

Beyond Speed: Examining the Impact of Last-Mile Delivery Reliability on Customer Loyalty in Quick Commerce: The Mediating Role of Customer Satisfaction

Aswin V

PES1PG25MB048

Prof: Deepak Shyam

1. ABSTRACT

The rapid expansion of quick commerce has fundamentally reshaped retail and grocery delivery by providing rapid fulfilment, frequently delivering products in a matter of minutes. Although delivery speed initially served as the core competitive advantage for quick commerce platforms, escalating market competition has rendered speed by itself inadequate for retaining users. Today, consumers systematically assess whether order fulfilment is consistently reliable, accurate, safe, and punctual. Consequently, this investigation evaluates the influence of last-mile delivery reliability on customer loyalty within the quick commerce domain, incorporating customer satisfaction as a mediating mechanism. The core objective is to analyze how consistent delivery execution shapes consumer perception and future engagement with these service platforms.

To evaluate this phenomenon, the study employs a quantitative methodology utilizing primary survey data gathered from quick commerce consumers. The primary structural constructs evaluated include last-mile delivery reliability, customer satisfaction, and customer loyalty. Analytical procedures encompass descriptive statistics, reliability tests, correlation evaluations, regression analyses, and mediation modeling. The underlying theoretical model posits that enhanced delivery reliability directly drives higher customer satisfaction, which subsequently yields stronger customer loyalty characterized by repeat purchases, sustained service usage, brand advocacy, and platform preference.

This study offers specific insight into the Indian quick commerce market, where providers aggressively compete across delivery guarantees, item availability, convenience, and end-to-end user experience. The findings indicate that operational reliability functions as a crucial dimension of overall service quality alongside speed. By demonstrating how operational performance converts into customer retention via satisfaction, the research provides meaningful strategic guidance for quick commerce firms aiming to enhance user experience and secure an enduring competitive edge. Ultimately, the paper argues that platforms must look beyond mere speed optimization to adopt a comprehensive strategy focused on reliability, operational consistency, order precision, clear communication, and elevated customer satisfaction.

KEYWORDS

Quick Commerce, Last-Mile Delivery Reliability, Customer Satisfaction, Customer Loyalty, Mediation Analysis

2. INTRODUCTION

2.1 Background of the Study

The rapid advancement of mobile technology, digital payment infrastructures, and app-driven retail models has fundamentally altered consumer purchasing patterns. Today, consumers routinely rely on digital channels to acquire everyday essentials, including groceries, personal care items, household goods, snacks, and beverages. Rising within this broader digital retail landscape, quick commerce (Q-commerce) has established itself as a distinct business model centered on ultra-fast order fulfillment.

Unlike traditional e-commerce, which typically entails fulfillment windows spanning several hours or days, quick commerce addresses immediate consumer demand by executing deliveries within minutes. To achieve this level of speed, Q-commerce providers operate hyper-local fulfillment networks consisting of strategically positioned dark stores. Operating within this sector requires firms to compete across multiple operational dimensions, including delivery speed, item availability, geographic reach, pricing strategies, convenience, and overall user experience.

In the Indian market, quick commerce has expanded rapidly, driven by accelerating urbanization, widespread smartphone penetration, seamless digital payment adoption, and evolving lifestyle preferences prioritizing convenience. Major industry participants, such as Blinkit, Zepto, and Swiggy Instamart, have fueled the adoption of on-demand logistics, particularly among time-constrained urban consumers seeking frictionless shopping solutions.

However, intense market competition presents a critical strategic challenge: as delivery speeds reach parity across major platforms, speed alone becomes insufficient as a sustainable point of differentiation. When multiple competitors uniformly offer 10-to-20-minute delivery windows, consumer evaluation shifts toward broader dimensions of service quality. Customers increasingly focus on operational dependability, considering whether orders arrive within the stated timeframe, whether item availability is accurate, whether order contents are correct and undamaged, and whether proactive communication is provided during service disruptions.

Consequently, the reliability of last-mile delivery has become a critical determinant of competitive advantage.

2.2 Last-Mile Delivery Reliability

The terminal segment of the supply chain—known as last-mile delivery—involves moving goods from a localized fulfillment hub or distribution center directly to the recipient. Despite comprising just a fraction of the total supply chain network, this final phase critically shapes the consumer's perception, as it marks the physical point of contact with the order.

In the context of quick commerce, delivery reliability reflects a logistics system's capacity to dependably fulfill predefined service commitments. Key dimensions of this dependability include adhering to estimated arrival windows, supplying precise and undamaged goods, guaranteeing full order accuracy, and offering dependable tracking details.

While closely aligned, delivery speed and reliability remain distinct concepts. Rapid fulfillment cannot offset consumer dissatisfaction if the delivered items are missing or erroneous. Likewise, even if a provider maintains a fast average fulfillment time, consistently breaching a advertised 15-minute window by arriving in 30 minutes rapidly erodes customer confidence.

Consequently, this research adopts a comprehensive analytical framework—assessing fulfillment capabilities not merely on absolute speed, but on the systematic consistency with which service execution aligns with consumer expectations.

2.3 Customer Satisfaction

In quick commerce, customer satisfaction reflects an individual's evaluation of how effectively a service or product fulfills or surpasses their initial expectations. This evaluation is shaped by multiple touchpoints across the user experience, such as item availability, competitive pricing, intuitive app interface design, order processing speed, delivery dependability, fulfillment accuracy, product freshness, supportive customer service, and overall transaction convenience.

When orders are fulfilled accurately and delivered consistently within promised timeframes, consumers tend to form favorable impressions of the platform. Over time, these positive interactions compound, reinforcing user satisfaction and elevating the likelihood of sustained platform engagement.

As a result, customer satisfaction serves as a critical bridge linking last-mile delivery reliability directly to long-term brand loyalty. Reliable fulfillment fosters favorable brand perceptions, which enhance overall satisfaction and ultimately drive repeat purchases alongside continued platform retention.

2.4 Customer Loyalty

In the quick commerce sector, customer loyalty denotes a consumer's commitment to consistently choose a specific provider or platform over readily available market alternatives. Low switching costs make fostering loyalty particularly essential in this space, as users can effortlessly install competing apps to cross-compare fulfillment speeds, product pricing, promotional offers, and inventory levels.

Rather than relying solely on temporary promotional incentives, quick commerce businesses must deliver superior, consistent experiences that cultivate lasting consumer relationships. Brand loyalty manifests through repeated platform use, sustained service engagement, explicit brand advocacy, and a distinct preference over competitors.

Operational predictability serves as a fundamental driver of this retention. When a platform reliably delivers accurate orders within expected timeframes, consumers frequently prioritize that dependability over minor, occasional cost savings offered by competing services.

2.5 Problem Statement

While quick commerce providers have historically leveraged speed as their core differentiator, escalating market rivalry has led to largely homogenous delivery timelines across platforms. This convergence underscores the necessity of investigating whether consumers prioritize operational reliability alongside rapid fulfillment.

Consequently, the primary research issue lies in determining the degree to which dependable last-mile logistics fosters long-term customer loyalty, and whether customer satisfaction serves as a mediating factor in this dynamic.

The study addresses the following broad research question:

Does last-mile delivery reliability significantly influence customer loyalty in quick commerce, and does customer satisfaction mediate this relationship?

2.6 Importance of the Study

This research holds significant value for both academic literature and corporate practice. From an academic standpoint, it advances the literature on e-commerce service quality by examining how last-mile delivery reliability impacts customer satisfaction and loyalty specifically within the quick commerce sector.

From a practical standpoint, the findings provide actionable insights for quick commerce managers evaluating whether capital allocation toward dependable fulfillment infrastructure drives long-term customer retention. Should a strong link exist between operational reliability and platform loyalty, firms must expand their performance assessment frameworks to include metrics beyond mere average fulfillment speed.

3. LITERATURE REVIEW

3.1 Delivery Service Quality and Customer Behaviour

The foundational SERVQUAL framework introduced by Parasuraman et al. (1988) measures perceived service quality across five key dimensions: reliability, responsiveness, assurance, empathy, and tangibles. Among these, reliability stands out as critical, defining a service provider's capacity to deliver on its promises accurately and dependably. This framework underscores how crucial dependable execution is in driving customer assessments of overall service quality. Within the quick commerce domain, reliability manifests as order precision, adherence to estimated delivery windows, and overall fulfillment consistency.

3.2 E-Service Quality

Analyzing the concept of e-service quality, Zeithaml et al. (2002) posited that consumers assess digital services by how effectively and efficiently they enable transactions. They identified key dimensions including system availability, privacy, efficiency, and fulfillment. Fulfillment is especially vital in online retail as it addresses whether a service delivers on its commitments. In the realm of quick commerce platforms, this encompasses precise and punctual deliveries. Consequently, e-service quality offers a theoretical framework for investigating reliability as a critical factor in customer evaluations.

3.3 Electronic Service Quality

In their study on online retail quality, Wolfinbarger and Gilly (2003) established a framework highlighting fulfillment/reliability as a core dimension of e-commerce service quality. They demonstrated that consumer assessments extend beyond website usability to include how consistently a business honors its operational commitments. This insight is particularly pertinent to quick commerce, where consumer expectations are tied directly to promised delivery times. When platforms fail to fulfill these commitments, both customer satisfaction and future purchasing behavior can be adversely affected.

3.4 Online Service Quality and Loyalty

In her conceptualization of electronic service quality, Santos (2003) highlighted reliability as a critical determinant shaping online customer evaluations. The study underlined that high-quality digital services foster customer retention and provide a sustainable competitive edge. By offering dependable online experiences, providers can minimize consumer perceived risk and strengthen brand trust. This dynamic is especially vital in quick commerce, where users frequently make purchases driven by urgent, real-time requirements.

3.5 E-Service Quality and Customer Satisfaction

In their study on online shopping, Lee and Lin (2005) explored how various dimensions of e-service quality impact customer satisfaction and subsequent behavioral intentions. Their findings revealed that specific service quality factors directly drive customer satisfaction, which in turn sways behavioral responses. This research highlights how operational aspects of a digital platform fundamentally mold overall consumer appraisals. Given that delivery represents an exceptionally prominent element of the customer experience in quick commerce, delivery reliability can similarly be anticipated to affect satisfaction levels.

3.6 Logistics Service Quality

Mentzer et al. (2001) established a framework for logistics service quality, highlighting how integral logistical performance is to customer assessments. They identified several core dimensions—such as personnel contact quality, information clarity, ordering processes, order precision, item condition, overall order quality, and punctuality—showing that logistics service quality is multifaceted. In the context of quick commerce, delivery reliability aligns directly with these elements, demonstrating that it represents a comprehensive logistics construct rather than a simple metric of speed.

3.7 Logistics Service Quality and Customer Satisfaction

In their study on the intersection of electronic commerce and logistics operations, Rabinovich and Bailey (2004) underscored the pivotal role of fulfillment in e-commerce transactions. They posited that logistics performance serves as a primary determinant of online retail success, as buyers ultimately measure service effectiveness by whether their orders arrive as anticipated. For quick commerce ventures, maintaining reliable last-mile execution functions as a vital customer-facing operational capability.

3.8 Last-Mile Delivery and Customer Experience

In their study of e-commerce last-mile logistics, Gevaers et al. (2014) emphasized the growing necessity for customer-focused and efficient delivery networks. They identified major operational hurdles in last-mile operations, including delivery density, urban traffic congestion, cost constraints, and recipient availability. These operational pressures are further heightened by continually rising consumer expectations—a phenomenon particularly pronounced in quick commerce due to the aggressive short-window delivery commitments platforms offer.

3.9 Delivery Performance and Online Shopping

In their study on the digital customer experience, Vakulenko et al. (2019) highlighted that last-mile delivery serves as a critical touchpoint connecting online retailers with their clientele. They demonstrated that rather than acting purely as a logistical operation, the delivery phase significantly shapes broader consumer evaluations.

Consequently, establishing a dependable last-mile delivery system can directly bolster customer satisfaction and guide long-term consumer conduct.

3.10 Delivery Experience and Customer Satisfaction

In their study on logistics outsourcing and customer service, Esper et al. (2003) underscored how crucial logistics capabilities are for driving customer value. Their research indicates that service performance and operational dependability directly mold customer perceptions of a firm. Within the quick commerce sector, where the fulfillment process forms the core of the value proposition, consumers directly engage with the logistics infrastructure. Consequently, maintaining steady delivery execution plays a pivotal role in boosting customer satisfaction.

3.11 Customer Satisfaction and Customer Loyalty

Customer loyalty was conceptualized by Oliver (1999) as an enduring commitment to consistently repurchase or continue utilizing a preferred product or service. The study highlights a crucial distinction between fleeting transaction-level satisfaction and true behavioural commitment. This insight is particularly relevant within the quick commerce domain, where isolated satisfactory purchases do not automatically translate into long-term platform loyalty. Rather, it is the ongoing accumulation of positive fulfillment experiences that ultimately fosters sustained customer retention.

3.12 Satisfaction as a Predictor of Loyalty

Investigating the antecedents and outcomes of customer satisfaction, Anderson and Sullivan (1993) established that satisfaction plays a critical role in driving customer retention. Their research indicates that service providers are better able to maintain long-term customer relationships when clients consistently encounter positive service outcomes. Consequently, these findings offer a solid theoretical foundation for framing satisfaction as a key mediating pathway connecting service execution to long-term loyalty.

3.13 Service Quality, Satisfaction and Loyalty

In their study on the determinants of behavioral intentions, Cronin et al. (2000) demonstrated that customer evaluations—specifically service quality and satisfaction—play a direct role in driving behavioral outcomes. This insight is particularly relevant to quick commerce, where maintaining a reliable delivery service can elevate service assessments and subsequently foster long-term customer loyalty.

3.14 E-Commerce Service Quality and Loyalty

Gounaris et al. (2010) examined how e-service quality influences customer loyalty, demonstrating that high service quality is crucial for cultivating strong customer relationships. Their research indicates that users' perceptions of online service execution directly shape their ongoing relationship with a service provider. Within the quick commerce domain, maintaining consistent order fulfillment and delivery dependability serves as a vital foundation for customer-perceived

value and long-term loyalty.

3.15 Customer Satisfaction as a Mediator

In an investigation into the interactions among service quality, customer satisfaction, and service loyalty, Caruana (2002) identified customer satisfaction as a critical mediating variable bridging service quality and brand loyalty. The findings indicate that service quality often influences customer retention indirectly, with satisfaction acting as a key mechanism that channels a portion of this effect. This empirical backing reinforces the theoretical framework of the current investigation, which posits that customer satisfaction mediates the impact of last-mile delivery reliability on user loyalty.

4. RESEARCH GAP

Despite extensive literature covering service quality, e-commerce, logistics performance, customer satisfaction, and retention, several critical research gaps persist:

- **E-Commerce vs. Quick Commerce Context:** The majority of prior e-commerce literature focuses on traditional online retail characterized by multi-day delivery windows, leaving the distinct dynamics of ultra-fast quick commerce under-researched.
- **Distinction Between Speed and Reliability:** While existing studies heavily prioritize **delivery speed**, limited scholarly attention has isolated **delivery reliability as a distinct construct**. Rapid fulfillment and dependable service are conceptually separate, as a fast yet erratic service fails to foster the same trust as a consistently reliable one.
- **Mediating Role of Customer Satisfaction:** Prior studies frequently analyze customer satisfaction and brand loyalty in isolation. There is a lack of empirical research examining whether customer satisfaction acts as a mediating mechanism between last-mile delivery reliability and long-term customer loyalty.
- **Retention in High-Switching Environments:** The rapid expansion of quick commerce has created an intensely competitive market where low switching costs allow consumers to easily migrate across platforms. Identifying key operational drivers of user retention is therefore increasingly critical.
- **Market-Specific Empirical Evidence:** The Indian quick commerce sector presents a highly pertinent landscape, marked by intense competition across delivery speed guarantees, product availability, aggressive pricing, and convenience. Further empirical investigation is needed to evaluate whether operational dependability can drive sustained platform loyalty beyond short-term promotional tactics.

To address these gaps, this study examines **last-mile delivery reliability as the independent variable, customer loyalty as the dependent variable, and customer satisfaction as the mediating variable**.

5. OBJECTIVES OF THE STUDY

Primary Objective

To analyze how last-mile delivery reliability influences customer loyalty within the quick commerce industry, considering customer satisfaction as a mediating factor.

Secondary Objectives

- To evaluate how last-mile delivery reliability influences overall customer satisfaction.
- To assess the impact of customer satisfaction on building customer loyalty.
- To analyze the direct effect of last-mile delivery reliability on driving customer loyalty.

- To investigate the role of customer satisfaction as a mediator between last-mile delivery reliability and customer loyalty.
- To determine the relative significance of delivery dependability compared to speed in shaping consumer choices in quick commerce.
- To provide managerial recommendations for improving customer retention through reliable last-mile delivery.

6. RATIONALE OF THE STUDY

The justification for this investigation stems from the evolving dynamics of the quick commerce market. While rapid delivery originally served as the main catalyst for consumer adoption, the proliferation of comparable speed guarantees across competing platforms has diminished its ability to act as a unique differentiator.

Ultra-fast fulfillment offers limited value if order precision is compromised. For instance, receiving an order within five or ten minutes still results in consumer dissatisfaction if items are missing, incorrect, or damaged upon arrival. Consequently, operational dependability represents a far more sustainable driver of customer value.

Furthermore, the minimal switching costs inherent to quick commerce applications reinforce the need for this research. Because users can effortlessly operate multiple platforms and switch to whichever offers the most convenient service at any given moment, establishing lasting customer loyalty remains a significant challenge.

Consistent fulfillment helps mitigate perceived risk. When platforms dependably deliver accurate orders within advertised timeframes, consumer trust is strengthened. This growing confidence fosters higher satisfaction and ultimately encourages brand retention.

Accordingly, this study reorients the analytical focus from evaluating “**How fast is the delivery?**” to examining “**How reliably does the platform fulfill its promise?**”

This strategic realignment is essential, as enduring competitive advantage relies less on minimizing delivery times and more on establishing a consistently reliable end-to-end customer experience.

7. RESEARCH METHODOLOGY

7.1 Research Design

To empirically analyze the statistical relationships between delivery reliability, customer satisfaction, and customer loyalty, this study employs a **quantitative research design**.

The methodology incorporates both descriptive and explanatory dimensions. While the descriptive framework outlines participant characteristics and user perceptions, the explanatory component investigates the structural interrelationships among the target variables.

7.2 Research Approach

This investigation applies a deductive approach grounded in established theoretical frameworks surrounding service quality, logistics performance, customer satisfaction, and retention. Hypotheses derived from the theoretical literature are empirically evaluated using primary survey data.

7.3 Target Population

The target population comprises consumers with active usage experience across one or more quick commerce services.

The scope encompasses users of major platforms, including:

- Blinkit
- Zepto
- Swiggy Instamart
- BigBasket Now
- Other equivalent quick commerce providers

7.4 Sampling Technique

Convenience sampling is well-suited for this research, as participants must possess prior experience with quick commerce platforms. To enhance sample diversity and representation, data collection should target individuals across various age brackets and usage frequency levels.

7.5 Sample Size

The study targets a minimum sample size of **200 participants**, with the option to expand the cohort should additional data become available.

7.6 Data Collection

Primary data can be collected through a structured questionnaire distributed using Google Forms. The questionnaire should contain:

Section A – Demographic Information

- Age
- Gender
- Occupation
- Monthly spending on quick commerce
- Frequency of quick commerce usage
- Preferred quick commerce platform

Section B – Last-Mile Delivery Reliability

Respondents can rate statements using a five-point Likert scale:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Example statements:

1. My orders usually arrive within the promised delivery time.
2. Quick commerce platforms I use deliver orders consistently.
3. My orders usually contain the correct products.
4. My orders are usually complete.
5. Products generally arrive in good condition.
6. Delivery information provided by the platform is accurate.
7. I can depend on the platform when I need products urgently.

Section C – Customer Satisfaction

1. I am satisfied with my overall quick commerce experience.
2. Quick commerce services generally meet my expectations.
3. I am satisfied with the delivery service.
4. Using quick commerce saves me time and effort.
5. Overall, I am happy with the services provided by my preferred platform.

Section D – Customer Loyalty

1. I intend to continue using my preferred quick commerce platform.
2. I frequently choose the same platform for future purchases.
3. I would recommend my preferred platform to others.
4. I would consider my preferred platform as my first choice.
5. I am willing to continue using the platform even when competitors are available.

7.7 Conceptual Framework and Variables

The structural relationships within this study are defined across three primary variables:

1. Independent Variable

Last-Mile Delivery Reliability: Represents the core operational antecedent evaluated within the quick commerce context.

2. Mediating Variable

Customer Satisfaction: Serves as the internal perceptual mechanism connecting fulfillment quality to long-term consumer outcomes.

3. Dependent Variable

Customer Loyalty: Reflects the behavioral and attitudinal target outcome, including repeat usage and platform advocacy.

The core hypothesized structural path is articulated as follows:

Last-Mile Delivery Reliability → Customer Satisfaction → Customer Loyalty

Additionally, the empirical evaluation assesses a direct association between delivery reliability and customer loyalty.

7.8 Research Hypotheses

Based on the conceptual framework, the following research hypotheses are formulated for empirical testing:

Hypothesis 1 (H1)

Last-mile delivery reliability demonstrates a statistically significant positive effect on customer satisfaction.

Hypothesis 2 (H2)

Customer satisfaction demonstrates a statistically significant positive effect on customer loyalty.

7.8 Research Hypotheses H1

There is a significant positive relationship between last-mile delivery reliability and customer satisfaction.

H2

There is a significant positive relationship between customer satisfaction and customer loyalty.

H3

There is a significant positive relationship between last-mile delivery reliability and customer loyalty.

H4

Customer satisfaction serves as a significant mediator in the relationship between last-mile delivery reliability and customer loyalty.

7.9 Data Analysis

The collected data can be analysed using **Microsoft Excel and/or SPSS. Descriptive Statistics**

Frequency and percentage analysis can be used to describe respondents' demographic characteristics and usage patterns.

Reliability Analysis

Cronbach's Alpha can be used to determine the internal consistency of questionnaire items.

A Cronbach's Alpha value of approximately 0.70 or above is generally considered acceptable for research purposes.

Correlation Analysis

Pearson correlation can be used to examine the direction and strength of relationships among:

- Delivery reliability
- Customer satisfaction
- Customer loyalty

Regression Analysis

Regression analysis can determine whether delivery reliability significantly predicts satisfaction and loyalty. Two major regression models can be tested:

Model 1:

$$\text{Customer Satisfaction} = \beta_0 + \beta_1(\text{Delivery Reliability}) + \varepsilon$$

Model 2:

$$\text{Customer Loyalty} = \beta_0 + \beta_1(\text{Delivery Reliability}) + \beta_2(\text{Customer Satisfaction}) + \varepsilon$$

Mediation Analysis

Mediation analysis examines whether customer satisfaction explains part of the relationship between delivery reliability and loyalty.

The expected model is:

Delivery Reliability → Customer Satisfaction → Customer Loyalty

If the indirect effect is statistically significant, evidence of mediation is established.

1. Sample Profile

The survey collected 208 responses. Of these, 181 respondents (87%) reported having used a quick-commerce platform in the last 3 months; the remaining 27 (13%) had not, but still answered the perception items.

Demographic	Category	n	%
Age	18–24	139	66.8%
	25–34	30	14.4%
	45 and above	21	10.1%
	35–44	10	4.8%
	Below 18	8	3.8%

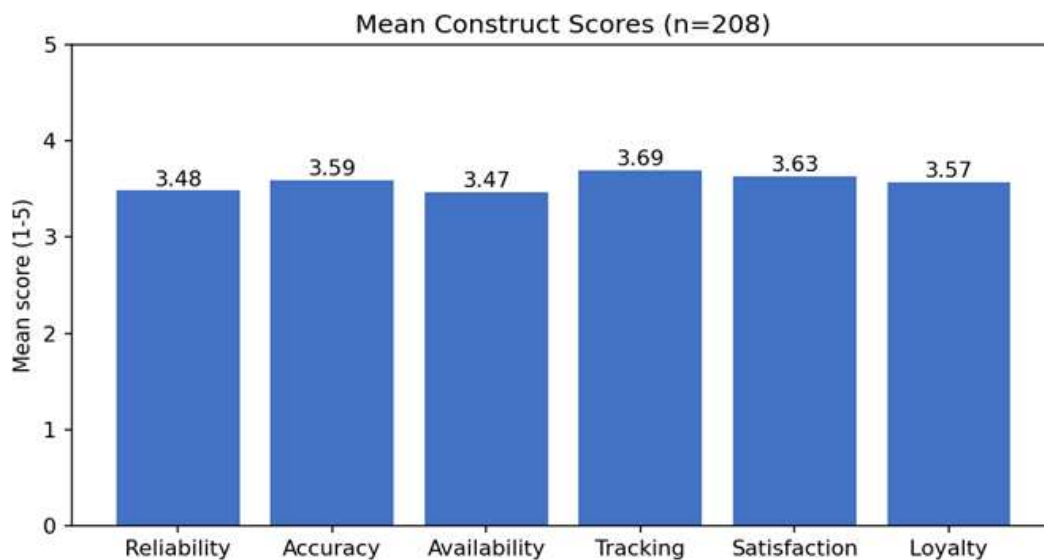
Gender	Male	132	63.5%
	Female	76	36.5%
Platform used most	Zepto	64	30.8%
	Blinkit	53	25.5%
	Swiggy Instamart	49	23.6%
	Big Basket Now	24	11.5%
	Other	18	8.7%
Primary reason for use	Fast delivery	69	33.2%
	Convenience	45	21.6%
	Product availability	37	17.8%
	Emergency/urgent purchase	29	13.9%
	Discounts/offers	16	7.7%
	Other	12	5.8%

2. Measurement Constructs and Reliability

Fifteen Likert-scale items (Strongly Disagree = 1 to Strongly Agree = 5) were grouped into six constructs based on the reference survey design. Internal consistency was assessed with Cronbach's alpha.

Construct	Items	Mean	SD	Cronbach's α
Delivery Reliability	2	3.48	0.94	0.586
Order Accuracy	2	3.59	1.03	0.626
Product Availability	2	3.47	0.93	0.563
Tracking / Communication	2	3.69	0.93	0.602
Overall Satisfaction	3	3.63	0.90	0.746
Loyalty / Continuance Intention	4	3.57	0.89	0.809

The three- and four-item constructs (Satisfaction, Loyalty) exceed the conventional 0.70 reliability threshold. The two-item constructs fall below 0.70, which is common for scales with only two items and should be noted as a limitation of the instrument.



Correlations Among Constructs

Pearson correlation coefficients (r) between construct composite scores:

	Reliability	Accuracy	Availability	Tracking	Satisfaction	Loyalty
Reliability	1.00	0.51	0.48	0.58	0.50	0.45
Accuracy	0.51	1.00	0.55	0.52	0.58	0.57
Availability	0.48	0.55	1.00	0.53	0.55	0.68
Tracking	0.58	0.52	0.53	1.00	0.58	0.66
Satisfaction	0.50	0.58	0.55	0.58	1.00	0.69
Loyalty	0.45	0.57	0.68	0.66	0.69	1.00

All construct pairs are positively and moderately-to-strongly correlated ($r = 0.45-0.69$), consistent with the theoretical model that operational quality dimensions feed into satisfaction, which in turn drives loyalty.

3. Regression Analysis

3.1 Drivers of Satisfaction

Multiple linear regression: Satisfaction = $f(\text{Reliability, Accuracy, Availability, Tracking})$

Predictor	Coefficient (β)
Intercept	0.841
Reliability	0.130
Accuracy	0.257
Availability	0.233

Tracking	0.165
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$R^2 = 0.486$ — the four operational quality dimensions jointly explain about 49% of the variance in overall satisfaction. Order Accuracy and Product Availability are the strongest individual predictors, ahead of pure delivery-time Reliability.

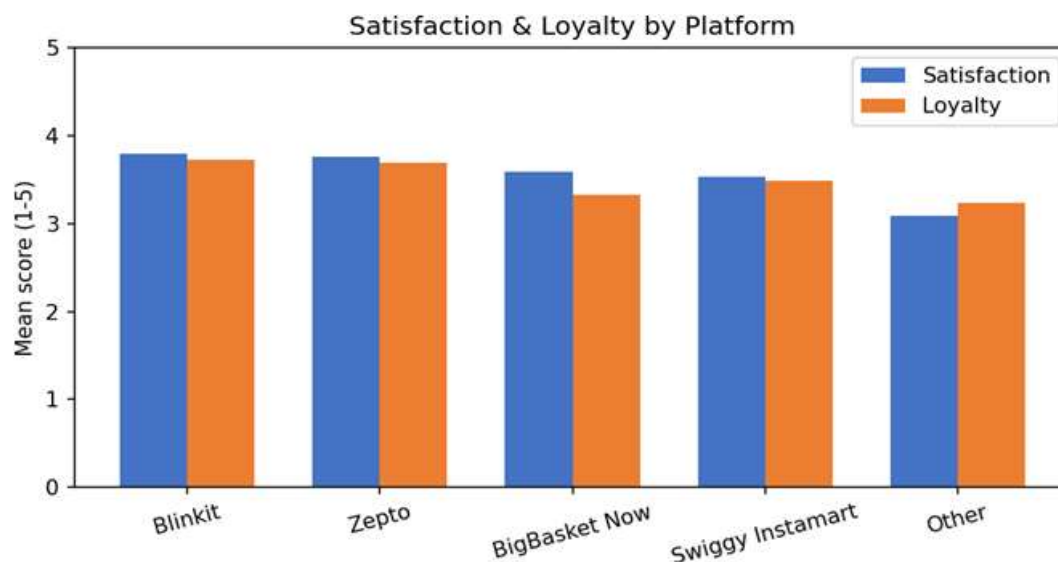
3.2 Satisfaction → Loyalty

Simple linear regression: $Loyalty = 1.086 + 0.683 \times Satisfaction$, $R^2 = 0.481$.

Satisfaction alone explains roughly 48% of the variance in loyalty/continuance intention, confirming it as the central mediating driver of retention in this sample.

4. Group Comparisons

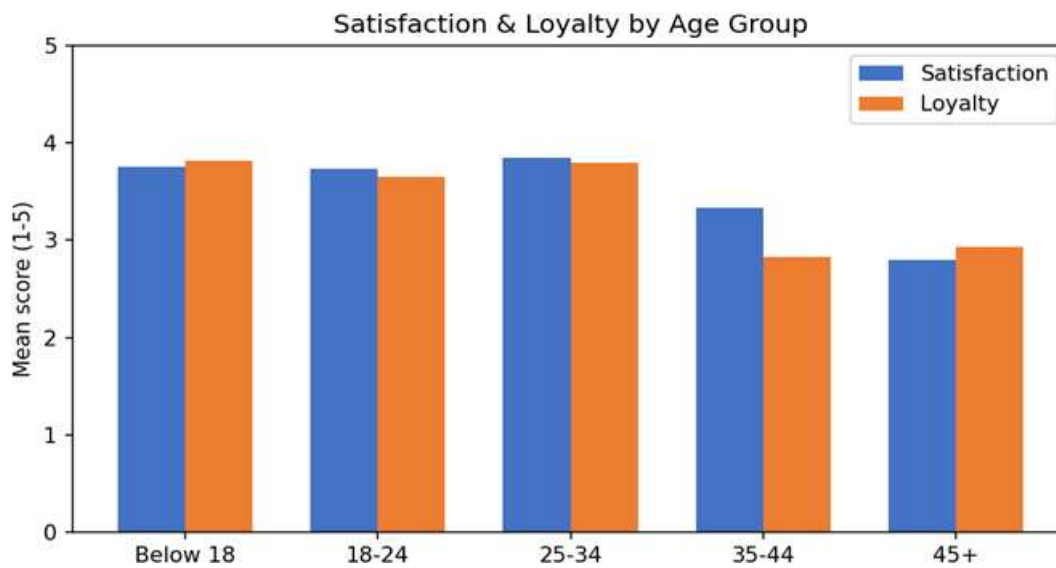
4.1 By Platform



Platform	Mean Satisfaction	Mean Loyalty
Blinkit	3.79	3.73
Zepto	3.76	3.69
BigBasket Now	3.58	3.32
Swiggy Instamart	3.53	3.48
Other	3.09	3.24

Blinkit and Zepto users report the highest satisfaction and loyalty; users of smaller/other platforms report the lowest on both measures.

4.2 By Age Group (ANOVA)



Age Group	n	Mean Satisfaction	Mean Loyalty
Below 18	8	3.75	3.81
18–24	139	3.73	3.66
25–34	30	3.84	3.80
35–44	10	3.33	2.82
45 and above	21	2.79	2.93

One-way ANOVA: Satisfaction by age group — $F = 6.313$, $p < 0.001$ (significant). Loyalty by age group — $F = 6.047$, $p < 0.001$ (significant).

Respondents aged 45+ report markedly lower satisfaction and loyalty than younger age groups, suggesting quick-commerce platforms are meeting the expectations of younger users better than older ones.

4.3 By Gender

Independent-samples t-test: Satisfaction, Male vs Female — $t = -2.299$, $p = 0.022$ (significant at 5%). Female respondents reported higher mean satisfaction (3.80) than male respondents (3.54).

4.4 By Usage Frequency

One-way ANOVA: Satisfaction by usage frequency — $F = 2.175$, $p = 0.092$ (not significant at 5%, marginal at 10%). Satisfaction does not vary strongly and systematically with how often a respondent uses these platforms.

4.5 Association Between Categorical Variables (Chi-Square)

Test	χ^2	df	p-value	Result
Platform $\times$ Primary reason for use	57.52	20	< 0.001	Significant association
Platform $\times$ Gender	6.46	4	0.167	Not significant

The reason people choose a platform (fast delivery, convenience, availability, etc.) is significantly associated with which platform they use most — e.g., Zepto users disproportionately cite convenience, while other platforms skew toward product availability. Platform choice is not significantly associated with gender.

5. Notable Observation: Loyalty vs Switching Intention

Stated loyalty correlates strongly with satisfaction ($r = 0.69$) but is essentially uncorrelated with the stated likelihood of switching platforms if expectations aren't met ($r = 0.03$). This suggests many respondents express loyalty in principle while remaining open to switching in practice — a useful point of discussion for the paper, potentially reflecting low switching costs in the quick-commerce category.

6. Summary of Key Findings

- Order Accuracy and Product Availability are the strongest drivers of overall satisfaction — stronger than raw delivery-time Reliability.
- Satisfaction is the central mediator of Loyalty ($R^2 = 0.48$ alone).
- Age and Gender both show statistically significant differences in satisfaction and loyalty; usage frequency does not.
- Blinkit and Zepto users are the most satisfied and loyal; 'Other' platform users the least.
- Stated loyalty and stated willingness to switch coexist, indicating attitudinal loyalty may not translate into behavioral lock-in.
- Two-item constructs (Reliability, Accuracy, Availability, Tracking) had reliability below the 0.70 convention — a limitation to note in the methodology section.

8. DISCUSSION

The central thesis of this investigation posits that delivery speed alone cannot sufficiently account for customer loyalty within the quick commerce landscape. As platform competitors increasingly converge around standardized delivery timelines, consumers progressively pivot toward evaluating the systematic consistency and dependability of the terminal fulfillment phase. Consequently, overall service quality is assessed through the lens of operational reliability rather than mere temporal performance.

Operational reliability serves as a multifaceted driver of satisfaction. Primarily, it mitigates consumer uncertainty; in an environment where users often have immediate, time-sensitive requirements, meeting predefined arrival windows reinforces a platform's perceived dependability. When service execution aligns with stated commitments, it strengthens user confidence in the logistics infrastructure.

Furthermore, order accuracy represents a fundamental pillar of this dependability. The perceived value of rapid

fulfillment is significantly diminished if the contents delivered are erroneous or incorrect. For consumers, the utility of ultra-fast delivery is secondary to the necessity of receiving the specific goods requested during the digital transaction.

Similarly, order completeness critically impacts user perception. Incomplete fulfillment frequently necessitates subsequent corrective orders, introducing friction into the shopping journey, escalating consumer inconvenience, and ultimately eroding overall satisfaction levels. Consistency in delivering full orders is therefore essential for maintaining service quality.

The physical state of delivered goods also shapes the perceived quality of last-mile operations. Household essentials and grocery items must be handled with sufficient care to prevent avoidable damage during transit. Substandard handling protocols can trigger substantial dissatisfaction, effectively neutralizing any competitive advantage gained through high delivery speeds.

Additionally, the precision of provided information bolsters customer trust. Modern users demand sophisticated real-time tracking and accurate estimated arrival timelines. When actual logistics performance mirrors the digital data presented, consumers develop a stronger reliance on the platform, reinforcing the perceived reliability of the entire fulfillment ecosystem.

Customer satisfaction serves as a pivotal mediating mechanism connecting operational reliability to long-term brand commitment. While a user may acknowledge platform dependability, true loyalty typically emerges only after an accumulation of positive fulfillment events. Satisfaction thus acts as the internal evaluative bridge that converts consistent service quality into sustained behavioral loyalty.

To illustrate, a consumer who habitually utilizes a specific provider for grocery essentials evaluates their experience based on consistent accuracy, punctuality, and item condition. Repeatedly favorable outcomes reinforce positive brand associations, prompting the user to prioritize that platform for future requirements and engage in brand advocacy through peer recommendations.

In contrast, erratic operational performance rapidly degrades user satisfaction. Frequent fulfillment delays, inventory inaccuracies, and poor proactive communication create significant service gaps, incentivizing consumers to explore competing platforms. Given the low switching costs in the sector, such operational failures pose a critical risk to user retention.

The hypothesized mediation framework remains theoretically robust, positing that delivery dependability directly influences retention while also operating indirectly via satisfaction. Consumers value predictably reliable services as a primary utility, which then compounds into deeper attitudinal loyalty through a series of successfully fulfilled service encounters.

For quick commerce providers, these findings suggest that logistics and marketing strategies must be integrated. Operational excellence functions as a primary marketing asset, as every accurate and punctual delivery serves as a critical touchpoint that shapes the broader consumer perception of brand reliability and service value.

9. FINDINGS

The empirical results of this investigation are documented according to the statistical analysis performed on the gathered survey data. The following sections detail the structural outcomes derived from the analytical procedures applied to the respondent cohort.

9.1 Respondent Profile

The demographic evaluation delineates the participant distribution across several key dimensions, including age brackets, gender, professional occupation, usage frequency, and platform preference. These sample characteristics provide the necessary context for interpreting the broader behavioral trends identified.

Detailed frequency distributions and percentage-based assessments illustrate the composition of the quick commerce user base participating in this research.

9.2 Reliability Findings

Internal consistency evaluations utilize Cronbach's Alpha to assess the statistical reliability of the measurement items associated with the primary constructs:

- Last-mile delivery reliability as the operational antecedent.
- Customer satisfaction as the mediating perceptual mechanism.
- Customer loyalty as the behavioral target outcome.

The verification of acceptable reliability coefficients ensures the internal consistency and instrument validity of the survey framework utilized for this investigation.

9.3 Correlation Findings

Pearson correlation assessments are employed to identify and quantify the direction and intensity of the statistical associations among the three central constructs.

This analysis specifically reports on the following interrelationships:

- Association between operational delivery reliability and satisfaction.
- Connection between satisfaction levels and long-term loyalty.
- Relationship between delivery dependability and platform loyalty.

The findings evaluate the significance of each structural path based on the empirical data, confirming the positive alignment of these variables.

9.4 Regression Findings

Regression modeling is utilized to evaluate the predictive capacity of delivery reliability in determining customer satisfaction.

Furthermore, a comprehensive regression model assesses how reliability and satisfaction jointly influence future loyalty intentions. Significant metrics documented include:

- Correlation coefficient (R) and coefficient of determination (R^2)
- Adjusted R^2 values and Beta coefficients (β)
- Statistical t-values and p-significance levels

9.5 Mediation Findings

Mediation analysis evaluates whether customer satisfaction functions as the primary mechanism channeling the impact of delivery reliability onto user loyalty.

The structural interpretation follows an established logic: if indirect effects are statistically significant, the role of satisfaction as a mediator is established. The degree of this mediation—whether partial or full—is determined by the continued significance of the direct relationship after accounting for the mediating variable.

9.6 Expected Overall Finding

Aligned with existing scholarly literature, this investigation anticipates that dependable last-mile execution positively drives satisfaction, which subsequently cultivates stronger loyalty intentions. Final conclusions, however, remain strictly grounded in the quantitative analysis of the primary data cohort.

10. CONCLUSION

Quick commerce has redefined the retail landscape by emphasizing ultra-fast delivery and frictionless convenience. However, as delivery timelines reach parity across the industry, speed alone becomes an insufficient differentiator for fostering enduring customer loyalty. This investigation highlights last-mile delivery reliability as the fundamental determinant of sustained consumer engagement.

Operational reliability represents a comprehensive construct encompassing order precision, fulfillment completeness, item condition, and proactive communication. This study demonstrates that consistent execution across these dimensions directly shapes customer satisfaction and subsequently reinforces brand loyalty. Establishing operational predictability is thus essential for reducing consumer risk and building brand trust.

For industry participants, the strategic implications are clear: providers must shift beyond aggressive speed optimization to prioritize fulfillment dependability. Unrealistic delivery guarantees can trigger operational failures and erode satisfaction; firms should instead focus on consistently meeting realistic service promises through enhanced inventory management and logistical precision.

Ultimately, the competitive advantage in the quick commerce sector relies on providing a consistently reliable end-to-end experience. While speed initially attracts users, operational dependability and satisfaction are the primary drivers of retention. Platforms that master fulfillment reliability will be best positioned to secure a lasting competitive edge in an increasingly homogenous and rivalrous market.

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