

How Intrinsic Stimuli Affect Consumers' Impulsive and Compulsive Buying Behavior in E-commerce Live streaming Marketing: The Role of Regret and Rejoice Emotions complemented by Scarcity message

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Abstract

Marketers need to know how live-streaming affects sales because live-streaming commerce is becoming more and more popular. The purpose of this study is to investigate consumer behavior dynamics in the setting of live streaming on social media platforms, where online sellers present their goods in real time and interact with viewers by directly communicating the advantages of their items, messages about scarcity, and exclusive deals. The study explores the psychological elements that influence consumer choice, paying particular attention to the internal stimuli that affect consumers' emotional reactions, such as expected regret and expected rejoice, and how these emotional reactions affect their purchasing decisions. This study investigates how scarcity-induced promotions play a part in live-streaming, looking at how availability and urgency influence compulsive and impulsive purchasing. We contend that intrinsic stimuli such as Materialism, Hedonism, Fear of Missing Out (FOMO), and Upward Social Comparison, affect impulsive and compulsive buying behavior through an emotional response of Regret or Rejoice. We also infer that the effects of emotional responses are moderated by scarcity messages in a way that higher scarcity would make their effect more intense. Data from 310 respondents was collected from both online and offline consumers who had experienced live-streaming shopping. Smart PLS was used for data analysis. The results showed that all four intrinsic stimuli have a positive and significant effect on impulsive and compulsive buying behavior. The study also found a significant positive mediation of the emotional response of Regret or Rejoice in these relationships. We also found the Scarcity message significantly moderated the effect of Regret and Rejoice on impulsive and compulsive buying behavior. These findings suggest strategies for marketing tactics in live streaming, emphasizing the role of emotions like regret and rejoice as mediators, which are also significantly associated with purchase decisions. The results draw attention to the psychological cues that advertisers can use to maximize in-the-moment engagement and increase revenue during live-streaming events.

Keywords: Materialism, Hedonism, Fear of Missing Out, Upward Social Comparison, Impulsive Buying, Compulsive Buying, Scarcity Message, Live Streaming

Introduction

Social media has become an indispensable aspect of our lives during the last 20 years. Its main goal at first was to encourage social contact by enabling members to exchange private photos, videos, news, and events. But it soon developed into an effective marketing tool that provided unmatched reach at a comparatively modest cost. Social media marketing has completely changed how companies interact with their target markets and how customers shop from home. Social media marketing has exploded in the past ten years. While sharing images and videos was its starting point, it has now grown to include live streaming, a feature that has drawn users in since it enables in-the-moment communication between buyers and sellers. The dynamics of a physical marketplace, where a variety of factors impact customer behavior, are mirrored in this evolution. Similar to conventional markets, social media sites attract users with a wide range of purchasing habits that are frequently shaped by both internal and external factors. This study explores four inherent characteristics and how they affect the compulsive and impulsive purchasing behaviors of customers. This study investigates how consumer responses are influenced by stimuli, notably materialism, hedonism, upward social comparison, and fear of missing out (FOMO), using the Stimulus-Organism-Response (S-O-R) theory. These reactions, which manifest as compulsive and impulsive purchasing behaviors, are mediated by customers' expected good and negative emotions, delight and regret, respectively. The relationship between Organism and Response (O-R) is significantly influenced by the use of scarcity messages. In the context of live streaming, scarcity messages are particularly effective as they create a sense of urgency, compelling consumers to purchase products quickly before they run out. This strategy leverages psychological pressure, prompting consumers to act promptly to avoid missing out on a limited opportunity. When consumers perceive a product's limited availability, their anticipated emotions can shift, heightening their desire to buy. This perceived scarcity can enhance the attractiveness of the product, ultimately influencing buying behavior. By creating a sense of urgency, scarcity messages can alter consumers' emotional responses and drive immediate purchasing decisions.

Problem Statement

Consumer behavior has been drastically altered by the quick development of social media platforms, especially the rise of live streaming. These platforms have many advantages, but they also have special drawbacks, such the possibility of compulsive and impulsive purchasing. Both individuals and society may suffer greatly as a result of obsessive and impulsive purchasing. In terms of money, it can result in excessive spending, debt accumulation, and the failure to achieve long-term financial objectives. On an emotional level, it might result in low self-esteem, anxiety, despair, and regret. Socially, it can cause social isolation and damage ties with friends and family. It increases garbage production and consumption, which has an adverse effect on the environment. People can use a variety of tactics to deal with these problems, including creating a budget, being conscious, postponing gratification, and, if required, getting professional assistance. People can make more responsible and knowledgeable purchases if they are aware of the underlying causes and effects. However, marketers can take advantage of some of these features. Marketers can develop successful tactics to boost sales, improve brand loyalty, and obtain insightful customer data by comprehending the psychology underlying impulsive purchasing. These tactics include employing eye-catching displays, positioning products in high-traffic areas, and generating a sense of urgency with limited-time deals. But it is imperative that marketers employ these strategies morally and refrain from taking advantage of customer weaknesses. This study will shed important light on the fundamental processes that influence customer behavior in live streaming settings.

Marketers, legislators, and consumers can use this information to make wise choices and lessen the harmful effects of obsessive and impulsive purchasing.

Gap Analysis

The emergence of live stream shopping on social platforms is almost recent and it has attracted many researchers to explore the phenomenon of its success. Many researchers have conducted several studies regarding the behavior of consumers towards live stream shopping and its antecedents such as the study conducted by Luo, Cheah, Hollebeek & Lim (2024) examines how live-streaming influences customer engagement and impulsive purchasing behavior using the Elaboration Likelihood Model (ELM) of persuasion, with an emphasis on how bargain proneness mitigates these effects. The results show that aspects of the peripheral route (like review consistency) and the central route (like product information quality, streamer interaction quality, and streamer credibility) both have a positive impact on customer engagement and impulsive purchasing during live-streaming sessions. Li, Huang, Dong & Wang (2024) developed a theoretical framework to investigate the elements that impact impulsive online buying behavior, with a particular emphasis on the function of streamers. The findings show that consumers' impulsive buying behavior is influenced by streamer performance aspects including entertainment and involvement as well as personal traits like professionalism and charisma. Customers' confidence in the streamer and their flow during the live-streaming session act as a mediating factor for these benefits. The research of Zheng, Chen, Liao & Hu (2023) builds a framework from the viewpoint of the stream-streamer viewer to improve comprehension of the viewing and buying habits of viewers in live-streaming situations. It is suggested that these elements affect the viewer's flow experience, which in turn influences their decisions to watch and buy. The study by Lakhan, Ullah, Channa, Abbas & Khan, (2021) looks into live streaming e-commerce, which has a lot of room to develop in Pakistan and provides a fun purchasing experience. It develops a model to forecast the intention of consumers to make a purchase by using the stimulus-organization-response (S-O-R) model. This goal is influenced by important elements such as entertainment, opinion leaders, trust, and perceived value. Qu, Khan, Su, Tong, Zhao (2023) studied how impulsive purchasing behavior is affected by sales incentives brought on by scarcity in live-stream shopping. It emphasizes how viewing frequency and expected feelings (such as regret and rejoice) mediate the link between previous purchases and impulsive buying inclinations in the future. So far, these studies didn't employ the consumers' intrinsic factors as the stimulus for buying impulsively and compulsively in live streaming sessions by analyzing the association of emotions such as rejoice and regret of purchasing. Understanding the intrinsic factors that drive impulsive and compulsive buying behavior in online live stream shopping is essential for crafting effective strategies. These intrinsic factors, such as FOMO, Hedonism, Upward Social Comparison and Materialism, play a significant role in how consumers respond to scarcity messages presented by sellers. Scarcity, often communicated through limited stock notifications or time-sensitive offers, leverages psychological principles like fear of missing out (FOMO) and urgency, which can lead to impulsive purchases. These decisions, while initially motivated by excitement or anxiety, may result in post-purchase emotions such as regret or joy, depending on the consumer's satisfaction with the product and their perception of the purchase decision. In the context of Pakistan, where e-commerce is expanding rapidly, understanding these behaviors is critical. The rise of online shopping platforms and live stream shopping in particular presents both challenges and opportunities for marketers. Pakistani consumers are becoming increasingly engaged with digital platforms, yet the online shopping experience is still relatively new for many. Scarcity tactics, when used appropriately, can be a powerful tool to drive conversions and create a sense of urgency.

However, marketers must also be mindful of the psychological aftermath of such tactics. Post-purchase regret, especially in an environment where trust and brand loyalty are still developing, can lead to negative customer experiences and hurt long-term retention. By analyzing how above mentioned intrinsic factors affect consumers' responses to scarcity cues, marketers in Pakistan can optimize their live stream shopping strategies. This understanding enables them to refine their messaging, reduce the risk of consumer dissatisfaction, and build stronger connections with their target audience. In addition, a deeper understanding of consumer behavior in response to scarcity can help brands reduce the chances of consumer regret, ensuring that customers feel both satisfied and confident in their purchase decisions, ultimately enhancing customer loyalty and lifetime value in Pakistan's growing e-commerce market.

Research Objectives

The purpose of this study is to look into the psychological aspects of live streaming that affect customer choice. It will specifically look at how expected emotions like rejoice and regret as well as intrinsic consumer impulses like materialism, hedonism, upward social comparison, and FOMO, lead to obsessive and impulsive purchasing behaviors. The study will also investigate how scarcity messages can mitigate the effects of these psychological elements on customer behavior. The study looks into how consumer perceptions of scarcity (such as limited-time deals, limited supply) and urgency to buy are influenced by intrinsic factors including such as materialism, hedonism, upward social comparison, and fear of missing out (FOMO). This study aims to understand how the live streaming experience triggers the emotions of anticipated regret (the emotional discomfort of making a poor purchase decision) and anticipated rejoice (the positive emotion associated with making a successful or satisfying purchase). Additionally, in the context of live-streamed sales, the study looks at how these emotional triggers affect compulsive buying—the desire to buy motivated by psychological pressures—and impulsive buying—spontaneous, unplanned purchasing behavior. It examines how consumers may be influenced to make impulsive, last-minute purchases or to make repeat purchases in spite of unfavorable outcomes by a combination of product advertising, in-person interactions with the seller, and emotional inputs. This study offers a better understanding of the relationship between intrinsic stimuli, emotional reactions, and purchasing behaviors in the expanding field of live streaming commerce by utilizing consumer behavior theories, emotional decision-making frameworks, and models of compulsive and impulsive buying. In order to maximize live streaming sales tactics and enhance customer interaction while controlling the psychological influence on customers, the findings are intended to provide marketers, merchants, and platform developers with useful insights. By increasing our understanding of how live streaming influences the psychological and emotional factors that influence customer behavior, this study also seeks to advance the field of digital marketing by providing useful insights for companies involved in the quickly growing live commerce environment.

Research Question

- How do intrinsic consumer stimuli (materialism, hedonism, upward social comparison, and fear of missing out) influence compulsive and impulsive buying behaviors in live streaming contexts?
- What is the role of anticipated emotions, such as regret and rejoice, in mediating the relationship between intrinsic consumer stimuli and compulsive and impulsive buying behaviors in live streaming?

- How do scarcity messages moderate the relationship between consumers' anticipated emotions (regret and rejoice) and their compulsive and impulsive buying behaviors during live streaming?
- What impact do scarcity messages have on consumers' emotional responses (regret and rejoice) and how do these emotions influence buying decisions in live streaming settings?
- In what ways can marketers leverage scarcity messages and emotional triggers to optimize live streaming marketing strategies in Pakistan's growing e-commerce market?

Significance

Given Pakistan's quickly expanding e-commerce sector and the mushrooming live-streaming commerce trend, the suggested study on the influence of consumer psychology on e-commerce is extremely important. Both consumers and marketers can benefit from this research's examination of the psychological elements that affect consumer behavior. First, this study looks at how internal consumer impulses contribute to obsessive and impulsive purchasing. This investigation will aid in identifying the psychological factors that influence these acts, especially in live-streaming settings where emotional pleas and in-the-moment interactions are typical. Marketers can use these insights to create focused campaigns that appeal to social status, material possession needs, and FOMO. Second, it emphasizes how expected feelings like regret and rejoice influence how consumers behave. Marketers may tailor their messaging to elicit particular emotional reactions, such scarcity to arouse fear of losing out, by knowing how these emotions impact purchasing decisions in dynamic, real-time circumstances. Third, it is equally important to consider the moderating effect of scarcity messages. Marketers can generate urgency and prompt instantaneous purchasing decisions by comprehending how these communications intensify emotional impact. Additionally, marketers can evaluate and improve the efficacy of their efforts to better connect with consumers by tracking the emotional reactions to scarcity messaging. Lastly, the study investigates how emotional cues and scarcity messaging might improve the efficacy of live-streaming business. The knowledge gathered from this study can help marketers create live-streaming plans that interest Pakistani viewers, increase revenue, and foster brand loyalty.

Theoretical Framework

Live Streaming

Live-streaming marketing has been a global economic phenomenon. It has become a feasible way for products to reach out to customers and engage them with real-time interaction and a rich presence. A new generation of social commerce, “live-streaming shopping,” has attracted much scholarly and practical attention in recent years. Many businesses are using Facebook Live to show off and sell their products. From beauty and fashion products to the emergence of luxury cars and expensive antique furniture, nearly everything can be sold through live streaming. The live stream can be regarded as an impulsive environment because it contains unique media attributes and integrates real-time social interaction and characteristics of social commerce. Viewers are unaware of the products that live streamers will introduce prior to watching live shopping streaming (Cheng, 2020). The audiences can express their thoughts by posting comments displayed in real-time and be visible to the streamer and co-viewers. A streamer can broadcast product information and share real-time video vividly, show how products are used, demonstrate various angles, react immediately and get real-time feedback from the audience, and arrange activities that entertain and encourage customers to purchase. It goes beyond conventional social media to allow a new way

that is more interactive and exciting (Hilvert-Bruce et al., 2018), making promotional activities more convincing and leading to an immersive, fascinating shopping experience (Wohn et al., 2018).

Impulsive Buying Behavior

The definition of impulse buying is defined as an abrupt, impulsive, compelling, and hedonistic purchasing behavior (Chan et al., 2017) without conscious evaluation of all relevant information and accessible options (Parboteeah et al., 2009). In the era of e-commerce, consumers' emotions, impulsive behavior, or lack of cognitive control are the driving forces behind impulse buying. Attractive objects incite shoppers to make snap decisions without taking into account costs or other factors (Akram et al., 2018). E-commerce has progressively developed into social commerce. Social commerce is a steady evolution of e-commerce. Customers are more likely to purchase on impulse as a result of the larger influence of purchasing cues brought on by their increased exposure to information and social interactions on social media (Huang, 2016). Through the introduction of products to their audience, influencer marketing emerges as one of the main avenues for social commerce (Lou & Yuan, 2016). Vendors kept researching ways to encourage customers to make impulsive purchases under this development trend. Live streaming commerce was thus created.

Compulsive Buying Behavior

Compulsive buying is an uncontrolled, obsessive tendency to purchase which is often regarded as the “dark side” of consumer behavior issues (Ridgway et al., 2008; Lim et al., 2020). Some researchers thought that compulsive shopping behavior was a problematic buying associated with behavioral addiction such as shopaholic and excessive purchasing. Therefore, adverse consequences including shame, guilt and regret were subsequently produced (Horvath and Adiguzel, 2018). But on the other hand, there also exist studies indicating that compulsive buying may bring some desirable outcomes. For example, compulsive buying enables consumers to obtain intense pleasure and excitement (Trotzke et al., 2015). It alleviates individuals' anxiety (Koran et al., 2006) and then help them escape from life's pressures (Harnish et al., 2019). Because of this, compulsive buying sometimes can also be viewed as a medium for individuals to overcome negative emotions (Gallagher et al., 2017; Japutra and Song, 2020).

Upward Social Comparison and Impulse Buying

Two conflicting types of implications from upward social comparison have been found in the research that has already been written on the topic. On the one hand, when individuals compare themselves with others who are better than themselves, they will feel inferior about themselves (de Vries & Kühne, 2015), leading to some negative emotions or outcomes, such as depression (Li, 2018), mental health damage (Jang et al., 2016). On the other hand, upward social comparison can also bring positive benefits, such as enhancing job performance (Cadsby et al., 2019) or eliciting inspiration on SNSs (Meier & Schäfer, 2018). According to the social comparison theory, people frequently assess themselves by contrasting their possessions or consumption patterns with those of others (Festinger, 1954). When browsing social commerce platforms, users are immersed in a colossal amount of information and pictures from other users, especially from celebrities and influencers on online advertisements (Xiang et al., 2016; Abdelsalam et al., 2020). Meanwhile, Vazquez et al. (2020) suggested that comparison with the advertising pictures of celebrities or

influencers on image-sharing Social commerce platforms would provoke cravings for desired products. Therefore, we contend that consumers are easily prompted to draw social comparisons and make impulsive purchases by visual attraction.

H1: upward social comparison is positively associated with Impulsive buying Behavior

Upward social comparison and compulsive buying

Previous studies have shown that social comparison is associated with both social media usage and compulsive buying among undergraduate students. Specifically, social media is mainly based on acquaintance relationship, with social media sites users exhibiting more positive information to reflect their ideal life and positive self-image (Niu et al., 2018). Consequently, people tend to compare themselves with those who seem happier than them (upward social comparison) upon browsing information on SNS (de Vries & Kühne, 2015). Empirical results, from studies among undergraduate students, revealed a positive correlation between upward social comparison on social media and compulsive buying behavior (Liu et al., 2019). People commonly use social status, beauty, fitness, weight reduction, wayment et al. (2020), Mills et al. (2020), and fitness level as criteria for upward social comparisons with others (Yaple and Yu, 2020). Chinese college students who use social networks, such as WeChat, QQ, Weibo, and live-streaming platforms, are more likely to engage in upward social comparison on SNS on a spontaneous basis (Li et al., 2019). Research has investigated the connection between obsessive online shopping and upward social comparison on social networking sites (Kukar-Kinney et al., 2016). The results suggest that the degree of social comparison of persons on social networking sites (SNS) increases the probability of compulsive shopping online (Zheng et al., 2021).

H2: upward social comparison is positively associated with compulsive buying Behavior

Fear of Missing Out

Social media has emerged as one of the most crucial daily activities in the millennial age of the twenty-first century (Akbar et al., 2019). Social media users are currently in competition with one another by sharing their experiences. The opulent lifestyle that influencers today share on social media is one that changes with the times. Because of this, younger people are more likely to heedlessly adopt the opulent lifestyle that social media celebrities are flaunting (Pathak, 2013). When someone gets FOMO on social media, they will attempt to keep up with the latest trends in order to avoid falling behind other users. This is supposed to make someone who is experiencing FOMO impulsively purchase a good or service.

H3: Fear of missing out is positively associated with Impulsive Buying

FOMO is an emotional anxiety that leaves people feeling alienated from their current experiences (Kang et al., 2019). It often results in a feeling of being isolated which then let individuals perceive missing-out anxiety. To mitigate the FOMO-related anxiety, consumers often choose to imitate or follow the behavior of others including purchasing behaviors (Spiller and Belogolova, 2016). Therefore, prior studies have shown that FOMO plays an important role in consumption process, which will eventually generate a higher probability of driving purchases (Kang et al., 2020; Hodgkinson, 2019). For large numbers of consumers, regrets about “missing out” tend to be more intense than regrets about wasting money (Davidai and Gilovich, 2018). The higher the anxiety

induced by a FOMO-laden appeal, the greater the purchase impetus (Good and Hyman, 2021), which may lead to a weak self-control during shopping episodes. As such, compulsive buying is likely to be triggered. Therefore, we proposed the following hypothesis:

H4: FOMO is positively associated with compulsive buying

Hedonism and Impulsive Buying

Hedonism emphasizes living life to the fullest and eschewing melancholy and sorrow¹⁶. Hedonistic shopping refers to the imagination and many feelings associated with making a purchase (Peck & Childers, 2006). The relationship between hedonic motives and impulsive purchasing is supported by theoretical research. The impulsive purchasing habits of consumers are associated with their need to satiate hedonic requirements like surprise and fun (Holbrook & Hirschman, (1982). Furthermore, the social interaction derived from live streaming purchasing can fulfil the demand for emotional support.

H5: Hedonism is positively associated with Impulsive Buying

Hedonism and Compulsive Buying

Hedonism is a personality trait that emphasizes the pursuit of pleasure and instant gratification. People with high levels of hedonism may be more likely to purchase compulsively in order to feel good and get rid of bad feelings. Studies indicate that the drive for instant gratification and the pursuit of pleasure are important indicators of compulsive purchase behaviors. Hedonism can lead people to consume in an attempt to find emotional and sensory fulfilment. When compulsive shoppers make purchases, they may feel briefly happy and satisfied, which encourages them to keep up their shopping habits. This loop of hedonic reinforcement feeds into compulsive purchase behaviors. (Tarka, & Harnish, 2023)

H6: Hedonism is positively associated with compulsive Buying

Materialism and Impulsive Buying

Online impulse buying is defined as a hurried, thoughtless, and unplanned purchase made out of a great desire to acquire something. According to Tupamahu, F.A.S. & Balik, D. (2020), the characteristics of consumer materialism include the importance placed on material possessions, a strong desire for a large quantity of goods, the fact that ownership does not bring happiness, and an increase in impulsive, thoughtless, and emotionally driven purchasing. The study by Winatha & Sukaatmadja (2014) also shows how materialism prioritizes symbolic items and assesses goods linked to success, prestige, and social status—all of which have been demonstrated to impact impulsive buying behavior.

H7: Materialism is positively associated with Impulsive buying

Materialism and Compulsive Buying

According to materialistic beliefs, obtaining material possessions is the route to success and happiness (Richins, 2004). A consumer driven by materialism believes that members of the upper

class own prestigious and status-conscious items (Richins & Fournier, 1991). Materialistic buyers might purchase goods that align with their ideals and improve their quality of life (Wang & Wallendorf, 2006). Rindfleisch, Burrouhs, and Denton (1997) found a positive correlation between materialism, compulsive buying, and family structure. Recent research has connected materialistic beliefs to obsessive behavior. According to a Dittmer (2014) study, obsessive behavior is predicted by material values. Rose (2007) contends that narcissism and materialism are factors in compulsive shopping.

H8: Materialism is positively associated with compulsive Buying

Anticipated Emotions

Anticipated emotions defined by Zeelenberg (1999) as the prospective emotional responses that consumers foresee because of their purchase decisions. These feelings, which can be both happy and bad, are frequently brought on by expecting particular results. In live streaming context, Factors such as the e-commerce anchor, the product message, and the live-streaming medium can significantly influence consumers' attitudes, thereby reinforcing anticipated emotions and purchase behavior. Live streamers potentially and deliberately invoke regret or rejoice in their sales promotion tactics. These anticipated emotions are salient in scarcity-induced sales promotions that encourage competition among audiences in live-stream commerce (Liu et al., 2023). According to Zeelenberg and Pieters (2007), "regret" is a negative emotion that customers might anticipate feeling if they miss out on a purchase, whereas "rejoice" is a positive emotion that they might anticipate feeling after outperforming competitors (Bagozzi et al., 1998). These anticipated emotions, though not experienced in the immediate present, may be expected to be experienced in the future. People compare the actual outcome with what the outcome would have occurred if a different choice had been made, and experience emotions as a consequence of this comparison. These emotions include regret if the foregone outcome was better than the actual outcome and rejoicing if the foregone outcome was worse. Anticipated regret motivates behavior because regret is a particularly pervasive and powerful emotion that people wish to avoid. Several studies suggest that anticipated regret among consumers leads to choices which are safer, thus showing risk-averse behaviors (Li et al. 2010)

H9: Regret mediates the relationship between upward social comparison and impulsive buying behavior

H10: Regret mediates the relationship between fear of missing out and impulsive buying behavior

H11: Regret mediates the relationship between hedonism and impulsive buying behavior

H12: Regret mediates the relationship between materialism and impulsive buying behavior

H13: Regret mediates the relationship between upward social comparison and compulsive buying behavior

H14: Regret mediates the relationship between fear of missing out and compulsive buying behavior

H15: Regret mediates the relationship between hedonism and compulsive buying behavior

H16: Regret mediates the relationship between materialism and compulsive buying behavior

According to Gupta and Gentry (2019), rejoices are the positive impression of anticipation combining happiness and joy. When purchasing a much-anticipated goods, for instance, a customer can think, "If I can buy this brand, I will be pleased." This bias has the power to elicit their expected feelings of celebration and a generally good attitude. Promotion brought on by scarcity can affect people's positive feelings; they might celebrate when their expectations are met (Bilgin, 2012). Expected happiness, the degree of positive emotional perception (Miin et al., 2023) proposes that live-streamers use a positive scenario—such as cozy surroundings and a supportive setting in a live stream commerce platform—into their sales promotion. In their 2017 study, Atulkar and Kesari investigated how consumer demand drives PE to the optimum product.

H17: Rejoice mediates the relationship between upward social comparison and impulsive buying behavior

H18: Rejoice mediates the relationship between fear of missing out and impulsive buying behavior

H19: Rejoice mediates the relationship between hedonism and impulsive buying behavior

H20: Rejoice mediates the relationship between materialism and impulsive buying behavior

H21: Rejoice mediates the relationship between upward social comparison and compulsive buying behavior

H22: Rejoice mediates the relationship between fear of missing out and compulsive buying behavior

H23: Rejoice mediates the relationship between hedonism and compulsive buying behavior

H24: Rejoice mediates the relationship between materialism and compulsive buying behavior

Scarcity message

Customers are frequently persuaded to buy goods and services in e-commerce by scarcity messaging, which emphasize restricted supply (Nurmila et al., 2021). According to Rouibah et al. (2016), scarcity in social trading is determined by both quantity and time, such as restricted stock or time-sensitive purchase windows. Scarcity in the context of live stream commerce makes viewers feel compelled to buy things before a certain date or while supplies are restricted. Scarcity-induced promotions in live stream commerce leverage time or quantity limits to create this urgency, unlike auctions where buyers compete with each other (Huang and Liu, 2014; Aggarwal et al., 2011). Due to the time constraint created by this fictitious deadline, people may become impulsive buyers or make snap decisions (Liu et al., 2022). Furthermore, Guo and Huang (2023) found that scarcity messages can evoke negative emotions, leading individuals to engage in compulsive buying as a coping mechanism for these feelings.

H25: Scarcity message significantly moderates the relationship between regret and Impulsive buying

H26: Scarcity message significantly moderates the relationship between regret and compulsive buying

H27: Scarcity message significantly moderates the relationship between rejoice and Impulsive buying

H28: Scarcity message significantly moderates the relationship between rejoice and compulsive buying

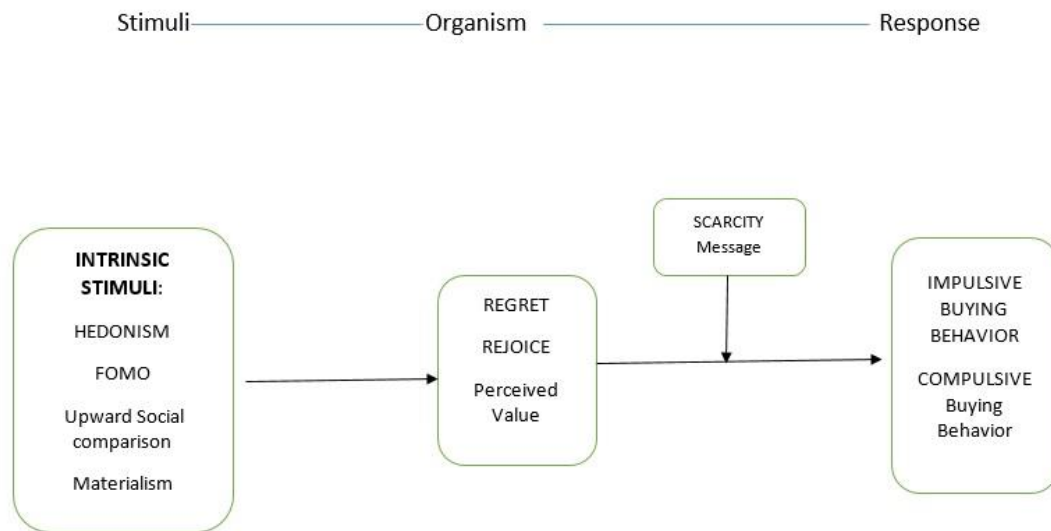


Fig 1: Conceptual Model

Research Methodology

To analyze the online impulse buying behavior, the primary sources of data collection was online consumers both male and female, age ranging from 18 years up to 60 years and located in Karachi. Respondents were selected on the condition that they shop via live streaming or have done so at least once. Shopping items included fashion products such as clothing, bags, shoes, and cosmetics. Data was collected by using a closed-ended questionnaire comprised of 45 questions on likert-scale format.

Table 1: Respondents Distribution

Friends & Family	19
Beti Collection (FB Group)	128
Pakistan Buy n Sell (FB group)	104
Superwomen of Pakistan (FB Group)	33

Sheops (FB Group)	26
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To find the most appropriate participants for data collection regarding online buying behavior, respondents were approached directly on such online platforms. The respondents were selected on the basis of researcher's judgment in order to get the required data in minimum time and cost. The participants were also approached by observing their regular presence in live stream session due to which the data collection took the duration of almost 2 months i.e. April-24 to Jun-24. Another method of sampling i.e. snowball sampling will also be used in order to get more respondents of same profile in less time. Total data was collected from 310 respondents out of 350 distributed questionnaires. Participants has been informed clearly about the purpose of data collection as few participants were reluctant to share their contact information such as mobile number and email ids so these information are not included in the questionnaire. Some respondents were not comfortable to fill the form through Google form link so there were provided pdf forms to fill and submit individually.

Measurements

The measuring scales for each variables has been taken from previous researches mentioned in Table 2. Initially 80 responses were collected as pilot study to test the questionnaire, after getting the satisfactory results further responses were collected.

Table 2: Sources of Measurement Scales

Impulsive Buying Behavior	Gulfraz et al. (2022)
Compulsive Buying Behavior	Japutra and Song (2020)
Fear of Missing Out	Dinh and Lee (2021)
Materialism	Tarka, P. et al. (2022)
Hedonism	Tarka, P. et al. (2022)
Upward Social Comparison	Bai et al. (2013)
Regret	Yi,Q. et al (2023)
Rejoice	Yi,Q. et al (2023)
Scarcity Message	Elisa et al., (2022)

Results

Reliability Analysis

To analyze the reliability, cronbach's alpha and composite reliability test have been applied. For both tests 0.7 is the threshold level (Sarstedt et al. 2023). The result of cronbach's alpha and composite reliability are above the threshold level (Table 3) indicating the reliability of measuring scales.

Table3: Reliability Analysis

	Cronbach's alpha	Composite reliability
COMP	0.834	0.882
FOMO	0.895	0.926
HED	0.806	0.864
IMP	0.775	0.856
MAT	0.857	0.893
REG	0.813	0.852
REJO	0.878	0.916

SCAR	0.849	0.908
UPSC	0.954	0.965

Validity Analysis

For construct validity analysis two types of validity has been tested i.e. convergent validity and discriminant validity. As per Fornell and Larcker (1981), the average variance extracted (AVE) value should be equal or greater than 0.5. As shown in table 5 all the AVE values are higher than the threshold level. While discriminant validity has been tested through Heterotrait-Monotrait Ratio (HTMT) method. The value of constructs should be less than 0.85 i.e. the threshold value (Soomro et al., 2022). In table 6, HTMT values of constructs are below this threshold level confirming the discriminant validity of constructs.

Table 5: Convergent Validity

	Average variance extracted (AVE)
COMP	0.600
FOMO	0.759
HED	0.562
IMP	0.600
MAT	0.627
REG	0.785
REJO	0.732
SCAR	0.767
UPSC	0.846

Table 6: Discriminant validity HTMT ratio

	COMP	FOMO	HED	IMP	MAT	REG	REJO	SCAR	UPSC
COMP									
FOMO	0.656								
HED	0.662	0.656							
IMP	0.679	0.607	0.605						
MAT	0.373	0.565	0.424	0.294					
REG	0.462	0.436	0.455	0.584	0.277				
REJO	0.649	0.593	0.559	0.834	0.208	0.536			
SCAR	0.619	0.806	0.663	0.532	0.681	0.367	0.393		
UPSC	0.718	0.696	0.624	0.642	0.421	0.401	0.577	0.575	

The structural model (Inner Model) and Hypotheses testing

The structural model helps to understand and analyses the complex relations of the variables, Marko Sarstedt & Jun-Hwa Cheah (2019). The structural model was also tested and run on the SmartPLS 3.2.3 (Ringle, Wende and Becker, 2015). The structural model was run through bootstrapping (Efron and Tibshirani, 1968, Haenli and Kaplan, 2004). The snapshot of the result after running the test is attached below along with the interpretation of the results. In PLS-SEM, bootstrapping is one of the key strides, which gives the data of constancy of factor guesstimate. Sub-tests are drawn everywhere from the first example including substitution, in this process (Hair, Matthews, Matthews, & Sarstedt, 2017). Bootstrapping provides the information of stability of

coefficient estimate. In this process, a large number of sub-samples are drawn from the original sample with replacement (Hair et al. 2016). After running the bootstrap routine, SmartPLS shows the t-values for structural model estimates derived from the bootstrapping procedure. The results of path coefficients for all the hypothesis are shown in the following table. The t-value greater than 1.96 ($p < .005$) shows that the relationship is significant at 95% confidence level ($\alpha = 0.05$). Paths showing whether the relationship between measured and latent variables are significant or not. The diagram showed in figure 2.

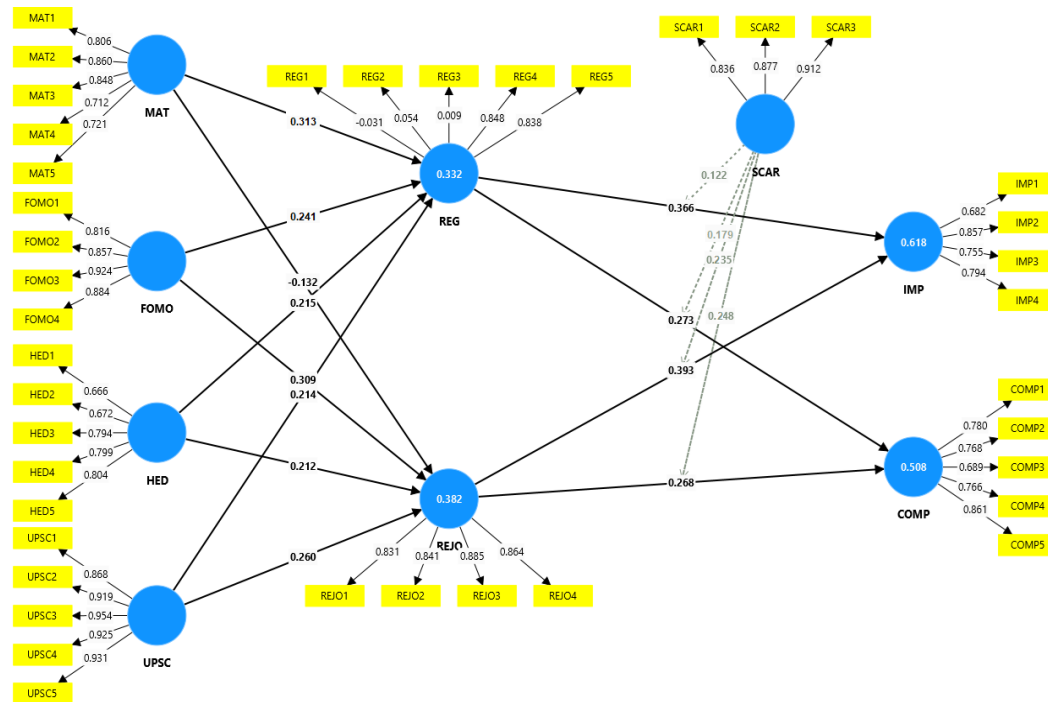


Figure 2: Structural Equation Model

Mediation Analysis

In PLS- SEM ,to draw the mediation analysis the initial step is to evaluate the direct or immediate impact of independent variables on the endogenous variable, which ought to be significant if mediator is not involved (Zhao, Lynch & Chen,2010). Below is the table of Specific Indirect Effects showing the mediating effects result.

Table 7: Hypotheses Assessment Summary

		Standard deviation	T statistics	P values	Decision
H1	UPSC -> IMP	0.042	4.252	0.000	Accepted
H2	UPSC -> COMP	0.033	3.916	0.000	Accepted
H3	FOMO -> IMP	0.045	4.665	0.000	Accepted
H4	FOMO -> COMP	0.034	4.415	0.000	Accepted
H5	HED -> IMP	0.038	4.226	0.000	Accepted
H5	HED -> COMP	0.029	4.020	0.000	Accepted
H7	MAT -> IMP	0.048	4.351	0.000	Accepted
H8	MAT -> COMP	0.059	5.297	0.000	Accepted

MEDIATION EFFECT					
H9	UPSC -> REG -> IMP	0.027	2.958	0.003	Accepted
H10	FOMO -> REG -> IMP	0.026	3.412	0.001	Accepted
H11	HED -> REG -> IMP	0.024	3.298	0.001	Accepted
H12	MAT -> REG -> IMP	0.021	2.047	0.000	Accepted
H13	UPSC -> REG -> COMP	0.023	2.538	0.011	Accepted
H14	FOMO -> REG -> COMP	0.023	2.843	0.004	Accepted
H15	HED -> REG -> COMP	0.019	3.025	0.003	Accepted
H16	MAT -> REG -> COMP	0.016	2.146	0.000	Accepted
H17	UPSC -> REJO -> IMP	0.031	3.294	0.001	Accepted
H18	FOMO -> REJO -> IMP	0.032	3.804	0.000	Accepted
H19	HED -> REJO -> IMP	0.026	3.212	0.001	Accepted
H20	MAT -> REJO -> IMP	0.020	2.550	0.011	Accepted
H21	UPSC -> REJO -> COMP	0.025	2.768	0.006	Accepted
H22	FOMO -> REJO -> COMP	0.024	3.506	0.000	Accepted
H23	HED -> REJO -> COMP	0.021	2.760	0.006	Accepted
H24	MAT -> REJO -> COMP	0.015	2.436	0.015	Accepted
MODERATION EFFECT					
H25	SCAR x REG -> IMP	0.046	2.667	0.008	Accepted
H26	SCAR x REG -> COMP	0.044	3.558	0.000	Accepted
H27	SCAR x REJO -> IMP	0.043	3.804	0.000	Accepted
H28	SCAR x REJO -> COMP	0.040	4.211	0.000	Accepted

Based on the research hypotheses, several direct and indirect effects were analyzed to understand the relationships between various psychological and behavioral factors on impulsive and compulsive buying behaviors. The direct effects reveal that upward social comparison (UPSC), fear of missing out (FOMO), hedonism (HED), and materialism (MAT) all have significant influences on both impulsive (IMP) and compulsive (COMP) buying behaviors. Specifically, the findings show that upward social comparison significantly drives both impulsive and compulsive buying, as supported by the acceptance of hypotheses H1 and H2. Similarly, FOMO significantly impacts impulsive and compulsive buying behaviors, as indicated by the acceptance of H3 and H4. Furthermore, hedonism was found to have a positive and significant relationship with both impulsive and compulsive buying (H5 and H6), while materialism also played a key role in influencing these behaviors, with H7 and H8 being accepted. In terms of mediation effects, the results suggest that regret (REG) serves as a significant mediator between these key psychological drivers and buying behaviors. For instance, regret significantly mediates the relationship between upward social comparison and impulsive buying (H9), as well as FOMO and impulsive buying (H10), as both were accepted. Moreover, regret also mediates the relationship between hedonism and impulsive buying (H11), and materialism and impulsive buying (H12). These relationships also hold for compulsive buying behaviors. Regret mediates the effect of upward social comparison, FOMO, hedonism, and materialism on compulsive buying, as seen in the acceptance of hypotheses H13 to H16. Additionally, rejoice (REJ) also plays a mediating role in the relationships between these psychological factors and buying behaviors. The accepted hypotheses

(H17 to H24) demonstrate that rejoice mediates the relationship between upward social comparison, FOMO, hedonism, and materialism with both impulsive and compulsive buying behaviors. Finally, the moderation effect examined in H25 shows that scarcity messages (SCAR) significantly moderate the relationship between regret and impulsive buying behavior, indicating that scarcity messaging amplifies the effect of regret on impulsive buying behavior

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
MAT -> REJO -> IMP	-0.052	-0.051	0.020	2.550	0.011
MAT -> REG -> IMP	-0.081	0.081	0.023	3.147	0.000
UPSC -> REJO -> COMP	0.070	0.070	0.025	2.768	0.006
UPSC -> REG -> COMP	0.059	0.059	0.023	2.538	0.011
UPSC -> REJO -> IMP	0.102	0.102	0.031	3.294	0.001
UPSC -> REG -> IMP	0.078	0.078	0.027	2.958	0.003
FOMO -> REJO -> COMP	0.083	0.083	0.024	3.506	0.000
FOMO -> REG -> COMP	0.067	0.066	0.023	2.843	0.004
HED -> REJO -> COMP	0.057	0.059	0.021	2.760	0.006
HED -> REG -> COMP	0.059	0.059	0.019	3.025	0.003
FOMO -> REJO -> IMP	0.122	0.122	0.032	3.804	0.000
MAT -> REJO -> COMP	-0.035	-0.034	0.015	2.436	0.015
FOMO -> REG -> IMP	0.089	0.086	0.026	3.412	0.001
HED -> REJO -> IMP	0.084	0.086	0.026	3.212	0.001
MAT -> REG -> COMP	-0.039	0.039	0.016	2.046	0.001
HED -> REG -> IMP	0.079	0.079	0.024	3.298	0.001

Discussion

This study investigates consumer behavior on social network platforms, specifically during live streaming sessions where sellers market fashion products like clothing, bags, shoes, and cosmetics. Consumers, logged in from various locations, often rush to book their favorite items quickly to avoid losing them to other buyers. The research highlights the impact of scarcity messages, where sellers emphasize limited product quantities to stimulate impulsive buying. Based on the Stimulus-Organism-Response (S-O-R) theory, the study examines intrinsic factors—such as upward social comparison, fear of missing out (FOMO), hedonism, and materialism—that drive impulsive and compulsive buying. Anticipated emotions, like regret and rejoice, mediate the relationship between these intrinsic factors and buying behaviors. Social media's pervasive influence, with constant advertisements and influencers showcasing their lifestyles, can lead to consumers feeling conscious about their own lives. Those who perceive others, including celebrities and influencers, as superior may attempt to emulate their lifestyles, potentially leading to an inferiority complex and compensatory compulsive buying. The study confirms that upward social comparison drives impulsive and compulsive buying, aligning with findings from Latif et al. (2021) and Zheng et al. (2020). FOMO's positive relationship with impulsive and compulsive buying is also supported by Dinh & Lee (2021) and David & Robert (2020). Li et al. (2020) also found this relationship as significant by exploring how FOMO-driven information heightens urgency and reduces potential buyers' cognitive processing, encouraging people to make rash decisions. This is demonstrated by the way social media influencers exploit FOMO to promote impulsive buying. FOMO-induced

anxiety and stress can lead to purchasing as a temporary emotional relief and a means of gaining social approval. Marketers exploit FOMO and impulsive buying through social proof and scarcity tactics, further fueled by the display of curated lifestyles on social media. Hedonism, the pursuit of pleasure and enjoyment, significantly influences impulsive and compulsive buying in live stream shopping. The real-time, interactive nature of live streaming provides an engaging experience for hedonistic consumers, leading to spontaneous and uncontrollable purchases, as supported by Ahmad et al. (2019). The result is also consistent with Park, Kim, & Forney (2006) he found that consumers often exhibit impulsive buying behavior due to their strong hedonistic motivations. Fashion items represent a tangible form of personal enjoyment, and the desire to stay on top of trends or express one's individuality leads to spontaneous purchases. Materialism, the urge to acquire and own possessions, is another strong motivation for impulsive and compulsive buying. Rana (2023) found that individuals seeking social approval and status tend to impress others through their possessions, such as apparel. According to Roberts, Manolis, and Tanner (2006), materialism has a significant impact on impulsive purchasing, particularly in settings where things are readily available. By generating a sense of excitement and urgency, live-stream purchasing capitalizes on this dynamic and increases the likelihood that materialistic shoppers would make impulsive purchases. Materialistic consumers are significantly more susceptible to compulsive purchase tendencies when they shop live. The urge for instant possession of items is fueled by the continuous display of new products, real-time interactions, and promotions. According to Shrum et al. (2014), materialism is one of the main causes of compulsive purchasing. When consumers envision themselves possessing the things being displayed in live-streams, they frequently expect to feel happy, satisfied, and excited. Because they create a strong emotional drive to act immediately and secure the thing, these expected pleasant emotions encourage impulsive buying. Positive expected emotions frequently drive impulsive decisions, according to Laros & Steenkamp (2005), who also believe that emotional reactions to product presentations play a crucial part in impulsive buying. The interactive nature of live-stream shopping emotionally engages customers, who anticipate happiness or personal fulfillment from their purchase. On the other hand, impulsive buying is also strongly influenced by expected negative emotions, particularly the dread of regret or missing out. Scarcity signals, such "limited stock available" or "just a few remaining," in live-stream purchasing instill a sense of urgency and FOMO, which drives customers to make rash purchases in order to prevent regret later. According to Hodgkinson (2020), one of the main causes of impulsive purchasing in digital contexts is the fear of losing out. Scarcity messages make people feel anxious and compelled to act quickly in order to prevent the inevitable regretful feeling. According to Verhagen & van Dolen (2011), scarcity raises a product's perceived worth, especially for compulsive consumers who are emotionally driven by the desire to possess something unique or uncommon. Compulsive buying is caused by the expectation of emotional rewards, such as the joy of possessing a distinctive item.

Conclusion

In the context of live-streaming business, this research explores the intricate interactions between psychological elements that impact consumer behavior. This study provides important insights into the underlying mechanisms influencing consumer decision-making in this dynamic and quickly changing digital marketplace by concentrating on intrinsic consumer stimuli like materialism, hedonism, upward social comparison, and fear of missing out (FOMO), as well as their effects on impulsive and compulsive buying behaviors. This study's investigation of the mediating function of expected emotions—regret and joy—is one of its main contributions. Marketers can successfully use emotional appeals to influence consumer perceptions and

preferences in order to influence purchase decisions. The results emphasize how crucial it is to take into account both positive and negative emotional reactions when creating convincing marketing messaging. The study also emphasizes how scarcity cues can moderate consumer behavior. This study offers marketers useful insights to improve their tactics and boost sales by investigating how scarcity cues intensify the effect of emotional reactions. Marketers can influence consumers to make snap judgments about what to buy by intentionally employing scarcity methods to generate a sense of urgency and exclusivity. By examining the distinct psychological dynamics of live-streaming commerce, this study fills a major vacuum in the body of previous work. This study goes deeper into the particular context of live-streaming, where real-time interactions and emotional appeals play a major role, even though earlier research has examined the influence of many aspects on consumer behavior in online purchase. This study provides a more nuanced view of consumer behavior in this developing field by integrating the idea of internal consumer stimuli and their interaction with emotional reactions. The research's conclusions have significant ramifications for consumers, legislators, and marketers. This study offers marketers practical advice on how to use psychological concepts to create compelling advertising campaigns. Marketers can modify their messaging to appeal to particular target populations by comprehending the underlying motives and emotional drivers of customer behavior. This study emphasizes to legislators the necessity of consumer protection laws to lessen the possible drawbacks of obsessive and impulsive purchasing. Lawmakers can enact legislation to guarantee just and moral business practices by increasing public understanding of the psychological strategies employed by marketers. This research gives consumers the power to make wise choices and fend against the temptation of impulsive purchases. Customers can create plans to manage their spending and steer clear of pointless purchases by comprehending the psychological processes underlying these actions. To sum up, this study offers a thorough framework for comprehending the psychological aspects that affect customer behavior in live-streaming business. This study provides important insights for academic researchers and industry practitioners by illuminating the complex interactions between intrinsic stimuli, emotional reactions, and scarcity messages.

Practical Implications

Marketers should highlight time-sensitive deals and limited supplies during live streams to generate urgency and encourage impulsive buying by giving customers the impression that they must act quickly to prevent missing out. This is one way to capitalize on the study's findings. It is best to display viewer purchases, live reactions, and testimonials to provide social proof, which raises the appeal of the product and promotes speedy purchases. Collaborating with influencers and celebrities who connect with the target demographic can encourage upward social comparison, which in turn drives purchases of products by consumers who want to seem like their idols. Hedonistic customers looking for fast gratification and sensory pleasure are drawn to dynamic, engaging, real-time purchasing environments that incorporate interactive features like live chats, Q&A sessions, and instant feedback. Reaching materialistic consumers—who are eager to improve their social standing and win over others—by emphasizing the exclusivity, uniqueness, and status connected with products might encourage purchases even more. In order to address expected emotions, stories about the joy and contentment of owning featured products must be developed. At the same time, the fear of missing out must be used to highlight potential regret from skipping a purchase and encourage customers to act quickly. By customizing product recommendations and offers based on customer preferences and behavior, data analytics may be used to personalize the shopping experience. This increases the relevance and appeal of products and raises the risk of impulsive and compulsive buying.

Limitations and Future Research

This study contributes in learning the consumer behavior related to most trending way of online shopping i.e. live streaming. Due to limited time respondents were selected on the particular groups where the live stream sessions occur as per their willingness to participate in research. There is no demographic preference while collecting data but mostly female respondents participated having different educational and professional backgrounds. To formalize any marketing strategy demographics, play an important role therefore for future research it might get new findings. The study's emphasis on fashion items such as clothing, bags, shoes and cosmetics means that its findings might not apply to other product categories. Subsequent investigations may examine the effects of promotions generated by scarcity on a wider array of goods and services. The findings are based on self-reported data, which is prone to bias, is another drawback. To confirm and expand on these results, other research might make use of real-world data or experimental designs. Finally, because technology and consumer behavior in live-streaming commerce are evolving so quickly, it is necessary to conduct continuing study to comprehend new trends and how they may affect marketing efforts.

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