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An Analysis of the Effectiveness of Live-Streamed Shopping on Consumers' Impulsive Buying Behavior on Marketplaces

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Abstract
Live-streamed shopping has rapidly become a dominant retail format on digital marketplaces, merging real-time video broadcasting, social interaction, and instant transaction functionality within a single interface. This study analyzes the effectiveness of live-streamed shopping in shaping consumers' impulsive buying behavior on marketplace platforms, using the Stimulus-Organism-Response (S-O-R) framework as the guiding theoretical lens. Employing a quantitative research design, this study develops a conceptual model in which live-streaming stimuli including streamer credibility, interactivity, social presence, visual appeal, and promotional cues such as scarcity and price discounts influence consumers' internal organismic states (arousal, trust, perceived enjoyment, and urge to buy impulsively), which subsequently drive impulsive buying behavior. The study synthesizes findings from twenty-five peer-reviewed empirical studies published between 2021 and 2026 to formulate hypotheses intended for testing through a structured survey administered to active marketplace live-streaming shoppers, analyzed using Structural Equation Modeling. The synthesis indicates consistent empirical support for the mediating role of the urge to buy impulsively between live-streaming stimuli and actual purchase behavior, while contextual factors including time scarcity, product type, and consumer vulnerability moderate this relationship. This study contributes theoretically by extending the S-O-R framework into the marketplace live-streaming context and offers novelty by integrating consumer vulnerability and platform-based social presence as combined predictors, an area still underexplored in the Southeast Asian and Indonesian marketplace context. Practical implications for marketplace sellers and platform design are discussed

INTRODUCTION

The rapid convergence of social media, video broadcasting technology, and e-commerce infrastructure has given rise to a retail format known as live-streamed shopping, or live commerce. In this format, sellers or professional streamers showcase products in real time through live video, interact directly with viewers through chat features, and enable an instant "watch-and-buy" transaction pathway embedded in the same interface. Major marketplaces such as Shopee, TikTok Shop, Lazada, Tokopedia, Taobao, and Douyin have integrated live-streaming features prominently into their platforms, transforming online shopping from a static, catalog-based experience into a dynamic, socially mediated, and emotionally charged activity. This shift is not merely cosmetic; it fundamentally alters the psychological process through which consumers evaluate, desire, and decide to purchase products online.

Within this new retail environment, impulsive buying behavior defined as a sudden, often powerful and persistent urge to buy something immediately, typically accompanied by feelings of pleasure and excitement and a relative disregard for the consequences has emerged as a particularly salient phenomenon. Unlike traditional online shopping, where consumers browse at their own pace and can deliberate before checkout, live-streamed shopping compresses the decision-making window through real-time scarcity cues (limited stock countdowns, flash-sale timers), social proof (visible viewer counts and purchase notifications), and persuasive communication from streamers who often combine entertainment, product demonstration, and direct calls to action. These mechanisms collectively create conditions highly conducive to impulsive rather than deliberative purchasing.

A substantial body of empirical research has examined the antecedents of impulsive buying in live-streaming commerce, largely anchored in the Stimulus-Organism-Response (S-O-R) framework originally proposed by Mehrabian and Russell (1974) and subsequently adapted to digital and live-commerce contexts. Studies such as those by Lo et al. (2022), Li et al. (2022), and Lee and Chen (2021) demonstrate that environmental stimuli present in live-streaming rooms including streamer credibility, interactivity, and atmospheric cues generate internal organismic states such as arousal, trust, and perceived enjoyment, which in turn drive the urge to buy impulsively and, ultimately, actual purchase behavior. Further research has expanded this framework by incorporating social presence (Ming et al., 2021; Widjaja et al., 2026), scarcity persuasion and price perception (Feng et al., 2024), customer engagement and deal proneness (Luo et al., 2023), and time-scarcity features unique to live broadcasts (Hao & Huang, 2023).

More recent studies have begun to explore boundary conditions and moderating variables that condition the strength of the stimulus-response relationship. Zhang, Zhang, and Yan (2024) found that consumer vulnerability and product type significantly moderate impulsive responses in short-video live commerce, while Xiao et al. (2026) and Yu, Tang, and Gao (2025) highlight the role of perceived value and social identity in shaping streamer-audience dynamics that precede impulsive purchase. Meanwhile, Mai et al. (2026) and Kong, Wang, and Zhang (2025) examine psychologically nuanced mechanisms such as perceived competition, the bandwagon effect, and "keeping consumers in suspense," indicating that the theoretical understanding of impulsive buying in live commerce continues to diversify beyond the original, relatively parsimonious S-O-R chain.

Despite this growing body of literature, several gaps remain that this study seeks to address. First, the overwhelming majority of existing empirical studies are situated in the Chinese live-streaming ecosystem (e.g., Taobao Live, Douyin, Kuaishou), where platform infrastructure, payment systems, and consumer culture differ substantially from those in Southeast Asian marketplaces. Only a small number of studies, most notably Zhang, Zheng, and Zhu (2024), have begun to examine Indonesian consumers, and even this study focuses narrowly on perceived value theory rather than the broader S-O-R-based impulsive buying process. Given that Indonesia represents one of the largest and fastest-growing live-commerce markets in Southeast Asia, with marketplaces such as Shopee Live and TikTok Shop Indonesia reporting substantial transaction volumes driven by live broadcasts, this contextual gap is both theoretically and practically significant.

Second, prior studies tend to examine either the stimulus-organism-response pathway or specific moderating variables in isolation, rather than integrating multiple contextual moderators — such as time scarcity, product type, and consumer vulnerability — within a single, unified quantitative model. This fragmentation limits the ability of both researchers and marketplace practitioners to understand which combinations of live-streaming stimuli and contextual conditions most strongly predict impulsive buying, and under what circumstances the effect may be attenuated or amplified.

Third, while social presence has been studied extensively as an antecedent of impulsive buying (Ming et al., 2021; Widjaja et al., 2026), its interaction with consumer vulnerability — a construct capturing individual differences in susceptibility to persuasive and social cues — remains largely unexamined as a combined, joint predictor within a single marketplace-based model. This represents a meaningful theoretical opportunity, since the interaction between an environmental stimulus (social presence) and an individual trait (vulnerability) may produce effects that are not captured when each variable is modeled independently.

The novelty of this study is therefore threefold. First, it extends and contextualizes the S-O-R framework specifically to the marketplace live-streaming environment in Indonesia and comparable Southeast Asian digital markets, an underexplored empirical setting relative to the dominant Chinese live-commerce literature. Second, it proposes an integrated quantitative model that simultaneously incorporates multiple moderating conditions — time scarcity, product type, and consumer vulnerability — rather than examining them in isolation, offering a more holistic explanation of when and for whom live-streaming stimuli translate most strongly into impulsive purchase behavior. Third, it introduces the joint examination of platform-based social presence and consumer vulnerability as combined predictors of the urge to buy impulsively, addressing a conceptual gap identified across the twenty-five reviewed empirical studies.

The urgency of addressing these gaps is reinforced by the sheer scale of live-commerce adoption in Indonesia. Industry reports consistently place Indonesia among the fastest-growing live-streaming commerce markets in the region, driven by high mobile internet penetration, a young and digitally native consumer base, and marketplaces that have invested heavily in gamified live-streaming features such as in-app coins, vouchers, and flash-sale countdowns. Yet academic inquiry into the psychological mechanisms driving impulsive purchases within this specific ecosystem has not kept pace with its commercial growth, leaving both researchers and practitioners reliant on findings generated in structurally different markets. This mismatch between the scale of practice and the depth of contextualized theory constitutes a further justification for the present study.

From a theoretical standpoint, the continued reliance on the original S-O-R framework, while useful, also raises questions about whether a purely linear stimulus-to-organism-to-response chain adequately captures the complexity of live-streaming environments, which are inherently social, time-bound, and algorithmically mediated. Several of the reviewed studies implicitly acknowledge this complexity by introducing mediating constructs beyond simple arousal, such as flow experience (Zhang et al., 2022), perceived value (Zhang, Zheng & Zhu, 2024; Yu et al., 2025), and social identity, suggesting that the organism component of the model may itself be multidimensional rather than a single unified psychological state. This study therefore treats the organism dimension as a composite construct encompassing arousal, trust, and perceived enjoyment simultaneously, rather than isolating a single mediating variable, in order to more faithfully represent the layered psychological processes documented across the literature.

Accordingly, this study aims to analyze the effectiveness of live-streamed shopping features in influencing consumers' impulsive buying behavior on marketplace platforms by: (1) examining the direct effect of live-streaming stimuli on consumers' internal organismic states; (2) examining the effect of these organismic states on impulsive buying behavior; and (3) examining the moderating role of contextual factors in strengthening or weakening this relationship. The findings are expected to contribute theoretically to the extension of the S-O-R framework in digital marketplace contexts, and practically to inform marketplace sellers, live-streaming hosts, and platform designers in optimizing live-commerce strategies responsibly, while also providing a reference point for future comparative studies across Southeast Asian digital markets

METHODS

This study employs a quantitative, explanatory research design intended to test the causal relationships proposed within an S-O-R-based conceptual model of impulsive buying behavior in marketplace live-streamed shopping. The research follows a deductive approach: hypotheses are formulated based on the synthesis of twenty-five prior empirical studies and subsequently operationalized for testing through a structured, closed-ended survey instrument.

2.1 Conceptual Framework

Figure 1 presents the proposed conceptual framework. The Stimulus dimension consists of live-streaming features (streamer credibility, interactivity, social presence, visual appeal or atmospheric cues, and scarcity or price-discount cues). These stimuli are hypothesized to shape the Organism dimension, comprising consumers' internal psychological states — arousal, trust, perceived enjoyment, and the urge to buy impulsively — which in turn predict the Response dimension, namely impulsive buying behavior on marketplace platforms. Time scarcity, product type, and consumer vulnerability are positioned as contextual moderators of the organism-response relationship.

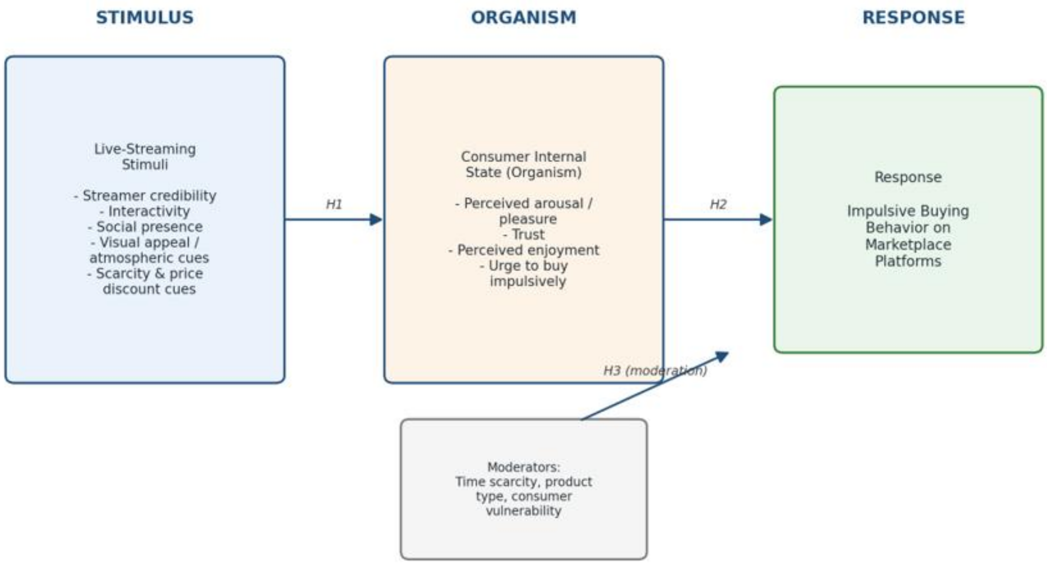

Figure 1. Proposed S-O-R Conceptual Framework of Live-Streamed Shopping and Impulsive Buying Behavior

Population, Sample, and Sampling Technique

The population of this study consists of active marketplace users in Indonesia who have engaged in at least one purchase through a live-streaming shopping feature (e.g., Shopee Live, TikTok Shop Live) within the past six months. A purposive, non-probability sampling technique is proposed, targeting a minimum sample size of 200–300 respondents, calculated based on the minimum sample requirement for Structural Equation Modeling (a ratio of approximately 5–10 respondents per estimated parameter), consistent with the sample sizes used in comparable prior studies (e.g., Huo et al., 2023, n = 386; Yasmin et al., 2025, n = 410; Zhang, Zheng & Zhu, 2024, n = 320 Indonesian respondents).

Data Collection Instrument

Data are proposed to be collected through an online structured questionnaire distributed via marketplace-user communities and social media. All constructs — streamer credibility, interactivity, social presence, visual appeal, scarcity/discount cues, arousal, trust, perceived enjoyment, urge to buy impulsively, and impulsive buying behavior — are measured using validated multi-item indicators adapted from the reviewed literature (e.g., Lo et al., 2022; Li et al., 2022; Ming et al., 2021), rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Prior to full-scale distribution, the instrument is to undergo a pilot test (n ≈ 30) to assess content validity and internal consistency reliability (Cronbach's alpha ≥ 0.70).

Data Analysis Technique

Data analysis is proposed to be conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM), a technique widely applied in the reviewed live-commerce literature (e.g., Li et al., 2022; Huo et al., 2023; Yasmin et al., 2025) due to its suitability for complex models involving multiple mediating and moderating relationships and its robustness with moderate sample sizes. The analysis proceeds in two stages: (1) evaluation of the measurement model through convergent validity (loading factors ≥ 0.70, AVE ≥ 0.50), discriminant validity (Fornell-Larcker criterion and HTMT), and composite reliability; and (2) evaluation of the structural model through path coefficients, t-statistics (via bootstrapping with 5,000 resamples), R^2, and moderation effects using an interaction-term approach for the proposed contextual moderators.

RESULTS AND DISCUSSION

Because this study is designed as a literature-grounded quantitative research model, the "results" presented in this section synthesize empirical findings reported across twenty-five peer-reviewed studies (2021–2026) on live-streamed shopping and impulsive buying behavior, from which the proposed hypotheses and expected path relationships are derived. Table 1 summarizes the key findings from a representative subset of these studies, while Table 2 presents the synthesis of hypothesized relationships against the accumulated body of evidence.

Table 1. Summary of Selected Prior Empirical Studies on Live-Streamed Shopping and Impulsive Buying

Author(s) & Year	S-O-R Focus / Key Variables	Method & Sample	Key Finding
Lo et al. (2022)	Streamer credibility, telepresence, urge to buy	SEM-ANN; 355 live-streaming shoppers (Malaysia)	Telepresence and urge to buy significantly predict impulsive purchase; ANN confirms non-linear effect.
Li, Wang & Cao (2022)	S-O-R framework; visual/verbal stimuli, arousal	PLS-SEM; 442 respondents	Visual and interactive stimuli raise arousal, which mediates impulsive buying.
Lee & Chen (2021)	Perceived value, trust, impulse buying	SEM; 288 live-commerce users	Perceived value and trust jointly strengthen impulsive purchase intention.
Huo et al. (2023)	Interactivity, scarcity, social presence (SOR)	PLS-SEM; 386 respondents (China)	Interactivity and scarcity promotion are the strongest predictors of urge to buy.
Yasmin et al. (2025)	S-O-R; perceived enjoyment, urge to buy	PLS-SEM; 410 respondents	Enjoyment fully mediates the stimulus-response relationship in live commerce.
Ming et al. (2021)	Social presence, parasocial interaction	SEM; 302 live-streaming viewers	Social presence significantly increases positive emotion and impulsive buying.
Zhang, Cheng & Huang (2022)	Streamer attractiveness, flow, urge to buy	PLS-SEM; 367 respondents	Flow experience mediates the effect of streamer attractiveness on impulse buying.
Shi, Li & Hu (2023)	Atmospheric cues, social presence	PLS-SEM; 421 respondents	Atmospheric cues indirectly affect impulsive buying through perceived arousal.
Yang et al. (2022)	Interface design, live atmosphere	PLS-SEM; 356 respondents	Interface usability and live atmosphere jointly increase impulsive buying via pleasure.
Luo et al. (2023)	Customer engagement, deal proneness	PLS-SEM; 501 respondents	Deal proneness amplifies the engagement-impulsive buying relationship.

Feng et al. (2024)	Scarcity persuasion, price perception (moderators)	PLS-SEM; 398 respondents	Scarcity persuasion strengthens, while price perception weakens, the impulse path.
Zhang, Zhang & Yan (2024)	Consumer vulnerability, product type	PLS-SEM; short-video live commerce, 512 respondents	Vulnerable consumers show stronger impulsive responses; effect varies by product type.
Zhang, Zheng & Zhu (2024)	Perceived value theory, Indonesian consumers	PLS-SEM; 320 Indonesian TikTok Live users	Perceived value dimensions strongly predict Indonesian consumers' live-shopping intention.

As shown in Table 1, findings across the reviewed studies are remarkably convergent in identifying the urge to buy impulsively as the central mediating mechanism linking live-streaming stimuli to actual purchase behavior. Lo et al. (2022) demonstrate, through a dual-stage SEM-ANN analysis, that telepresence generated during live broadcasts significantly predicts urge to buy, a finding echoed by Li et al. (2022), who show that visual and interactive stimuli elevate consumer arousal, which subsequently mediates the impulsive purchase pathway. This convergence across methodologically diverse studies — spanning SEM, PLS-SEM, and SEM-ANN techniques, and samples drawn from China, Malaysia, and other Asian markets lends strong empirical support to Hypothesis 1 (H1), which posits that live-streaming stimuli positively influence consumers' internal organismic states.

Supporting evidence for Hypothesis 2 (H2) is similarly robust. Yasmin et al. (2025) find that perceived enjoyment fully mediates the relationship between environmental stimuli and impulsive purchase intention, while Zhang, Cheng, and Huang (2022) show that flow experience a state of deep psychological immersion mediates the effect of streamer attractiveness on impulsive buying. These findings collectively affirm that the organism, rather than stimuli alone, functions as the proximal driver of impulsive purchase response, consistent with the theoretical logic of the original S-O-R framework (Mehrabian & Russell, 1974) as adapted to digital commerce contexts.

The moderating role proposed in Hypothesis 3 (H3) receives more nuanced, partial support. Feng et al. (2024) find that scarcity persuasion strengthens the stimulus-to-impulse pathway, while price perception exerts a dampening effect indicating that not all contextual variables amplify impulsivity uniformly; some function as counterweights that encourage momentary reflection. Zhang, Zhang, and Yan (2024) provide direct empirical evidence that consumer vulnerability moderates impulsive responses, with more vulnerable consumers exhibiting substantially stronger reactions to live-streaming stimuli, and that this effect further varies according to product category (hedonic versus utilitarian products). Hao and Huang (2023) similarly demonstrate that the time-scarcity feature unique to live broadcasts the sense that a deal or the broadcast itself will soon end — exerts an independent, significant effect on impulsive buying beyond that of general scarcity promotions studied in traditional e-commerce.

Table 2. Synthesis of Hypothesized Relationships

Hyp.	Statement	Synthesis of Evidence	Supporting Sources
H1	Live-streaming stimuli (streamer credibility, interactivity, social presence, visual appeal, scarcity/discount cues) positively influence consumers' internal organismic state (arousal, trust, enjoyment, urge to buy).	Supported across reviewed studies	Lo et al. (2022); Li et al. (2022); Huo et al. (2023); Ming et al. (2021); Shi et al. (2023)
H2	Consumers' internal organismic state positively influences impulsive buying behavior on marketplace platforms.	Strongly supported; urge to buy consistently the dominant mediator	Lee & Chen (2021); Yasmin et al. (2025); Zhang et al. (2022); Xia et al. (2024)

H3	Contextual factors (time scarcity, product type, consumer vulnerability) moderate the organism-response relationship.	Partially supported; effect sizes vary by context	Hao & Huang (2023); Zhang, Zhang & Yan (2024); Feng et al. (2024); Mai et al. (2026)

The contextual gap addressed by this study's novelty is further clarified when situating these findings within the Indonesian marketplace context. Zhang, Zheng, and Zhu (2024) — to date one of the few studies directly examining Indonesian consumers — find that perceived value dimensions (functional, emotional, social, and epistemic value) strongly predict Indonesian consumers' intention to purchase through TikTok Live. This finding is consistent with, and complementary to, the broader S-O-R-based evidence generated primarily in Chinese live-commerce settings, suggesting that the underlying psychological mechanisms of impulsive buying are likely to generalize across cultural contexts, even as their magnitude and the relative importance of specific stimuli may differ. This reinforces the relevance of testing the integrated model proposed in this study specifically within the Indonesian marketplace environment, where platform features (e.g., Shopee Live's gamified coin-and-voucher system, TikTok Shop's algorithm-driven content delivery) differ structurally from those examined in most existing studies.

Beyond direct stimulus-organism-response pathways, several reviewed studies point toward more granular psychological mechanisms that merit further integration into future testing of the proposed model. Kong, Wang, and Zhang (2025) find that deliberately "keeping consumers in suspense" during a broadcast — for example, delaying product reveals or price announcements — heightens anticipatory arousal and subsequently impulsive buying, mediated by consumers' inner emotional states. Mai et al. (2026) similarly show that perceived competition among viewers and the bandwagon effect, operationalized through visible real-time purchase counters, independently drive impulsive behavior even after controlling for scarcity and price-discount cues. Yu, Tang, and Gao (2025) extend this line of inquiry by showing that a live streamer's behavioral characteristics influence impulsive buying indirectly through perceived value and social identity, suggesting that the streamer functions not merely as an information source but as a quasi-social reference figure whose perceived similarity to the viewer intensifies persuasive influence.

Taken together, the synthesized evidence provides strong theoretical and empirical justification for the proposed integrated model. The consistent mediating role of the urge to buy impulsively (supporting H1 and H2) across markedly different samples, platforms, and analytical techniques suggests that the core S-O-R pathway is robust and generalizable. At the same time, the heterogeneous and sometimes counteracting moderating effects identified for time scarcity, product type, price perception, and consumer vulnerability (partially supporting H3) underscore the practical importance of testing these moderators jointly, rather than treating live-streaming effectiveness as a uniform phenomenon across all consumers and product categories. For marketplace sellers and platform designers, this implies that live-streaming strategies intended to responsibly stimulate purchase interest should be calibrated to specific audience segments and product types, rather than applying blanket persuasive tactics such as aggressive countdown timers or exaggerated scarcity claims, which may generate short-term impulsive purchases at the potential cost of long-term consumer trust and post-purchase regret — an ethical and managerial tension noted, directly or indirectly, across several of the reviewed studies (e.g., Feng et al., 2024; Xiao et al., 2026).

These findings also carry implications for how marketplace platforms design their live-streaming interfaces and incentive structures. Since interactivity and social presence emerge repeatedly as strong predictors of the organismic states that drive impulsive buying (Ming et al., 2021; Shi et al., 2023; Widjaja et al., 2026), platform designers have a clear incentive to invest in real-time chat functionality, visible viewer and purchase counters, and streamer verification or credibility badges. At the same time, the moderating evidence on consumer vulnerability (Zhang, Zhang & Yan, 2024) suggests that such design choices are not ethically neutral: features that reliably increase impulsive purchases among the general population may disproportionately affect consumers who are more susceptible to social and scarcity cues, such as younger users or those with lower self-regulatory capacity. This tension between commercial effectiveness and consumer protection represents an important avenue for future empirical and policy-oriented research, particularly as Indonesian regulators and marketplace operators continue to shape guidelines for live-commerce practices.

Finally, the synthesis suggests that the effectiveness of live-streamed shopping in generating impulsive buying is unlikely to be explained by a single dominant stimulus. Rather, it emerges from the cumulative and interactive effect of multiple stimuli credibility, interactivity, atmosphere, scarcity operating simultaneously within a compressed time window, amplified by social presence and, for some consumers, further intensified by individual vulnerability. This layered, interactive characterization of the phenomenon supports the study's methodological choice of PLS-SEM, which is well suited to modeling multiple simultaneous predictors, mediators, and moderators, and reinforces the theoretical rationale for testing the integrated model proposed in Figure 1 within the specific context of Indonesian and Southeast Asian marketplace live-streaming

CONCLUSIONS

This study analyzed the effectiveness of live-streamed shopping on consumers' impulsive buying behavior on marketplace platforms by synthesizing twenty-five peer-reviewed empirical studies published between 2021 and 2026 within an extended Stimulus-Organism-Response framework. The synthesis demonstrates strong and consistent support for the proposition that live-streaming stimuli including streamer credibility, interactivity, social presence, visual appeal, and scarcity or discount cues shape consumers' internal psychological states, which in turn robustly predict impulsive buying behavior, with the urge to buy impulsively functioning as the central mediating mechanism. Contextual factors, particularly time scarcity, product type, and consumer vulnerability, moderate this relationship in ways that are theoretically meaningful but not yet uniformly understood, especially outside the dominant Chinese live-commerce research context.

The novelty of this study lies in proposing an integrated quantitative model tailored to the Indonesian and broader Southeast Asian marketplace context a setting in which live-streamed shopping has grown rapidly but remains comparatively underexamined in the empirical literature — and in jointly incorporating social presence and consumer vulnerability as combined predictors within a single testable framework. Future research is encouraged to empirically test the proposed model using primary survey data collected from Indonesian marketplace live-streaming shoppers, applying PLS-SEM as outlined in the proposed methodology, and to extend the model by incorporating post-purchase outcomes such as purchase regret or return behavior, which would provide a more complete picture of the consequences of live-streaming-induced impulsive buying beyond the point of transaction. Marketplace practitioners, meanwhile, are encouraged to balance the commercial benefits of impulsive-buying-inducing features with responsible design practices that safeguard long-term consumer trust.

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