for the continued growth of e-commerce. Effective marketing strategies increasingly depend on insights from behavioral science, which examines how consumers think, feel, and behave. Consumer behavior is dynamic and influenced by personal factors as well as broader social contexts (Kotler & Keller, 2016). Therefore, marketing strategies must address not only what consumers do but also why they make particular purchasing decisions.

This study incorporates several behavioral models to investigate the online purchase intentions of Indonesian millennials. It primarily draws on the Technology Acceptance Model (TAM), which emphasizes perceived usefulness; the Theory of Planned Behavior (TPB), which includes components such as subjective norms, attitudes, self-efficacy, and behavioral intention; and the Health Belief Model (HBM), which introduces perceived risk as a potential barrier to engagement. To further enhance the explanatory power of these models, the study also incorporates the construct of overreaction, reflecting emotional volatility in digital interactions, and includes gender as a moderating variable.

Focusing on the millennial demographic, which accounts for approximately one-quarter of Indonesia's population, this research seeks to identify the primary psychological and social factors shaping consumers' attitudes and intentions toward online shopping. Millennials represent a vital consumer segment due to their digital literacy, economic potential, and receptiveness to technology-based marketing strategies. By examining the interplay between cognitive and affective factors in consumer decision-making, this study provides insights into the factors that encourage e-commerce participation and offers strategic recommendations for digital platforms seeking to enhance customer loyalty in an increasingly competitive digital marketplace.

Objectives

The primary objective of this study is to examine the factors influencing attitudes toward e-commerce and online purchase intentions among Indonesian millennials. As one of the largest and most active digital consumer segments in Indonesia, millennials play a significant role in shaping the growth of the e-

commerce industry (Nasrudin et al., 2025). Understanding the determinants of their purchasing behavior is therefore essential for both academics and practitioners.

Specifically, this study aims to identify the key factors affecting consumers' attitudes toward e-commerce, evaluate the influence of these attitudes on online purchase intentions, and analyze the direct and indirect relationships among the proposed variables. By investigating these relationships, the study seeks to provide a comprehensive understanding of the mechanisms driving online purchasing decisions among Indonesian millennials.

Furthermore, the findings are expected to contribute to the existing literature on consumer behavior and e-commerce adoption while offering practical insights for e-commerce platforms and digital marketers. These insights may support the development of effective marketing strategies to improve consumer attitudes and encourage online purchase intentions in the Indonesian market.

LITERATURE REVIEW

Intention to Buy Online

The term "online purchase intention" describes the extent to which consumers are willing and prepared to purchase goods or services through digital platforms (Close & Kukar-Kinney, 2010; Ariffin & Goh, 2018). It is closely associated with how users evaluate the digital environment and the level of trust they place in virtual platforms when conducting transactions. A stronger purchase intention typically indicates a greater likelihood of actual purchasing behavior.

Various factors influence consumers' intentions to make online purchases, including perceived usefulness and ease of use (Hanjaya et al., 2019; Wirawan et al., 2021), trust (Ariffin & Goh, 2018; Wirawan et al., 2021), system and information quality (Hanjaya et al., 2019), promotional efforts (Wirawan et al., 2021), perceived risk, subjective norms, social influence (Wirawan et al., 2021; Ariffin & Goh, 2018), and attitudes (Lim et al., 2019; Diah et al., 2019). These factors operate within a dynamic digital environment that continuously shapes consumer behavior and decision-making processes.

Attitude Toward Using E-Commerce Applications

According to the Theory of Planned Behavior (TPB), attitude is a key determinant of behavioral intention. It represents an individual's positive or negative evaluation of a particular behavior (Ajzen, 1991). This construct encompasses cognitive (belief-based), affective (emotion-based), and behavioral (action-based) dimensions (Fishbein & Ajzen, 1975). For instance, consumers may perceive online shopping as convenient (cognitive dimension), derive enjoyment from browsing e-commerce platforms (affective dimension), and express willingness to make purchases (behavioral dimension).

Numerous studies have consistently demonstrated a positive relationship between attitude and consumers' intentions to make online purchases, although the strength of this relationship may vary across demographic groups and contexts (Hasan, 2010; Diah et al., 2019). Gender differences have also been observed. Men tend to express more favorable attitudes and higher levels of trust toward online shopping, whereas women often prefer evaluating products in person and demonstrate greater concern about privacy (Lim et al., 2019). Drawing on previous research, the following hypothesis is proposed:

H1: Attitude toward using e-commerce applications positively affects online purchase intention.

Perceived Usefulness of E-Commerce Platforms

Drawing on the Technology Acceptance Model (TAM), perceived usefulness refers to the extent to which individuals believe that using a particular technology enhances their performance or efficiency (Davis, 1989). In the context of e-commerce, this perception relates to the effectiveness, efficiency, and convenience of online transactions. Empirical evidence indicates that perceived usefulness substantially influences consumer attitudes and behavioral intentions toward online platforms (Ursavaş, 2022; Wang, 2023).

Consumers who perceive e-commerce platforms as highly useful are more likely to develop positive attitudes and stronger purchase intentions (Nor & Pearson, 2008; Gerrard & Cunningham, 2003; Hidayat, 2023). Based on the review of previous studies, the following hypotheses are proposed:

H2: Perceived usefulness positively affects online purchase intention.

H3: Perceived usefulness positively affects attitudes toward using e-commerce applications.

H4: Attitude mediates the relationship between perceived usefulness and online purchase intention.

Perceived Social Norms

Subjective norms are a fundamental component of the Theory of Planned Behavior (TPB) and refer to an individual's perception of social expectations regarding whether to perform or avoid a particular behavior (Ajzen, 1991). These norms are influenced by beliefs about what significant others, such as friends, relatives, and social figures, think an individual should do (Fishbein & Ajzen, 1975).

Previous findings suggest that subjective norms positively influence individuals' attitudes and behavioral intentions, particularly in areas such as health-related behavior and environmentally conscious consumption (Wiwoho & Riptiono, 2022; Lasut et al., 2022). Based on the previous literature, the following hypotheses are formulated:

H5: Perceived social norms positively affect online purchase intention.

H6: Perceived social norms positively affect attitudes toward using e-commerce applications.

H7: Attitude mediates the relationship between perceived social norms and online purchase intention.

Perceived Self-Efficacy

Derived from Social Cognitive Theory, self-efficacy is defined as an individual's confidence in their ability to perform a specific task or action effectively (Bandura, 1977). In the context of e-commerce, self-efficacy refers to consumers' confidence in their ability to navigate and use online platforms, complete purchases, and manage potential risks (Ajzen, 1991; Pena-García et al., 2020).

Higher levels of self-efficacy are frequently associated with a greater willingness to adopt digital technologies and more positive perceptions of online purchasing (Faqih, 2016; Ramadania & Braridwan, 2019). Based on the review of previous literature, the following hypotheses are proposed:

H8: Perceived self-efficacy positively affects online purchase intention.
H9: Perceived self-efficacy positively affects attitudes toward using e-commerce applications.
H10: Attitude mediates the relationship between perceived self-efficacy and online purchase intention.

Consumers' Perceived Risk

Perceived risk refers to consumers' perceptions of uncertainty and potential adverse consequences associated with online transactions (Ko et al., 2013; Dowling & Staelin, 1994). In e-commerce environments, such risks typically involve concerns about financial security, potential violations of personal data privacy, and doubts regarding product quality and authenticity (Shaizatulaqma Kamalul Ariffin & Goh, 2018; Kim & Kim, 2014).

Higher levels of perceived risk tend to negatively influence consumers' evaluations of e-commerce platforms and reduce their likelihood of engaging in online purchasing behavior. Previous research highlights that mitigating perceived risks is essential for fostering consumer confidence and encouraging greater participation in online purchasing (Makhitha & Ngobeni, 2024). Drawing on these insights, the following hypotheses are formulated:

H11: Consumers' perceived risk negatively affects online purchase intention.
H12: Perceived risk negatively affects consumers' attitudes toward using e-commerce platforms.
H13: Attitude mediates the relationship between consumers' perceived risk and online purchase intention.

Overreaction

Overreaction is conceptualized as a psychological tendency to respond with heightened emotional intensity to specific stimuli, such as promotional content or unexpected events (De Bondt & Thaler, 1985). In the context of consumer behavior, this tendency may manifest in impulsive or emotionally

driven purchasing decisions (Nasrudin et al., 2025; Destari, 2020; Bahrah & Fachira, 2021; Bilal et al., 2022).

Previous studies suggest that impulsivity, often stimulated by emotional cues or marketing stimuli, can influence consumer attitudes and lead to unplanned purchasing behavior (Huang & Kuo, 2012; Wibisono & Fachira, 2021; Kumar & Chaurasia, 2024). Drawing on this body of literature, the following hypotheses are formulated:

H14: Overreaction positively affects online purchase intention.

H15: Overreaction positively affects attitudes toward using e-commerce applications.

H16: Attitude mediates the relationship between overreaction and online purchase intention.

Gender as a Moderating Variable

Previous research has documented gender-based differences in attitudes, preferences, and trust toward online shopping (Hasan, 2010). Men are generally reported to be more confident and experienced in navigating digital platforms, whereas women tend to place greater importance on physically inspecting products and often demonstrate greater concern about data privacy (Lim et al., 2019).

These differences suggest that gender may influence the strength of the relationship between attitude and online purchase intention. Therefore, the following hypothesis is proposed based on previous research:

H17: Gender moderates the relationship between attitude and online purchase intention.

METHODOLOGY

Population and Sampling Technique

The target population of this study consisted of millennial consumers residing in the JABOTABEK region (Jakarta, Bogor, Tangerang, and Bekasi) who actively engage in online shopping through e-commerce platforms such as Tokopedia, Shopee, Lazada, and other similar services. Millennials are defined as individuals born between 1981 and 1996 (Kotler et al., 2021).

This study employed a purposive sampling technique, with specific inclusion criteria established to identify eligible respondents: (1) individuals born between 1981 and 1996; (2) active users of at least one of the specified e-commerce platforms; and (3) individuals residing in the JABOTABEK region.

A total of 398 respondents met these criteria and participated in the study. Data were collected through an online survey distributed using Google Forms to ensure accessibility and operational efficiency. Data analysis was conducted using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. Specifically, Partial Least Squares Multi-Group Analysis (PLS-MGA) was employed to examine differences in the structural relationships between male and female respondent groups within the proposed research model.

RESULTS AND DISCUSSION

Demographic Characteristics

The study involved 398 respondents. Of these, 184 (46.3%) were male and 213 (53.7%) were female. The majority of respondents were employed in the private sector (55.7%), while the remaining respondents belonged to other employment categories. In terms of monthly income, most respondents earned between IDR 5 million and IDR 10 million (55.7%). Geographically, the largest proportion of respondents resided in Tangerang (43.1%), followed by Jakarta (28.5%).

Descriptive Statistics

Table 1 presents the descriptive statistics for each research variable, categorized by gender. Overall, male and female respondents reported relatively similar perceptions across all constructs.

Table 1. Descriptive Statistics by Gender

Variable	**Male (M ± SE)**	**Female (M ± SE)**
Perceived Usefulness	4.34 ± 0.0561	4.40 ± 0.0492
Perceived Social Norms	3.41 ± 0.0812	3.34 ± 0.0728
Perceived Self-Efficacy	4.29 ± 0.0571	4.36 ± 0.0499
Consumers' Perceived Risk	3.88 ± 0.0730	3.87 ± 0.0675
Overreaction	3.24 ± 0.0853	3.26 ± 0.0742
Attitude	4.02 ± 0.0616	4.12 ± 0.0591
Purchase Intention	3.98 ± 0.0691	4.04 ± 0.0624

Source: Primary Data Processing (2025).

Measurement Model Results

The measurement model was evaluated to assess the validity and reliability of the research constructs. The assessment included convergent validity, internal consistency reliability, and discriminant validity. The discriminant validity results are presented in Table 2.

Table 2. Measurement Model (Discriminant Validity)

Construct	**AT**	**OR**	**PR**	**PU**	**PI**	**SE**	**SN**
Attitude (AT)	—						
Overreaction (OR)	0.401	—					
Consumers' Perceived Risk (PR)	0.598	0.620	—				
Perceived Usefulness (PU)	0.648	0.133	0.488	—			
Online Purchase Intention (PI)	0.860	0.564	0.602	0.592	—		
Perceived Self-Efficacy (SE)	0.650	0.164	0.529	0.850	0.612	—	
Perceived Social Norms (SN)	0.307	0.577	0.455	0.166	0.367	0.218	—

Source: Primary Data Processing (2025).

Structural Model Results

Further analysis of the structural model was conducted to assess the relationships among the variables within the proposed research framework. The results of hypothesis testing, including path coefficients, t-values, and conclusions, are presented in Table 3.

Table 3. Hypothesis Testing Results

Hypothesis	Path	Coefficient	t-value	Conclusion
H1	AT → PI	0.538	10.152	Supported
H2	PU → AT	0.295	4.506	Supported
H3	PU → PI	0.083	1.653	Not Supported
H4	PU → AT → PI	0.159	4.248	Supported
H5	SN → AT	0.046	0.938	Not Supported
H6	SN → PI	-0.022	0.536	Not Supported
H7	SN → AT → PI	0.025	0.924	Not Supported
H8	SE → AT	0.275	3.827	Supported
H9	SE → PI	0.153	2.751	Supported
H10	SE → AT → PI	0.148	3.780	Supported
H11	PR → AT	0.122	2.108	Supported
H12	PR → PI	-0.009	0.222	Not Supported
H13	PR → AT → PI	0.066	1.965	Supported
H14	OR → AT	0.236	4.398	Supported
H15	OR → PI	0.287	5.955	Supported
H16	OR → AT → PI	0.127	4.022	Supported

Source: Primary Data Processing (2025).

Multi-Group Analysis (PLS-MGA)

To test H17 concerning the moderating effect of gender on the relationship between attitude and purchase intention, a Partial Least Squares Multi-Group Analysis (PLS-MGA) was conducted. The results are presented in Table 4.

Table 4. PLS-MGA Path Coefficients and t-Test Results

Group	Coefficient (β)	SE
Male	0.535	0.0610
Female	0.553	0.0576
t-value	-0.2145	—
Conclusion	Gender does not moderate the relationship	

Source: Primary Data Processing (2025).

DISCUSSION

Numerical Results

Based on the SEM-PLS analysis, the measurement model demonstrated acceptable convergent validity and internal consistency reliability. All outer loadings exceeded the recommended minimum threshold of 0.40 (Hair et al.,

2022). Composite reliability (CR) values were above 0.70, while average variance extracted (AVE) values exceeded the recommended threshold of 0.50.

Discriminant validity was assessed using the Heterotrait-Monotrait (HTMT) ratio. As presented in Table 2, all HTMT values remained below the recommended threshold of 0.90, as suggested by Hair et al. (2022), indicating an acceptable level of discriminant validity among the research constructs.

The hypothesis testing results obtained through the SEM-PLS approach are summarized in Table 3. Of the 11 direct-effect hypotheses, seven were supported (H1, H2, H8, H9, H11, H14, and H15), as their t-values exceeded the threshold of 1.96. Meanwhile, four hypotheses were not supported (H3, H5, H6, and H12), as their t-values were below 1.96.

Regarding the indirect effects mediated by attitude, four of the five hypotheses were supported (H4, H10, H13, and H16), with t-values exceeding 1.96. However, H7 was not supported because its t-value was below the required threshold. Figure 1 illustrates the findings obtained from the structural model analysis.

Based on Table 4, the path coefficients for male and female respondents were 0.535 and 0.553, respectively. The t-test result for the difference between the two groups was -0.2145, with an absolute value of 0.2145, which was below the threshold of 1.96. This result indicates that gender does not significantly moderate the relationship between attitude and online purchase intention.

Graphical Results

The findings indicate that attitude significantly and positively influences consumers' online purchase intentions. This result is consistent with the Theory of Planned Behavior (TPB) (Ajzen, 1991) and previous empirical findings (Hasan, 2010; Diah et al., 2019). It suggests that millennial consumers who hold favorable evaluations of e-commerce platforms are more likely to develop stronger intentions to make online purchases. Attitude also serves as an important mediator in several relationships between predictor variables and purchase intention, reinforcing its central role in the online decision-making process.

Furthermore, perceived usefulness significantly influences attitude but does not directly affect online purchase intention. This finding partially supports the Technology Acceptance Model (TAM) (Davis, 1989), which suggests that perceived usefulness shapes users' attitudes but does not necessarily translate directly into behavioral intentions. The insignificant direct relationship is consistent with the findings of Ursavaş (2022). This may be attributed to non-transactional platform activities, such as using Shopee Games or browsing products for price comparisons, as well as unmet consumer needs during browsing sessions (Albanani & Hapsari, 2022; Hidayat, 2023). However, the indirect effect through attitude is significant, confirming that perceived usefulness can still influence purchase intention through positive consumer evaluations (Hidayat, 2023).

Contrary to the original assumptions of TPB (Fishbein & Ajzen, 1975), subjective norms do not significantly influence either attitude or online purchase intention. This result differs from previous studies (Lasut et al., 2022; Wiwoho & Riptiono, 2022) and may indicate distinctive characteristics among millennial consumers. Millennials may place greater value on independence and be less susceptible to peer or societal pressure when making purchasing decisions (Valentine et al., 2013). The absence of a significant mediating effect of attitude further suggests that recommendations from others may have limited persuasive influence on this consumer segment.

Consistent with previous literature (Faqih, 2016; Pena-García et al., 2020), the results indicate that perceived self-efficacy positively and significantly influences both consumer attitudes and online purchase intentions. When consumers perceive themselves as competent in using digital shopping platforms, they tend to feel more confident and empowered to complete online transactions. The significant mediating effect of attitude further supports the notion of internalization, whereby self-efficacy strengthens positive perceptions that subsequently encourage behavioral intentions (Ramadania & Braridwan, 2019).

Consumers' perceived risk significantly influences their attitudes but does not demonstrate a significant direct relationship with online purchase intention. This finding contrasts with the conclusions of Nasrudin et al. (2024). The discrepancy may be attributed to contextual factors, such as the digital literacy and familiarity of millennial consumers with e-commerce platforms, which may reduce the inhibiting effect of perceived risks (Pavlou, 2014). Moreover, popular e-commerce platforms in Indonesia offer features such as buyer protection, convenient return policies, and customer reviews that may help reduce consumers' perceived risks. Nevertheless, perceived risk indirectly influences purchase intention through attitude, demonstrating its relevance in shaping consumer perceptions even when its direct relationship with purchasing intention is not significant.

Overreaction demonstrates a significant and positive influence on both consumers' attitudes and online purchase intentions. This finding is consistent with the literature on impulsive online buying behavior (Listriyani & Wahyono, 2019; Huang & Kuo, 2012). Millennial consumers may be more inclined toward emotionally driven purchasing decisions, particularly in fast-paced, mobile-enabled environments (Nasrudin et al., 2025). The mediating role of attitude highlights how emotional or spontaneous responses may be channeled through positive consumer evaluations before influencing behavioral intentions (Rizquna & Albari, 2023).

The multi-group analysis reveals that gender does not significantly moderate the relationship between attitude and online purchase intention. This finding contrasts with earlier research highlighting gender differences in online shopping behavior (Lim et al., 2019). It may reflect the increasing normalization of e-commerce usage across genders in Indonesia. According to Google, Temasek, and Bain (2022), male and female consumers have increasingly

similar exposure to digital commerce. These findings suggest that platform loyalty, interactivity, and convenience may be more influential than demographic distinctions in shaping online purchasing decisions (Domingos, 2022).

Proposed Improvements

This study offers several contributions to the existing literature on e-commerce consumer behavior. First, while previous studies have extensively examined the determinants of online purchase intention, many have focused on general consumer populations or specific national contexts. This study specifically investigates Indonesian millennials, a demographic group representing an important segment of the country's digital economy.

Second, this study integrates multiple determinants of online purchasing behavior into a comprehensive framework by examining their effects on consumer attitudes and subsequent online purchase intentions. This approach provides a broader understanding of the psychological and behavioral mechanisms underlying e-commerce adoption.

Third, the research considers the evolving Indonesian e-commerce environment, where technological advancements, digital payment systems, and increasing competition among online marketplaces have significantly influenced consumer behavior. Consequently, the findings provide context-specific insights into the factors shaping online purchasing decisions among Indonesian millennials.

Finally, this study offers practical implications for e-commerce businesses, digital marketers, and policymakers by identifying the factors associated with millennials' online purchasing decisions. These insights can support the development of more effective marketing strategies, customer engagement initiatives, and policies aimed at promoting sustainable growth in Indonesia's digital commerce sector.

The practical implications of this study suggest that marketers should focus on enhancing perceived usefulness, ease of use, and transaction security, while also strengthening consumer confidence and designing emotionally engaging shopping experiences. Rather than relying heavily on social influence or demographic distinctions, e-commerce platforms should prioritize improving user experiences and building positive consumer attitudes. Future research is encouraged to explore platform-specific dynamics, cross-generational comparisons, and longitudinal patterns in online purchasing behavior.

CONCLUSION AND RECOMMENDATION

This study demonstrates that perceived usefulness, perceived self-efficacy, perceived consumer risk, and overreaction significantly influence attitudes toward using e-commerce platforms among millennial consumers. However, perceived social norms do not significantly shape user attitudes,

highlighting the diminished role of social pressure in the context of digital consumer behavior.

Furthermore, attitude, along with perceived self-efficacy and overreaction, directly predicts online purchase intention. Attitude also functions as a mediating variable in most predictor relationships, except for subjective norms. This finding underscores the central role of attitude in translating individual perceptions and emotional responses into behavioral intentions.

In conclusion, the analysis does not support gender as a moderating variable in the relationship between attitude and purchase intention. This indicates that male and female millennials may exhibit similar behavioral patterns in the context of e-commerce.

FURTHER STUDY

Despite offering meaningful contributions to understanding the factors that drive online purchase intention among millennials using e-commerce platforms, this study has several limitations.

First, this research focused exclusively on millennial respondents from the JABOTABEK area. This limitation constrains the generalizability of the findings to broader demographic groups, including Generation Z, Generation X, and consumers from non-urban regions. Digital preferences, habits, and attitudes may vary significantly across generations and geographical areas.

Second, the study employed a cross-sectional research design, in which data were collected at a single point in time. Consequently, this design limits the ability to track changes in consumer attitudes and purchase intentions over time. Therefore, causal relationships cannot be firmly established, and the findings should be interpreted as correlational in nature.

Finally, this study considered only gender as a moderating variable. Other potentially influential moderators, such as income level, familiarity with specific platforms, digital literacy, and shopping frequency, were not examined. These variables could provide deeper insights into behavioral differences across consumer segments.

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