# IMPULSIVENESS AND MARKETING STRATEGIES IN THE DIGITAL ERA: A SYSTEMATIC REVIEW

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## ABSTRACT

The unpredictability and interaction between logic and emotion make impulse buying a fascinating and unique consumer behavior, especially in a digital setting. Previous research has focused on general consumer behavior or offline impulse buying, often overlooking modern digital triggers. This study aims to synthesize and critically review existing research on online impulse buying, emphasizing the factors that drive this behavior in digital environments. This study is a systematic literature review employing two underlying frameworks: the PRISMA protocol for data screening to ensure methodological rigor, transparency, and completeness, and the SOR framework for explaining the findings. Based on a systematic review of 143 articles from the Scopus database with a time range of 2009-2025, our study finds that (1) the literature is predominantly grounded in the SOR framework, with limited adoption of emerging or integrative theoretical models.; (2) research remains focused on general e-commerce, with insufficient exploration of newer digital contexts such as social commerce and live-streaming; and (3) there is an imbalance in emphasis, with external stimuli widely studied while internal psychological drivers receive comparatively less attention; (4) the field is methodologically constrained, relying heavily on surveys with minimal use of experimental or qualitative approaches. This research provides a comprehensive foundation for future studies in this evolving field. It uniquely contributes by integrating multidisciplinary perspectives (e.g., psychology, technology, and marketing) and highlighting how contemporary innovations, like technology-driven platforms and live-stream shopping, impact consumer behavior.

***Keywords***: *Impulsiveness; Systematic Review; Digital Era; SOR Framework; Bibliometric.*

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## 1. INTRODUCTION

In today's hyperconnected digital environment, the transition from desire to purchase decision can occur within seconds, frequently without deliberate cognitive processing. Impulse buying behavior refers to spontaneous, unplanned purchases driven more by emotional excitement than rational thought, traditionally examined in offline retail settings (Feng et al., 2024a; Qureshi et al., 2025). Generally 84% of all shoppers have made impulse purchases (Shaleh, 2025), and nearly 80% of younger shoppers make impulse purchases online (Taheer, 2025). This impulsive consumer characteristic describes those who often make spontaneous purchasing decisions without prior planning. These figures reflect not only the persistence of impulsive buying online but also the growing integration of mobile and digital platforms in everyday consumption, underscoring the importance of studying impulse buying in dynamic digital contexts. Unlike offline settings, online environments remove physical constraints, enabling 24/7 accessibility

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and algorithm-driven product exposure, intensifying impulsive behaviors through convenience, speed, and emotional triggers embedded in digital interfaces (Liu, 2024). While extensively studied in physical retail, impulse buying has been transformed by digital platforms such as e-commerce, mobile, social, and live-streaming commerce, which introduce new triggers like real-time interaction, personalization, and influencer promotions that intensify external stimuli and internal emotional responses. (Sen, 2024). Despite this trend, the literature remains fragmented, predominantly emphasizing external triggers while giving limited attention to internal psychological mechanisms such as emotional regulation and cognitive processing (Ahn, 2023; Li et al., 2024). This imbalance highlights the need for a more integrative perspective. Accordingly, this study examines the theoretical foundations, contextual shifts, behavioral drivers, and methodological trends in online impulse buying, providing a comprehensive understanding of the phenomenon within evolving digital environments (Redine et al., 2022).

While systematic reviews on offline impulse buying research are prevalent (Redine et al., 2022; Sen & Nayak, 2022), only three studies focus on online impulse buying systematic reviews. Zhao *et al* (2021) highlighted the role of website stimuli, marketing stimuli, and emotions in predicting online impulse buying, noting that their effects vary by economic development level. Another bibliometric study identified three research streams: online store characteristics, interactions between external and internal factors, and online impulse buying behavior (Bashar et al., 2021). The last study focuses only on 2014 (Chan et al., 2017). Technological advances have introduced new online shopping stimuli, such as social commerce and live shopping, indicating the need for an updated systematic review of online impulse buying. This paper presents a systematic literature review of online impulse buying across diverse digital platforms, including e-commerce, social commerce, mobile commerce, live-streaming environments, and the latest is augmented reality commerce. This literature review uniquely contributes by systematically integrating the PRISMA protocol for data screening to ensure methodological rigor, transparency, and completeness (Moher et al., 2010), and the stimulus-organism-response (SOR) model to analyze the results. Finally, thematic analysis was presented to identify, analyze, and reveal four critical potential issues for review, including different types of stimuli producing different impulsivity, individual factors in promoting impulsivity, cultural variations in impulsivity, and the explanatory mechanism of online impulse buying. To explore the dynamics of online impulse buying comprehensively, the study frames its inquiry around three key research questions that align with the stimulus-organism-response (SOR) framework:

RQ1: What are the digital contexts that promote impulse buying? (Stimulus)
RQ2: What explaining/mediating variables represent the psychological mechanisms or theories to explain impulsive buying? (Organism)
RQ3: What dependent variables represent the consequences of impulse buying? (Responses)

The following section outlines the research methodology and protocol for identifying relevant articles, defining inclusion and exclusion criteria, defining data retrieval and selection methods, and explaining data analysis and synthesis procedures. Section three presents the bibliometric study, followed by the results analysis. Section four explores potential avenues for future research, with the implications and suggested frameworks discussed afterwards.

## 2. RESEARCH METHODOLOGY

### *2.1. Structure the review*

In this systematic literature review (SLR), relevant studies were identified and collected from the Scopus database. The gathered dataset was then imported into R Studio to perform bibliometric mapping and content analysis, allowing for the visualization of research trends, co-occurrence networks, and thematic clusters. To ensure rigor and transparency, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol was applied for screening and selecting studies, including identification, screening, eligibility, and inclusion stages (Moher et al., 2010). This methodological approach ensures that the review is comprehensive, replicable, and systematically structured to synthesize online impulse buying evidence; the SOR framework is the basis for explaining the findings (Mehrabian & Russell, 1974). It aims to comprehensively understand online impulse buying, covering theoretical frameworks, key variables, and methods used in previous research. We focused on publications that satisfied three criteria: scholarly work, peer-reviewed articles, and publication in a recognized journal (Paul & Criado, 2020). Data was gathered from Scopus, the largest citation database of peer-reviewed literature in the social science domain (Pattnaik et al., 2020).

### *2.2. Topic Selection*

The selection of a topic for a Systematic Literature Review (SLR) is guided by the crucial criterion of the absence of recent reviews on the chosen subject (Jebarajakirthy et al., 2021). While previous efforts have tried to summarize online impulse-buying literature, they have not explicitly focused on a systematic literature review. Consequently, there is a research gap in the literature exploring impulse buying in online commerce.

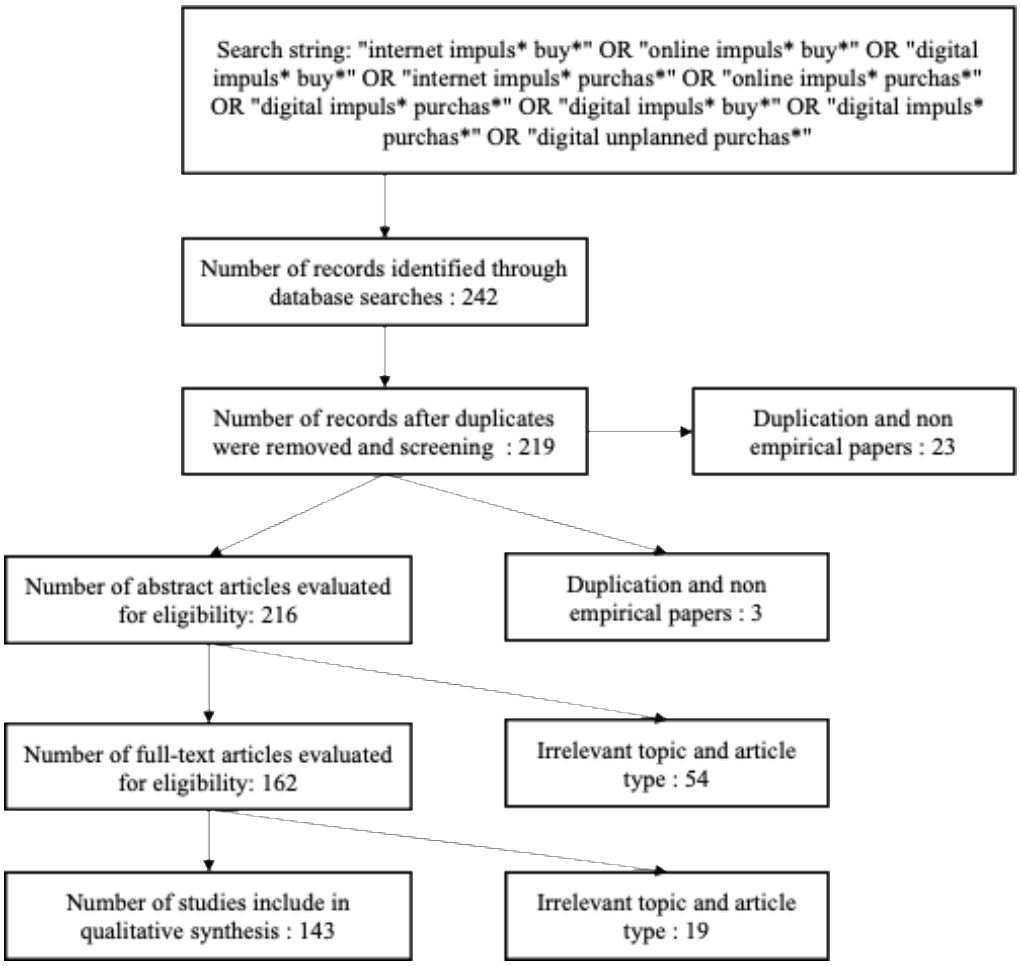


**Figure 1:** Inclusion and exclusion criteria
Source: Table by author

### *2.3. Inclusion and exclusion*

The next phase is establishing standards for inclusion and exclusion (Paul & Criado, 2020). The criteria for inclusion were that the articles must be published in English on or before July 15, 2025, across various disciplines, focusing on impulse buying in online platforms (Figure 1). We focused on Scopus and English-language journals to ensure consistency, quality, and reliable citation metrics, as Scopus indexes only peer-reviewed, high-impact literature (Baas et al., 2020). English is the global language of science, with most highly cited research published in it, making it the most effective medium for reaching the international community. Focusing on English papers also helps readers evaluate the studies reviewed and follow best practices in systematic reviews, which stress transparency, replicability, and credibility (Paul et al., 2021). We included only peer-reviewed journal articles and excluded sources such as conference papers, book chapters, and editorials to ensure credibility and rigor (Podsakoff et al., 2005).

We employed various keyword combinations to ensure broad coverage. To construct effective search strings, we used Boolean operators ("OR" and "AND") and truncation symbols (*). As the study focuses on online impulse buying, our search strategy centered on three core concepts: impulse buying, unplanned purchase, and the internet. Specifically, we used the following search string: "internet impuls* buy*" OR "online impuls* buy*" OR "digital impuls* buy*" OR "internet impuls* purchas*" OR "online impuls* purchas*" OR "digital impuls* purchas*" OR "digital impuls* buy*" OR "digital impuls* purchas*" OR "digital unplanned purchas*". Scopus was selected as the primary database due to its comprehensive indexing of peer-reviewed literature in the social sciences. Searches were conducted across article titles, abstracts, and keywords, yielding an initial pool of 242 papers (Figure 1). A multi-stage data screening process was implemented. The first stage removed 23 articles based on title and keyword review due to duplication, thematic misalignment, or irrelevance, resulting in 219 papers. The second stage, which focused on abstract screening, excluded three papers. In the final stage, a full-text review eliminated 71 articles that lacked substantive relevance to the research objectives. This process resulted in a final dataset of 143 studies. To explore patterns in the literature and answer the research questions, we conducted a bibliometric analysis using the Biblioshiny interface of R Studio (Aria & Cuccurullo, 2017) and content analysis.

## 3. RESULT

### *3.1. Descriptive Analysis*

#### *3.1.1. Publication trend*

The trend shows an apparent rise in academic interest (Figure 2). Between 2009 and 2015, only 2–3 articles appeared annually, reflecting the early stage of online impulse buying research. As digital consumer behavior gained traction, publications proliferated, though fragmented findings still hinder a unified understanding of the phenomenon (Mian, 2024; Redine et al., 2022). From 2016 onward, publications rose steadily, surging in the early 2020s and peaking at 37 in 2024. This growth reflects digital transformation, the expansion of e-commerce, and rising interest in online consumer psychology, especially impulse buying. The recent surge aligns with global shifts toward digital adoption (e.g., post-pandemic online shopping) and the rise of frameworks like SOR to study user responses. These trends signal the field's maturation and growing interdisciplinary appeal across marketing, psychology, information systems, and consumer behavior.

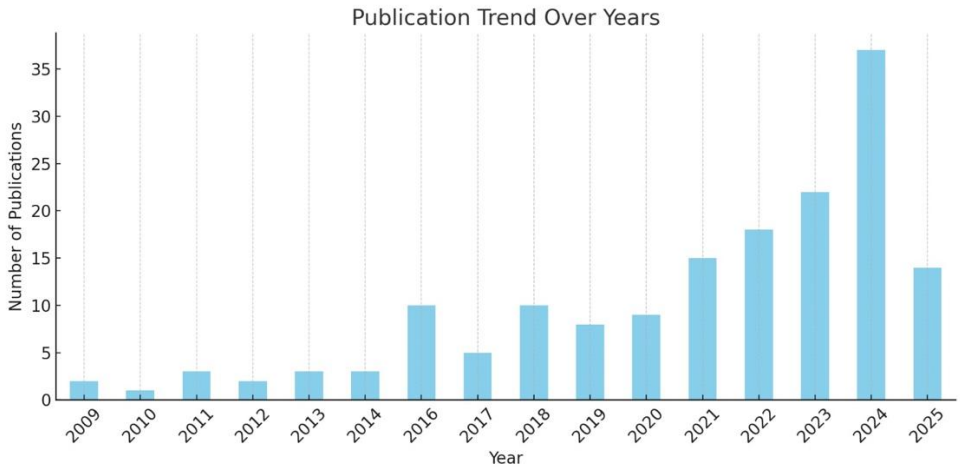


**Figure 2:** Publication Trend year by year
Source: Scopus

### *3.1.2. Most impactful journals*

Table 1 highlights that the top ten journals with the highest articles on online impulse buying are Frontiers in Psychology, Asia Pacific Journal of Marketing and Logistics, and Internet Research. This suggests that these three journals are highly recommended for a literature review on online impulse buying and have significantly contributed to the field. In total, 143 journals were identified across these domains, as presented in Table 2.

**Table 1:** Most Productive Journal

| No | Source Title | #article(s) |
|---|---|---|
| **1** | Frontiers in Psychology | 6 |
| **2** | Information and Management | 5 |
| **3** | International Journal of Information Management | 5 |
| **4** | Current Psychology | 4 |
| **5** | Innovative Marketing | 4 |
| **6** | Journal of Internet Commerce | 4 |
| **7** | Asia Pacific Journal of Marketing and Logistics | 3 |
| **8** | Electronic Commerce Research and Applications | 3 |
| **9** | Journal of Consumer Behaviour | 3 |
| **10** | Journal of Marketing Analytics | 3 |

**Source:** Table by author

**Table 2:** Ranking of the Journal Published Online Impulse Buying Articles

| Domain | Journal Name | Rank | SJR | #article(s) |
|---|---|---|---|---|
| Business and Management | Asia Pacific Journal of Marketing and Logistics | Q1 | 0.99 | 3 |
| Business and Management | Journal of Business Research | Q1 | 2.9 | 2 |
| Business and Management | Journal of Internet Commerce | Q1 | 1.19 | 3 |
| Business and Management | Journal of Retailing and Consumer Services | Q1 | 2.54 | 2 |
| Business and Management | Marketing Intelligence and Planning | Q2 | 1.15 | 3 |
| Business and Management | Journal of Distribution Science | Q4 | 0.2 | 2 |
| Computer Science | Computers in Human Behavior | Q1 | 2.46 | 2 |
| Computer Science | Decision Support Systems | Q1 | 2.08 | 2 |
| Computer Science | Industrial Management and Data Systems | Q1 | 1.22 | 3 |
| Computer Science | Information and Management | Q1 | 2.69 | 2 |
| Computer Science | International Journal of Advanced Science and Technology | Q3 | 0.21 | 2 |
| Computer Science | Journal of Electronic Commerce in Organizations | Q3 | 0.28 | 3 |
| Psychology | Frontiers in Psychology | Q2 | 0.89 | 5 |
| Social Sciences | Internet Research | Q1 | 1.65 | 3 |
| Social Sciences | Sustainability (Switzerland) | Q1 | 0.66 | 3 |

**Source:** Table by author

### *3.1.3. Authorship*

Table 3 lists the top 10 articles with the highest number of citations in the online impulse buying domain from 2002 to July 2025, along with the respective citation counts and annual citation rates for some articles.

**Table 3:** Ten most cited studies (2002-2025)

| No. | Author(s) | Year | Journal Name | TC | TC/year |
|---|---|---|---|---|---|
| 1 | Parboteeah DV, Valacich JS, Wells JD | 2009 | Information Systems Research | 675 | 39.71 |
| 2 | Verhagen T, van Dolen W | 2011 | Information & Management | 531 | 35.40 |
| 3 | Chan TKH, Cheung CMK, Lee ZWY | 2017 | Information & Management | 483 | 53.67 |
| 4 | Xiang L, Zheng X, Lee MKO, Zhao D | 2016 | International Journal of Information Management | 453 | 45.30 |
| 5 | Liu Y et al. | 2013 | Decision Support Systems | 405 | 31.15 |
| 6 | Floh A et al. | 2013 | Electronic Commerce Research and Applications | 336 | 25.85 |
| 7 | Wells JD,Parboteeah DV, Valacich JS | 2011 | Journal of the Association for Information Systems | 298 | 19.87 |
| 8 | Wu I-L, Chiu M-L, Chen K-W | 2020 | International Journal of Information Management | 284 | 47.33 |
| 9 | Chen JV et al. | 2016 | Decision Support Systems | 221 | 22.10 |
| 10 | Huang L-T et al. | 2016 | Journal of Business Research | 210 | 21.00 |

**Source:** Table by author

### *3.1.4. Most Used Theories*

Most studies on online impulse buying rely on a single theory (Goel et al., 2022; Um et al., 2023). Table 4 summarizes the theories used in prior research. The review reveals that most studies rely heavily on the Stimulus-Organism-Response (S-O-R) model (30 studies; 35.3%). S-O-R links digital stimuli, cognitive/emotional processing, and impulsive responses, but is often applied too statically and rarely adapted to new contexts like live streaming or social commerce. Alternative frameworks, such as Flow Theory (Csikszentmihalyi, 1990), Para-social Interaction Theory (Lim, 2017) highlight how emotional connections with media personalities drive impulsive buying through personal narratives. Influencers and bloggers enhance this effect using relatable stories and links (Jia et al., 2023; Mardon et al., 2023). Similarly, the Competitive Arousal Model (CAM) links impulse buying to emotions triggered by competitive stimuli like discounts and limited-time offers (Cengiz & Şenel, 2023). The Competitive Arousal Model (CAM) is also emerging but underutilized (Mundel et al., 2023). This addresses RQ3.

**Table 4:** Seven theories are most used in online impulse buying research

| Theory | # Articles | References |
|---|---|---|
| Competitive arousal model | 2 | Wu et al. (2021); Xhang et al (2021) |
| Flow theory | 7 | Paraman et al (2022); Barta et al (2022); Niu et al (2014); Do et al (2020); Hsu et al (2020); Obada and Ugulea (2024); Sinarwaty (2025) |
| Para-social interaction | 2 | Chen et al (2021); Hsu et al (2020) |
| SOR framework | 30 | Lin et al (2023); Lee and Wan (2023); Tee et al (2023); Zhang and Ahmad (2023); Trivedi et al (2022); Li et al (2022); Gao et al (2022); Lee et al (2022); Chen et al ; Yang et al (2022); Rao and Ko (2020); Xq et al (2021); Chen et al (2020); Arif et al (2020); Leong et al (2018); Parboteeah et al (2016); Do et al (2020) ; Xu et al (2020); Madhu et al ; Chen Y. et al (2020); Chen and yao ; Leong et al (2018); Loureiro and Breazeale (2016); Liu et al ; Kimiagari and Malafe (2021); Zhang et al (2021); Abbot et al (2023); Chen et al (2023), Cuong (2023); Febrilia et al (2024); Feng et al (2024); Jamil et al (2025); Kathuria and Bakshi (2024); Le at al (2025); Lee et al (2021); Li et al (2022); Lin et al (2016); Luong et al (2023); Melati et al (2024); Muhammad et al (2024); Ngo et al (2025); Ngo et al (2024); Safeer et al (2024); Shen and |

| Theory | # Articles | References |
|---|---|---|
| Technology acceptance model | 7 | Khalifa (2012); Siow and Phang (2025); Suhud and Herstanti (2017); Sun et al (2024); Xia et al (2024); Yawar et al (2024); Zhu et al (2023) Do et al (2020); Koufaris (2001); Niu et al (2014); Kimiagari and Malafe (2021); Zhang et al (2007); Zhang et al (2006); Martinez-Lopez et al (2015) |

**Source:** Table by author

### *3.1.5. Online Platform Type in Previous Research*

The results show apparent variations in research focus across e-commerce platforms, shaped by technology and shifting consumer behavior. Of the six identified platforms, e-commerce dominates studies from 2011 to 2025, reflecting its role as the most established and versatile form of digital retail. The COVID-19 pandemic further boosted online shopping and sparked research on personalization, platform design, and impulse buying. Website-based commerce marks the earliest research stream, starting in 2014 (Lin & Lo, 2016). Early research emphasized trust, usability, and design when websites were the main channel for online shopping. Since 2019, social commerce has expanded rapidly with platforms like Facebook, Instagram, and TikTok integrating shopping features (D.-R. Obadă & Țugulea, 2024). These platforms combine social interaction, influencer marketing, and product discovery, creating an environment conducive to impulse purchasing.

Live streaming commerce is the newest trend, emerging in 2022. Its rise follows the popularity of TikTok Shop, Taobao Live, and Shopee Live, where entertainment, scarcity cues, and real-time interaction strongly drive impulsive purchases (Bismo & Halim, 2023; Siow & Phang, 2025). Mobile commerce, despite being dominant in real-world usage, appears underrepresented as a distinct category in academic literature, with only a single dedicated study identified (J. Trivedi et al., 2022). This may be due to its frequent integration into broader e-commerce research rather than being treated independently. Similarly, AR commerce is in its infancy, with only two studies identified between 2023 and 2024. AR's immersive and experiential nature holds potential for future expansion, particularly in fashion, beauty, and furniture (Hapsari et al., 2024). Overall, the temporal progression of platform-specific research follows the commercial diffusion of technology: from websites in the early 2010s, to e-commerce dominance, to the social commerce boom in the late 2010s, and more recently to live streaming and AR commerce in the 2020s. This pattern suggests the digital context that promotes impulse buying and answers RQ1.

**Table 5:** Context of Media Used in Online Impulse Buying Research

| Platform Type | Researcher/Author (Year) |
|---|---|
| Website | Ku et al. (2014); Xia et al. (2016); Febrilia et al. (2018); Vihari et al. (2018); Zhu et al. (2023); Bashar et al. (2024); Karahan (2024) |
| E-Commerce | Bashar et al. (2011); Kimiagari and Malafe (2011); Li et al. (2012); Lin et al. (2016); Muhammad et al. (2016); Chou et al. (2017); Nguyet et al. (2017); Chetoui and El Bouzidi (2018); Febrilia et al. (2019); Koay et al. (2019); Melati et al. (2019); Febrilia and Warokka (2020); Abdelsalam et al. (2021); Febrilia and Warokka (2021); Feng et al. (2021); Hiranrithikorn and Banjongprasert (2021); Karahan (2021); Li et al. (2021); Zhang et al. (2021); Aghdaie et al. (2022); Cavazos-Arroyo and Máynez-Guaderrama (2022); Martaleni et al. (2022); Nguyen et al. (2022); Vihari et al. (2022); Wang and Chapa (2022); Wang et al. (2022); Chen et al. (2023); Chetoui and El Bouzidi (2023); Cuong (2023); Feng et al. (2023); Helmi et al. (2023); Milakovic and Ahmad (2023); Lee et al. (2023); Lin et al. (2023); Luong et al. (2023); Ngo et al. (2023); Trivedi et al. (2023); Trivedi et al. (2023); Xiao et al. (2023); Ali et al. (2024); Ameer Hussain et al. (2024); D'Souza et al. (2024); Febrilia et al. (2024); Guo et al. (2024); Kathuria and Bakshi (2024); Luong et al. (2024); Melati et al. (2024); Mutambik et al. (2024); Ngo et al. (2024); Nguyen et al. (2024); Nguyet et al. (2024); Sun et al. (2024); Utama et al. (2024); Yawar et al. (2024); Kathuria and Bakshi (2025); Le et al. (2025); Mashilo et al. (2025); Sinarwaty (2025) |
| Social commerce | Karahan (2016); Yawar et al. (2016); Martaleni et al. (2019); Cuong (2020); Lee et al. (2020); Koay et al. (2021); Trivedi (2021); Lina et al. (2022); Febriandika et al. (2023); Atta et al. (2023); Van Tran et al. (2023); Abdelsalam et al. (2024); Banjongprasert (2024); Obadă and Țugulea (2024); Divakar and Venkatesh (2024); Safeer (2024); Xu et al. (2024); Zhang and Ahmad (2024); Gopal and Lian (2025); Karahan (2025) |
| Mobile Commerce | Trivedi et al (2022) |

| | |
|---|---|
| Livestreaming commerce | Li et al. (2022); Bismo and Halim (2023); Hasan and Qayyum (2023); Cuong (2024); Feng et al. (2024); Xia et al. (2024); Ngo et al. (2025); Siow and Phang (2025) |
| AR Commerce | Saad and Choura (2023); Hapsari et al. (2024) |

**Source:** Table by author

### *3.1.6. Research Methods Used in Previous Research*

Studies on online impulse buying behavior have employed a range of research methodologies. The majority adopted a quantitative approach, with 126 studies utilizing surveys for data collection and 12 studies employing experimental designs (Table 7). Five studies used a mixed-method approach, offering a more nuanced understanding of online impulse buying behavior. This methodological mapping reveals dominant research practices and flags opportunities where underutilized approaches could be leveraged. The subsequent discussion section will elaborate on these potential avenues for theory development and empirical exploration. The review is framed by the Stimulus-Organism-Response (SOR) model, which explains how stimuli (internal and external drivers) shape organismic states (emotions, cognition, social identity), ultimately leading to behavioral responses such as online impulse buying. SOR provides a unifying lens to connect independent, mediating, and dependent variables across studies (Table 6).

**Table 7:** Research methods used in online impulse buying research

| Method | #articles | Author |
|---|---|---|
| **Quantitative** | | |
| **Survey** | 126 | Verhagen and Van Dolen (2011); Wells et al (2011); Floh and Madlberger (2013); Huang et al (2014); Huang (2016); Rezaei et al (2016); Xiang et al (2016); Lin (2016); Lo et al (2016); Akram et al (2017); Suhud (2017); Hasim et al (2018); Akram (2018); Zou (2018); Hasim (2018b); Zhang (2018); Hasim et al (2018c); Tariq et al (2019); Sarwar et al (2019); Tariq et al (2019b); Kathiravan (2019); Hasim (2019); Princes (2019); Shahpasandi et al (2020); Hayu et al (2020); Fook and McNeill (2020); Hasim et al (2020); Wu et al (2020); Thi Phan et al (2020); Li et al (2021); Koay et al (2021); Karim et al (2021); Febrilia and Warokka (2021); Zhang et al (2021); Lee et al (2021); Zaki and Ab Hamid (2021); Sarah et al (2021); Prawira and Sihombing (2021); Cavazos-Arroyo and Máynez-Guaderrama (2022); Trivedi et al (2022); Wang et al (2022); Martaleni et al (2022); Aghdaie et al (2022); Gulfraz et al (2022); Hiranrithikorn and Banjongprasert (2022); Bao and Yang (2022); Wang and Chapa (2022); Li et al (2022); Lina et al (2022); Zhang and Shi (2022); Milaković and Ahmad (2023); Luong et al (2023); Chen et al (2023); Hasan and Qayyum (2023); Bismo and Halim (2023); Febriandika et al. (2023); Lin et al. (2023); Trivedi et al. (2023); Helmi et al. (2023); Lee et al. (2023); Cuong (2023); Zhu et al. (2023); Feng et al. (2023); Van Tran et al. (2023); Liu et al. (2023); Cuong (2024); Divakar and Venkatesh (2024); Chatterjee et al. (2024); Yawar et al. (2024); Hapsari et al (2024); Karahan (2024); Bashar et al. (2024); Utama et al. (2024); Melati et al. (2024); Hussain et al. (2024); Obadă and Țugulea (2024); Feng et al. (2024); Ali et al. (2024); Febrilia et al. (2024); Sun et al. (2024); Febrilia et al. (2024b); Xia et al. (2024); Banjongprasert (2024); Xiao et al. (2024); Abdelsalam et al. (2024); Kathuria and Bakshi (2024); Ngo et al (2024); Safeer (2024); Guo et al (2024); Mutambik et al (2024); D'Souza et al. (2024); Sarwar et al. (2024); Ngo et al. (2025); Karahan (2025); Siow and Phang (2025); Ku et al. (2025); Kathuria and Bakshi (2025); Mashilo et al. (2025); Chou et al. (2025); Sinarwaty (2025); Le et al. (2025); Ahmed et al. (2025); Gopal and Lian (2025); Koay and Lim (2025). |
| **Experiment** | 12 | Parboteeah et al (2009); Shen and Khalifa (2012); Dawson and Kim (2009); Dawson and Kim (2010); Xu and Huang (2014); Liao et al (2016); Chen and Wang (2016); Vonkeman et al. (2017); Wu et al (2021); Zhang et al (2022); Ben Saad and Choura (2023); Jamil et al (2025) |
| **Mixed Method** | 5 | Lee et al (2022); Um et al (2022); Muhammad et al (2024); Nguyen et al (2024); Nguyen et al (2024b); Xu et al (2024) |
| **Total** | 143 | |

**Source:** Table by authors

### *3.1.7. Variable Used in Previous Research*

**Table 6:** Variables in previous research

| **Independent Variables** | | | | |
|---|---|---|---|---|
| Ad intrusiveness | Educational experience | Interface design and quality | Product recommendations | Socialization |
| Adventure & gratification seeking | Emotional response | Marketing and promotions | Product variety | Source credibility |
| Aesthetic appeal | Entertainment experience | Materialism | Marketing and promotions | Subjective norm |
| AI service quality | Environmental advertising | Media richness | Quantity pressure | Sustainability cues |
| Anchor characteristics | Escapist experience | Merchandise attractiveness | Ratings | System quality |
| Atmospheric cues | Ethical sensitivity | Mindfulness | Reinforcement learning | Task challenge |
| Authentic celebrity endorsement | Expertise | Mobile app characteristics | Role-play shopping seeking | Trust |
| Bonus packs | Extroversion | Motivation to use AR | Scarcity (time & product) | TikTok use motives |
| Brand engagement | Fear of missing out (FoMO) | Observational learning | Security (website) | Time pressure |
| Brand expectation | Flash sale | Reviews | Self-confidence | Ubiquity |
| Cognitive & affective factors | Flow experience | Parasocial interaction | Self-consciousness | User-generated content |
| Convenience | Fun | Performance expectancy | Self-control | Utilitarian browsing |
| Consumer attitude | Gamification | Perceived enjoyableness of online reviews | Self-esteem | Variety of selection |
| Consumer innovativeness | Happiness | Perceived risk | Social appearance anxiety | Vendor creativity |
| Consumer service experience | Hedonic motivation | Perceived usefulness | Social comparison | Visual appeal |
| Consumer trust | Homophily | Personalization | Social cues | Vividness |
| Corporate social responsibility | Idea shopping | Product dissonance | Social environment | Word-of-mouth |
| Discount | Impulse buying tendency | Product involvement | Social influence | |
| Ease of use | Informativeness | Product knowledge | Social media forums | |
| Economic related factor | Interactivity | Product presentation | Social presence | |
| Ad intrusiveness | Educational experience | Interface design and quality | Product recommendations | |
| Adventure & gratification seeking | Emotional response | Marketing and promotions | Product variety | |
| Aesthetic appeal | Entertainment experience | Materialism | Marketing and promotions | |
| AI service quality | Environmental advertising | Media richness | Quantity pressure | |
| Anchor characteristics | Escapist experience | Merchandise attractiveness | Ratings | |
| **Mediating Variables** | | | | |
| Age | FoMO | Perceived enjoyment | Rewards | The urge to buy |
| Anxiety and social media addiction | Flow experience | Perceived quality | Satisfaction | Visual appeal |
| Attachment | Gender | Perceived uncertainty | Self-control | Website features |
| Emotions | Hedonic consumption | Perceived usefulness | Self-esteem | Zhong yong tendency |
| Engagement | Impulse buying tendency | Perceived value | Social capital | |
| Envy | Motivation | Personalized advertising | Social presence | |

| | | | | |
|---|---|---|---|---|
| **Moderating Variables** | | | | |
| Anxiety | Impulsiveness | Reviews | Social media celebrity | |
| Autotelic experience | personality | Scarcity | Trust propensity | |
| cognitive engagement | Pricing | Self-confidence | Website personality | |
| Demographics | Product involvement | Self-control | | |
| Emotions | Promotions | Self-esteem | | |
| **Dependent Variables** | | | | |
| Affective dissonance | Impulsivity | Return intention | | |
| Compulsive buying | Loyalty | Technostress | | |
| Consumption behavior | Online impulse buying | Urge to buy impulsively | | |
| Customer satisfaction | Postpurchase dissonance | | | |

**Source**: Table by authors

#### *3.1.7.1. Stimuli from Previous Research*

The stimuli identified in these online impulse buying studies represent a broad spectrum of influencing consumer behavior in digital commerce. They encompass platform and interface cues, marketing and promotional triggers (Suhud & Herstanti, 2017), and content and media characteristics (Xia et al., 2024). Social and interpersonal factors also emerge strongly, including social cues, social proof, parasocial interaction, and influencer credibility, which stimulate cognitive and affective responses (Karahan, 2025). Personalization, sustainability cues, and AI-driven service quality reflect recent trends in value-driven and technologically enhanced shopping environments (Y. Zhu et al., 2023). The breadth of stimuli underscores the multifaceted nature of online impulse buying, where environmental, promotional, technological, and social signals interact to shape organismic states and subsequent purchase responses. This section is to answer RQ1.

#### *3.1.7.2. Mediating and Moderating Variables as Organism*

In the SOR framework, mediators in online impulse buying represent the "Organism" stage, where emotional, cognitive, and social processes translate stimuli into purchase responses. As shown in Table 6, emotions, arousal, pleasure, flow, envy, FOMO, and anxiety all highlight how powerful feelings drive impulsive choices (W. Zhu et al., 2020). Cognitive appraisals such as perceived usefulness, value, quality, enjoyment, and uncertainty also matter, while social factors like presence, appeal, capital, network proneness, and belonging stress the role of peer and community influence in social commerce. Identity and self-related traits (self-control, self-esteem, hedonic consumption, personality) filter these effects, and behavioral habits (browsing, rewards, badges, problematic use, impulse tendency) show how routine platform use and gamification reinforce responses (Hayat et al., 2022). These insights address RQ2.

Moderators reveal how traits, states, and contexts shape processing. Demographics (age, gender, socio-economic status), dispositions (self-esteem, trust propensity), and behavioral tendencies (impulsiveness, impulse traits, self-control) either amplify or restrain urges. (Van Tran et al., 2023). Behavioral tendencies such as impulsiveness, impulse buying traits, and self-control determine whether the organism amplifies or restrains buying urges. Contextual cues such as product involvement, price, scarcity, promotions, reviews, personalized ads, and social media celebrities further intensify or weaken impulse buying (Feng et al., 2024a).

#### *3.1.7.3. Dependent variables represent the consequences (responses)*

The dependent variables were identified as responses in online impulse buying studies (Table 6). These variables show a mix of emotional, cognitive, and behavioral responses within the SOR framework. Emotional and cognitive outcomes such as post-purchase regret and technostress highlight the potential negative consequences of impulsive shopping (Chetioui & El Bouzidi, 2023; Sarwar et al., 2023). Behavioral responses include online impulse buying and the urge to buy impulsively, while attitudinal outcomes like customer satisfaction and loyalty reflect more positive post-purchase experiences (Ahmed et al., 2025; Mashilo et al., 2025). These insights address RQ3.

## 4. DISCUSSION AND FUTURE RESEARCH DIRECTIONS

### *4.1.1. The efficacy of different stimuli in promoting impulsivity*

The findings across multiple studies consistently show that different types of stimuli, from website cues, pricing strategies, e-wallet app features, and promotional strategies, affect online impulse buying differently. Platform-related factors encompass various design and functional elements of online stores that can trigger the actual purchase or impulse buying. Research indicates that visually appealing interfaces, characterized by attractive layouts and balanced color schemes, can immediately capture consumers' attention (Utama et al., 2021). Coupled with high navigability, these elements create a smooth and enjoyable shopping journey (Kimiagari & Malafe, 2021). Such a positive user experience reduces cognitive effort, sustains engagement, and increases the likelihood of unplanned purchases, as consumers are more inclined to act on spontaneous buying impulses when the platform is aesthetically appealing and easy to use.

Price-related cues strategically shape consumer value perceptions and influence purchase decisions (Hussain et al., 2024). Price remains one of the key considerations for consumers in their purchase decision-making process, including in the context of online impulse buying (Muhammad et al., 2023). Conversely, other studies have found that price does not directly influence online impulse buying behavior (Hussain et al., 2024). However, this effect may occur indirectly through affective mediators such as perceived enjoyment (Cuong, 2023). Further, research by Xu and Huang (2014) indicates that price discounts tend to stimulate higher impulse buying intentions for hedonic or low-priced products. In contrast, bonus packs are more effective in driving purchases of utilitarian or high-priced products.

Limited-time promotions are among the most common e-commerce strategies, using urgency through flash sales and time-limited offers to trigger quick purchases (Kathuria & Bakshi, 2024a). This variable has significantly influenced impulsive buying across various contexts, including traditional e-commerce, live commerce, and promotional platforms such as Shopee Video (Cuong, 2024). However, their indirect effect via pleasure was found non-significant (Ngo et al., 2025), likely because Gen Z shoppers often research before buying, making them less vulnerable to time pressure.

Given that the results indicate varying effects of stimuli, ranging from platform-related cues and pricing strategies to limited-time promotions, on online impulse buying behavior, future research should focus on integrated and comparative examinations of these stimuli. For findings that demonstrate inconsistencies, such as those related to time-limited deals, future research should examine this variable's influence across different generations. In addition, concerning price, subsequent studies could test and validate whether its effect varies according to product type, such as utilitarian versus hedonic products.

#### *4.1.2. Individual Factors in Promoting Impulsivity*

Individual factors refer to personal characteristics or psychological tendencies that make them more likely to act impulsively (Redine et al., 2022). Findings from the reviewed studies highlight that specific personal characteristics significantly influence consumers' susceptibility to impulse buying in digital contexts. Demographic and situational aspects, such as age, gender, or life stage, may influence susceptibility to impulse buying behavior (Ali et al., 2024; V. Trivedi et al., 2023). Cognitive states like flow experience, where consumers become fully immersed in browsing, increasing impulsivity (Bao & Yang, 2022).

Psychological drivers such as hedonic shopping motivation, FoMO, materialism, emotional pleasure, and arousal are powerful stimuli that increase consumers' vulnerability to impulsive buying (Ahmed et al., 2025; Sarwar et al., 2023). Nevertheless, these fleeting emotions often lead to post-purchase regret, underscoring their double-edged effect on consumer satisfaction. Interestingly, while trust does not directly impact impulse buying (Divakar & Venkatesh, 2024), it significantly influences online impulse buying behavior, primarily when mediated by emotional response (Ku et al., 2025). This provides a basis for developing marketing strategies to build consumer trust by appealing to consumers' emotions or happiness. Such strategies might include crafting brand stories that share authentic backgrounds.

Hedonic motivation is a significant mediator of impulsive buying behavior, particularly in response to external stimuli such as visual design and sales promotions (Kathuria & Bakshi, 2024b; Le et al., 2025). It is also an internal stimulus that influences online impulse buying through emotional responses (Sarwar et al., 2023). These findings suggest that marketing strategies stimulating hedonic motivation, such as limited-time indulgence campaigns or experiential events delivered in-store, online, or live streaming, can effectively trigger impulse buying. The evidence indicates that such behavior is shaped less by rational need than by psychological predispositions and emotional drivers embedded in consumers' digital lifestyles.

Flow is a mental state in which a person is fully immersed and intensely focused on an activity, experiencing a sense of energized focus and enjoyment (Csikszentmihalyi, 1990). Some studies report high flow reduces impulsivity by fostering focus and deliberate decision-making (Sinarwaty, 2025). Others find that flow enhances impulsive buying

when linked to hedonic or serendipitous experiences, as heightened immersion can intensify emotional involvement and trigger spontaneous purchases (Bao & Yang, 2022)

Given that online impulse buying is an emotion-driven and irrational behavior, future research should examine the nuanced interplay between emotional traits and self-regulation. Studies could investigate how momentary mood states interact with stable personality traits in shaping impulsive behavior in digital contexts. It would also be valuable to explore protective factors, such as emotion regulation training, digital literacy, or spending alerts, that may mitigate emotional dominance in purchase decisions. Integrating psychophysiological measurements, such as heart rate variability or facial emotion recognition, could provide objective insight into the emotional mechanisms at play.

#### *4.1.3. Cultural Variations in Impulsivity*

Culture regulates behavior and strongly shapes consumer buying patterns by influencing values, norms, and decision-making styles (Bashar et al., 2023). In online impulse buying, culture moderates how stimuli translate into purchase behavior, making cross-cultural insights essential (Thomas & Varghese, 2022). Research in China highlights the role of technology, showing that website quality, gamification features, and AI-driven personalization enhance engagement and stimulate impulsive purchases (Akram et al., 2018; Zhang et al., 2021). Comparative studies further reveal that the same stimuli can trigger different levels of impulsivity across cultural contexts, as seen in India and Bahrain, underscoring the need for culturally adaptive marketing strategies (Ali et al., 2024). These findings indicate that the same stimulus may evoke different levels of impulsivity depending on cultural norms, values, and consumer behavior tendencies, highlighting the importance of culturally adaptive marketing strategies.

While current literature often compares individualistic and collectivistic societies, future research could unpack cultural nuances within countries, especially in emerging markets where digital adoption and consumer values are rapidly shifting. This could include studying generational differences in cultural impulse-buying tendencies or examining how traditional values influence digital shopping emotions in hybrid cultures. Cross-cultural experiments could test whether identical platform designs evoke the same levels of emotional arousal in different cultural settings. Moreover, qualitative approaches, such as netnography or in-depth interviews, could reveal culturally embedded meanings of impulsive buying that may not emerge from purely quantitative models.

#### *4.1.4. The Explaining Mechanism*

As an irrational behavior, online impulse buying unfolds through several interconnected psychological mechanisms dominated by consumer emotions. The first is emotional arousal, a short-lived but intense affective state characterized by excitement and urgency. This can be triggered by scarcity cues such as limited-time offers, countdown timers, flashing deals, social proof in live streams, and persuasive FoMO messages (Ngo et al., 2024). In this state, consumers rely on fast, heuristic thinking, which shortens decision-making, heightens the urge to buy, and increases immediate purchases, especially for hedonic products under time pressure (Siow & Phang, 2025). Interestingly, some studies have found that negative emotions, such as boredom or anxiety, do not significantly reduce the likelihood of impulse purchases in this context (Sun et al., 2024). This process aligns with the SOR framework, where scarcity cues act as stimuli, arousal represents the organismic state, and impulsive purchase behavior forms the response.

The second mechanism is perceived enjoyment, whether browsing or interacting with the platform, regardless of product utility. This is enhanced by appealing layouts, smooth navigation, live chats, gamified features, creative merchandising, and reward systems (Vihari et al., 2022). Perceived enjoyment induces positive affect, directly increasing the urge to buy impulsively. Studies show that while platform usefulness enhances enjoyment, unplanned purchases strongly drive enjoyment (Ben Saad & Choura, 2023; Karahan, 2025). Within the SOR framework, these features are stimuli that generate affective enjoyment, which drives impulse buying (Lee et al., 2022). Flow Theory further suggests that interactivity and design foster immersive engagement, increasing spontaneous purchase likelihood.

The third mechanism is the flow experience (Csikszentmihalyi, 2008). Flow is fostered by platform design, trust, task–skill balance, responsive features, and engaging elements such as personalized recommendations or product

demonstrations (D. R. Obadă, 2013; Wu et al., 2020). In this state, self-regulation weakens, enjoyment intensifies, and the urge to buy impulsively strengthens. Flow Theory explains this as the outcome of an optimal match between skills and challenges (Csikszentmihalyi, 1990). This mechanism also aligns with the SOR framework, in which these external cues act as stimuli that induce flow as an organismic state, subsequently triggering impulsive purchase behavior.

Finally, these mechanisms converge in the urge to buy impulsively (UBI), the immediate, compelling desire to purchase without prior planning. Within the SOR framework, platform stimuli such as vivid layouts, website quality, and scarcity cues trigger consumers' affective and cognitive states, amplifying this urge (Sun et al., 2024; H. Xu et al., 2024). These stimuli amplify the urge to buy impulsively. Internal variables, such as mental and affective reactions and personal factors, play a complementary but less dominant role by predisposing individuals to stronger affective responses when exposed to these stimuli (Bashar et al., 2024; Feng et al., 2024b).

## 5. CONCLUSION

This systematic literature review synthesized findings from 143 peer-reviewed articles published between 2009 and 2025 to comprehensively understand online impulse buying (OIB) in the digital era. Grounded in the PRISMA protocol for methodological rigor and the Stimulus-Organism-Response (SOR) framework for analysis. The study mapped theoretical foundations, platform contexts, methodological approaches, and variable relationships shaping OIB research. The integration of bibliometric mapping and thematic analysis was crucial in identifying four critical thematic clusters: (1) different types of digital stimuli produce varying levels of impulsivity, with visually appealing interfaces, scarcity cues, and immersive platform features consistently heightening purchase likelihood; (2) individual factors such as hedonic motivation, materialism, and FoMO play a dominant role, indicating that OIB is largely emotion-driven and less rational; (3) cultural variations moderate the effect of digital stimuli, with different culture contexts displaying different impulsive triggers and intensities; and (4) the explaining mechanisms, particularly emotional arousal, perceived enjoyment, and flow experience, serve as potent mediators that transform digital triggers into the urge to buy impulsively.

This review broadly extends the application of SOR by incorporating multiple perspectives from psychology, marketing, and technology. It identifies gaps in theoretical diversity and recommends integrating frameworks such as Flow Theory, Parasocial Interaction Theory, Competitive Arousal Model, Social Identity Theory, Self-Determination Theory, and Social Presence Theory. The review also places OIB within emerging digital platforms to reflect the changing landscape of online retail. From a managerial standpoint, the findings help practitioners optimize platform design. It highlights key factors influencing this behaviour, emphasizing the importance of psychological drivers alongside widely accepted external factors such as website design and quality. While psychological drivers are more complex and can affect consumers directly, marketers can utilize mediators or moderators to enhance consumer motivation and marketing promotions like discounts or bundling, time-limited offers, product scarcity, online reviews, and payment methods like credit cards or online payments. However, the review is limited by its reliance on English-language journal articles indexed in Scopus, which may exclude relevant non-English or non-indexed studies. Its scope, ending in July 2025, may also miss the latest technological developments, affecting causal inference. To advance the field, expanding keywords and including discussions on culture, emerging technologies, or interdisciplinary approaches could broaden insights and scope.

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