



## **A Study On Product Damage In E-Commerce Logistics And Its Impact On Customer Satisfaction.**

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### **KEYWORDS**

*E-commerce  
Logistics, Product  
Damage,  
Customer  
Satisfaction,  
Packaging  
Quality, Supply  
Chain  
Management,  
Customer Trust.*

### **ABSTRACT**

As e-commerce continues to grow rapidly, the rapid growth of e-commerce has increased the importance of efficient logistics and safe product delivery in ensuring customer satisfaction. Therefore, this study reviews product damage in e-commerce logistics and concludes the extent to which damaged products influence customer satisfaction relative to Flipkart. The study identifies the major causes of product damage, as well as measures the overall effect that damaged products have on both customer trust and future purchases. The data utilized in this study was obtained using a structured questionnaire and analysed with the assistance of SPSS and Microsoft Excel, using statistical methods such as percentage analysis, Correlation Analysis, and Regression Analysis. The result of the analysis indicates that poor packaging and issues related to transportation are the primary causes of product damage and negatively contribute to customer satisfaction and loyalty. The study recommends that improvements in packaging quality, improvement in logistics operations, and improvement in customer support services will assist in reducing product damage, and in enhancing customer satisfaction on ecommerce platforms..

## **1. INTRODUCTION**

The rapid increase in e-commerce has changed how customers buy products and services. Ecommerce platforms offer customers the ability to shop from home, view multiple stores at once, see competitive prices, and have items delivered right to their doorsteps. As such, customers have grown more dependent on e-commerce for their shopping needs. With the increase in the availability of internet access, smart phones, and digital payment systems in India, there has been a significant rise in the use of online shopping.

Flipkart, one of the largest e-commerce companies in India, has developed extensive logistics and warehousing operations to meet the demand of their customers and provide excellent customer service.

To provide customer satisfaction, appropriate logistics operations and safe product handling are vital. However, product damage during logistics operations, warehousing, transportation, and delivery processes have become a significant challenge for e-commerce operations. Damaged or lost products negatively influence consumer trust; thus, consumers are dissatisfied with the e-commerce website and view the e-commerce website with little to no possibility of returning again to shop from that web site. Additionally, the impact of customer satisfaction leads to increased operational costs (returns, refunds, replacements, reverse logistics, etc.) due to product damage during logistics operations. The purpose of this ..



research study is to identify the most significant causes of product damage in e-commerce logistics and the effect of product damage on customer satisfaction with Flipkart as an e-commerce example. The objectives of this research study are to evaluate customer feedback regarding packaging, delivery handling, and support services in order to formulate recommendations to facilitate the enhancement of logistics performance and enhance customer satisfaction.

### **1.2 OBJECTIVES:**

To identify the major causes of product damage in e-commerce logistics.

To examine the impact of product damage on customer satisfaction.

To analyze customer experiences regarding damaged product deliveries in Flipkart.

To study the effect of packaging quality and delivery handling on product safety.

To evaluate customer satisfaction with replacement, refund, and support services.

To provide suggestions for reducing product damage and improving logistics performance.

## **2. LITERATURE REVIEW**

Baghel Rohini, (2023) examined the factors influencing customer satisfaction in online shopping in India. The study found that defective products, poor packaging, and delayed deliveries negatively affect customer trust and loyalty toward e-commerce platforms. The research emphasized that efficient logistics and secure packaging improve customer satisfaction and repeat purchase behaviour.

Nanda Barsa Rani, (2023) studied customer satisfaction towards Flipkart services and identified that damaged products and delayed replacement services reduce customer confidence in online shopping platforms. The study suggested improvements in warehouse handling and transportation systems to minimize product damage.

Bhattacharya I, (2024) analysed e-service quality and customer satisfaction in online shopping. The study revealed that delivery reliability, packaging quality, and safe product handling are major factors influencing customer trust and satisfaction. Negative delivery experiences and damaged products were found to reduce customer retention.

Jaiswal S.D. et al, (2024) examined customer behaviour on e-commerce platforms such as Flipkart and Amazon. The research concluded that damaged deliveries and poor logistics operations negatively impact customer satisfaction and future purchase decisions. Reliable logistics systems were identified as essential for improving customer experience.

Sushama Gandal, (2025) conducted research on logistics optimization in Indian e-commerce. The study highlighted that safe packaging, accurate tracking systems, and efficient transportation significantly improve customer satisfaction and reduce logistics-related product damage.

## **3. RESEARCH METHODOLOGY:**

### **3.1 Research Design:**

The “A Study on Product Damage in E-commerce Logistics and Its Impact on Customer Satisfaction with Reference to Flipkart” is based on descriptive research methodology with a quantitative research approach. This research mainly attempts to establish what causes product damage and how product damage affects customer satisfaction during operations of e-commerce logistics.

### **3.2 Sources of Data**

Primary data were collected from 161 respondents using a structured questionnaire through

Google Forms. Respondents were online buyers and customers who frequently made use of the Flipkart service. Secondary data was acquired from journals, articles, websites and other previous research studies on e-commerce logistics and customer satisfaction.

### **3.3 Sampling Technique**

The data collection was performed using the Convenience Sampling Method since the participants were being selected based on their availability and willingness to participate in this study. A total of 161 respondents provided primary data via a structured survey based on enclosed questionnaire form via Google Forms. The respondents were all online shoppers who made purchases using Flipkart service. This sampling method provides quick and efficient data collection for the analysis of customers' shopping experience related to the damage of their purchased items and customer satisfaction regarding e-commerce logistics

### **3.4 Statistical Tools Used**

The method of convenience sampling was used for the selection of respondents. The data collected was analysed using

Microsoft Excel and SPSS. The analysis of the collected data has been performed using statistical tools such as Correlation Analysis and Regression Analysis. The data has been interpreted and the relationship between the various variables has been established.

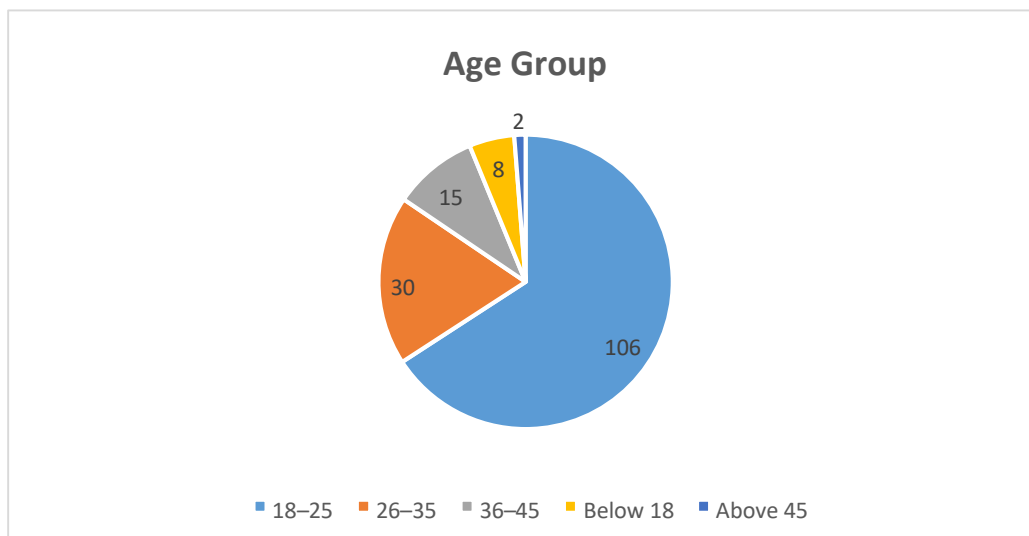
The methodology provided an understanding of customer perceptions relative to packaging quality, handling during transport, delivering of damaged products, replacement services and overall customer satisfaction in the operations of e-commerce logistics.

#### 4. DATA ANALYSIS AND INTERPRETATION

Data analysis is a method of organization, analysis, and interpretation (examining) the gathered data to find significant results and how variables are related. For this study, data collected from respondents was analysed on both Microsoft Excel and with the statistical program, SPSS.

##### 4.1 AGE GROUP

S.NO	Option	Number of Responses	Percentage
1	18–25	106	65.84
2	26–35	30	18.63
3	36–45	15	9.32
4	Below 18	8	4.97
5	Above 45	2	1.24
	Total Responses	161	100



##### Interpretation

The age distribution of respondents shows that the majority of participants belong to the 18– 25 age group, with 106 respondents (65.84%). This indicates that young consumers are more actively involved in e-commerce shopping and online purchasing activities. The 26–35 age group consists of 30 respondents (18.63%), followed by the 36–45 age group with 15 respondents (9.32%). In addition, 8 respondents (4.97%) were below 18 years of age, while 2 respondents (1.24%) were above 45 years. The findings indicate that younger customers are more likely to use e-commerce platforms and share their experiences regarding product delivery and service quality.

##### 4.2 CORRELATION ANALYSIS

Independent Variables (Damage Factors)

Correlations

		I believe product damage is mainly due to poor packaging.	I believe product damage occurs during transportation	Delivery personnel handling contributes to product damage.
I believe product damage is mainly due to poor packaging.	Pearson Correlation	1	.551**	.439**
	Sig. (2-tailed)		.000	.000
	N	161	161	161
I believe product damage occurs during transportation.	Pearson Correlation	.551**	1	.490**
	Sig. (2-tailed)	.000		.000
	N	161	161	161
Delivery personnel handling contributes to product damage.	Pearson Correlation	.439**	.490**	1
	Sig. (2-tailed)	.000	.000	
	N	161	161	161
**. Correlation is significant at the 0.01 level (2-tailed).				

Interpretation

Based on analysis, there is a positive correlation between independent variables associated with product damages. A fair correlation will exist between the type of damaged packaging and the type of product damage. The moderate positive correlation ( $r = 0.551$ ) between damaged packaging and transport-based damage (0.439) caused by the delivery personnel is an example of how these factors contribute to product damage based on improper logistics practices. In addition, there is a positive correlation ( $r = 0.490$ ) between transport-based and delivery personnel causing customer-based damage. All correlations are statistically significant at a 0.01 significance level. Data conclude that all three variables (distributing product, transporting product, and delivering product) are highly correlated to each other, are major factors contributing to product damage based on inadequate logistics practices. Dependent Variables (Customer Satisfaction)

Correlations

		Receiving damaged products reduces my satisfaction.	Product damage reduces my trust in Flipkart	I hesitate to reorder after receiving a damaged product.	Product damage affects my future purchase decisions.	I feel frustrated when I receive damaged products
Receiving damaged products reduces my satisfaction.	Pearson Correlation	1	.629**	.476**	.344**	.434**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	161	161	161	161	161
Product damage reduces my trust in Flipkart	Pearson Correlation	.629**	1	.309**	.503**	.359**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	161	161	161	161	161
I hesitate to reorder after receiving a damaged product.	Pearson Correlation	.476**	.309**	1	.363**	.384**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	161	161	161	161	161
Product damage affects my future purchase decisions.	Pearson Correlation	.344**	.503**	.363**	1	.395**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	161	161	161	161	161
I feel frustrated when I receive damaged products	Pearson Correlation	.434**	.359**	.384**	.395**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	161	161	161	161	161
**. Correlation is significant at the 0.01 level (2-tailed).						

### Interpretation

A correlation analysis conducted on the variables of customer satisfaction, revealed that there were all positive correlations between all the factors involved in this analysis. When products were found to be damaged, there were positive correlations for how much the customer lost trust in Flipkart ( $r = .629$ ), whether or not they would hesitate to order again due to receiving damaged products ( $r = .476$ ), frustration associated with the delay in delivery of damaged product ( $r = .434$ ), and potential changes made by customers to future purchases/order decisions as a result of receiving damaged products ( $r = .344$ ). In addition to the impact on customer purchasing behaviour, the receipt of damaged products negatively affects customers' emotional responses. All correlation coefficients were found to be significant at the .01 level, which indicates that damaged products can negatively affect customer satisfaction, customer trust, customer loyalty, customer willingness to purchase again, and customer future purchasing intentions. There were a number of findings that clearly identified a direct relationship between the negative effects of receiving damaged product and the perceptions of the customer regarding their overall shopping experience.

### 4.3 REGRESSION

Variables Entered/Removed <sup>a</sup>			
Mode	Variables Entered	Variables Removed	Method
1	Delivery personnel handling contributes to product damage. , I believe product damage is mainly due to poor packaging. , I believe product damage occurs during transportation. <sup>b</sup>	.	Enter
a. Dependent Variable: Receiving damaged products reduces my satisfaction.			
b. All requested variables entered.			

ANOVA <sup>a</sup>						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.613	3	13.871	12.957	.000 <sup>b</sup>
	Residual	168.077	157	1.071		
	Total	209.689	160			

a. Dependent Variable: Receiving damaged products reduces my satisfaction.

b. Predictors: (Constant), Delivery personnel handling contributes to product damage. , I believe product damage is mainly due to poor packaging. , I believe product damage occurs during transportation.

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardize d	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.505	.302		4.987	.000
	I believe product damage is mainly due to poor packaging.	.220	.094	.207	2.347	.020
	I believe product damage occurs during transportation.	.225	.095	.215	2.369	.019
	Delivery personnel handling contributes to product damage.	.125	.089	.119	1.410	.160

a. Dependent Variable: Receiving damaged products reduces my satisfaction.

### Interpretation

The purpose of the regression analysis was to test whether (and to what extent) different types of product damage (due to poor packaging, damage during transport, and damages caused by the delivery personnel) would have an effect on how satisfied the customer is with their purchase when they receive a damaged product. The independent variables used for this analysis were poor packaging, transport damage, and damage caused by the delivery personnel, while the dependent variable was "Receiving damaged products reduces my satisfaction." The

ANOVA shows that there is a statistically significant relationship among the independent variables and the dependent variable ( $F = 12.957$ ,  $Sig. = 0.000$ ), which indicates that the independent variables, together, influence the dependent variable. Of the three independent variables, only poor packaging ( $\beta = 0.207$ ;  $p = 0.020$ ) and transport damage ( $\beta = 0.215$ ;  $p = 0.019$ ) are both statistically significant ( $p < 0.05$ ) and positively related to the reduction in customer satisfaction with the damaged product. Conversely, damage caused by the delivery personnel ( $\beta = 0.119$ ,  $p = 0.160$ ) was found to have no



statistically significant effect on customer satisfaction since  $p > 0.05$ . Therefore, the results of the analysis indicate that poor packaging and damage during shipping are the primary contributors to customer dissatisfaction with receiving damaged products.

## 5. FINDINGS

More than half of respondents reported receiving damaged products from Flipkart which shows the presence of issues with product handling and logistics.

The most common type of damage reported by customers was that of packaging (41.6%), suggesting that there are weaknesses in terms of both the quality of packaging materials and the protective measures taken during the packaging of products.

Respondents agreed that when they receive damaged products, they experience lower levels of customer satisfaction and a decrease in their overall experience with shopping through Flipkart.

Product damage has been found to have a negative impact on the level of trust the customer has in Flipkart, ultimately impacting levels of customer loyalty and future purchase intention.

Poor packaging and transportation issues have been identified as significant factors that can impact customer satisfaction through regression analysis.

## 6. DISCUSSION

### 6.1 Effect of Product Damage on Customer Satisfaction

Research indicates that product damage has an adverse effect on customer satisfaction and future purchase behaviour at Flipkart, as evidenced by customer frustration and hesitation when receiving damaged products. Findings support the need for safe delivery of products as a significant component of customers' overall shopping experiences and therefore product damage directly impacts those levels of satisfaction and loyalty.

### 6.2 Impact from Packaging and Logistics

The research results show that packaging and transportation issues are main contributors to product damage. The most commonly identified problem reported by respondents was damage to packaging, indicating that there are deficiencies in logistics operations. Proper packaging materials, careful handling during transportation, and having trained delivery personnel would significantly help reduce product damage; thus, enhancing customer satisfaction and increased reliability of service through improving logistics and the quality of packaging materials.

## 7. SUGGESTIONS

Flipkart needs to enhance their packing material quality to help lessen physical damages caused during transport.

Items that fall under 'Fragile' or 'Electronics' will require an additional means of protection during shipping in order to help avoid breakage issues.

Delivery personnel should be properly trained in product handling and customer service.

The replacement process needs more simplification, thereby helping improve customer satisfaction and decreasing potential frustrations.

Flipkart's response time towards retail customers complaining about receiving product in a damaged condition needs to decrease in order to help build loyalty with their customers.

Regularly monitor the operations throughout logistics and warehouses, in order to identify areas of product damage and develop ways in which to decrease that incidence.

## 8. CONCLUSION

This research has shown that damage to products while being delivered can greatly affect the degree of customer satisfaction at online shopping sites like Flipkart due to poor packaging and bad shipping practices leading to less trust and loyalty from customers, as well as decreasing the likelihood of making future purchases. The researchers also found that customers want e-commerce companies to provide service that is reliable, with safe packaging, and to quickly handle any complaints made by customers. While many of the people answering the survey had some level of satisfaction (moderate) with the delivery and support services provided, there is a need to improve both product handling and shipping methods in order to enhance overall customer satisfaction. Improving packaging practices, using efficient logistics methods and providing faster service when responding to customer inquiries will all help reduce product damage and increase overall customer satisfaction in the e-commerce marketplace.

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