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CAUGHT BETWEEN DESIRE AND DISAPPEARANCE: UNDERSTANDING COMPULSIVE BUYING BEHAVIOUR IN FASHION APPARELS RETAIL

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Abstract
Scarcity marketing strategies are becoming more commonplace within the fashion industry and have sparked a wide range of worries about how the tactic affects consumers' buying habits. This study provides an examination of the effects of perceived scarcity on compulsive buying behaviour as mediated by the arousal process, the need for uniqueness process (NFU), and the fear of missing out process (FOMO). Using the Stimulus-Organism-Response (S-O-R) model and based on its three components, a research model was developed and tested with the online fashion consumers of Pakistan. The data were obtained by using a structured questionnaire and analysed with Structural Equation Modelling (SEM) using IBM AMOS 23. The results of the measurement model showed good fit and validity. The results show that perceived scarcity had a significant effect on arousal and need for uniqueness and TVP had a significant effect on fear of missing out. In addition, the arousal, need for uniqueness, and FOMO were found to be the key determinants with significant positive correlations with compulsive buying behaviour, among which the arousal was found to be the strongest. The results confirm that scarcity-based marketing cues stimulate consumers' emotional, cognitive, and social-anxiety responses, which subsequently encourage compulsive purchasing tendencies. This study is a continuation of the S-O-R model application in the fashion retail world and it is a part of the growing body of literature in consumer psychology in emerging markets. The results have implications for the world of fashion retailers, digital marketers and policymakers, as it demonstrates the psychological impact that can be created by scarcity-based promotional practices, and why more responsible and ethical marketing is required.

INTRODUCTION

Now shopping is about more than just a transactional phenomenon; it is much more an experience full of emotion, identity and urgency. Those that have ever seen "Only 3 left in stock" when they shop online, and have seen that timer ticking away as they hover at the end of an online flash sale, know what makes a relaxing cruise trip purchase turn into a rush to checkout. Although widely known to most consumers, there are serious implications for this, especially with regard to the fashion industry which have seen both impulse and compulsive buying rise. The modern fashion apparel business is one of the hottest and most developed markets in the world. Some of the basic marketing tactics employed by brands are scarcity messages and time pressure call that fast fashion companies like Zara and Shein, as well as luxury companies, use repeatedly (Koul & Jasrotia, 2025). These strategies are designed to produce fear in the consumers – if they do not act now, they stand to lose something valuable. In a digitally connected world, consumers are constantly bombarded with messages from a number of sources, social media platforms and e-commerce companies. The downstream consequence is compulsive buying behaviour. The repeated, repetitive and irrational buying urges or impulses experienced by consumers usually contingent upon emotional states rather than genuine needs are referred to as Compulsive Buying Behaviour (CBB), according to Ridgway et al. (2008). Although a single impulse buy can be innocuous, it can cause a person to become financially stressed, feel guilty about spending money, experience hoarding and reduced psychological wellbeing. As ecommerce grows in popularity, compulsive cues are growing larger across comparable culture contexts, and even more massive in the fashion sector (Koul & Jasrotia, 2025; Mashilo et al., 2025). This study is stimulated by a definite gap in the literature. Studies have been conducted with regard to both scarcity and compulsive buying, with fewer studies performed on the psychological mechanisms that precede purchasing, such as arousal, fear of missing out (FOMO) and need for uniqueness (NFU) in the fashion context. Understanding the psychological impact of scarcity cues is interesting and crucial from a cognitive, theoretical and practical perspective. We use Stimulus-Organism-Response (S-O-R) theoretical framework from Mehrabian and Russell (1974) to understand how stimuli (scarcity and time/product pressure) are processed in the internal psychological state of a person (arousal, NFU, FOMO) which lead to the response of compulsive buying. Six hypotheses have been hypothesized and tested on collected empirical data from 236 Pakistani fashion consumers through Structural Equation Modelling (SEM).

The results enhance the body of knowledge in three relevant areas: consumer psychology, retail marketing, and digital consumer behaviour,

making this work pertinent to fashion retailers, e-commerce companies, and the policy-making community interested in consumer welfare.

2. Theoretical Background

This study was conceptualized based on one of the pioneering theories developed in the environmental psychology field, referred to as the Stimulus-Organism-Response (S-O-R) model (Mehrabian & Russell, 1974). Based on the S-O-R model, when a stimulus (S) is applied to an organism (O), it drives a change in the organism's psychological level or situation; changes in the organism (O) in turn result in changes in observable responses (R). The stimuli used in this study are two forms of perceived scarcity: limited stocks and limited time, as well as product appeal, which serves as an indirect indicator of limited stock (retail cues). The organism states in response to these stimuli are emotional arousal, desire for uniqueness, and fear of missing out. Together, these generate compulsive buying, the ultimate behavioural outcome. As detailed in the S-O-R model, emotions and cognitions have been shown to mediate between environmental cues and behaviour, making this framework suitable to explain how emotion and cognition impact consumer behaviour with respect to impulsive and compulsive purchasing (Zhang et al., 2022; Ngo et al., 2024).

Scarcity in marketing refers to a situation in which goods or services are perceived as limited or scarce. There are a number of scarcity cues, including quantity, demand, or time. Research based on prospect theory suggests that the overwhelming feeling of being deprived is more potent than the feeling of being rewarded (Cialdini, 2007). When a scarcity signal is shown, a consumer immediately appraises whether the product will be available later. This appraisal simultaneously stimulates feelings of emotional arousal (excitement, urgency, anxiety) and a social comparison process, driving both impulsive and compulsive purchasing (Zhang et al., 2022). Time and product pressure constitute two forms of scarcity: product pressure (limited product) and time pressure (limited time). Dhar and Nowlis (1999) concluded that there are meaningful psychological differences between these two types of constraints. When time is constrained, a general sense of urgency arises; with product shortage, a social dimension of competition and fear that others will acquire the product first emerges. Both forms of pressure influence emotional and behavioural outcomes in online shopping contexts, as confirmed by Ngo et al. (2024), with time-versus-product (TVP) appeals being a crucial antecedent of emotional and behavioural outcomes in the online retail context. Emotional arousal, evoked through the emotions of excitement, stimulation and enthusiasm, is one such mediating state in the shopping experience (Hsieh et al., 2014). Need for uniqueness (NFU) refers to product usage motivated by consumers' aim to distinguish themselves from other

individuals (Ruvio et al., 2008). When a product is perceived as scarce, it becomes symbolically valuable and provides an opportunity to stand out. Fear of missing out (FOMO) represents the worry about losing out on new exclusive products, limited offer deals, and fashionable goods popular among peers. The existence of FOMO has been successfully demonstrated in the digital realm of fashion retail, where people seeing others buying things through social media are led toward compulsive buying (Japutra et al., 2025; Zhang et al., 2022).

Compulsive buying behaviour is described as a shopping attitude marked by the consumer's obsession with shopping, demonstrated by frequent buying and an inability to control purchasing decisions across product categories (Ridgway et al., 2008). Although a compulsive episode may occasionally resemble an impulse purchase, such episodes are part of a chronic behavioural pattern with a greater psychological component. Ridgway et al. (2008) created a comprehensive scale that measures both the obsessive-compulsive aspect of repetitive behaviour and impulse control. The present study uses this scale, modified for the fashion apparel context, to measure compulsive buying behaviour.

3. Literature Review and Hypothesis Development

3.1 Compulsive Buying Behaviour

Compulsive buying behavior (CBB) represents a chronic, repetitive form of purchasing driven more by emotional or psychological states than by genuine product needs (Ridgway et al., 2008; O'Guinn & Faber, 1989; Moon, 2015; Moon, Rasool, & Attiq, 2015). Unlike occasional impulse buying, CBB is characterized by the consumer's ongoing preoccupation with buying, an inability to control purchase impulses, and the resulting accumulation of unneeded goods. Ridgway et al. (2008) identified two core dimensions: an obsessive-compulsive buying dimension (repetitive purchasing, preoccupation) and an impulse-control buying dimension (unplanned, unneeded purchases). Their six-item Compulsive Buying Index (CBI) was developed and validated across three studies to capture both dimensions simultaneously, overcoming the limitations of earlier scales that focused solely on either the obsessive-compulsive or impulse-control aspect. In the fashion retail context, CBB is particularly consequential because fashion products carry strong identity and social signalling functions. Prior research has documented that CBB in fashion settings is driven by both internal emotional states (negative affect, low self-esteem) and external environmental cues (promotional stimuli, peer influence) (Moon & Attiq, 2018; Moon, Faheem, & Farooq, 2022; Moon, Farooq, & Kiran, 2017). The present study focuses on the role of scarcity-based marketing cues as external stimuli that drive CBB through organism-level

mediators, thereby contributing to the growing literature on environmentally induced compulsive buying in emerging markets (Moon & Attiq, 2018; Moon, Faheem, & Farooq, 2022; Moon & Attiq, 2019; Farooq & Moon, 2025a, 2025b).

3.2 Perceived Scarcity

The scarcity principle has been subjected to testing across a variety of retail settings and has been found to have a significant impact on consumer behaviour. In Zhang et al. (2022), the authors used the S-O-R model to investigate the emotional responses of Chinese consumers to scarcity of medical protective equipment, showing that the emotional response level of consumers, particularly fear and urgency, has a significant impact on stimulating impulse buying. Likewise, Ngo et al. (2024) conducted a study in the video commerce environment of Vietnamese Generation Z consumers and discovered that time pressure and quantity pressure greatly increased arousal, which in turn affected impulsive purchase intentions. In the fashion retail context, scarcity cues serve as powerful emotional triggers: "Limited to 50 pieces" or "Offer expires in 1 hour" raise consumers' arousal, making them more excited and more focused on the immediate acquisition of a product. Based on this theoretical and empirical background, the following hypothesis is put forth:

H1: Perceived scarcity has a positive effect on consumer arousal.

Scarcity directly relates to consumer identity by signalling exclusivity, uniqueness, and availability to select individuals. This signal is particularly attractive to consumers who value uniqueness greatly. Conspicuous consumption occurs partly due to the desire to induce status and distinctiveness, and has a meaningful link with NFU, particularly in the fashion industry where luxury goods and limited-edition products convey identity cues (Folwarczny et al., 2024). Within the framework of commodity theory (Brock, 1968), perception of item scarcity increases the item's perceived value and contributes to the social distinction of the owner. The concept of scarcity, in generating a sense of exclusivity in a fashion product, will stimulate a consumer's need for uniqueness. Accordingly:

H2: Perceived scarcity has a positive effect on consumers' need for uniqueness.

3.3 Time and Product Appeals

Two types of promotional content that are most impactful for FOMO in digital marketing are time-limited and product-shortage messages. Phrases such as "Flash sale ends in 2 hours" or "Only 3 left in your size" inform prospective shoppers that others are buying or that the product will soon be unavailable. This triggers social comparison mechanisms, which are the origins of FOMO (Festinger, 1954; Japutra et al., 2025). Japutra et al. (2025) confirmed that FOMO is an antecedent of compulsive buying by causing brand passion, while

Zhang et al. (2022) found FOMO to be a mediator between scarcity and impulse buying. Both time pressure and product scarcity trigger the FOMO element, the fear of missing an exclusive experience or a limited product. Thus:

H3: Time-constrained and product-shortage appeals have a positive effect on consumers' fear of missing out (FOMO).

3.4 Consumer Arousals

There is a substantial body of research in consumer neuroscience and behavioural studies linking emotional arousal to compulsive purchasing. A heightened state of arousal results in the down-regulation of deliberative processing and the up-regulation of immediate, emotionally driven responses (Ngo et al., 2024). In the fashion retail context, consumers who are emotionally stimulated; feeling excited, active, and enthusiastic while shopping are more likely to engage in CBB by making impulsive and repetitive purchases of already-viewed products. Ridgway et al. (2008) found that heightened emotional arousal is characteristic of the impulsivity associated with the overwhelming urge to buy. Therefore:

H4: Consumer arousal has a positive effect on compulsive buying behaviour.

3.5 Need for Uniqueness

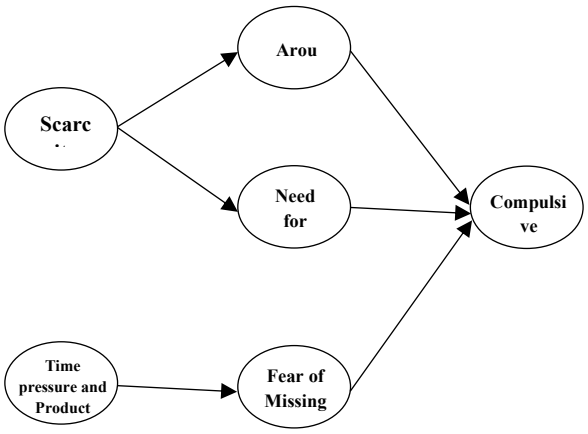
Consumers with high NFU actively seek products outside the mainstream, engaging in "creative choice counter conformity" to maintain a distinctive personal identity (Folwarczny et al., 2024). In the fashion retail context, scarcity signals may materialize as acquisitive repetitive behaviour, with the customer constantly searching for and purchasing the next scarce or exclusive article to sustain their uniqueness signal. Over time, this can lead to the compulsive buying behaviours of preoccupation and repetitive purchases that Ridgway et al. (2008) identified as hallmarks of the disorder. Thus:

H5: Need for uniqueness has a positive effect on compulsive buying behaviour.

3.6 Fear of Missing Out

Among the relationships that have attracted increasing attention in consumer research is the link between FOMO and compulsive buying. Based on PLS-SEM analysis with 511 respondents, Japutra et al. (2025) concluded that FOMO is correlated with obsessive brand passion, which in turn has a positive impact on compulsive buying. Zhang et al. (2022) similarly found FOMO to be a mediator between scarcity and impulse buying. This correlation between FOMO and compulsive buying behaviours was further corroborated by Chetioui and El Bouzidi (2023) and by Cengiz and Şenel (2024) in social media-based shopping contexts. Consumers who feel that they are missing out on a good buy experience a persistent sense of anxiety and end up purchasing constantly and impulsively to alleviate the fear. Therefore:

H6: Fear of missing out (FOMO) has a positive effect on compulsive buying behaviour.



1. Conceptual Model Figure

Perceived Scarcity (SC) serves as the primary stimulus driving Arousal (H1) and Need for Uniqueness (H2), while Time and Product Appeals (TVP) drives Fear of Missing Out (H3). Arousal (H4), NFU (H5), and FOMO (H6) each act as organism-level mediators leading to Compulsive Buying Behaviour (CB) as the outcome.

4. Methods

4.1 Sample and Data Collection

The target group of the study were online fashion shoppers of Pakistan. A convenience sampling method was used, similar to the sampling methods used in other related studies on consumer behaviour in retail contexts in Pakistan (Moon et al., 2017; Moon et al., 2018; Farooq & Moon, 2025a, 2025b). Data were collected using a structured self-administered questionnaire distributed online at a university campus in Punjab, Pakistan, consistent with the approach of Moon et al. (2018) and Asjad et al. (2025). The survey instrument was developed in English given the high English proficiency of the university-educated respondents. Out of 236 complete and valid responses, all 236 were retained as this exceeds the minimum recommended for SEM with the number of constructs in this model (Hair et al., 2019).

4.2 Measures

The constructs were operationalized using validated scales existing in the literature, modified for the fashion apparel context, with responses given on Likert-type scales (Moon et al., 2024; Tariq et al., 2026). Perceived Scarcity (SC) was assessed using five items adapted from Wu et al. (2012) on a 7-point Likert scale (1 = Strongly Disagree to 7 = Strongly Agree). An exemplar item is: "I believe that the availability of fashion garments is limited." Time and Product Appeals (TVP) was modelled as a second-order latent construct comprising two first-order sub-dimensions: Time Pressure (TP, four items) and Product Scarcity appeals (PS, four items) on a 5-point scale (Dhar & Nowlis, 1999; Tykocinski & Pittman, 2001; Dittmar et al., 1995; Rook & Fisher, 1995). Arousal (AR) was measured with four items adapted from Hsieh et al. (2014), Huang et al. (2017), and Chang et al. (2014) using a 5-

point Likert scale reflecting the dimensions of excitement, activeness, enthusiasm, and stimulation during fashion shopping. Four items from Ruvio et al.'s (2008) 12-item Need for Uniqueness (NFU) scale, adapted to a 6-point scale, were used to assess NFU, capturing creative choice counter-conformity and the desire to obtain unusual fashion products. FOMO was assessed using eight items from Good and Hyman (2020) on a 7-point scale, relating to worry about missing out on fashion brand experiences. Compulsive Buying Behaviour (CB) was operationalized as a second-order construct comprising two first-order factors: Obsessive-Compulsive Buying (OCB, four items) and Impulse Buying (IB, five items), adapted from Ridgway et al. (2008) and scored on a 7-point Likert scale. All items were modified to the fashion apparel context consistent with the established CBB literature (Moon & Attiq, 2018; Moon & Attiq, 2019; Moon, Faheem, & Farooq, 2022).

4.3 Data Analysis Procedure

Anderson and Gerbing's (1988) two-stage SEM approach was employed. First, confirmatory factor analysis (CFA) was conducted to evaluate the quality of the measurement model in terms of convergent validity (factor loadings and AVE), discriminant validity (AVE square root and inter-construct correlations), and model fit. In the second stage, the structural model was estimated to test the six hypotheses. Model fit was assessed using multiple criteria according to Hair et al. (2019), including the chi-square/df ratio (acceptable ≤ 3.0), CFI, TLI, IFI (acceptable ≥ 0.90), NFI (acceptable ≥ 0.90), GFI, AGFI (acceptable ≥ 0.85), and RMSEA (acceptable ≤ 0.08).

5. Results and Discussion

Prior to hypothesis testing, the data were screened for missing values, outliers, and distributional assumptions. Missing values were minimal and handled using mean substitution. Univariate and multivariate outliers were identified and removed following the criteria of Tabachnick and Fidell (2007). The data were normally distributed, with skewness and kurtosis values falling within the recommended thresholds of ±1 and ±3, respectively. Variance inflation factor (VIF) values were below 10 and tolerance levels above 0.1 for all constructs, confirming the absence of multicollinearity. To address potential common method bias (CMB), both procedural and analytical remedies were employed (Podsakoff et al., 2012). Procedurally, data were collected anonymously, items were shuffled across constructs, and attention traps were embedded in the questionnaire. Analytically, Harman's single-factor test and the common latent factor (CLF) method were applied; both yielded values below the 50% threshold, indicating that CMB did not significantly threaten the validity of the findings (Moon & Attiq, 2018; Moon, Faheem, & Farooq, 2022).

5.1 Sample Demographics

The sample consisted of 236 online fashion consumers drawn from a university campus in Punjab, Pakistan. The sample was predominantly male (84.70%, n = 200), which reflects the demographic composition of the university campus where data were collected. The majority of respondents (88.60%, n = 209) were between the ages of 18-24, representing the primary age group of fashion e-commerce shoppers in Pakistan. In terms of educational profile, most were students (87.70%, n = 207), with monthly income predominantly in the PKR 30,000-60,000 range (50.80%, n = 120). Frequency of online shopping was relatively high: 39.00% reported shopping once per week, 26.70% shopped a few times per week, and 28.80% shopped once per month. With respect to exposure to scarcity cues, 36.00% of respondents reported being exposed to scarcity cues most of the time, while 38.60% reported exposure sometimes. These demographic characteristics are broadly consistent with prior studies of online fashion consumers in Pakistan (Moon et al., 2018; Farooq & Moon, 2025a, 2025b).

5.2 Structural Equation Modelling (SEM)

Confirmatory Factor Analysis (CFA)

Following Anderson and Gerbing's (1988) two-step procedure, a confirmatory factor analysis (CFA) was conducted prior to structural model estimation to assess the psychometric properties of all constructs. The complete CFA model incorporating all six constructs (SC, TVP, AR, NFU, FOMO, CB) yielded excellent fit: χ^2 = 689.53, df = 610, χ^2/df = 1.13, GFI = 0.87, AGFI = 0.85, NFI = 0.91, IFI = 0.99, TLI = 0.91, CFI = 0.99, RMSEA = 0.024 (90% CI: 0.012-0.032), PCLOSE = 1.00. The χ^2/df ratio is well below 3.0 (Byrne, 2010), the RMSEA of 0.024 indicates close model fit, and the CFI = 0.99 comfortably exceeds the 0.90 threshold, collectively confirming excellent measurement model fit.

Table 1 presents the full CFA results, including item codes, questionnaire items, standardized factor loadings, squared multiple correlations (SMC), T-values, construct means, and standard deviations. All standardized factor loadings exceeded the recommended 0.70 threshold (Hair et al., 2019), ranging from 0.63 (IB1) to 0.90 (FOMO4, OCB3, OCB4), confirming strong indicator reliability. SMC values ranged from 0.40 to 0.81, and all T-values were statistically significant at $p < 0.05$. Perceived Scarcity (SC) demonstrated outstanding reliability, with all five items (SC1–SC5) loading uniformly at 0.88, yielding SMC = 0.77 for each item (Mean = 4.01, SD = 1.18). The Time and Product Appeals (TVP) construct was modelled as a second-order latent variable with two first-order sub-dimensions: TP items loaded between 0.74 and 0.80, while PS items loaded between 0.72 and 0.85. The PS3 item was removed during CFA refinement due to a low squared

multiple correlation. Arousal (AR) showed consistent loadings between 0.73 and 0.79 (Mean = 3.00, SD = 0.81). The Need for Uniqueness (NFU) scale was reduced to four items with loadings ranging from 0.71 to 0.75 (Mean = 3.49, SD = 0.76) after removing items with low SMC values (< 0.20) or cross-loadings. FOMO demonstrated the strongest indicator reliability, with all eight items loading between 0.87 and 0.90 (Mean = 3.98, SD = 1.22), α = .964, CR = 0.965. Compulsive Buying Behaviour (CB) was operationalized as a second-order construct comprising Obsessive-Compulsive Buying (OCB: four items, loadings 0.84-0.90) and Impulse Buying (IB: five items, loadings 0.63–0.89), consistent with Ridgway et al. (2008) and Moon and Attiq (2018) (Mean = 3.97, SD = 1.10).

Table 1. Results of Confirmatory Factor Analysis

Code	Items	Factor Loadings	SMC	T-Value	Mean	SD
Scarcity						
SC1	I think that the supply of fashion apparels is small.	0.88**	0.77	—	4.01	1.18
SC2	I think the fashion apparels is selling out soon.	0.88**	0.77	16.72		
SC3	I think that many people will buy this fashion apparel.	0.88**	0.77	16.68		
SC4	I feel that the shortage of fashion apparels will cause many people to buy.	0.88**	0.77	16.75		
SC5	I think the supplies only limit the number of apparels for each person and will cause a lot of people to buy.	0.88**	0.77	16.80		
Time and Product Appeals						
TP1	I think that the indicated time limit is very tight, and I probably won't be able to buy these fashion apparels.	0.79**	0.62	—	3.00	0.69

Code	Items	Factor Loadings	SMC	T-Value	Mean	SD
TP2	When making buying decisions the indicated time limit makes me feel sick.	0.74**	0.55	10.82		
TP3	I feel that I do not have enough time for proper consideration.	0.77**	0.59	11.24		
TP4	I think that if I don't buy this fashion apparel immediately, I will regret it later.	0.80**	0.64	11.61		
PS1	I think that if I don't rush to buy the fashion apparels it will be sold out soon.	0.85**	0.72	–		
PS2	I think that the amount of available apparels will not be able to satisfy demand.	0.76**	0.58	12.30		
PS4	I am worried about the number of products that are limited on the fashion apparels store.	0.72**	0.52	11.77		
Arousal						
AR1	When I was shopping for fashion apparels, I felt excited.	0.75**	0.56	–	3.00	0.81
AR2	When I was shopping for fashion apparels, I felt active.	0.73**	0.53	10.91		
AR3	When I was shopping for fashion apparels, I felt enthusiastic.	0.75**	0.56	11.12		
AR4	When I was shopping for fashion apparels, I felt stimulated.	0.79**	0.62	11.74		

Code	Items	Factor Loadings	SMC	T-Value	Mean	SD
Need for Uniqueness						
NFU1	I often combine fashion items in such a way that I create a personal style that cannot be duplicated.	0.71**	0.50	–	3.49	0.76
NFU2	I often try to find a more interesting version of fashion apparel because I enjoy being original.	0.74**	0.55	10.32		
NFU5	When it comes to the fashion apparels I buy, I have broken customs and rules.	0.71**	0.50	9.97		
NFU8	I enjoy challenging the prevailing taste of people I know by buying something they would not seem to accept.	0.75**	0.56	10.48		
Fear of Missing Out						
FOMO1	I will feel sorry later if I do not buy any items from the fashion apparel brand.	0.87**	0.76	–	3.98	1.22
FOMO2	I will worry if I am missing items from the fashion apparel brand.	0.87**	0.76	18.44		
FOMO3	I will worry if other people are having more rewarding experience than me by wearing items from a special fashion apparel brand.	0.88**	0.77	18.72		
FOMO4	I feel concerned that other people are having more fun with items from the fashion apparel brand while I am not.	0.90**	0.81	19.32		

Code	Items	Factor Loadings	SMC	T-Value	Mean	SD
FOMO5	I will feel left out of the trends if I do not have items from the fashion apparel brand.	0.87**	0.76	18.50		
FOMO6	I will feel sorry that I did not experience items from the fashion apparel brand.	0.87**	0.76	18.42		
FOMO7	I will feel anxious about not owning items from the fashion apparel brand.	0.87**	0.76	18.38		
FOMO8	I will feel bothered that I missed an opportunity to wear those items from the fashion apparel brand.	0.89**	0.79	19.02		
Compulsive Buying Behaviour						
OCB1	My closet has unopened shopping bags in it.	0.88**	0.77	–	3.97	1.10
OCB2	Others might consider me a 'shopaholic.'	0.84**	0.71	16.28		
OCB3	I buy something for myself almost every day.	0.90**	0.81	17.50		
OCB4	Much of my life centres around buying things.	0.90**	0.81	17.55		
IB1	I buy things I don't need.	0.63**	0.40	–		
IB2	I buy things I did not plan to buy.	0.89**	0.79	12.18		
IB3	I buy things without thinking.	0.87**	0.76	11.96		
IB4	I am a bit reckless about what I buy.	0.87**	0.76	11.93		
IB5	I consider myself an impulse purchaser.	0.89**	0.79	12.23		

Note: SMC: Squared Multiple Correlations; SD: Standard Deviation. **p < .05. Mean and SD are reported at the construct level for the first item of each construct. T-values for fixed reference indicators are denoted with '—'.

Construct Reliability and Validity

To assess construct reliability and validity, Cronbach's alpha (α ≥ 0.60), composite reliability (CR ≥ 0.60), and average variance extracted (AVE ≥ 0.50) were evaluated per Fornell and Larcker (1981) and Hair et al. (2019). Reliability results reported in Table 2 confirm that all constructs are reliable: Cronbach's alphas ranged from 0.82 (NFU) to 0.96 (FOMO), CR ranged from 0.59 (TVP) to 0.97 (FOMO), and AVE values ranged from 0.42 (TVP) to 0.77 (FOMO). While the TVP construct's AVE of 0.42 falls marginally below the 0.50 threshold, its CR of 0.59 still exceeds its AVE, and all item loadings were acceptable, indicating satisfactory reliability for the second-order construct.

Convergent validity was confirmed as all factor loadings were significant and above 0.50, and CR ≥ AVE for all constructs (Fornell & Larcker, 1981). Discriminant validity was evaluated by comparing the square root of each construct's AVE (bold diagonal values in Table 2) against its inter-construct correlations (off-diagonal values). The square root of AVE exceeded the corresponding inter-construct correlations for most constructs, supporting discriminant validity. Some elevated correlations between TVP and SC reflect their theoretical overlap as scarcity-based stimuli in the S-O-R model and are acknowledged as a study limitation.

Table 2. Convergent and Discriminant Validity

	Variable	α	CR	AVE	MaxR(H)	1	2	3	4	5	6
1	**Time & Product**	0.83	0.59	0.42	0.59	**0.65**					
2	**Scarcity**	0.94	0.94	0.75	0.94	1.06	**0.87**				
3	**Arousal**	0.83	0.83	0.55	0.83	1.15	0.82	**0.74**			
4	**Need for Uniqueness**	0.82	0.82	0.53	0.82	1.02	0.74	0.63	**0.73**		

	Variable	α	CR	AVE	MaxR(H)	1	2	3	4	5	6
5	**Fear of Missing Out**	0.96	0.97	0.77	0.97	0.95	0.66	0.67	0.70	**0.88**	
6	**Compulsive Buying**	0.94	0.84	0.72	0.84	1.16	0.84	0.90	0.80	0.88	**0.85**

Notes: The diagonal elements (bold) are the square root of the AVE values. Off-diagonal elements are inter-construct correlations. α = Cronbach's Alpha; CR = Composite Reliability; AVE = Average Variance Extracted.

Structural Model and Hypothesis Testing

After validating the measurement model, the full latent variable structural model was estimated to test the six hypotheses. The structural model fit the data well: χ^2 = 797.49, df = 618, χ^2/df = 1.29, GFI = 0.85, AGFI = 0.83, NFI = 0.90, IFI = 0.98, TLI = 0.89, CFI = 0.98, RMSEA = 0.035 (90% CI: .028–.042), PCLOSE = 1.00. All major fit indices were within or close to recommended limits (CFI > 0.90; RMSEA < 0.08; χ^2/df < 3.0), confirming adequate structural model fit. Table 3 presents standardized path coefficients, standard errors, critical ratios, and hypothesis decisions for all six proposed paths. The model explained 83% of the variance in Arousal (R^2 = 0.83), 71% in Need for Uniqueness (R^2 = 0.71), and 66% in Fear of Missing Out (R^2 = 0.66) from the stimulus variables. Together, the three organism-level constructs explained substantial variance in Compulsive Buying Behaviour (R^2 = 0.87), underscoring the robustness of the S-O-R framework in this context.

Table 3. Hypothesis Testing Results

Hypothesis	Path	β (Std.)	S.E.	C.R.	p-value	Decision
H1	Scarcity → Arousal	0.85	0.05	17.67	***	Supported
H2	Scarcity → Need for Uniqueness	0.77	0.05	16.32	***	Supported
H3	Time & Product Appeals → Fear of Missing Out	0.76	0.17	4.38	***	Supported
H4	Arousal → Compulsive Buying Behavior	0.49	0.11	4.67	***	Supported

Hypothesis	Path	β (Std.)	S.E.	C.R.	p-value	Decision
H5	Need for Uniqueness → Compulsive Buying Behavior	0.19	0.10	1.95	0.004	Supported
H6	Fear of Missing Out → Compulsive Buying Behavior	0.46	0.05	10.00	***	Supported

Notes: ***p < 0.05; β (Std.) = Standardized Beta Coefficient; S.E. = Standard Error; C.R. = Critical Ratio. Standardized regression weights are reported for all paths.

5.3 Discussion of Results

Strong support was found for the proposed S-O-R model of compulsive buying in fashion retail, with all six hypotheses confirmed. The following discussion addresses each hypothesis in turn and situates the findings within the broader consumer behaviour literature. Consistent with H1, perceived scarcity had a strong positive effect on consumer arousal (β = 0.85, p < 0.05). As Pakistani fashion consumers encounter scarcity signals, they experience heightened emotional states of excitement and urgency. This finding aligns with Zhang et al. (2022), who demonstrated that scarcity enhances emotional arousal under S-O-R theory among Chinese consumers, and Ngo et al. (2024), who found that both time and quantity pressure significantly drive arousal for Generation Z consumers in video commerce settings. The notably large path coefficient highlights the potency of scarcity as an affective trigger in Pakistan's online fashion retail context.

Regarding H2, perceived scarcity positively and significantly influenced need for uniqueness (β = 0.77, p < 0.05), lending empirical support to the notion that scarcity cues convey social differentiation signals in fashion apparel. When products appear scarce, consumers perceive them as rare and exclusive, heightening the appeal of ownership as a mark of distinction. This aligns with commodity theory (Brock, 1968) and is consistent with Folwarczny et al. (2024), who found NFU to be a significant pathway in conspicuous consumption. For the young urban Pakistani consumers in this sample, fashion-based identity signalling is increasingly relevant (Moon et al., 2018; Moon, Faheem, & Farooq, 2022; Farooq & Moon, 2025a, 2025b). Supporting H3, time-constrained and product-shortage appeals (TVP) exerted a robust positive effect on fear of missing out (β = 0.76, p < 0.05), indicating that scarcity marketing messages generate social anxiety about exclusion. This finding converges with Zhang et al.

(2022) and Japutra et al. (2025), who documented FOMO as a key mediating mechanism between scarcity cues and compulsive purchasing. In support of H4, arousal emerged as the strongest organism-level predictor of compulsive buying behaviour ($\beta = 0.49$, $p < 0.05$). When emotionally stimulated by scarcity cues, consumers experience diminished deliberative processing and are driven toward immediate, repetitive purchasing. Ridgway et al. (2008) similarly reported heightened emotional arousal as a defining characteristic of impulse control deficiency in compulsive buyers, and Ngo et al. (2024) identified arousal as the primary mediating pathway in online impulse buying. H5 was also supported: need for uniqueness positively influenced compulsive buying behaviour ($\beta = 0.19$, $p < 0.05$), albeit with the weakest path coefficient among the three organism states. Consumers motivated by uniqueness repeatedly seek scarce or exclusive fashion items to maintain a distinctive social identity, a pattern consistent with Folwarczny et al. (2024) and Ruvio et al. (2008). The comparatively smaller coefficient suggests that this identity-driven pathway operates on a more deliberate cognitive level, distinct from the stronger affective and social-anxiety pathways.

Finally, fear of missing out was confirmed as the second strongest predictor of compulsive buying behaviour (H6: $\beta = 0.46$, $p < 0.05$). The persistent social fear of being excluded from fashionable trends and exclusive products drives consumers into a chronic, repetitive buying cycle. This finding extends the work of Japutra et al. (2025) into Pakistan's fashion retail domain and is consistent with Cengiz and Şenel (2024) and Chetioui and El Bouzidi (2023), who documented FOMO-compulsive buying dynamics in social media shopping contexts.

6. Implications

6.1 Theoretical Implications

The study offers several substantive theoretical contributions. First, it applies the S-O-R model, previously used in the study of purchase intentions (Moon et al., 2017, 2018) and counterfeit product consumption in emerging markets (Farooq & Moon, 2025a, 2025b), to the study of compulsive buying in the fashion retail sector. Specifically, it demonstrates that scarcity stimuli can lead not only to impulse buying but also to the more chronic and psychologically complex form of compulsive buying, extending S-O-R-based consumer behaviour theory. Second, the study introduces TVP (Time & Product Appeals) as a second-order construct that captures the dual nature of scarcity-based promotional messages, distinguishing time-pressure cues from product-shortage cues. Third, by simultaneously examining three organism level mediators (arousal-affective; NFU-identity-cognitive; FOMO-social anxiety), the study achieves a more comprehensive psychological profile of scarcity driven CBB than single mediator models. The hierarchy of arousal > FOMO > NFU in

predicting CBB suggests that affective and social anxiety pathways dominate identity driven pathways among Pakistani fashion consumers, with implications for theory building in emerging market consumer behaviour as outlined by Moon et al. (2024) and ud Din et al. (2022).

6.2 Policymaker Implications

The findings have implications for consumer protection beyond Pakistan. The correlation between scarcity-induced arousal, FOMO, reduced deliberative processing, and compulsive buying should be treated as a matter of ethical practice in digital commerce promotion. Policymakers and regulators, such as the Pakistan Competition Commission and Federal Board of Revenue, may explore guidelines for digital commerce platforms regarding the use of artificial scarcity signals. Education campaigns on the psychological processes involved in scarcity appeals could be incorporated into financial well-being programs, allowing consumers to make more financially considered decisions, especially around buy-now-pay-later arrangements that can be linked to scarcity-based compulsive buying (Asjad et al., 2025).

6.3 Practical Implications

The results provide practical insights for fashion retailers and online marketers regarding the psychology of scarcity marketing. The effect of perceived scarcity on arousal and the resultant compulsive buying sequence validates that scarcity appeals are extremely effective in invoking buying actions. For retailers, though, they should be conscious of the long-term impact of cultivating compulsive buying patterns, as these can include increased return rates, post-purchase remorse, consumer distrust, and reputational damage (Moon et al., 2026b). A more responsible approach would be to apply real or proportional scarcity signals rather than generating artificial urgency. For brands striving to build loyal customer relationships (Moon et al., 2024), NFU-inspired shopping appears more identity-driven and less anxiety-based than FOMO-inspired shopping, and may provide a more sustainable pathway through limited-edition collections or exclusive collaborations, particularly in the context of influencer marketing strategies (Moon et al., 2025).

7. Conclusion

This study examined the psychological processes underlying the causal link between scarcity and time-product stimuli and compulsive buying behaviours within the fashion retail context, framed by the Stimulus-Organism-Response (S-O-R) theoretical model. All six hypotheses were supported in the two-stage SEM with a sample of 236 Pakistani fashion consumers. All three organism-level predictors – arousal ($\beta = 0.49$), need for uniqueness ($\beta = 0.19$), and FOMO ($\beta = 0.46$) were statistically significant in predicting compulsive buying behaviour, and scarcity significantly activated arousal ($\beta = 0.85$) and NFU

(β = 0.77), while TVP significantly drove FOMO (β=0.76). The structural model fit was acceptable (χ^2 = 797.49, df = 618, CFI=0.98, RMSEA=0.035). The results offer a theoretically integrated and empirically supported examination of how the promotional structures of contemporary fashion e-commerce supply compulsive consumer conduct through multiple, hierarchically weighted psychological channels. Both arousal and FOMO emerge as the main pathways, underscoring the dominant role of emotional and social-anxiety mechanisms in compulsive buying behaviour. The implications for fashion retailers, online commerce platforms, policymakers, and consumer welfare advocates are substantial, calling for more responsible and ethical application of scarcity-based marketing tools.

8. Limitations and Future Research Directions

While the insights of the present study were favourable, several limitations and promising avenues for future investigation merit recognition. First, the sample was predominantly male (84.70%) and drawn from a university campus in the Punjab province of Pakistan. Generalization to other consumer groups such as women, older consumers, and consumers from other provinces or countries remains limited. Future research should employ stratified or random probability sampling to achieve more representative samples, particularly given documented gender differences in fashion consumption. Second, the cross-sectional design does not allow strict causal inferences. The proposed causal sequence has a sound theoretical and empirical foundation but would benefit from longitudinal measurements and vignette-based experiments on actual retail platforms to provide more rigorous causal evidence. Third, other psychological states such as pleasure (Ngo et al., 2024), social comparison (Festinger, 1954), bandwagon effects (Zhang et al., 2022), and trust (Moon et al., 2024), as well as consumer self-control, digital shopping experience, fashion involvement, and income, warrant investigation as potential mediators and moderators of the scarcity-CBB relationship. Fourth, the AVE for TVP (0.42) fell below the ≥ 0.50 threshold. Future studies should pursue further psychometric development of the TVP scale through item generation, cognitive interviewing, and cross-cultural validation. Lastly, given this study's focus on fashion retail, future research replicating the S-O-R scarcity model in different product categories (electronics, food, travel) and different emerging markets can help specify the boundary conditions and test the generalizability of the model, as proposed by Moon (2026a) and Farooq and Moon (2025a, 2025b).

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