The Effect of Streamer Intimacy On Impulse Buying Behavior: The Mediating Role of Fear Of Missing Out Among Indonesian Live Streaming Commerce Users

Astika Ulfah Izzati
Jurusan Administrasi Bisnis, Program Studi D-4 Bisnis Digital, Politeknik Negeri Sriwijaya
Email: astika.ulfah.izzati@polsri.ac.id

Andriansyah Bari
Jurusan Administrasi Bisnis, Program Studi D-4 Bisnis Digital, Politeknik Negeri Sriwijaya
Email: andriansyah@polsri.ac.id

Frianka Anindea
Jurusan Administrasi Bisnis, Program Studi D-4 Bisnis Digital, Politeknik Negeri Sriwijaya
Email: frianka.anindea@polsri.ac.id

Rizal Afif Abdullah Napitupulu
Jurusan Administrasi Bisnis, Program Studi D-3 Administrasi Bisnis, Politeknik Negeri Sriwijaya
Email: rizal.afif.abdullah.@polsri.ac.id

Nabila Nur Aisyah
Jurusan Administrasi Bisnis, Program Studi D-4 Bisnis Digital, Politeknik Negeri Sriwijaya
Email: nabilanuraisyana@gmail.com

Fairuz Thansril Wijaya
Jurusan Administrasi Bisnis, Program Studi D-4 Bisnis Digital, Politeknik Negeri Sriwijaya
Emai: fairuzwijay@gmail.com

Joslin Putri Sarjono
Jurusan Administrasi Bisnis, Program Studi D-4 Bisnis Digital, Politeknik Negeri Sriwijaya
Email: joslinnputrii22@gmail.com

Abstract

Live streaming commerce has experienced rapid growth in Indonesia, creating new forms of consumer engagement that may encourage impulse buying. Among the psychological mechanisms frequently discussed are parasocial interaction, which reflects consumers' perceived closeness with streamers, and fear of missing out (FoMO). Although previous studies have examined these constructs, findings regarding the mediating role of FoMO remain inconsistent, particularly in the context of Indonesian live streaming commerce. This study investigates the relationships among parasocial interaction, FoMO, and impulse buying, with a particular focus on the mediating role of FoMO. A quantitative cross-sectional design was employed using data collected from 318 active live streaming commerce users in Indonesia through an online survey. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that parasocial interaction significantly increases FoMO and directly influences impulse buying, while FoMO also positively contributes to impulse buying. In addition, FoMO partially mediates the relationship between parasocial interaction and impulse buying, *suggesting that consumers' emotional responses to missing limited opportunities reinforce the effect of streamer–consumer relationships on purchasing decisions. Rather than proposing a completely new mechanism, this study extends previous research by providing empirical evidence that supports the sequential relationship between parasocial interaction, FoMO, and impulse buying within the Indonesian live streaming commerce context, where such evidence remains limited. The findings offer practical implications for MSMEs and content creators in developing ethical engagement strategies that strengthen consumer relationships while encouraging responsible purchase decisions.*

Keywords*: Parasocial Interaction, Fear Of Missing Out (Fomo), Impulse Buying, Live Streaming Commerce, Consumer Behavior*

Abstrak

Live streaming commerce di Indonesia berkembang pesat dan memicu pembelian impulsif. Dua konstruk psikologis yang berperan penting adalah interaksi parasosial (kedekatan semu dengan streamer) dan fear of missing out (FoMO). Namun, penelitian sebelumnya menunjukkan hasil tidak konsisten, terutama mengenai peran FoMO sebagai mediator antara interaksi parasosial dan pembelian impulsif di konteks Indonesia. Penelitian ini bertujuan menguji pengaruh interaksi parasosial terhadap FoMO dan pembelian impulsif, serta peran mediasi FoMO. Pendekatan kuantitatif dengan desain cross-sectional digunakan. Data dikumpulkan dari 318 pengguna aktif live streaming commerce di Indonesia melalui kuesioner daring. Analisis dilakukan dengan Partial Least Squares Structural Equation Modeling (PLS-SEM). Hasil menunjukkan bahwa interaksi parasosial berpengaruh positif dan signifikan terhadap FoMO (β=0,561) dan terhadap pembelian impulsif (β=0,220). FoMO juga berpengaruh positif dan signifikan terhadap pembelian impulsif (β=0,575). Selain itu, FoMO memediasi secara parsial hubungan antara interaksi parasosial dan pembelian impulsif, dengan efek tidak langsung (β=0,322) lebih besar daripada efek langsung. Kebaruan penelitian ini adalah validasi model mediasi sekuensial tunggal (interaksi parasosial, kemudian FoMO, lalu pembelian impulsif) di Indonesia. Saran praktis bagi UMKM dan kreator konten adalah membangun hubungan parasosial sekaligus menyisipkan isyarat urgensi yang etis untuk memicu FoMO guna mendorong konversi penjualan berkelanjutan.

Kata Kunci: *Interaksi Parasosial, Takut Ketinggalan (Fomo), Pembelian Impulsif, Perdagangan Streaming Langsung, Perilaku Konsumen*

INTRODUCTION

The rapid evolution of digital commerce has given rise to live streaming commerce as a transformative marketing channel that seamlessly merges entertainment, real-time interaction, and frictionless transactions within a single ecosystem. According to the e-Conomy SEA 2025 report published by Google, Temasek, and Bain & Company, Indonesia's digital economy reached US$100 billion in 2025, of which e-commerce contributed US$71 billion – approximately 72 percent of the nation's total gross merchandise value (GMV) (Hadinata, 2025; Hary, 2025) This remarkable expansion is driven in large part by the rapid adoption of video commerce: the number of sellers utilising video and live streaming surged by 75 percent to 800,000 accounts, while the annual transaction volume soared by 90 percent to 2.6 billion transactions. The transaction value of video commerce alone reached US$2.6 billion (equivalent to roughly 43.4 trillion Indonesian rupiah) in 2025 (Bremanda, 2025). Moreover, Bank Indonesia recorded e-commerce transactions at 44.4 trillion rupiah as of July 2025, marking a year-on-year growth of 6.41 percent (Masitoh, 2025). This phenomenon positions live streaming commerce as a cornerstone of the Indonesian creative economy. The data found that a majority of respondents (54 percent) consider live streaming and short-video features to be the most effective tools for driving sales, surpassing other digital marketing instrument (Trinoviana, 2025). Platforms now actively train micro, small, and medium enterprises (MSMEs) to become professional live stream hosts, signalling the soaring demand for this competence in the digital commerce ecosystem.

Despite the tangible economic contributions, the very features that render live streaming commerce effective also provoke important behavioural consequences. The immersive, interactive, and time-sensitive environment is particularly conducive to stimulating impulse buying – unplanned, spontaneous purchase behaviour that occurs with little deliberation in response to external stimuli (Blackwell et al., 2007). A substantial body of research has investigated impulse buying drivers in live streaming commerce, with most studies adopting the Stimulus-Organism-Response (S-O-R) framework. A recent systematic literature review from the author revealed that the majority of existing research is cross-sectional, predominantly situated in Chinese contexts, and employs the S-O-R model as the organising lens (Izzati et al., 2025). The same review identified a wide range of antecedents – marketing stimuli, streamer characteristics, platform features, and cognitive-affective organismic factors – but also highlighted fragmented findings and the need for a more cohesive theoretical foundation.

Within this expanding body of work, two psychological constructs have garnered particular attention: Fear of Missing Out (FoMO) and parasocial interaction (PSI). FoMO refers to the anxiety that individuals experience when they perceive they might miss rewarding experiences or opportunities that others are enjoying (Samsura & Rufaidah, 2025). PSI is defined as the illusion of intimacy and one-sided personal connection that viewers develop with a media figure, in this case the live stream host (Söğütlüler, 2025). In live streaming commerce, FoMO has been shown to significantly influence impulse buying. For instance, (Sari et al., 2026) demonstrated that FoMO affects impulse buying through the dual mediation of consumer trust and electronic word-of-mouth (E-WoM). (Alfarisi & Sukaris, 2024) found that FoMO exerts a significant effect on purchase decisions on TikTok Shop, albeit using multiple regression without testing mediating mechanisms. (Hong-Ngoc, 2025) utilised the S-O-R model with a validated scale (Cronbach's $\alpha = 0.89$) to confirm that FoMO significantly drives impulse buying among young TikTok users in Indonesia. However, evidence remains inconsistent: a PLS-SEM study on Shopee Live, TikTok Live, and Lazada Live users in East Java found that FoMO does not act as a significant moderator between consumer engagement and impulse buying. This discrepancy suggests that FoMO's effect is context-dependent, and its specific psychological mechanisms – particularly when and how it translates into impulse buying – warrant further investigation in the Indonesian live streaming commerce landscape.

Concurrently, PSI has received increasing scholarly attention. A comprehensive study by (Zhu & Vijayan, 2025), applying the S-O-R framework and Social Impact Theory, found that PSI positively influences perceived enjoyment, which in turn drives the urge to buy impulsively. In the Indonesian context, (Hadiyati & Luthfia, 2026) examined how PSI and social presence jointly mediate the effects of social attraction, FoMO, narrative involvement, and telepresence on impulsive purchase behaviour among 415 TikTok Live users. Their findings validated a dual-pathway mechanism: narrative involvement emerged as the strongest antecedent for both PSI and social presence, while FoMO and telepresence acted as critical catalysts. This study refined the S-O-R framework by distinguishing the "Organism" into interpersonal (PSI) and environmental (social presence) dimensions.

The conceptual integration of PSI and FoMO in impulse buying has been empirically validated in recent high-impact research. Drawing on self-determination theory, (K. Li et al., 2025) investigated how streamer attractiveness drives impulse buying in live streaming events. Analysing data from 345 regular participants, they found that PSI and FoMO act as both parallel and sequential mediators, linking streamer attractiveness directly to impulsive purchasing behaviour.

Nevertheless, despite these advances, three critical gaps remain. First, the specific pathway from parasocial interaction to impulse buying through FoMO – that is, FoMO as a sequential mediator – although theoretically plausible and partially supported, has not been systematically tested as a focused single mediation model in the Indonesian context. Most existing studies have examined PSI and FoMO as parallel mediators or within broader frameworks without isolating this sequential mechanism. Second, a systematic literature review by (Izzati et al., 2025) explicitly recommended exploring the mediating role of FoMO between PSI and impulse buying, but this recommendation has yet to be operationalised in an empirical study focused specifically on the Indonesian live streaming commerce market. Third, the Indonesian context is under-researched despite being TikTok's second-largest market globally (over 126 million active users), with users spending an average of more than 29 hours per month on the platform – a behavioural profile that mirrors high levels of PSI and FoMO, confirming the ecological validity of investigating these dynamics.

To address these gaps, the present study is grounded in the Stimulus-Organism-Response (S-O-R) theory as the overarching framework. In live streaming commerce, the stimulus comprises streamer characteristics and interactive features that elicit PSI. The organism consists of internal psychological states – PSI and FoMO. The response is impulse buying. Within this framework, we derive the following hypotheses and their theoretical bases, presented narratively.

Hypothesis Development

Hypothesis 1 (H1): Parasocial interaction has a positive effect on Fear of Missing Out.

According to self-determination theory, when viewers develop a strong parasocial bond with a streamer, they experience heightened emotional involvement and a sense of belonging. This emotional investment makes them more susceptible to the fear that they might miss exclusive offers, limited-time discounts, or entertaining moments that the streamer announces during the live session. Empirical evidence from (K. Li et al., 2025) supports that PSI is a significant antecedent of FoMO. In the Indonesian live streaming context, a close parasocial relationship should intensify the viewer's anxiety about being left out, because the streamer's real-time interactions create a continuous stream of time-sensitive opportunities. Therefore, we hypothesise that a stronger parasocial interaction leads to higher levels of FoMO.

Hypothesis 2 (H2): Fear of Missing Out has a positive effect on impulse buying.

FoMO is fundamentally an aversive psychological state that motivates individuals to take immediate action to relieve anxiety. In consumer behaviour, this manifests as spontaneous, unplanned purchases intended to avoid the regret of missing a desirable deal or experience (Samsura & Rufaidah, 2025). Using the S-O-R model, (Hong-Ngoc, 2025) and (Rahmandani & Rahmidani, 2025) both confirmed that FoMO directly increases impulse buying in live streaming commerce. Because live streaming environments are saturated with scarcity cues ("only 3 left", "offer ends in 2 minutes"), FoMO becomes a potent driver of urgent, non-deliberative purchasing. Thus, we hypothesise that the higher the FoMO experienced by consumers, the stronger their impulse buying behaviour.

Hypothesis 3 (H3): Parasocial interaction has a positive effect on impulse buying.

The S-O-R model posits that external stimuli (streamer characteristics) can directly affect behavioural responses without full cognitive elaboration. However, the direct effect from PSI to impulse buying is also theoretically plausible: a strong parasocial connection can create an affective bond that reduces the viewer's resistance to purchase recommendations, even in the absence of FoMO. (Zhu & Vijayan, 2025) found that PSI directly enhanced perceived enjoyment, which led to impulsive urges. In the Indonesian setting, (Prasetia et al., 2025) documented that PSI mediates the effect of live-stream e-branding on impulse buying, implying a significant direct effect as well. Therefore, we hypothesise that parasocial interaction positively influences impulse buying directly, not only indirectly through FoMO.

Hypothesis 4 (H4): Fear of Missing Out mediates the relationship between parasocial interaction and impulse buying.

This hypothesis integrates the three constructs into a sequential causal chain: parasocial interaction influences FoMO, and FoMO in turn influences impulse buying. The theoretical foundation rests on the extended S-O-R model, where an initial organismic state (PSI) influences a secondary organismic state (FoMO), which then triggers the response. Self-determination theory further supports this mediation: the psychological need for relatedness (satisfied by PSI) generates a fear of losing connection or missing out, which in turn activates compensatory impulsive behaviour. Empirical support comes from (K. Li et al., 2025), who demonstrated sequential mediation of PSI and FoMO. Testing whether FoMO serves as a mediator in the Indonesian context will provide both theoretical clarity and practical insights. Accordingly, we hypothesise that the effect of parasocial interaction on impulse buying occurs indirectly through Fear of Missing Out.

Based on the above, the present study aims to answer the following research questions:

- Does parasocial interaction have a positive effect on Fear of Missing Out? (H1)
- Does Fear of Missing Out have a positive effect on impulse buying? (H2)
- Does parasocial interaction have a positive effect on impulse buying among users of live streaming commerce services in Indonesia? (H3)
- Does Fear of Missing Out mediate the relationship between parasocial interaction and impulse buying? (H4)

Theoretically, this research contributes by integrating FoMO as a mediator in the relationship between PSI and impulse buying – a model configuration not systematically tested in the Indonesian live streaming commerce context. Practically, the findings are expected to guide MSMEs, brand owners, and content creators in designing live streaming strategies that build emotional closeness while ethically leveraging FoMO to drive sustainable sales conversion.

RESEARCH METHOD

This study employs a quantitative approach with a cross-sectional design, nested within an extended Stimulus-Organism-Response (S-O-R) theoretical framework. The S-O-R model serves as the overarching lens to explain how external stimuli from live streaming commerce trigger internal psychological states, which in turn generate behavioural responses. In this study, parasocial interaction is positioned as the organismic stimulus, Fear of Missing Out (FoMO) as the internal psychological organism, and impulse buying as the behavioural response. The cross-sectional design was chosen to capture the relationships among these variables at a single point in time, which is appropriate given the study's objective to test a sequential mediation model rather than to establish long-term causal change.

The scope of this research is limited to active users of live streaming commerce services in Indonesia. The specific objects of the study are three latent psychological constructs: parasocial interaction (the viewer's perceived closeness and pseudo-relationship with the streamer), FoMO (anxiety about missing out on advantageous shopping opportunities), and impulse buying (spontaneous, unplanned purchase behaviour triggered by the live streaming situation). The target population comprises Indonesian consumers who have participated in live streaming commerce platforms such as TikTok Live, Shopee Live, or Lazada Live.

The main instrument used for data collection is a structured online questionnaire developed using Google Forms. All measurement items were adapted from previously validated international scales and then translated into Indonesian using a forward-backward translation procedure to ensure linguistic and conceptual equivalence. Each item is accompanied by a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire consists of three sections: (1) screening questions to verify respondent eligibility, (2) 15 measurement items (five for each of the three constructs) presented in random order to minimise order bias, and (3) demographic information (age, gender, most frequently used platform, frequency of watching live streams, and average monthly spending on live streaming purchases).

The research was conducted entirely in the online environment. Data collection took place over an eight-week period, during which the questionnaire was distributed via major social media platforms (Instagram, TikTok, and WhatsApp) as well as dedicated live streaming community forums. A purposive sampling technique was applied, with respondents required to meet three inclusion criteria: (1) aged between 17 and 40 years, representing the primary demographic of Indonesian live streaming commerce users; (2) had watched live streaming sessions at least three times within the past six months, ensuring sufficient exposure to the phenomenon; and (3) had made at least one spontaneous, unplanned purchase either during or immediately after watching a live streaming session, confirming direct experience with impulse buying. After screening for incomplete responses, straight-lining patterns, and unrealistic completion times, 337 valid responses were retained for analysis. This sample size comfortably exceeds the minimum requirement for PLS-SEM given the model complexity (three latent variables, each with five indicators, and four hypothesised paths), following the rule of thumb that the sample should be ten times the largest number of structural paths directed at any latent variable.

Each construct is defined and measured reflectively, meaning that the indicators are assumed to be caused by the underlying latent variable. All indicators are scored on the same five-point Likert scale. Parasocial Interaction is defined as the degree of perceived personal closeness, communicative comfort, and desire to continuously follow the streamer that a viewer experiences while watching live streaming commerce. This construct captures the illusion of a one-sided intimate relationship. It is measured by five indicators: feeling of knowing the streamer personally (PSI1); comfort when the streamer speaks directly to the audience (PSI2); belief that the streamer understands the viewer's interests (PSI3); sense of a personal connection between viewer and streamer (PSI4); and interest in continuing to follow the streamer's future broadcasts (PSI5).

Fear of Missing Out (FoMO) is operationalised as the level of anxiety, worry, and urgency that a consumer experiences about missing out on advantageous offers, limited-time discounts, or exclusive shopping opportunities during live streaming commerce. This context-specific FoMO reflects a fear of missing a deal rather than general social FoMO. The five reflective indicators are: worry about missing attractive promotions while the live stream is ongoing (FoMO1); anxiety if not acting immediately on an offer that appears (FoMO2); fear of losing the chance to purchase a product at a special price (FoMO3); urge to check out quickly to avoid later regret (FoMO4); and concern that a good offer will expire before making a purchase decision (FoMO5).

Impulse Buying is defined as the tendency of consumers to make spontaneous, unplanned, and immediate purchases either during or immediately after watching a live streaming session. These purchases are characterised by a lack of prior deliberation, strong emotional arousal, and reduced concern for consequences. The five reflective indicators are: buying a product during a live stream without having planned to do so beforehand (IB1); often buying spontaneously after being attracted by the streamer's explanation (IB2); tendency to purchase quickly upon seeing a promotion during a live stream (IB3); experience of buying a product even though there was no prior intention to buy it (IB4); and feeling tempted to click "check out" while watching a live stream (IB5). Figure 1 shows the research model.

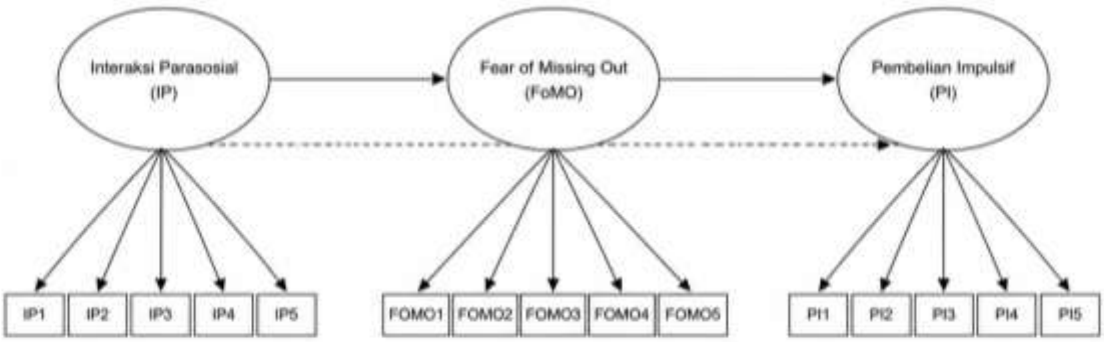


Figure 1. Research Model

FINDINGS

Profile of Research Respondents

Data were collected from 318 active users of live streaming commerce in Indonesia who had prior experience watching live streams and making purchases through such platforms. This criterion ensures that responses reflected actual behavioural exposure rather than general perceptions, thereby strengthening the validity of the PLS-SEM analysis.

The demographic profile reveals that the majority of respondents were female (65.5%, n=208), while male respondents accounted for 34.5% (n=110). In terms of education, more than half held a Diploma or Bachelor's degree (53.1%), followed by senior high school graduates (33.0%), Master's degree holders (12.9%), and Doctoral degree holders (0.9%). Most respondents were employed as private or state-owned enterprise employees (53.5%), followed by civil servants (21.1%), students (17.6%), entrepreneurs (6.0%), and homemakers (2.8%). Monthly income was concentrated in the middle ranges: 35.8% earned IDR 3–5 million and 33.6% earned IDR 5–8 million. Geographically, the sample was predominantly from Java (53.8%), with representation from Sumatra (20.1%), Kalimantan (8.8%), Bali and Nusa Tenggara (7.2%), Sulawesi (6.3%), and Maluku-Papua (3.8%).

Regarding platform usage, TikTok was the most frequently used live streaming commerce platform (61.3%), followed by Shopee (36.8%). The majority of respondents had been using live streaming commerce for 6–12 months (38.1%) or 1–2 years (37.7%), and they watched live streams 3–5 times per week (59.7%). Notably, 64.1% had made more than one purchase through live streaming, confirming their practical experience with impulse buying. This respondent profile indicates a digitally literate, economically active, and geographically diverse sample, which enhances the generalisability of the findings.

Descriptive Statistics of the Constructs

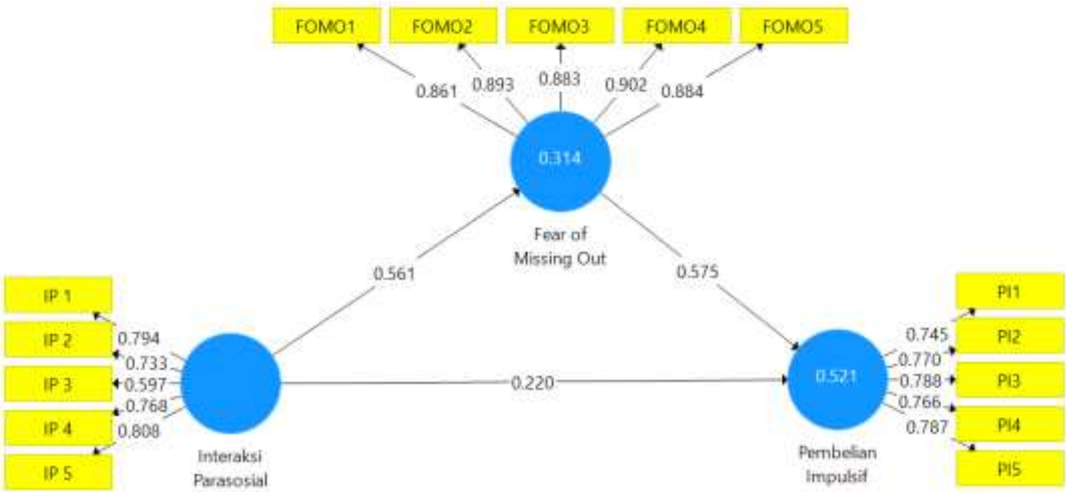
All constructs were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The mean scores were as follows: Parasocial Interaction (PSI) had a mean of 3.26 (moderate category), indicating that respondents perceived a moderate level of pseudo-closeness and comfort with streamers. However, specific indicators revealed that respondents strongly agreed that streamers understand their interests (IP3, mean 3.91) and that they felt comfortable when streamers spoke directly to them (IP2, mean 3.44). In contrast, items measuring perceived personal relationship (IP4, mean 2.62) and feeling that the streamer is like a close acquaintance (IP1, mean 2.73) were only neutral. This pattern suggests that PSI in live streaming commerce is primarily driven by perceived understanding and communication comfort rather than by a deep sense of personal friendship.

Fear of Missing Out (FoMO) had a mean of 3.56 (agree category), with all five indicators scoring above 3.45. The highest indicator was FOMO4 (“I feel I must check out quickly to avoid later regret”, mean 3.65), followed by FOMO5 (“I worry that a good offer will expire before I decide”, mean 3.62). These results indicate that respondents experienced considerable anxiety about missing limited-time offers and that this anxiety created a sense of urgency.

Impulse Buying (IB) obtained the highest mean among the three constructs, at 3.87 (agree category). The strongest indicator was IB1 (“I have bought a product during a live stream without prior planning”, mean 4.03), followed by IB4 (“I have bought a product even though I had no prior intention”, mean 3.89). Over 84% of respondents agreed or strongly agreed that they had made unplanned purchases. This confirms that impulsive buying is a prevalent behaviour in the Indonesian live streaming commerce environment.

Measurement Model Evaluation (Outer Model)

The measurement model was first evaluated to ensure that the indicators reliably and validly represented their respective latent constructs. Convergent validity was assessed through outer loadings and average variance extracted (AVE). Most indicators loaded above the recommended threshold of 0.70, except for IP3 (0.597), which was retained because the AVE for parasocial interaction remained above 0.50 (0.554) and composite reliability exceeded 0.70, following Hair et al.’s (2021) guidelines. The AVE values were 0.783 for FoMO, 0.554 for parasocial interaction, and 0.595 for impulse buying, all exceeding the minimum requirement of 0.50, thereby confirming convergent validity. Discriminant validity was established using both the Heterotrait-Monotrait ratio (HTMT) and the Fornell-Larcker criterion. All HTMT values were below the conservative threshold of 0.85, with the highest value being 0.781 between FoMO and impulse buying, indicating that these two constructs, while related, are empirically distinct. Furthermore, the Fornell-Larcker criterion was satisfied, as the square root of the AVE for each construct (0.885 for FoMO, 0.744 for parasocial interaction, and 0.771 for impulse buying) exceeded its correlations with the other constructs. Finally, reliability was confirmed through Cronbach's alpha, rho_A, and composite reliability. All values exceeded 0.70: FoMO (α = 0.931, CR = 0.947), parasocial interaction (α = 0.796, CR = 0.860), and impulse buying (α = 0.831, CR = 0.880). These results demonstrate that the measurement instruments possess satisfactory internal consistency and are suitable for subsequent structural model analysis. Figure 2 shows Outer Loading Values of All Indicators for the Three Constructs (Parasocial Interaction, FoMO, and Impulse Buying).



Figrue 2. Outer Loading Values of All Indicators for the Three Constructs

Structural Model Evaluation (Inner Model)

Before testing hypotheses, multicollinearity was assessed using variance inflation factors (VIF). All VIF values were below 2 (range 1.000–1.459), well under the threshold of 5, indicating no multicollinearity issues. The coefficient of determination (R^2) for FoMO was 0.314, meaning that PSI explained 31.4% of the variance in FoMO. The R^2 for impulse buying was 0.521, indicating that PSI and FoMO jointly explained 52.1% of the variance in impulsive purchase behaviour. According to Hair et al. (2021), these values represent moderate explanatory power. Predictive relevance (Q^2) was assessed using the Stone-Geisser test. Q^2 values were 0.244 for FoMO and 0.300 for impulse buying, both positive, confirming that the model has adequate predictive relevance. Effect sizes (f^2) indicated that PSI had a large effect on FoMO (f^2 = 0.459) and FoMO had a large effect on impulse buying ($f^2 = 0.473$). In contrast, the direct effect of PSI on impulse buying was small ($f^2 = 0.069$). This suggests that FoMO plays a substantially stronger role as a mediator than the direct path.

Hypothesis Testing and Discussion

The hypotheses were tested using bootstrapping with 5,000 resamples. The path coefficients (β), t-statistics, and p-values are summarised in Tables 1 and 2. All hypotheses were supported. Figure3 shows PLS-SEM Structural Model Results

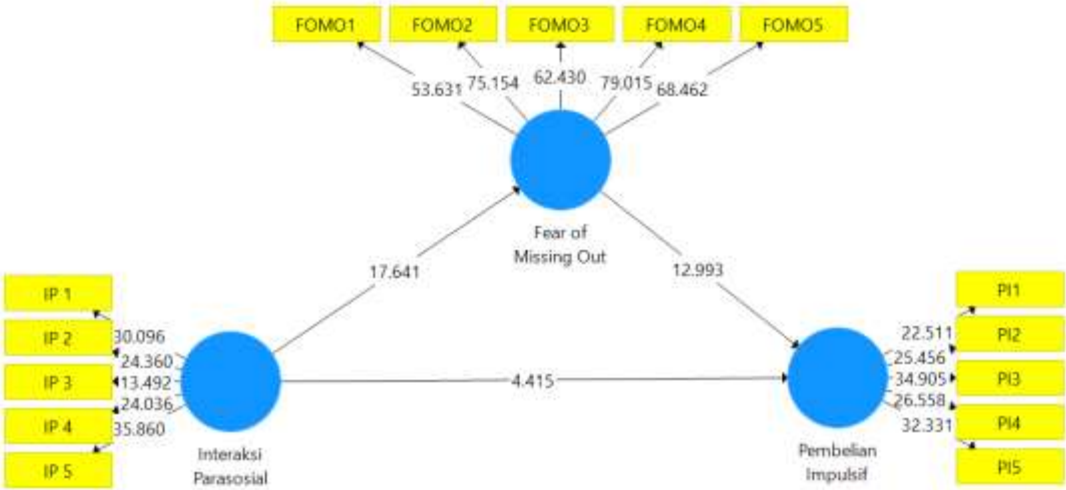


Figure 3. PLS-SEM Structural Model Results

Table 1. Direct Effects

Hipotesis	Jalur	Koefisien Jalur (β)	t-statistics	p-values	Result
H1	Interaksi Parasosial → Fear of Missing Out	0,561	17,641	0,000	Supported
H2	Fear of Missing Out → Pembelian Impulsif	0,575	12,993	0,000	Supported
H3	Interaksi Parasosial → Pembelian Impulsif	0,220	4,415	0,000	Supported

Table 1. Direct Effects (Mediation)

Hipotesis	Jalur Mediasi	Koefisien Jalur (β)	t-statistics	p-values	Result
H4	Interaksi Parasosial → Fear of Missing Out → Pembelian Impulsif	0,322	10,050	0,000	Supported

Note. The figure displays the estimated path coefficients (β) for the three direct relationships: parasocial interaction → Fear of Missing Out (β = 0.561, p < 0.001), Fear of Missing Out → impulse buying (β = 0.575, p < 0.001), and parasocial interaction → impulse buying (β = 0.220, p < 0.001). The R^2 values are 0.314 for FoMO and 0.521 for impulse buying.

The results show that parasocial interaction has a positive and significant effect on FoMO (β = 0.561, p < 0.001). This finding answers the second research question ("Does parasocial interaction positively affect FoMO?"). It confirms that when viewers perceive a closer, more comfortable, and more understanding relationship with a streamer, they become more anxious about missing out on limited-time offers, discounts, or exclusive opportunities announced during the live session.

This result is theoretically grounded in (Horton & Richard Wohl, 1956) concept of "intimacy at a distance". In live streaming commerce, the streamer's real-time greetings, responses to comments, and personalised recommendations transform the one-sided media relationship into a perceived personal connection. Because the streamer is seen as a trusted and familiar figure, the viewer internalises the streamer's urgency cues (e.g., "only 3 left", "offer ends in 2 minutes") as personally relevant. Consequently, the parasocial bond amplifies FoMO. This finding is consistent with recent studies by (Wibowo & Revanza, 2026) on Shopee Live and (Yang et al., 2025), who demonstrated that parasocial relationships in social commerce increase trust and vulnerability to missing out.

The positive and significant effect of FoMO on impulse buying (β = 0.575, p < 0.001) answers the third research question ("Does FoMO positively affect impulse buying?"). The stronger the consumer's anxiety about missing a promotional deal or a special price, the more likely they are to make an unplanned, spontaneous purchase. This finding aligns with (Przybylski et al., 2013) definition of FoMO as a fear that others are having rewarding experiences from which one is absent. In the live streaming context, this fear is not merely social but highly situational: the stream is designed with countdown timers, limited stock messages, and real-time purchase notifications, all of which amplify urgency.

Empirically, this result replicates and extends earlier studies in Indonesia, such as (Alfarisi & Sukaris, 2024)on TikTok Shop and (Riadi & Septiani, 2025) on Gen Z consumers. Moreover, (Beatty & Elizabeth Ferrell, 1998) noted that impulse buying is influenced by situational factors and affective responses. FoMO operates precisely at that intersection: it heightens the perceived scarcity and reduces rational deliberation, thereby triggering spontaneous checkout behaviour.

Parasocial interaction also exerts a direct positive effect on impulse buying ($\beta = 0.220$, $p < 0.001$), answering the first research question ("Does PSI positively affect impulse buying?"). Although significant, this direct effect is much smaller than the indirect effect through FoMO. This means that a close parasocial bond alone can encourage impulsive purchases – for example, when a trusted streamer simply recommends a product without adding urgency cues. However, the direct path is relatively weak.

Theoretical support for this direct path comes from the S-O-R framework, where a stimulus (parasocial interaction) can directly trigger a response (impulse buying) without full cognitive processing. (Rook, 1987) described impulse buying as a sudden, powerful urge that overrides planned behaviour. A strong parasocial relationship lowers the consumer's psychological resistance to the streamer's suggestions, making spontaneous buying more likely even without explicit fear of missing out. This is consistent with(Sipur & Amadi, 2025) and (Feby et al., 2024) who found that parasocial interactions directly influence impulsive buying via hedonic and utilitarian values. Nevertheless, the small effect size ($f^2 = 0.069$) compared to the large effect of FoMO ($f^2 = 0.473$) indicates that PSI is not a sufficient condition for strong impulse buying; it serves more as a foundation that enables the FoMO mechanism.

The indirect effect of PSI on impulse buying through FoMO is significant ($\beta = 0.322$, $p < 0.001$) and larger than the direct effect (0.220). This answers the fourth research question ("Does FoMO mediate the relationship between PSI and impulse buying?").

Since both the direct and indirect paths are significant, FoMO acts as a partial mediator, but the mediation is dominant. In other words, the psychological process through which parasocial interaction translates into impulsive buying operates primarily via FoMO.

This finding is theoretically robust when viewed through the extended S-O-R model. In this study, parasocial interaction acts as the stimulus (the viewer's perceived closeness with the streamer). Fear of Missing Out constitutes the organism – the internal affective state of anxiety and urgency. Impulse buying is the response (spontaneous purchase). The sequential pathway "PSI → FoMO → impulse buying" confirms that the organismic state is not a single construct but can involve a chain of psychological reactions. This refinement is consistent with the systematic literature review by (Y. Li et al., 2025), who called for more nuanced mediation models in live streaming e-commerce (Indriansyah et al., 2025; Marisya et al., 2025).

Empirically, this result aligns with (Wibowo & Revanza, 2026), who demonstrated that FoMO mediates the influence of streamer attractiveness (via PSI) on impulse buying. It also echoes (Tedry & Tulipa, 2025), who found that emotion mediates the effect of social presence and scarcity on impulse buying. What this study adds is the specific, focused test of the single sequential mediation "parasocial interaction → FoMO → impulse buying" in the Indonesian context – a configuration that had been recommended but not previously operationalised.

The dominant mediation also explains why the descriptive data show moderate PSI but high FoMO and high impulse buying. Even a moderate level of parasocial closeness is sufficient to generate considerable FoMO when the live streaming environment is saturated with urgency cues. Therefore, practitioners should recognise that building parasocial bonds is a prerequisite, but the actual trigger for conversion is the strategic use of FoMO – limited-time offers, stock scarcity, and countdowns – executed in an ethically responsible manner.

The empirical findings provide clear answers to the four research questions. First, parasocial interaction has a positive and statistically significant direct effect on impulse buying ($\beta = 0.220$, $p < 0.001$), confirming that viewers who perceive a closer and more comfortable relationship with a streamer are more likely to make unplanned purchases, although this effect is relatively modest. Second, parasocial interaction exerts a strong positive influence on Fear of Missing Out (FoMO) ($\beta = 0.561$, $p < 0.001$), indicating that the greater the perceived pseudo-closeness with the streamer, the higher the consumer's anxiety about missing limited-time offers. Third, FoMO itself has a strong positive effect on impulse buying ($\beta = 0.575$, $p < 0.001$), demonstrating that the fear of losing a valuable opportunity is a powerful and immediate trigger for spontaneous purchasing behaviour. Fourth, and most importantly, FoMO partially mediates the relationship between parasocial interaction and impulse buying, with the indirect effect ($\beta = 0.322$, $p < 0.001$) being larger than the direct effect ($\beta = 0.220$). This confirms that mediation is the dominant pathway: parasocial closeness does not directly translate into impulse buying as strongly as it does when it first generates FoMO, which then drives the impulsive purchase. Collectively, these results answer all research questions and highlight FoMO as the central psychological mechanism in the live streaming commerce environment.

Theoretical and Practical Contributions

Theoretically, this study extends the Stimulus-Organism-Response (S-O-R) framework by validating a specific sequential mediation model in the Indonesian live streaming commerce context, namely the pathway starting from parasocial interaction, continuing through Fear of Missing Out (FoMO), and finally leading to impulse buying. The empirical evidence demonstrates that FoMO is not merely an additional variable but rather the central psychological mechanism that transforms relational closeness into spontaneous purchasing behaviour. The finding that the indirect effect (via FoMO) surpasses the direct effect of parasocial interaction on impulse buying clarifies previously inconsistent results regarding FoMO's role. For instance, while some earlier studies found FoMO to be insignificant as a moderator, the present research identifies it as a strong and significant mediator, thereby resolving a key ambiguity in the literature.

Practically, for micro, small, and medium enterprises (MSMEs), brand owners, and content creators, the results imply that building parasocial relationships is essential. Such relationships can be fostered through personalised greetings, actively responding to viewer comments, and demonstrating a genuine understanding of audience needs. However, establishing parasocial closeness alone is not sufficient to drive impulse buying. To effectively convert viewers into buyers, streamers should embed ethical urgency cues that trigger FoMO. Examples include transparent limited-stock announcements, clearly communicated time-bound discounts, and honest countdown timers. These tactics should be executed without resorting to deceptive scarcity or false urgency. When parasocial closeness and responsible FoMO-triggering strategies are combined, the likelihood of conversion from a passive viewer to an active purchaser increases substantially. This integrated approach not only enhances sales performance but also preserves consumer trust over the long term (Hatidah et al., 2025; Umar et al., 2023).

CONCLUSSION

This study examined the role of parasocial interaction and Fear of Missing Out (FoMO) in driving impulse buying among Indonesian live streaming commerce users, grounded in the extended Stimulus–Organism–Response (S–O–R) framework, and found that while parasocial interaction has a positive but relatively modest direct effect on impulse buying, it exerts a strong positive influence on FoMO, which in turn has a strong direct effect on impulse buying, confirming that FoMO partially mediates the relationship between parasocial interaction and impulse buying with an indirect effect larger than the direct effect, thereby establishing mediation as the dominant pathway through which parasocial closeness translates into spontaneous purchasing behaviour; the novelty of this research lies in the empirical validation of this single sequential mediation model—parasocial interaction, then FoMO, then impulse buying—within the Indonesian live streaming commerce context, which resolves earlier inconsistencies in the literature by isolating FoMO as a sequential mediator rather than a moderator or parallel mediator, confirming that FoMO functions as the central psychological mechanism transforming relational closeness into impulsive purchasing, and based on these findings it is recommended that MSMEs, brand owners, and content creators continue building parasocial relationships through personalised greetings and responsive engagement while embedding ethical urgency cues—such as transparent limited-stock announcements, clearly communicated time-bound discounts, and honest countdown timers—executed without deceptive scarcity to preserve consumer trust, systematically integrating parasocial bonding with responsible FoMO triggers to convert passive viewers into active purchasers, with future research encouraged to extend this model through additional moderating variables such as consumer impulsivity traits or platform type and through cross-cultural comparisons across Southeast Asian markets.

REFERENCES

Alfarisi, A. R., & Sukaris, S. (2024). The Influence of Live Streaming, Fear of Missing Out (FoMO), and E-WOM on Purchase Decisions in TikTok Shop. *Jurnal Ilmiah Manajemen Kesatuan*, *12*(6), 2677–2686. https://doi.org/10.37641/jimkes.v12i6.2958

Beatty, S. E., & Elizabeth Ferrell, M. (1998). Impulse buying: Modeling its precursors. *Journal of Retailing*, *74*(2), 169–191. https://doi.org/10.1016/S0022-4359(99)80092-X

Blackwell, R. D., Miniard, P. W., & Engel, J. F. (2007). *Consumer behavior* (10. ed., internat. student ed., [Nachdr.]). Thomson/South-Western.

Bremanda, M. (2025, November). *Live Shopping Bikin E-commerce di Indo Cuan Besar, Nilai Transaksinya Tembus Rp 43 Triliun*. https://tekno.kompas.com/read/2025/11/15/11350047/live-shopping-bikin-e-commerce-di-indo-cuan-besar-nilai-transaksinya-tembus-rp?source=widgetML&engine=C

Feby, L., Riza, F., & Kristanti, D. A. (2024). The Impact of Parasocial Interaction and Local Presence on Impulsive Buying Behavior on TikTok. *Jurnal Ilmiah Manajemen Kesatuan*, *12*(6), 2618–2628. https://doi.org/10.37641/jimkes.v12i6.2999

Hadinata, H. (2025, November). *SEA e-Conomy 2025: Tren Belanja Online Melesat, Video Commerce Indonesia Tumbuh Pesat*. https://industri.kontan.co.id/news/sea-e-conomy-2025-tren-belanja-online-melesat-video-commerce-indonesia-tumbuh-pesat

Hadiyati, I. A., & Luthfia, A. (2026). From stream to purchase: Exploring parasocial interaction and social presence as mediators of impulsive purchase in TikTok live commerce. *Frontiers in Communication*, *11*, 1786830. https://doi.org/10.3389/fcomm.2026.1786830

Hary, A. T. (2025, November). *Laporan Google: Ekonomi Digital RI Diproyeksikan Tembus Rp 1.672 Triliun di 2025*. https://inet.detik.com/business/d-8209252/laporan-google-ekonomi-digital-ri-diproyeksikan-tembus-rp-1-672-triliun-di-2025

Hatidah, H., Indriani, R. A. F., Marsinah, M., & Purwanto, M. B. (2025). Etnografi Festival Kuliner Lokal. *Jurnal Ilmiah Mahasiswa Perbankan Syariah (JIMPA)*, *5*(1). https://doi.org/10.36908/jimpa.v5i1.503

Hong-Ngoc, T. (2025). Fear of missing out (FOMO) and impulsive buying on TikTok shop: A study using the stimulus-organism-response (SOR) model. *SEARCH*

Journal Media and Communication Research, *17*(2), 87–104. https://doi.org/10.58946/search-17.2.P6

Horton, D., & Richard Wohl, R. (1956). Mass Communication and Para-Social Interaction: Observations on Intimacy at a Distance. *Psychiatry*, *19*(3), 215–229. https://doi.org/10.1080/00332747.1956.11023049

Indriansyah, A., Purwanto, M.B., Herawati, N., & Hatidah, H. (2025). Digital Marketing Management: Efektivitas Media Sosial Sebagai Strategi Promosi Kampus Swasta. *Jurnal Ilmiah Mahasiswa Perbankan Syariah (JIMPA)*, *5*(2). https://doi.org/10.36908/jimpa.v5i2.708

Izzati, A. U., Anindea, F., Angguna, W. M., & Andriansyah. (2025). Swipe, Stream, and Splurge: Systematic Literature Review on The Triggers of Impulsive Buying in Live Streaming Commerce. *International Journal of Digital Marketing Science*, *2*(2), 87–106.

Li, K., Ji, C., Prentice, C., Sthapit, E., & He, Q. (2025). Unveiling the Myth: How Streamer Attractiveness Drives Impulse Buying in Live Streaming. *Services Marketing Quarterly*, *46*(1–2), 1–26. https://doi.org/10.1080/15332969.2025.2478732

Li, Y., García-de-Frutos, N., & Ortega-Egea, J. M. (2025). Impulse buying in live streaming e-commerce: A systematic literature review and future research agenda. *Computers in Human Behavior Reports*, *19*, 100676. https://doi.org/10.1016/j.chbr.2025.100676

Marisya, F., Wahasusmiah, R., Indriani, R. A. F., & Purwanto, M. B. (2025). Instagram Vs Tiktok: Analisis Komperatif Terhadap Arus Kas Dan Perencanaan Keuangan. *Jurnal Ilmiah Mahasiswa Perbankan Syariah (JIMPA)*, *5*(2). https://doi.org/10.36908/jimpa.v5i2.711

Masitoh, S. (2025). *Bank Indonesia Catat Transaksi E-Commerce Naik, Raih Rp 44,4 Triliun per Juli 2025*. https://nasional.kontan.co.id/news/bank-indonesia-catat-transaksi-e-commerce-naik-raih-rp-444-triliun-per-juli-2025

Prasetia, A. R., Hurriyati, R., & Dirgantari, P. D. (2025). The Effect of Live-Stream E-Branding on Impulse Buying Behavior with Parasocial Interaction as a Mediating Variable on Shopee Live. *Commercium : Journal of Business and Management*, *4*(1), 41–60. https://doi.org/10.61978/commercium.v4i1.1176

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior*, *29*(4), 1841–1848. https://doi.org/10.1016/j.chb.2013.02.014

Rahmandani, S. A., & Rahmidani, R. (2025). Pengaruh Scarcity Message Dan Shopping Enjoyment Terhadap Impulse Buying Melalui Fear Of Missing Out (Fomo) Sebagai Variabel Intervening Studi Pada Konsumen Live Streaming Shopee Di Kota Padang. *Sibatik JournaL: Jurnal Ilmiah Bidang Sosial, Ekonomi, Budaya, Teknologi, Dan Pendidikan*, *4*(6).

Riadi, M. T., & Septiani, M. (2025). Pengaruh Discount, Live Shopping dan Fear Of Missing Out Terhadap Impulse Buying Gen Z di Bandar Lampung Pada E-

Commerce Shopee. *Jambura Economic Education Journal*, *7*(4), 1256–1275. https://doi.org/10.37479/jeej.v7i4.31329

Rook, D. W. (1987). The Buying Impulse. *Journal of Consumer Research*, *14*(2), 189. https://doi.org/10.1086/209105

Samsura, A. D. F., & Rufaidah, P. (2025). Fear of Missing Out (FOMO) and Consumer Behaviour: What is Next? (A Bibliometric Analysis and Systematic Literature Review). *Society*, *13*(2), 833–856. https://doi.org/10.33019/society.v13i2.864

Sari, N. K., Mus, A. R., Laekkeng, M., Alam, S., & Safar, I. (2026). FOMO and Impulse Buying in the Live Streaming Context: The Dual Mediation of E-WoM and Trust. *International Review of Management and Marketing*, *16*(3), 147–152. https://doi.org/10.32479/irmm.21531

Sipur, S., & Amadi, J. (2025). Impulsive buying in Live Streaming Commerce: The Role of Flow Experience, Parasocial Interaction and Immersion Relationship. *Journal of Science and Education*, *5*(2).

Söğütlüler, T. (2025). A Quantitative Research on Video Streaming Series and Audiences' Forms of Parasocial Interaction. *Erciyes İletişim Dergisi*, *12*(1), 1–27. https://doi.org/10.17680/erciyesiletisim.1528846

Tedry, A. K., & Tulipa, D. (2025). Pengaruh Social Presence dan Scarcity Terhadap Impulse Buying Melalui Emotion Pada Live Streaming E-Commerce Shopee Live. *Jurnal Manajemen Pemasaran*, *19*(1), 31–45. https://doi.org/10.9744/pemasaran.19.1.31-45

Trinoviana, A. (2025, July). *Riset Ipsos 2025: Perkembangan UMKM dan Brand Lokal di Tengah Persaingan E-commerce*. https://www.inews.id/finance/bisnis/riset-ipsos-2025-perkembangan-umkm-dan-brand-lokal-di-tengah-persaingan-e-commerce/3

Umar, U., Purwanto, M. B., & Al Firdaus, M. M. (2023). Research And Development: As The Primary Alternative to Educational Research Design Frameworks. *JELL (Journal of English Language and Literature) STIBA-IEC Jakarta*, *8*(01), 73–82. https://doi.org/10.37110/jell.v8i01.172

Wibowo, S., & Revanza, M. F. (2026). The role of parasocial interaction and fear of missing out (FOMO) in mediating the influence of streamer attractiveness on impulse buying in live streaming (A study on the Roughneck 1991 brand on Shopee). *International Journal of Contemporary Sciences*, *4*(5).

Yang, C. Y., Koh, B. X., & Chew, K. W. (2025). How live streaming influences trust in social commerce: A parasocial relationship perspective. *Telematics and Informatics*, *99*, 102274. https://doi.org/10.1016/j.tele.2025.102274

Zhu, X., & Vijayan, S. K. (2025). Antecedents of Impulse Purchase through Perceived Enjoyment Among Chinese Live Streaming Commerce Consumers. *SAGE Open*, *15*(3), 21582440251357159. https://doi.org/10.1177/21582440251357159