ISSN *online* : 2614-1353

JDMB
Jurnal Dinamika Manajemen dan Bisnis

SCARCITY CUES AND UNPLANNED PURCHASES IN TIKTOK LIVE COMMERCE: MEDIATING ROLES OF FOMO AND EMOTIONAL AROUSAL

Dina Komala[1)], Terrylina Arvinta Monoarfa[2)], Stanny Dewanty Rehatta[3)]
[1) 2) 3)] Universitas Negeri Jakarta, Indonesia

ARTICLE INFORMATION

Article History:

Received: July 14th, 2026
Accepted: August 3th, 2026
Published: August 27th, 2026

Keywords:

Scarcity Promotion
Live Shopping
Fear of Missing Out
Arousal
Impulse Buying

ABSTRACT

This study examines the relationship between scarcity promotion in TikTok Live Shopping and impulse buying of personal-care products through fear of missing out (FoMO) and emotional arousal. A quantitative explanatory survey was conducted with 200 purposively selected TikTok users in Greater Jakarta who had watched personal-care livestreams and encountered limited-time or limited-stock offers. IBM SPSS Statistics 27 was used for data screening and descriptive analysis, while SmartPLS 4 was employed for PLS-SEM. The results showed that scarcity promotion was positively and significantly associated with FoMO, arousal, and impulse buying. FoMO and arousal were also positively associated with impulse buying, and both produced significant indirect effects in the relationship between scarcity promotion and impulse buying, supporting complementary partial mediation. The strongest structural relationship was observed between scarcity promotion and arousal, whereas FoMO showed a stronger relationship with impulse buying than arousal. These findings refine the Stimulus-Organism-Response framework by distinguishing loss-oriented concern and emotional activation as parallel psychological mechanisms and highlight the importance of accurate and transparent scarcity communication in live commerce.

Corresponding Author:

Digital Business Study Program, Faculty of Economics and Business, State University of Jakarta, Jakarta, Indonesia

Email-address: dinakomala03@gmail.com

INTRODUCTION

Indonesia's digital retail market provides a strong setting for studying rapid purchase decisions. National e-commerce transaction value increased from IDR 205.5 trillion in 2019 to IDR 487.01 trillion in 2024, indicating that digitally mediated purchasing has become embedded in everyday consumption (Leni Wandira & Rahmawati, 2025). Mobile access, platform-based recommendations, and integrated payment functions have reduced the distance between product discovery and checkout (Luceri et al., 2022; Ma & Gu, 2024). In this environment, live commerce adds real-time interaction to the transaction process, allowing consumers to evaluate products while simultaneously receiving promotional prompts.

TikTok is especially relevant because entertainment, social interaction, and purchasing are combined within the same interface. Sellers can demonstrate product use, answer questions instantly, display social proof, and direct viewers to checkout without requiring them to leave the platform (Kaye et al., 2021; Putri et al., 2023; Zheng et al., 2022). The commercial importance of personal-care products is also visible in recent market data: personal care represented 38% of the highest-selling TikTok Shop product categories in Southeast Asia in April 2025 (Akbar Ridwan, 2025). This category is suitable for livestream selling because appearance, texture, application, and expected benefits can be communicated visually.

Indonesian consumers also appear highly responsive to promotional moments that compress decision time. Data on live-shopping behavior show that double-date campaigns and flash sales were among the most frequently used shopping occasions, reported by 66% and 63% of consumers respectively (Nabilah Muhamad, 2024). Such patterns matter because a countdown, a rapidly declining stock indicator, or a voucher that expires during a broadcast can transform an ordinary offer into a time-sensitive decision. The resulting purchase may be made before consumers complete the type of comparison and deliberation that would normally precede a planned transaction.

Scarcity promotion is therefore more than a pricing device. Quantity restrictions and time restrictions can signal exclusivity, increase perceived opportunity value, and create pressure to act before the offer disappears (Barton et al., 2022; Feng et al., 2024). During a livestream, these signals are reinforced by the visible presence of other viewers, host communication, order notifications, and real-time product availability. The same cue can consequently influence both a consumer's appraisal of the offer and the consumer's internal psychological condition.

The Stimulus-Organism-Response (SOR) framework is useful for separating these processes. In this study, scarcity promotion represents the external stimulus, while fear of missing out (FoMO) and emotional arousal represent two organismic reactions. FoMO captures the concern that a desirable opportunity may be lost, whereas arousal captures heightened activation, excitement, tension, and readiness to respond. Impulse buying is treated as the behavioral response. This distinction is important because an urgent

purchase may arise from anticipated loss, from emotional activation, or from a rapid evaluation of the limited offer itself (Tandon et al., 2021; Li et al., 2023; Zhang et al., 2022).

The scientific gap is not simply that prior studies used different platforms. Rather, the literature remains fragmented in the way it represents the organismic stage of the SOR process. Zhang et al. (2022) emphasize scarcity-induced psychological pressure and FoMO, Li et al. (2023) foreground arousal, Yi et al. (2023) examine anticipated emotions and viewing frequency, and Zhou (2025) reports a partially mediated emotional pathway. These studies provide important but separate explanations. They do not resolve whether a loss-oriented state and an activation-oriented state operate in parallel, whether one is closer to the final purchase response, or whether scarcity continues to exert a direct influence after both mechanisms are modeled together. This unresolved mechanism-level question constitutes the principal theoretical gap addressed here.

The novelty of this research lies in testing FoMO and arousal simultaneously as parallel mediators between scarcity promotion and impulse buying, while retaining the direct scarcity-to-purchase pathway in a single model of Indonesian TikTok Live Shopping for personal-care products. The study therefore compares two distinct psychological routes instead of treating the organism as a single undifferentiated state. It also evaluates the relative strength of the pathways and considers the managerial and ethical implications of scarcity communication. Accordingly, the research examines the effects of scarcity promotion on FoMO, arousal, and impulse buying, the effects of FoMO and arousal on impulse buying, and the mediated pathways connecting scarcity cues with unplanned purchases.

LITERATURE REVIEW

Stimulus-Organism-Response (SOR) Perspective

SOR proposes that environmental conditions affect behavior through changes in an individual's internal state. Applied to livestream commerce, the framework allows promotional cues, social signals, and temporal pressure to be treated as stimuli that alter internal evaluations and emotions before a purchase response occurs (Huo et al., 2023; Zhang et al., 2022). Scarcity promotion is particularly appropriate as a stimulus because it changes the perceived decision environment by limiting either the amount available or the time remaining.

A key theoretical choice in applying SOR concerns the specification of the organism. Live-commerce studies have frequently examined perceived value, trust, enjoyment, anticipated regret, perceived urgency, and broader emotional experience. These variables are relevant, but they do not represent the same psychological function. Perceived value is primarily an evaluative judgment of benefits and sacrifices, trust concerns confidence in the seller or platform, and enjoyment captures the pleasurable quality of the shopping experience. Perceived urgency describes situational pressure, while anticipated regret focuses on a prospective evaluation of a decision outcome. This study instead prioritizes FoMO and arousal

because they capture two immediate and theoretically distinct reactions to scarcity cues. FoMO represents a loss-oriented mechanism in which consumers fear forfeiting a temporary opportunity, whereas arousal represents an activation-oriented mechanism reflected in heightened alertness, excitement, tension, and readiness to act. Examining both mechanisms in parallel therefore makes it possible to distinguish the motivation to avoid losing an opportunity from the emotional activation that accelerates action.

Scarcity Promotion

Scarcity promotion communicates restricted access to an offer. Limited-quantity scarcity signals that only a small number of units remain, whereas limited-time scarcity indicates that the purchasing opportunity will end soon. In livestreaming, both forms may appear through countdowns, low-stock notices, flash-sale windows, or expiring vouchers. Meta-analytic and livestream evidence generally shows that scarcity can enhance purchase-related outcomes by increasing perceived value, exclusivity, competition, and urgency (Barton et al., 2022; Feng et al., 2024).

The empirical evidence on scarcity is not entirely uniform. Studies such as Barton et al. (2022) and Li et al. (2023) generally support a positive role of scarcity in purchase-related responses. However, Chen et al. (2022) found that although perceived scarcity initially showed a positive association with impulsive purchase behavior, its direct effect became non-significant after involvement was introduced, indicating full mediation. Yi et al. (2023) also reported no statistically significant difference between limited-time and limited-quantity scarcity conditions in shaping purchase decisions. These contrasting findings suggest that scarcity does not operate as a uniformly direct trigger; its influence may depend on the type of scarcity cue and the psychological process through which consumers interpret the offer. This unresolved variation supports examining both a remaining direct route and parallel organismic mechanisms in the present model.

Fear of Missing Out and Arousal

FoMO describes a concern that other people may obtain a valued experience or opportunity that one is about to lose. In a livestream, visible demand, a decreasing inventory counter, and the possibility that other viewers will purchase first can convert scarcity into social competition and anticipated regret. The consumer is then motivated not only by the product itself but also by the desire to avoid the negative future state associated with missing the deal (Hussain et al., 2023; Tandon et al., 2021). Indonesian evidence further suggests that socially visible promotional environments can intensify FoMO-related impulsivity (Erick Karunia et al., 2025).

Arousal represents a different organismic process. It refers to the level of psychological activation that makes a person more alert, excited, tense, or prepared to act. Fast-paced host communication, music, comments, social activity, and countdown displays can raise activation during a livestream. As arousal increases, consumers may devote less time to reflective comparison and rely more heavily on immediate affective reactions

(Caruelle et al., 2024; Li et al., 2023). Recent Indonesian research also supports arousal as an explanatory mechanism between scarcity and impulsive purchasing (Suwito & Susilowati, 2025).

Impulse Buying and Hypothesis Development

Impulse buying is an immediate and difficult-to-resist purchase response that occurs with limited prior planning and reduced consideration of subsequent consequences (Rook, 1987; Redine et al., 2023). Livestream commerce can intensify this response because product demonstration, entertainment, persuasive interaction, price information, and time pressure are presented concurrently. The literature therefore supports two complementary explanations: scarcity may accelerate buying directly through value and urgency judgments, and it may also operate indirectly by changing the consumer's internal state (Lo et al., 2022; Zhang et al., 2022).

On this basis, five hypotheses are tested. H1 proposes that scarcity promotion increases FoMO; H2 proposes that FoMO increases impulse buying; H3 proposes that scarcity promotion increases arousal; H4 proposes that arousal increases impulse buying; and H5 proposes that scarcity promotion has a positive direct effect on impulse buying. The parallel structure is intended to determine whether the two organismic responses explain distinct portions of the scarcity effect rather than merely reproducing the same psychological pathway.

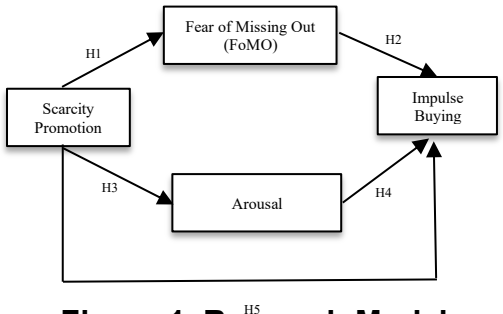

Figure 1. Research Model

RESEARCH METHODS

Study Design and Participants

The study used a quantitative explanatory survey and collected data online through Google Forms from consumers in Greater Jakarta. Purposive sampling was selected because the model required respondents who had actually encountered the focal stimulus in the relevant setting. In contrast with unrestricted convenience sampling, this approach deliberately screened for theoretical relevance. Eligible participants were at least 17 years old, had watched a TikTok livestream involving personal-care products within the previous six months, and had encountered a promotion limited by stock or duration. Recruitment links were circulated through Instagram, X/Twitter, WhatsApp, and beauty-enthusiast communities.

Sample planning followed the minimum guideline of five observations for each measurement item. With 40 indicators, 200 usable responses were required. A total of 201 submissions were received and one was excluded for failing the eligibility criteria, leaving 200 cases for analysis. Before the main survey, a pilot test involving 30 respondents was conducted to evaluate item clarity and obtain preliminary evidence of validity and reliability. The final sample is therefore

criterion-based rather than intended to represent all Indonesian TikTok users probabilistically.

Measures and Data-Analysis Strategy

All constructs were measured using a five-point Likert agreement scale. Scarcity promotion captured perceived restrictions in time, quantity, and demand; FoMO captured social competition, anticipated regret, and anxiety about losing an opportunity; arousal represented stimulated, excited, active, and aroused states; and impulse buying captured sudden purchase urges, unplanned behavior, positive affect, reduced deliberation, and responsiveness to marketing stimuli. The items were adapted from established measures and contextualized for TikTok Live Shopping. IBM SPSS Statistics 27 was used at the data-preparation stage for coding, completeness checks, screening, descriptive statistics, respondent profiling, and preliminary inspection before model estimation.

SmartPLS 4 was used for inferential analysis because the model contains several latent constructs, multiple indicators, direct paths, and two parallel mediators that must be estimated within one system. PLS-SEM is suitable for the explanatory-predictive purpose of the study and permits measurement-model and structural-model evaluation in the same analytical framework (Hair et al., 2022). Convergent validity was assessed from outer loadings and Average Variance Extracted (AVE), discriminant validity from HTMT, and internal consistency from Cronbach's alpha and composite reliability. Structural evaluation included R-squared, f-squared effect sizes, SRMR, NFI, inner VIF, and bootstrap testing with 5,000 resamples. In addition, out-of-sample predictive performance was assessed using the PLSpredict procedure, with Q^2_predict, root mean square error (RMSE), and mean absolute error (MAE) used as predictive assessment criteria. IBM SPSS Statistics 27 was used for coding, screening, descriptive analysis, and auxiliary regression procedures. Accordingly, SPSS supported data preparation and additional diagnostics, whereas SmartPLS was used to estimate the latent-variable relationships and mediation model.

In addition, Importance-Performance Map Analysis (IPMA) was conducted with Impulse Buying as the target construct to complement the structural results with managerial insights. Construct importance was represented by total effects, while performance scores were rescaled on a 0-100 scale.

Bias, Ethics, and Mediation Procedures

Because the focal constructs were obtained from the same respondents through one cross-sectional questionnaire, common method bias (CMB) was assessed using the full-collinearity approach proposed for PLS-SEM by Kock (2015), an approach that continues to be applied in recent livestreaming PLS-SEM research (Ning et al., 2025). Construct scores were used in auxiliary regressions in which each latent construct was regressed on all remaining constructs, and the resulting full-collinearity VIF values were evaluated against the conservative 3.3 criterion. Structural collinearity was assessed separately

through the SmartPLS inner-VIF matrix.

Voluntary participation was ensured at the beginning of the questionnaire through the consent question, “Are you willing to participate as a respondent in this study?” Only individuals who agreed voluntarily were allowed to proceed with the survey. The questionnaire collected respondents’ names, domicile, and age. Although names were collected, they were not used in the statistical analysis or disclosed in the manuscript. Domicile and age were used only for respondent profiling and were reported in aggregate form. Accordingly, respondents’ personal information was treated confidentially throughout the analysis and reporting process.

Because respondents were recruited through open online channels and the total number of individuals who received or viewed the survey invitation was unknown, a conventional comparison between respondents and non-respondents could not be performed. Therefore, potential non-response bias is acknowledged as a methodological limitation.

Mediation was evaluated through specific indirect effects using 5,000 bootstrap resamples. The indirect effects through FoMO and arousal were assessed together with the remaining direct effect and the total effect of scarcity promotion on impulse buying. Variance Accounted For (VAF) was also calculated to support the interpretation of the mediation pattern. The mediation conclusion was therefore based on the combined evidence from the significance and direction of the indirect effects, the persistence of the direct effect, and the proportion of the total effect transmitted through the two mediating pathways.

RESULTS AND DISCUSSION

Characteristics of the Respondents

The participants were predominantly young and highly familiar with TikTok shopping. Women constituted 88.5% of the sample, 60.0% were 17-25 years old, and 56.5% were students. Most respondents reported monthly personal-care spending within the IDR 100,000 - IDR 500,000 range, while 82.5% watched TikTok Live Shopping at least three times per week. The high exposure frequency supports the relevance of their responses to the promotional setting under investigation, although the gender concentration limits broader demographic generalization.

Table 1. Dominant Characteristics of the Sample

Characteristic	Dominant Category	Percentage
Gender	Female	88.5%
Age	17–25 years	60.0%
Occupation/status	Student	56.5%
Monthly personal-care spending	Rp100,000–Rp500,000	92.0%
Live-shopping viewing frequency	≥ 3 times/week	82.5%

Source: Data processed by the author (2026)

Evaluation of the Measurement Model

The measurement results met the principal reliability and validity requirements. Outer loadings ranged from 0.765 to 0.895, while AVE ranged from 0.657 to 0.750, indicating adequate convergence. HTMT values remained below 0.85, supporting empirical distinction among the four constructs. Cronbach's alpha ranged from 0.925 to 0.970 and composite reliability

from 0.939 to 0.972. These results indicate that the items consistently represented scarcity promotion, FoMO, arousal, and impulse buying without evidence of problematic construct overlap at the discriminant-validity level.

Table 2. Construct Validity and Reliability Statistics

Construct	AVE	Cronbach α	CR
Arousal	0.747	0.962	0.967
FoMO	0.750	0.952	0.960
Impulse Buying	0.720	0.970	0.972
Scarcity Promotion	0.657	0.925	0.939

Source: Data processed by the author (2026)

Structural Results and Hypothesis Decisions

The structural model displayed meaningful explanatory and predictive capability. Scarcity promotion explained 47.2% of FoMO and 55.8% of arousal, while scarcity promotion, FoMO, and arousal jointly explained 59.3% of impulse buying. All Q-squared values were positive. The saturated-model SRMR of 0.056 indicates good residual fit, whereas the estimated-model SRMR of 0.085 remains within an acceptable upper range. In contrast, the NFI value of 0.718 is below the commonly preferred benchmark, indicating that global model fit is not optimal. This constraint is interpreted cautiously because global fit indices in PLS-SEM are supplementary to the evaluation of explanatory power, predictive relevance, effect sizes, collinearity, and structural-path significance. Accordingly, the relatively low NFI is acknowledged as a model-fit limitation rather than being used as evidence of overall model adequacy. Table 3 summarizes explanatory and predictive relevance.

Table 3. Variance Explained and Predictive Relevance

Endogenous Construct	R^2	Q^2_predict
Arousal	0.558	0.553
FoMO	0.472	0.464
Impulse Buying	0.593	0.448

Source: Data processed by the author (2026)

All five hypothesized paths were supported. Table 4 reports the path coefficients and significance tests, while Table 5 combines the inner-VIF and f-squared results to show whether predictor collinearity is problematic and how much each predictor contributes to its endogenous construct. Scarcity promotion has its largest incremental effects on arousal and FoMO, whereas FoMO contributes more strongly to impulse buying than arousal or the remaining direct scarcity path.

Table 4. Estimated Structural Paths

Hypothesis / Path	β	t	p	Result
H1 SP → FoMO	0.687	13.419	<0.001	Accepted
H2 FoMO → IB	0.343	3.214	0.001	Accepted
H3 SP → Arousal	0.747	19.157	<0.001	Accepted
H4 Arousal → IB	0.262	2.440	0.015	Accepted
H5 SP → IB	0.244	2.313	0.021	Accepted

Source: Data processed by the author (2026)

Table 5. Structural Collinearity and Effect-Size Assessment

Path	Inner VIF	f^2	Effect
SP → Arousal	1.000	1.261	Large
SP → FoMO	1.000	0.896	Large
Arousal → IB	3.064	0.055	Small
FoMO → IB	2.569	0.112	Small
SP → IB	2.448	0.060	Small

Source: Data processed by the author (2026)

Table 6. Full-Collinearity Assessment for Common Method Bias

Construct	R^2	Full VIF	Assessment
Impulse Buying	0.593	2.457	< 3.3
Arousal	0.691	3.236	< 3.3
FoMO	0.650	2.857	< 3.3
Scarcity Promotion	0.615	2.597	< 3.3

Source: Data processed by the author (2026)

Table 7. Mediation Analysis and Variance Accounted For (VAF)

Effect	β	t	p	VAF
SP → Arousal → IB	0.196	2.344	0.019	29.0%
SP → FoMO → IB	0.236	3.307	0.001	34.9%
SP → IB (direct)	0.244	2.313	0.021	—
SP → IB (total)	0.676	11.273	<0.001	—
Combined indirect	0.432	—	—	63.9%

Source: Data processed by the author (2026)

Table 7 presents the mediation evidence using the specific indirect effects, direct effect, total effect, and VAF. Both indirect paths are significant and operate in the same direction as the remaining direct effect. The FoMO route accounts for a slightly larger share of the total effect than the arousal route, while their combined VAF indicates that the two mediators transmit a substantial but incomplete portion of scarcity promotion's influence on impulse buying. The pattern therefore supports complementary partial mediation.

Importance-Performance Map Analysis (IPMA)

Table 8. IPMA Results for Impulse Buying

Construct	Total Effect	Perf. (0-100)
Scarcity Promotion	0.676	68.263
FoMO	0.343	67.850
Arousal	0.262	68.455

Source: Data processed by the author (2026)

To extend the practical interpretation of the structural model, IPMA was performed with Impulse Buying as the target construct. Scarcity Promotion showed the highest importance (0.676) with a performance score of 68.263. FoMO ranked second in importance (0.343) and had the lowest performance score (67.850), while Arousal showed the lowest importance (0.262) and the highest performance score (68.455). Because the three performance scores are closely clustered, the main distinction in managerial leverage comes from importance rather than from large performance gaps. The results therefore identify Scarcity Promotion as the primary leverage point for influencing Impulse Buying, followed by FoMO, while Arousal represents a comparatively lower-priority lever.

Scarcity Cues as an Antecedent of FoMO

The positive scarcity-to-FoMO relationship indicates that consumers do not interpret a low-stock notice or closing timer as neutral information. In a live setting, the same message is observed alongside comments, purchase notifications, audience size, and host prompts. These social cues make the possibility of losing the offer more concrete and may encourage comparison with other viewers. FoMO therefore operates as a loss-avoidance mechanism: the consumer acts partly to prevent the anticipated regret of watching others obtain an opportunity that may no longer be available later (Zhang et al., 2022; Erick Karunia et al., 2025).

This mechanism also explains why truthful scarcity communication matters. If a claimed shortage or deadline is repeatedly reset, the

consumer eventually learns that the threatened loss is artificial. Short-term urgency can then be exchanged for lower credibility. Scarcity should therefore function as accurate information about market conditions, not as a fabricated signal designed solely to provoke FoMO.

FoMO as a Predictor of Impulse Buying

FoMO was the stronger of the two organismic predictors of impulse buying. This result is theoretically plausible because FoMO contains a directional motive: it is not merely an intense feeling, but a concern that a specific valuable opportunity will be lost. That anticipated loss can make immediate checkout seem preferable to the regret of waiting. Arousal increases readiness to act, but FoMO provides a clearer reason for what action should be taken. This distinction helps explain why the FoMO coefficient exceeds the arousal coefficient even though scarcity itself produces stronger activation than loss concern (Hussain et al., 2023; Tandon et al., 2021).

Scarcity Cues as an Antecedent of Arousal

Scarcity promotion produced its largest structural effect on arousal. Countdown clocks, visible inventory movement, fast host delivery, and real-time viewer activity compress the rhythm of evaluation and make the shopping situation more stimulating. The finding is consistent with the idea that temporal and quantitative scarcity raise psychological activation before a purchase response is formed (Wu et al., 2021; Li et al., 2023). In other words, scarcity first captures attention and increases action readiness even when the consumer has not yet decided whether purchasing is the preferred response.

Arousal as a Predictor of Impulse Buying

Arousal still contributed significantly to impulse buying, but its smaller coefficient is consistent with the fact that arousal is relatively valence-neutral. Heightened activation can support approach, hesitation, excitement, or tension depending on the consumer's interpretation of the situation. In a promotional context, the combination of positive product presentation and urgency makes an approach response more likely, yet arousal alone does not contain the explicit loss motive embedded in FoMO. This is why arousal can accelerate a purchase while remaining a weaker direct predictor of checkout behavior (Caruelle et al., 2024; Suwito & Susilowati, 2025).

Direct Effect of Scarcity Promotion on Impulse Buying

The direct scarcity-to-impulse-buying path remained significant after both mediators were included. This result shows that not every scarcity-driven purchase requires a prolonged emotional sequence. Consumers may use scarcity as a rapid heuristic for value, popularity, or future unavailability: if the current price appears unusually favorable or the product seems likely to sell out, immediate purchase can be perceived as the efficient option. The surviving direct path therefore complements the psychological explanation and is consistent with research showing that scarcity can influence purchasing through both immediate evaluations and emotional experience (Barton et al., 2022; Zhou, 2025).

Parallel Mediation and SOR Interpretation

The two indirect routes make the organismic stage of SOR more specific. FoMO and arousal are related responses, but they represent different psychological processes. FoMO converts scarcity into the prospect of losing a valued opportunity, whereas arousal converts the same stimulus into heightened readiness to act. The significant indirect effects through both routes show that scarcity can simultaneously shape what consumers fear losing and how strongly they are activated. Yet the direct scarcity effect remains significant and the combined VAF is 63.9%, which means the organismic mechanisms explain a substantial, but not complete, share of the stimulus-response relationship. Consumers can still react directly to the perceived value, urgency, or limited availability of the offer.

This pattern refines earlier applications of SOR that represent the organism through a single affective or evaluative construct. The present evidence supports a parallel-organism interpretation in which different internal states can coexist and carry different portions of the same stimulus effect. It also resolves an important issue in the literature: scarcity may be strongest as an activator of arousal, while FoMO may be more proximal to the final purchase decision. The most intense internal response is therefore not necessarily the response with the greatest behavioral leverage.

For the Indonesian TikTok context, the result is especially relevant because livestream shopping makes social comparison highly visible. Viewer counts, comments, checkout activity, and time-limited promotions can make an offer feel both socially contested and temporally fragile. These conditions provide a plausible contextual explanation for the simultaneous operation of FoMO and arousal, while the personal-care category adds visual and self-presentation relevance that can make rapid purchase cues especially salient.

Academic Implications

The study contributes theoretically by separating two organismic mechanisms within the same SOR model. It extends prior work by showing that loss-oriented concern and emotional activation can operate in parallel rather than as alternative explanations. The finding that FoMO is more closely associated with impulse buying while scarcity is more strongly associated with arousal further demonstrates that stimulus strength and behavioral proximity are distinct properties of a mediation process.

Methodologically, the research demonstrates the value of testing direct and parallel indirect effects in one PLS-SEM model rather than estimating isolated relationships across separate studies. Contextually, it extends scarcity research to Indonesian TikTok Live Shopping for personal care products. The contribution is therefore not that SOR is replaced or challenged, but that its organismic component is specified more precisely for a highly interactive social-commerce environment.

Managerial Implications

The IPMA results provide an additional basis for prioritizing managerial actions. Scarcity Promotion exhibited the highest

importance for Impulse Buying, substantially exceeding FoMO and Arousal, while the performance scores of the three constructs were relatively similar. Therefore, managerial resources should primarily be directed toward improving the design, accuracy, and communication of scarcity-based promotions rather than attempting to intensify consumers' emotional responses.

The findings suggest different actions for different stakeholders. Brand managers and digital marketing practitioners can use genuine limited-time and limited-stock promotions to create urgency, but should align the message with actual inventory and promotional duration. Livestream hosts should explain the offer clearly, combine urgency with product information, and avoid repeatedly implying that every viewer faces an irreversible loss. Marketplace platform managers can support responsible practice by displaying accurate countdowns, stock information, and voucher conditions. Small-business owners can combine scarcity cues with demonstrations, question-and-answer interaction, and transparent terms so that conversion is not achieved at the expense of long-term trust. Customer-relationship management should also monitor post-purchase dissatisfaction, because a sale generated through misleading urgency can weaken repeat purchase and brand credibility.

Ethical Implications of Scarcity Communication

The effectiveness of scarcity does not justify artificial pressure. A low-stock message or closing deadline is ethically defensible when it represents the actual transaction conditions. Fabricated shortages, repeatedly extended 'final' deadlines, or ambiguous voucher restrictions exploit the same FoMO and arousal mechanisms identified in this study without providing truthful information. Such tactics may improve short-term conversion while reducing perceived fairness and trust.

Responsible implementation therefore requires verifiable stock information, clearly stated promotional periods, transparent eligibility conditions, and host communication that distinguishes persuasion from deception. Consumers can also reduce urgency-driven decisions by setting a spending limit, preparing a purchase list, checking whether the restriction is genuine, and allowing a brief pause before checkout. These practices preserve the commercial usefulness of scarce offers while reducing avoidable post-purchase regret.

Limitations and Scope of Interpretation

Several boundaries remain relevant when interpreting the findings. The cross-sectional and self-reported design does not observe actual transactions and, although the full-collinearity diagnostic remained below the 3.3 criterion, method-related variance cannot be eliminated completely in a single-source survey. The open online recruitment process also prevents a conventional non-response-bias comparison because the number and characteristics of people who saw but did not answer the invitation are unknown. In addition, women and younger consumers dominate the sample, which fits the personal-care context but limits demographic

generalization. IPMA was included as a supplementary managerial analysis, but demographic Multi-Group Analysis (MGA) was not conducted because the gender groups were highly unbalanced and would not provide a sufficiently stable comparison. Future studies could use balanced comparison groups, marker-variable or longitudinal procedures for method-bias control, experimental designs, transaction-level data, and MGA when the sample structure supports meaningful group comparisons.

CONCLUSION

This study shows that scarcity promotion in TikTok Live Shopping is positively associated with impulse buying both directly and through consumers' internal psychological responses. Limited-time and limited-stock cues are positively associated with FoMO and emotional arousal, and both states contribute to spontaneous purchase behavior. The results also show that the two mediators are not equivalent: scarcity promotion shows its strongest structural relationship with arousal, whereas FoMO is more closely connected with the final impulse-buying response.

The findings strengthen the SOR framework by demonstrating that the organismic stage can contain parallel mechanisms with different behavioral roles. The persistence of the direct scarcity effect indicates that rapid judgments about urgency, value, or availability remain important even after psychological mediation is considered. For practice, scarcity communication can be effective when it is accurate, transparent, and supported by clear product information rather than manufactured pressure.

The conclusions are bounded by purposive sampling, a cross-sectional design, the Greater Jakarta personal-care context, and self-reported responses. Future studies should examine additional product categories and regions, recruit more balanced demographic groups, employ stronger procedural and statistical controls for common method variance, and use experimental or transaction-level evidence to distinguish the effects of time scarcity and quantity scarcity. These extensions would also permit more rigorous multi-group comparisons and help determine whether the relative roles of FoMO and arousal remain stable across different live-commerce environments.

REFERENCE

Akbar Ridwan. (2025). Jenis Produk TikTok Shop dengan Penjualan Tertinggi di Asia Tenggara April 2025. https://databoks.katadata.co.id/teknologi-telekomunikasi/statistik/68a7d07a5a0e4/jenis-produk-tiktok-shop-dengan-penjualan-tertinggi-di-asia-tenggara-april-2025.

Barton, B., Zlatevska, N., & Oppewal, H. (2022). Scarcity tactics in marketing: A meta-analysis of product scarcity effects on consumer purchase intentions. *Journal of Retailing, 98*(4), 741–758.

https://doi.org/10.1016/j.jretai.2022.06.003.

Bougie, R., & Sekaran, U. (2025). *Research methods for business: A skill-building approach*. Wiley.

Caruelle, D., Shams, P., Gustafsson, A., & Lervik-Olsen, L. (2024). Emotional arousal in customer experience: A dynamic view. *Journal of Business Research, 170*, 114344. https://doi.org/10.1016/j.jbusres.2023.114344.

Cengiz, H., & Şenel, M. (2024). The effect of perceived scarcity on impulse-buying tendencies in a fast fashion context: A mediating and multigroup analysis. *Journal of Fashion Marketing and Management, 28*(3), 405–425. https://doi.org/10.1108/JFMM-03-2023-0082.

Chen, B., Wang, L., Rasool, H., & Wang, J. (2022). Research on the impact of marketing strategy on consumers' impulsive purchase behavior in livestreaming e-commerce. *Frontiers in Psychology, 13*, 905531. https://doi.org/10.3389/fpsyg.2022.905531.

Erick Karunia, Azis, Muh. I., Faerozh Madli, Mohd Noor Hidayat Jimainal, & Ang Hong Loong. (2025). FOMO's Impact on Impulsivity: The Mediating Role of Flash Sale Promotional Strategies. Jurnal Manajemen, 29(3), 462–482. https://doi.org/10.24912/jm.v29i3.2726.

Feng, Z., Al Mamun, A., Masukujjaman, M., Wu, M., & Yang, Q. (2024). Impulse buying behavior during livestreaming: Moderating effects of scarcity persuasion and price perception. *Heliyon, 10*(7), e28347. https://doi.org/10.1016/j.heliyon.2024.e28347.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8.

Huo, C., Wang, X., Sadiq, M. W., & Pang, M. (2023). Exploring factors affecting consumer's impulse buying behavior in live-streaming shopping: An interactive research based upon SOR model. *SAGE Open, 13*(2). https://doi.org/10.1177/21582440231172678.

Hussain, S., Raza, A., Haider, A., Ishaq, M. I., & Talpur, Q. U. A. (2023). Fear of missing out and compulsive buying behavior: The moderating role of mindfulness. *Journal of Retailing and Consumer Services, 75*, 103512. https://doi.org/10.1016/j.jretconser.2023.103512.

Kaye, D. B. V., Chen, X., & Zeng, J. (2021). The co-evolution of two Chinese mobile short video apps: Parallel platformization of Douyin and TikTok. *Mobile Media & Communication, 9*(2), 229–253. https://doi.org/10.1177/2050157920952120.

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. International Journal of e-Collaboration, 11(4), 1-10. https://doi.org/10.4018/ijec.2015100101.

Leni Wandira, & Rahmawati, W. T. (2025, March 24). Transaksi E-Commerce Saat Ramadan Meningkat. Kontan.co.id. https://insight.kontan.co.id/news/transaksi-e-commerce-saat-ramadan-meningkat.

Li, X., Guo, M., & Huang, D. (2023). The role of scarcity promotion and cause-related events in impulse purchase in the agricultural product live stream. *Scientific Reports, 13*(1). https://doi.org/10.1038/s41598-023-30696-8.

Lo, P. S., Dwivedi, Y. K., Tan, G. W. H., Ooi, K. B., Aw, E. C. X., & Metri, B. (2022). Why do consumers buy impulsively during live streaming? A dual-stage SEM-ANN analysis. *Journal of Business Research, 147*, 325–337. https://doi.org/10.1016/j.jbusres.2022.04.013.

Luceri, B., Bijmolt, T. H. A., Bellini, S., & Aiolfi, S. (2022). What drives consumers to shop on mobile devices? Insights from a meta-analysis. *Journal of Retailing, 98*(1), 178–196. https://doi.org/10.1016/j.jretai.2022.02.002.

Ma, X., & Gu, X. (2024). New marketing strategy model of e-commerce enterprises in the era of digital economy. *Heliyon, 10*(8), e29038. https://doi.org/10.1016/j.heliyon.2024.e29038.

Ngo, T. T. A., Nguyen, H. L. T., Nguyen, H. P., Mai, H. T. A., Mai, T. H. T., & Hoang, P. L. (2024). A comprehensive study on factors influencing online impulse buying behavior: Evidence from Shopee video platform. *Heliyon, 10*(15), e35743. https://doi.org/10.1016/j.heliyon.2024.e35743.

Nabilah Muhamad. (2024). Mayoritas Konsumen Belanja Lewat Live Shopping saat Tanggal Kembar. https://databoks.katadata.co.id/teknologi-telekomunikasi/statistik/6757b72e76715/mayoritas-konsumen-belanja-lewat-live-shopping-saat-tanggal-kembar.

Ning, B., Omar, R., Ye, Y., Ouyang, B., & Ren, B. (2025). From attention to action: How streamers, products, and scenes shape customer value co-creation in agricultural livestreaming. Frontiers in Sustainable Food Systems, 9, 1628385. https://doi.org/10.3389/fsufs.2025.1628385.

Nyrhinen, J., Sirola, A., Koskelainen, T., Munnukka, J., & Wilska, T. A. (2024). Online antecedents for young consumers' impulse buying behavior. *Computers in Human Behavior, 153*, 108129. https://doi.org/10.1016/j.chb.2023.108129.

Putri, N., Prasetya, Y., Handayani, P. W., & Fitriani, H. (2023). TikTok Shop: How trust and privacy influence Generation Z's purchasing behaviors. *Cogent Social Sciences, 10*(1), 2292759. https://doi.org/10.1080/23311886.2023.2292759.

Redine, A., Deshpande, S., Jebarajakirthy, C., & Surachartkumtonkun, J. (2023). Impulse buying: A systematic literature review and future research directions. *International Journal of Consumer Studies, 47*(1), 3–41. https://doi.org/10.1111/ijcs.12862.

Rook, D. W. (1987). The buying impulse. *Journal of Consumer Research, 14*(2), 189–199. https://doi.org/10.1086/209105.

Suwito, G. A., & Susilowati, M. W. K. (2025). Scarcity effect on impulse buying: The mediating role of arousal. Jurnal Fokus Manajemen Bisnis, 15(1), 55–69. https://doi.org/10.12928/fokus.v15i1.12418.

Tandon, A., Dhir, A., Almugren, I., AlNemer, G. N., & Mäntymäki, M. (2021). Fear of missing out among social media users: A systematic literature review, synthesis and framework for future research. *Internet Research, 31*(3), 782–821. https://doi.org/10.1108/INTR-11-2019-0455.

Tang, X., Shao, F., & Zhang, Y. (2025). The effect of product scarcity appeals on consumers' impulse buying intentions. *Current Psychology, 44*, 17831–17845. https://doi.org/10.1007/s12144-025-08251-7.

Wu, Y., Xin, L., Li, D., Yu, J., & Guo, J. (2021). How does scarcity promotion lead to impulse purchase in the online market? A field experiment. *Information & Management, 58*(1), 103283. https://doi.org/10.1016/j.im.2020.103283.

Yi, Q., Khan, J., Su, Y., Tong, J., & Zhao, S. (2023). Impulse buying tendency in live-stream commerce: The role of viewing frequency and anticipated emotions influencing scarcity-induced purchase decision. *Journal of Retailing and Consumer Services, 75*, 103534. https://doi.org/10.1016/j.jretconser.2023.103534.

Zhang, J., Jiang, N., Turner, J. J., & Pahlevan-Sharif, S. (2022). The impact of scarcity on consumers' impulse buying based on the S-O-R theory. *Frontiers in Psychology, 13*, 792419. https://doi.org/10.3389/fpsyg.2022.792419.

Zheng, R., Li, Z., & Na, S. (2022). How customer engagement in live-streaming affects purchase intention and customer acquisition: E-tailer's perspective. *Journal of Retailing and Consumer Services, 68*, 103015. https://doi.org/10.1016/j.jretconser.2022.103015.

Zhou, R. (2025). The impact of scarcity promotions in live streaming e-commerce on purchase intention: The mediating effect of emotional experience. *Asia Pacific Journal of Marketing and Logistics, 37*(7), 1733–1749. https://doi.org/10.1108/APJML-04-2024-047