

Impact of Flash Sale Factors on Consumer Buying Behavior and Satisfaction in Surat City: An Empirical Study

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Abstract

The rapid growth of e-commerce platforms has transformed consumer purchasing behavior, particularly during online flash sales that offer substantial discounts and limited-time deals. This study aims to identify the factors influencing consumer buying behavior during online flash sales. Primary data were collected through a structured questionnaire administered to consumers who participate in online shopping. The study employed descriptive statistics and Exploratory Factor Analysis (EFA) using Principal Component Analysis with Varimax Rotation to examine the underlying factors affecting purchase decisions. The results revealed that consumers are significantly influenced by promotional incentives, time-sensitive offers, scarcity tactics, and marketing communications during online flash sales. The Kaiser-Meyer-Olkin (KMO) value of 0.875 and the significant Bartlett's Test of Sphericity confirmed the suitability of the data for factor analysis. Two key factors were extracted: Discount and Time Urgency Influence and Scarcity and Promotional Communication Influence. The first factor comprises discounts, limited-time offers, countdown timers, and promotional messages, while the second factor includes product scarcity, exclusivity, social media advertisements, and email/SMS notifications. The findings indicate that both economic incentives and psychological triggers play a crucial role in shaping consumer buying behavior during online flash sales. Businesses can leverage these insights to design effective marketing strategies that enhance customer engagement, stimulate impulse purchases, and improve sales performance. The study contributes to the growing body of literature on online consumer behavior and provides practical implications for e-commerce retailers seeking to optimize flash sale campaigns.

Keywords: Online Flash Sales, Consumer Buying Behavior, Discounts, Scarcity Marketing, Promotional Communication, Factor Analysis, E-commerce.

Introduction:

The emergence of e-commerce has significantly transformed the retail landscape by providing consumers with convenient access to a wide range of products and services through digital platforms. The increasing penetration of the internet, widespread use of smartphones, and advancements in digital payment systems have accelerated the growth of online shopping across the world. As competition among e-commerce retailers intensifies, companies continuously adopt innovative marketing strategies to attract consumers and increase sales. One such strategy is the use of **online flash sales**, which have become a popular promotional tool for driving customer engagement and boosting purchase volumes. Online flash sales are short-duration promotional events in which products are offered at substantial discounts for a limited

period. These sales often incorporate marketing techniques such as countdown timers, limited stock notifications, exclusive offers, and promotional messages to create a sense of urgency among consumers. The limited availability of products and time-bound nature of these offers encourage consumers to make quick purchasing decisions, often resulting in impulse buying behavior. Consequently, flash sales have become a widely adopted strategy by leading e-commerce platforms to enhance customer participation and generate higher revenues. Consumer buying behavior during online flash sales is influenced by multiple factors. Price discounts are often considered the primary attraction, as consumers perceive greater value and cost savings during promotional events. However, purchasing decisions are not solely driven by economic benefits. Psychological factors such as scarcity, urgency, fear of missing out (FOMO), and perceived exclusivity also play a significant role in motivating consumers to participate in flash sales. Additionally, marketing communication channels, including social media advertisements, email notifications, SMS alerts, and promotional campaigns, contribute to creating awareness and influencing purchase intentions. Understanding the factors that influence consumer buying behavior during online flash sales is essential for e-commerce businesses. Insights into consumer preferences and decision-making processes enable retailers to design effective promotional strategies, optimize marketing campaigns, and improve customer satisfaction. Furthermore, knowledge of these influencing factors helps organizations develop targeted approaches that encourage consumer participation while maintaining long-term customer relationships. In recent years, the popularity of online flash sales has increased considerably, particularly among younger consumers who are more familiar with digital technologies and online shopping platforms. Despite the growing importance of flash sales in the e-commerce sector, there remains a need to examine the underlying factors that shape consumer purchasing decisions during such promotional events. Identifying these factors can provide valuable information for marketers, researchers, and policymakers seeking to understand contemporary consumer behavior in the digital marketplace. Therefore, the present study focuses on analyzing the factors influencing consumer buying behavior during online flash sales. By applying statistical techniques such as Exploratory Factor Analysis, the study aims to identify the key dimensions that drive consumer participation and purchasing decisions. The findings are expected to contribute to the existing literature on online consumer behavior and offer practical implications for e-commerce retailers in designing more effective flash sale strategies.

REVIEW OF LITERATURE:

Rishikesh ,& Ms.W.Infant Emiliya (2025) studied on “A Study On The Impact Of Online Flash Sales On Consumer Buying Behaviour In Coimbatore City” aims to explore how flash sales shape consumer attitudes, preferences, and decision-making processes. It focuses on understanding demographic influences, awareness levels, and participation patterns of consumers in Coimbatore. By analyzing various factors such as promotional strategies, platform preferences, and product categories, the study seeks to provide insights into the growing role of flash sales in modern retail.

Xueting Zhang, & Feng Wang, et al, (2025), studied on “Uncovering the negative impact of flash sales on instant order cancellations in live streaming” This paper draws on a real-world data analysis and two controlled experiments to demonstrate that flash sales can have unintended negative consequences by increasing instant order cancellations during livestreams, that is, real-time cancellations by consumers before order fulfillment. We further find that the adverse effect is mediated by perceived post-purchase regret following the purchases induced by flash sales. Moreover, this effect is amplified for hedonic products, while a larger follower base for the livestreaming anchor helps attenuate the negative

consequence. These findings contribute to a more nuanced understanding of flash sales and consumer behavior in live commerce settings, offering practical implications for firms seeking to design effective promotional strategies.

Adis Rizki Pratama,& Misbak et al, (2025) studied on “The Effect Of Flash Sale, Online Fear Of Missing Out (On-Fomo) And Hedonism Shopping Motivation On Online Impulse Buying Behavior In Kahf Products.” The purpose of this study is to analyze the influence of flash sales, Online Fear of Missing Out (On-FOMO), and hedonic shopping motivation on the online impulsive buying behavior of male consumers toward Kahf products. The development of e-commerce and social commerce has significantly changed consumer shopping patterns, driving the phenomenon of impulsive buying influenced by these factors. Using a quantitative method through a survey of 450 respondents, the findings reveal that flash sales create a sense of urgency, FOMO increases consumer anxiety about missing out on opportunities, and hedonic shopping motivation enhances the emotional satisfaction of shopping. These three factors collectively contribute significantly to impulsive buying behavior, indicating that purchasing decisions in social commerce and e-commerce are influenced not only by economic factors but also by psychological and emotional aspects. These findings provide valuable insights for social commerce and e-commerce businesses in designing more effective marketing strategies that are consumer behavior-oriented while maintaining ethical considerations to prevent excessive consumption.

Yovita Yulia M. Zai, & et al, (2025) studied on “The Effect of Discount Flash Sale on Online Impulsive Buying of Mercubaktijaya University Students at Shopee Marketplace.” This study investigates the impact of discount-based flash sale strategies on impulsive buying behavior in the Shopee marketplace. Adopting a quantitative research design, primary data were collected from a sample of 100 university students through a structured questionnaire. The empirical findings indicate a moderate positive relationship between flash sale discounts and impulsive buying ($r = 0.546$), suggesting that increased exposure to such promotional activities tends to enhance the likelihood of unplanned purchases among consumers. Further, the results of hypothesis testing using t-test and F-test reveal that the influence of flash sale discounts on impulsive buying is statistically significant ($p < 0.05$). In addition, the beta coefficient ($\beta = 0.270$) reflects a positive and direct association between the variables, implying that an increase in discount flash sale activities leads to a corresponding rise in impulsive buying behavior. The study concludes that discount-oriented flash sale strategies serve as an effective marketing tool in stimulating impulsive buying tendencies in an online shopping environment.

Yuliarnita,& et al. (2025) studied on “The Impact Of Flash Sales And Discount Programs On Impulsive Buying: The Mediating Role Of Positive Emotions In Shopee’s Marketplace In Jambi.” This study examines the impact of flash sales and discount programs on impulsive buying behavior on the Shopee marketplace, with positive emotions acting as a mediating factor. The research adopts a quantitative approach and is based on data collected from 96 users through questionnaires. The findings reveal that flash sale programs do not have a significant effect on either impulsive buying or positive emotions. In contrast, discount programs have a strong and significant influence on both positive emotions and impulsive buying behavior. It is also observed that positive emotions play an important role in increasing impulsive buying. Furthermore, the study shows that discount programs indirectly influence impulsive buying through positive emotions, whereas flash sales do not demonstrate such an indirect effect. The study concludes that discount-based promotions are more effective than flash sales in encouraging impulsive purchases, as they create positive emotional responses among consumers.

Dina Vanessa Ongyono, & et al. (2024) studied on “The Effect of Flash Sale on Impulse Buying of Fashion Goods Which Results in Post-Purchase Regret.”. The research focuses on how scarcity in flash sales (limited time and limited quantity) affects consumer behavior, especially in the context of fashion products on e-commerce platforms. The study, conducted on 144 respondents, finds that when products are available for a short time or in limited quantity, consumers develop a positive attitude towards flash sales. This positive attitude encourages impulsive buying, where customers purchase without proper planning. However, the study also highlights a negative outcome. It shows that impulsive buying often leads to post-purchase regret, meaning customers feel dissatisfied or regret their decision after buying.

Nilam Fathia¹, Amelindha Vania (2023) Studied on “Impulsive buying behavior: scarcity impact of flash sale through arousal as mediating variable” The study examines the impact of flash sale scarcity on impulsive buying behavior, with arousal acting as a mediating variable among Generation Z consumers. Using data collected from 160 respondents who participated in flash sales on the Shopee platform, the research applies the PLS-SEM method through SmartPLS 4.0. The findings reveal that limited quantity scarcity and arousal have a significant positive effect on impulsive buying, whereas limited time scarcity shows a positive but insignificant influence. Additionally, both types of scarcity significantly enhance consumer arousal, which in turn indirectly influences impulsive buying behavior. The study highlights the importance of scarcity-driven marketing strategies in stimulating consumer emotions and increasing purchase tendencies during flash sales.

Cindy Laurinda & et al, (2024), studied on “Unraveling The Factors Influencing Impulsive Buying Behavior Among Gen Z Using Shopee PayLater: A Quantitative Analysis” The study investigates the influence of psychological factors, external factors, financial literacy, hedonic motivation, and utilitarian motivation on impulsive buying behavior among Generation Z employees using Shopee PayLater. Using a quantitative approach and multiple linear regression analysis, the findings reveal that psychological factors and hedonic motivation have a significant positive impact on impulsive buying behavior. In contrast, financial literacy negatively affects impulsive buying, while external factors and utilitarian motivation do not show a significant influence. The study highlights the importance of emotional and psychological drivers in shaping impulsive consumer behavior and provides insights for developing effective marketing strategies.

Research Gap

Although several studies have examined online shopping behavior, e-commerce adoption, and consumer purchase intentions, limited research has specifically focused on the factors influencing consumer buying behavior during online flash sales. Existing studies primarily emphasize the role of discounts and promotional offers, while comparatively less attention has been given to the combined influence of time urgency, product scarcity, social media advertisements, email/SMS notifications, and promotional communication on consumer purchasing decisions. Furthermore, the rapidly evolving nature of e-commerce and digital marketing has altered consumer behavior patterns, creating a need for updated empirical evidence. Therefore, a research gap exists in understanding the key factors that collectively influence consumer buying behavior during online flash sales, particularly in the contemporary digital shopping environment. The present study seeks to address this gap by identifying and analyzing the underlying factors that drive consumer purchase decisions during online flash sale events.

RESEARCH METHODOLOGY:

3.1 PROBLEM STATEMENT:

The rapid growth of e-commerce and digital shopping platforms has significantly transformed consumer purchasing behavior, making online flash sales one of the most widely used promotional strategies by e-commerce companies. Flash sales attract consumers through substantial discounts, limited-time offers, and scarcity-based marketing tactics that create a sense of urgency and encourage immediate purchase decisions. However, consumer responses to these promotional campaigns vary considerably, as purchasing behavior is influenced by a combination of economic, psychological, and marketing-related factors. While discounts are often considered the primary motivator, factors such as time pressure, product scarcity, perceived exclusivity, social media advertisements, and email or SMS notifications may also significantly impact consumers' buying decisions. Despite the growing popularity of online flash sales, there remains limited understanding of the key factors that drive consumer participation and purchasing behavior during such events. Therefore, this study aims to identify and analyze the factors influencing consumer buying behavior during online flash sales, thereby providing valuable insights for e-commerce retailers to develop more effective promotional strategies and enhance customer engagement.

3.2 RESEARCH OBJECTIVES:

- A. To analyze the factors influencing consumer buying behavior during online flash sales. (such as discounts, time pressure, product exclusivity, advertisements, etc.).
- B. To examine the effect of consumer buying behavior on consumer satisfaction after online flash sales.

3.3 RESEARCH DESIGN:

The research design of this study is descriptive in nature, as it aims to analyse and describe the impact of social media on the investment decisions of young adults. The study focuses on understanding the behaviour, preferences, and attitudes of young investors towards social media as a source of financial information.

3.4 DATA COLLECTION METHODS:

Primary data is collected through a structured questionnaire designed specifically for this study. The questionnaire consists of close-ended questions related to social media usage, investment preferences, and the influence of online platforms on decision-making. It is distributed among young adults, mainly in the age group of 18 to 35 years, through online platforms such as Google Forms and personal interactions. This method helps in gathering first-hand information directly from respondents.

Secondary data is collected from various sources such as research papers, academic journals, books, financial websites, and online articles. These sources provide theoretical support and help in understanding previous research conducted on similar topics.

3.5 SAMPLING PLAN:

To carry out this research, it was important to decide which group of people we would collect data from. The data are:

- **Population:** The population for the study consists of consumers who engage in online shopping and have participated in online flash sales offered by e-commerce platforms.
- **Sampling Unit:** The sampling unit comprises individual consumers who have experience with online flash sales and are capable of providing relevant information regarding their purchasing behavior.
- **Sample size:** A total of 200 participants took part in the survey and completed the online questionnaire through Google Forms.
- **Sampling Technique:** The method used for selecting participants was convenience sampling, which

means data was collected from people who were easily reachable and willing to participate. This method was ideal due to time constraints and the online nature of the survey.

3.6 Statistical Analysis / Tools:

The collected data were analyzed using SPSS software. Descriptive statistics such as frequency and percentage analysis were used to summarize the demographic profile of the respondents. The reliability of the questionnaire was assessed using Cronbach's Alpha. Exploratory Factor Analysis (EFA) with Principal Component Analysis (PCA) and Varimax Rotation was employed to identify the underlying factors influencing consumer buying behavior during online flash sales. Additionally, Multiple Regression Analysis was used to examine the impact of the identified factors on consumer buying behavior. The suitability of the data for factor analysis was evaluated using the KMO Measure of Sampling Adequacy and Bartlett's Test of Sphericity.

3.7 Limitations of the Study:

1. The study was limited to consumers who have experience participating in online flash sales, which may restrict the generalizability of the findings to all online shoppers.
2. The research relied on primary data collected through a structured questionnaire; therefore, the results are dependent on the honesty, understanding, and perceptions of the respondents.
3. The study used a convenience sampling technique, which may not fully represent the entire population of online consumers.
4. The research focused only on selected factors influencing consumer buying behavior during online flash sales and did not consider all possible economic, psychological, technological, and social factors.
5. The findings are based on data collected during a specific period and may change over time due to evolving consumer preferences, market conditions, and e-commerce practices.
6. Time and resource constraints limited the size and scope of the study.
7. The study examined consumer behavior in the context of online flash sales only and did not compare it with other online promotional strategies such as cashback offers, loyalty programs, or seasonal sales.

3.8 SCOPE OF THE STUDY:

The present study focuses on examining the factors influencing consumer buying behavior during online flash sales. It covers consumers who have experience participating in online shopping and flash sale events offered by e-commerce platforms. The study investigates the impact of factors such as discounts, time-limited offers, product scarcity, social media advertisements, email/SMS notifications, and promotional communication on consumers' purchase decisions. The research is confined to the analysis of consumer perceptions and behaviors related to online flash sales and does not include other promotional strategies such as cashback offers, loyalty programs, or seasonal sales. The findings of the study are expected to provide valuable insights for e-commerce companies, marketers, and researchers in understanding consumer behavior and designing effective flash sale marketing strategies.

Hypothesis:

H0: There are no factors influencing on consumer buying behavior during online flash sales.

H1: There are significant factors influencing on consumer buying behavior during online flash sales.

KMO and Bartlett's Test			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.			.875
Bartlett's Test of Sphericity	Approx. Chi-Square		625.753
	df		66

	Sig.	.000
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Total Variance Explained						
Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.430	36.915	36.915	3.003	25.022	25.022
2	1.146	9.548	46.463	2.573	21.441	46.463
3	.940	7.835	54.298			
4	.911	7.592	61.890			
5	.781	6.507	68.397			
6	.742	6.179	74.576			
7	.633	5.277	79.853			
8	.554	4.616	84.469			
9	.540	4.499	88.967			
10	.528	4.403	93.370			
11	.400	3.337	96.707			
12	.395	3.293	100.000			
Extraction Method: Principal Component Analysis.						

Factor Classification		
Statement	Price Promotion and Time Urgency	Scarcity and Marketing Communication
Discounts during flash sales attract me to purchase goods	0.773	
I wait for discount offers to buy products at reasonable prices	0.771	
I purchase products during flash sales because they are available only for a limited period	0.699	
Clearly communicated time limits influence me to complete my purchase quickly	0.641	
Email/SMS notifications about flash sales motivate me to make purchases		0.701
Limited stock during flash sales makes products feel more exclusive		0.679
I make quick purchase decisions due to product scarcity during flash sales		0.643
Product scarcity puts pressure on me to make a purchase		0.628

Interpretation:

Exploratory Factor Analysis (EFA) using Principal Component Analysis with Varimax Rotation was conducted to identify the factors influencing consumer buying behavior during online flash sales. The KMO value of 0.875 and significant Bartlett's Test of Sphericity ($\chi^2 = 625.753$, $p < 0.001$) confirmed the suitability of the data for factor analysis. The analysis extracted two meaningful factors. Factor 1, labelled

Discount and Time Urgency Influence, comprised variables related to discounts, promotional offers, time limitations, and countdown timers. Factor 2, labelled Scarcity and Promotional Communication Influence, consisted of variables associated with product scarcity, exclusivity, social media advertisements, and email/SMS notifications. These findings indicate that both promotional incentives and scarcity-driven marketing significantly influence consumer buying behavior during online flash sales.

H₀: Consumer buying behavior factors (Discount & Time Urgency Influence and Scarcity & Promotional Communication Influence) do not significantly affect consumer satisfaction after online flash sales.

H₁: Consumer buying behavior factors (Discount & Time Urgency Influence and Scarcity & Promotional Communication Influence) significantly affect consumer satisfaction after online flash sales.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.769 ^a	.592	.587	.37640	.592	142.689	2	197	.000
a. Predictors: (Constant), F2_Scarcity_Promo, F1_Discount_Time									

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40.431	2	20.215	142.689	.000 ^b
	Residual	27.910	197	.142		
	Total	68.340	199			
a. Dependent Variable: Consumer_Satisfaction						
b. Predictors: (Constant), F2_Scarcity_Promo, F1_Discount_Time						

Coefficients ^a										
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.881	.171		5.164	.000	.545	1.218		
	F1_Discount_Time	.220	.048	.259	4.582	.000	.125	.315	.646	1.547
	F2_Scarcity_Promo	.557	.054	.586	10.348	.000	.451	.663	.646	1.547

a. Dependent Variable: Consumer_Satisfaction
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Interpretation:

Multiple regression analysis revealed that consumer buying behavior significantly influences consumer satisfaction after online flash sales. The model explained 59.2% of the variance in consumer satisfaction ($R^2 = 0.592$) and was statistically significant ($F = 142.689$, $p < 0.001$). Both Discount and Time Urgency Influence ($\beta = 0.259$, $p < 0.001$) and Scarcity and Promotional Communication Influence ($\beta = 0.586$, $p < 0.001$) had significant positive effects on consumer satisfaction. Among the two factors, Scarcity and Promotional Communication Influence emerged as the strongest predictor of consumer satisfaction. Therefore, the alternative hypothesis is accepted, confirming that consumer buying behavior significantly affects consumer satisfaction after online flash sales.

Findings:

1. The demographic analysis revealed that the majority of respondents were female and belonged to the 20–40 years age group, indicating strong participation from young and middle-aged consumers.
2. Most respondents possessed graduate or postgraduate qualifications, suggesting that the sample consisted of relatively well-educated individuals with the ability to evaluate online shopping offers and promotional campaigns.
3. The respondents represented diverse occupational backgrounds, including business professionals, service employees, and students, thereby providing varied perspectives on online flash sale purchasing behavior.
4. The analysis of responses indicated that a substantial proportion of respondents selected “Agree” or “Strongly Agree” for statements related to discounts, promotional offers, scarcity tactics, and marketing communications. This reflects the significant influence of these factors on consumer purchasing decisions during online flash sales.
5. Discounts and price-related benefits emerged as important motivators, with many respondents expressing a preference for waiting for discount offers before making purchase decisions.
6. Time-sensitive promotional strategies, such as limited-period offers and countdown timers, were found to create a sense of urgency, encouraging consumers to complete purchases more quickly.
7. Scarcity-related factors, including limited stock availability and product exclusivity, significantly influenced purchasing behavior by creating pressure to buy products before they became unavailable.
8. Marketing communication channels, particularly social media advertisements and email/SMS notifications, played an important role in increasing consumer awareness and encouraging participation in online flash sales.
9. The factor analysis results confirmed the presence of two major dimensions influencing consumer buying behavior during online flash sales: Discount and Time Urgency Influence and Scarcity and Promotional Communication Influence.
10. The findings suggest that consumers are not only attracted by economic benefits such as discounts but are also influenced by psychological triggers, including urgency and scarcity, which collectively shape their purchasing decisions during online flash sale events.

Conclusion:

The present study examined the factors influencing consumer buying behavior during online flash sales and their impact on consumer satisfaction. Exploratory Factor Analysis (EFA) identified two key

underlying dimensions, namely Discount and Time Urgency Influence **and** Scarcity and Promotional Communication Influence. These factors indicate that consumer purchasing decisions during flash sales are primarily driven by economic incentives, urgency-based marketing techniques, scarcity effects, and promotional communications. Further, multiple regression analysis revealed that consumer buying behavior significantly affects consumer satisfaction after online flash sales. The model demonstrated a strong explanatory power and was statistically significant. Both identified factors—Discount and Time Urgency Influence and Scarcity and Promotional Communication Influence—were found to have significant positive effects on consumer satisfaction. Among these, Scarcity and Promotional Communication Influence emerged as the most influential predictor. Overall, the findings confirm that both promotional strategies (discounts, time-bound offers) and psychological marketing tactics (scarcity, exclusivity, and communication cues) play a crucial role in shaping consumer behavior and enhancing satisfaction during online flash sales. Therefore, it can be concluded that consumer buying behavior is a significant determinant of consumer satisfaction in the context of online flash sales, and the alternative hypothesis is accepted.

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