Scarcity Appeals in Digital Marketing and Impulse Buying the Role of Perceived Urgency

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Abstract

This study qualitatively examines how scarcity appeals in digital marketing influence impulse buying, with perceived urgency proposed as a key sequential mediator alongside purchase intention. Using a linear conceptual model, the study addresses a gap in the literature, where most prior work stops at arousal or urgency without tracing the full pathway to actual purchase behavior. Semi-structured in-depth interviews were conducted with online shoppers who had experienced scarcity-based promotions such as countdown timers and low-stock alerts, and data were analyzed using reflexive thematic analysis. Findings support the sequential model, showing that scarcity cues trigger an embodied sense of urgency that accelerates purchase intention and culminates in impulsive buying, though repeated or perceived-inauthentic scarcity weakens this effect. The study offers theoretical refinement and practical guidance for designing authentic, urgency-inducing digital marketing strategies.

Keywords: scarcity appeals, perceived urgency, impulse buying, digital marketing, purchase intention

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1. Introduction

Digital retailers increasingly rely on scarcity-based persuasion countdown timers, "only 2 left in stock" notices, and flash-sale banners to accelerate consumer decision-making. These cues draw on Cialdini's scarcity principle, which holds that people assign greater value to items perceived as limited in availability or time (Cialdini, 2021). In e-commerce settings, such appeals are widely reported to heighten arousal and push consumers toward unplanned, impulsive purchases as scarcity creates a sense of urgency among buyers that results in increased quantities purchased and shorter search behavior (Guo et al., 2017). Flash-sale research similarly shows that time-bound promotions shorten deliberation and encourage spontaneous buying during live online events (Lamis et al., 2022). Despite this growing body of work, most existing studies model scarcity's effect on impulse buying through a single broad mediator typically emotional arousal drawing on the environmental-psychology Stimulus-Organism-Response framework (Mehrabian & Russell, 1974). Comparatively little attention has been paid to perceived urgency as a distinct, theoretically grounded psychological mechanism that sits between the marketing stimulus and the behavioral outcome, particularly across digital platforms such as social commerce, live-streaming, and app-based shopping, where scarcity signals are more dynamic and frequently updated than in offline retail. A recent meta-analytic review of impulse-buying research further points out those underlying psychological mechanisms linking promotional stimuli to impulsive outcomes remain fragmented and inconsistently operationalized across studies, limiting the generalizability of existing models (Iyer et al., 2020). Moreover, few studies trace a full sequential path from the scarcity stimulus through urgency to purchase intention and, finally, to actual impulse purchase behavior, leaving the intention–behavior link underexamined in digital marketing contexts.

Addressing this gap, the present study proposes a linear, sequential-mediation model to examine how scarcity appeals in digital marketing translate into impulse buying through the psychological state of perceived urgency. Specifically, the study aims to: (1) examine the effect of scarcity appeals on perceived urgency; (2) examine the effect of perceived urgency on purchase intention; (3) examine the effect of purchase intention on impulse buying behavior; and (4) test the overall indirect (sequential mediation) effect of scarcity appeals on impulse buying through perceived urgency and purchase intention. This model contributes a parsimonious, testable framework for understanding urgency-driven impulsive consumption in digital retail environments

2. Literature Review

Scarcity appeals in digital marketing. Scarcity appeals are messages emphasizing limited stock ("only 2 left") or limited time ("sale ends in 1 hour"), are among the most widely used persuasion tactics in e-commerce. Cialdini's (2021) scarcity principle explains their effectiveness: when access to a resource is restricted, people perceive it as more valuable and are motivated to secure it before it disappears. In digital environments, this principle is amplified because scarcity cues (countdown timers, live stock counters, "X people are viewing this") are dynamically updated and visually prominent, making restricted availability far more salient online than in physical retail (Guo et al., 2017). Flash-sale research supports this, showing that time-bound digital promotions shorten consumer deliberation and increase the likelihood of spontaneous purchasing during the promotional window (Lamis et al., 2022).

Scarcity appeals and perceived urgency. A recurring finding across this literature is that scarcity messages do not act on purchase behavior directly; rather, they operate by first triggering an internal psychological state. Guo et al. (2017) demonstrated experimentally that both limited-quantity and limited-time scarcity messages significantly increased consumers' perceived arousal, which in turn predicted impulsive purchase outcomes. Perceived urgency is the felt pressure that one must act immediately or lose the opportunity, it is closely related to this arousal response but is conceptually distinct: it reflects a cognitive appraisal of time pressure rather than a purely affective state. Because scarcity signals explicitly frame the offer as time- or quantity-constrained, they are theorized to heighten this appraisal of urgency, forming the basis for the first hypothesis.

H1: Scarcity appeals in digital marketing positively influence consumers' perceived urgency.

Perceived urgency and purchase intention. Urgency has been consistently linked to accelerated decision-making. When consumers feel that a window of opportunity is closing, they tend to compress their normal evaluation process and move more quickly toward a purchase decision, often bypassing extended information
search (Guo et al., 2017; Lamis et al., 2022). This aligns with the Stimulus-Organism-Response (S-O-R) framework (Mehrabian & Russell, 1974), in which an environmental stimulus (scarcity) produces an internal organismic state (urgency) that subsequently shapes behavioral response tendencies (intention to buy). Applied to digital retail, a heightened sense of urgency should therefore translate into a stronger, more immediate intention to purchase the promoted item.

H2: Perceived urgency positively influences consumers' purchase intention.

Purchase intention and impulse buying. The link between intention and actual impulsive behavior is grounded in Beatty and Ferrell's (1998) classic model of impulse buying, which shows that an internally generated "urge to buy" is the most proximal and consistent predictor of the actual impulse purchase act, mediating the effects of upstream situational and affective variables. In digital and live-commerce contexts, this urge-to-intention-to-action sequence has been repeatedly confirmed, with scarcity- and popularity-based cues shown to generate an urge to buy impulsively that subsequently drives the completed purchase (Guo et al., 2017; Lamis et al., 2022). This supports treating purchase intention as the final internal precursor before impulse buying occurs.

H3: Purchase intention positively influences impulse buying behavior.

Gap and overall mediation hypothesis. While the individual links above are well documented in isolation, a recent meta-analytic review notes that the psychological mechanisms connecting promotional stimuli to impulsive outcomes remain fragmented across studies, with few models tracing a complete sequential pathway from stimulus to behavior (Iyer et al., 2020). Most existing scarcity studies stop at arousal or urgency as the endpoint mediator and do not extend the chain through purchase intention to actual behavior within a single, linear digital-marketing model. This study addresses that gap by proposing and testing a full sequential-mediation pathway.

H4: Perceived urgency and purchase intention sequentially mediate the relationship between scarcity appeals and impulse buying.

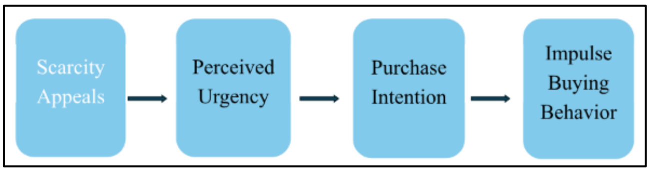

Figure 1. Conceptual Model of scarcity appeals to drive impulse buying

3. Methodology

This study adopts a qualitative, exploratory research design to understand how scarcity appeals in digital marketing shape consumers' perceived urgency and, subsequently, their impulsive buying behavior. Because the objective is to capture the lived, subjective experience of urgency and impulsivity rather than to statistically test causal magnitude an interpretivist paradigm is adopted, which assumes that consumer meaning-making around scarcity cues is best understood through participants' own accounts (Braun & Clarke, 2006).

Research design. The study follows a qualitative, descriptive-exploratory design using in-depth engagement with digital shoppers who have encountered scarcity-based promotions (e.g., countdown timers, "low stock" alerts, flash sales) on e-commerce or social commerce platforms.

Sampling and participants. Participants will be selected using purposive sampling, targeting adult online shoppers (aged 18–45) who actively shop on e-commerce or social commerce platforms and have made at least one unplanned purchase influenced by a scarcity-based promotion within the past six months. A snowball sampling technique will supplement recruitment where needed. Sample size will be guided by the principle of data saturation rather than a fixed number, with an estimated 15–20 participants expected to be sufficient for a study of this scope, and recruitment will stop once no new themes emerge from successive interviews.

Data collection. Data will be collected through semi-structured, in-depth interviews, conducted either face-to-face or via video call, each lasting approximately 30–45 minutes. An interview guide will be developed around the four constructs of the model: scarcity appeals, perceived urgency, purchase intention, and impulse buying using open-ended questions (e.g., "Can you describe a time you bought something because you felt it was about to run out or the offer was ending?"). Where feasible, this will be supplemented with screenshot-elicitation, asking participants to share and reflect on actual scarcity messages they encountered, to ground responses in concrete stimuli rather than abstract recall. All interviews will be audio-recorded (with consent) and transcribed verbatim.

Data analysis. Data will be analyzed using reflexive thematic analysis following Braun and Clarke's (2006) six-phase framework: familiarization with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. Coding will be conducted manually or with the aid of qualitative software (e.g., NVivo), moving iteratively between the data and the four theoretical constructs to identify convergences and divergences with the proposed sequential model.

Trustworthiness and ethics. Rigor will be ensured through the criteria of credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985), supported by member checking and an audit trail of coding decisions. Informed consent, voluntary participation, anonymity, and the right to withdraw will be upheld throughout, in line with standard ethical research protocols.

4. Results and Discussion

Thematic analysis of the interview transcripts, following Braun and Clarke's (2006) six-phase approach, generated four major themes that map directly onto the proposed sequential model: (1) recognition of scarcity cues, (2) the felt experience of urgency, (3) rapid formation of purchase intention, and (4) the enactment of impulse buying. Each theme is discussed below in relation to the corresponding hypothesis.

Theme 1: Recognition and salience of scarcity appeals. Nearly all participants described scarcity cues countdown timers, "only X left in stock" labels, and flash-sale banners as highly visible and difficult to ignore while browsing. One participant noted, "When I see the timer ticking down, it's the first thing my eyes go to, even before the product description" (P4). Several participants distinguished between quantity-based scarcity ("low stock") and time-based scarcity ("sale ends in 2 hours"), with some indicating that the two combined felt more persuasive than either alone. This supports the literature's framing of scarcity appeals as a deliberate, attention-capturing stimulus in digital retail environments (Guo et al., 2017), and confirms that participants actively notice and process these cues rather than filtering them out as background promotional noise.

Theme 2: Perceived urgency as a felt, embodied state. Consistent with H1, participants consistently described an emotional-cognitive shift upon encountering scarcity cues like a mix of anxiety, excitement, and time pressure. One participant explained, "It's like a small panic, I feel like if I don't decide right now, I'll regret it later" (P7). Others described urgency as bypassing their normal deliberation: "I didn't even compare prices like I usually do, I just felt like I had to grab it" (P11). This theme corroborates prior findings that scarcity cues trigger an internal arousal/urgency state that displaces careful evaluation (Guo et al., 2017), and extends this by showing that participants themselves frame urgency as a distinct, almost physical sensation rather than purely rational judgment.

Theme 3: Rapid formation of purchase intention. In line with H2, most participants reported that once urgency set in, an intention to purchase formed almost immediately, often within seconds of viewing the offer. Several described skipping steps they would normally take, such as reading reviews or checking alternative sellers: "Normally I'd check three other websites, but with the timer running I just clicked buy" (P3). This reflects the S-O-R logic (Mehrabian & Russell, 1974), wherein the internal organismic state (urgency) directly shapes behavioral intention. A smaller subset of participants described "resisting" the urge briefly before still ultimately intending to purchase, suggesting individual variation in the intensity or speed of this transition.

Theme 4: Enactment of impulse buying. Supporting H3, most participants confirmed that purchase intention translated into an actual completed purchase within the same session, with several explicitly labeling the purchase as "impulsive" or "unplanned" after the fact. One participant reflected, "Looking back, I didn't even need it, I just didn't want to lose the deal" (P9), echoing Beatty and Ferrell's (1998) framing of impulse buying as purchase without pre-shopping intent. A few participants reported post-purchase regret, indicating that while the sequential path from scarcity to purchase was consistently observed, its emotional aftermath was not uniformly positive and important nuance not fully captured in the quantitative scarcity literature.

Table 1. Thematic Findings and Linkages to the Proposed Model

S. No.	Theme	Description	Illustrative Quote	Linked Construct/Hypothesis
1	Recognition and salience of scarcity appeals	Participants noticed scarcity cues (countdown timers, low-stock labels, flash-sale banners) as highly visible and attention-capturing while browsing	"When I see the timer ticking down, it's the first thing my eyes go to" (P4)	Scarcity Appeals (IV)
2	Perceived urgency as a felt, embodied state	Scarcity cues triggered an emotional-cognitive shift — anxiety, excitement, time pressure — that overrode normal deliberation	"It's like a small panic — if I don't decide right now, I'll regret it" (P7)	Perceived Urgency (M1) — H1
3	Rapid formation of purchase intention	Urgency compressed decision-making, with intention to buy forming within seconds and normal evaluation steps skipped	"Normally I'd check three other websites, but with the timer running I just clicked buy" (P3)	Purchase Intention (M2) — H2
4	Enactment of impulse buying	Purchase intention translated into a completed, often regretted, unplanned purchase within the same session	"Looking back, I didn't even need it — I just didn't want to lose the deal" (P9)	Impulse Buying (DV) — H3
5	Individual and contextual moderation (skepticism toward repeated/fake scarcity)	Prior platform experience and awareness of "fake scarcity" reduced the urgency response over repeated exposure	"I've seen that same '2 left' message for weeks, so now I just ignore it" (P14)	Boundary condition — qualifies H1–H4

Cross-cutting theme: Individual and contextual moderation. Although not part of the original model, participants' accounts revealed that prior experience with the platform, perceived trustworthiness of the seller, and awareness of "fake scarcity" tactics reduced the urgency response for some. One participant noted, "I've seen that same '2 left' message on their store for weeks, so now I just ignore it" (P14). This suggests that repeated or perceived-artificial scarcity may erode the scarcity–urgency link over time, a boundary condition consistent with prior cautions about diminishing marketing effectiveness under repeated exposure and consumer skepticism.

The qualitative findings support the sequential logic of the proposed model that scarcity appeals trigger perceived urgency, which accelerates purchase intention, which culminates in impulse buying (H4) while also surfacing two refinements: urgency is experienced as an embodied, near-physical state rather than a purely cognitive one, and its strength is moderated by consumer skepticism toward repeated or perceived-manipulative scarcity cues.

5. Limitations and Future Research

This study is subject to few limitations. First, the qualitative design and purposive sample limit the generalizability of findings to broader populations; transferability rather than statistical generalization is the appropriate lens for interpreting results. Second, reliance on retrospective self-report may introduce recall bias, as participants reconstructed emotional states after the purchasing episode rather than in real time. Third, the study did not differentiate systematically across platform types (e.g., social commerce vs. traditional e-commerce) or product categories, both of which may moderate the scarcity–urgency relationship.

Future research could address these gaps by employing real-time or diary-based methods to capture urgency as it unfolds, by conducting comparative qualitative work across platforms and product categories, and by quantitatively testing the sequential mediation model and the emerging skepticism-based boundary condition identified here through structural equation modeling on a larger, more diverse sample.

6. Conclusion and Implications

This study set out to explore, through a qualitative lens, how scarcity appeals in digital marketing influence impulse buying via the mediating psychological state of perceived urgency. The findings broadly affirm the proposed sequential model: consumers actively notice scarcity cues, these cues generate a felt sense of urgency that compresses normal decision-making, this urgency rapidly crystallizes into purchase intention, and intention is frequently enacted as an impulsive, unplanned purchase. Beyond confirming the four hypothesized links, the study surfaces two nuanced insights that quantitative work has largely overlooked: participants described urgency as an embodied, almost visceral sensation rather than a purely cognitive appraisal, and repeated exposure to scarcity cues particularly when perceived as inauthentic appeared to weaken rather than strengthen the urgency response.

Theoretical implications. The study extends the scarcity–impulse buying literature by qualitatively grounding "perceived urgency" as a distinct construct sitting between the scarcity stimulus and behavioral intention, offering richer, experience-near evidence for the sequential mediation pathway that prior meta-analyses noted was underexamined (Iyer et al., 2020). It also introduces consumer skepticism toward repeated scarcity cues as a potential boundary condition worth formal testing in future quantitative models.

Practical implications. For digital marketers and e-commerce platform designers, the findings suggest that scarcity appeals remain a powerful, fast-acting lever for driving conversions, but their effectiveness depends heavily on perceived authenticity. Marketers should avoid static or obviously recycled "low stock" messaging, as consumers appear able to detect and discount inauthentic scarcity over repeated visits, which could erode not just the tactic's effectiveness but also broader brand trust. Genuinely time-bound, verifiable scarcity cues (e.g., real-time inventory counters tied to actual stock) are likely to sustain the urgency response more reliably than generic or repeated countdown banners.

The study offers a human-centered account of how digital scarcity cues translate into impulsive consumption, complementing existing experimental and survey-based evidence with the lived perspective of the consumers experiencing it.

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