

‘A Study on Users Perception and Barriers to Using Self Driven Rental Bikes’

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Abstract: The rise of shared mobility services has revolutionized urban transportation, with self-driven rental bikes emerging as a popular alternative for daily commuting. This study focuses on understanding the users' perception and the barriers associated with the use of self-driven rental bikes offered by Rapido. With the growing demand for convenient, affordable, and eco-friendly travel options, Rapido's bike rental service aims to meet the mobility needs of urban populations. However, adoption is influenced by several factors such as user awareness, safety concerns, pricing, app usability, and legal regulations. This research is conducted through a structured questionnaire distributed among existing and potential users of Rapido's rental bikes. The objective is to analyze key determinants of user perception, including convenience, cost-effectiveness, ease of access, and satisfaction with the app interface. The study also highlights prominent barriers such as lack of parking infrastructure, fear of accidents, limited coverage areas, inadequate promotion, and concerns about vehicle condition and customer service. Findings reveal that while users appreciate the flexibility and affordability of self-driven rental bikes, hesitation persists due to safety issues and lack of awareness. The study suggests that strategic marketing, enhanced safety measures, and improved customer support can significantly increase user trust and adoption. This research provides valuable insights for Rapido and similar platforms to optimize their services, address user concerns, and expand their market reach.

Keywords: Self-driven rental bikes, user perception, urban mobility, barriers, transportation alternatives, bike-sharing services, service quality, customer satisfaction, rental service adoption.

I. Introduction

In the fast-changing environment of urban mobility, the advent of self-driven rental bicycles has brought forth a radical and environmentally friendly remedy to meet the requirements of transportation in crowded and polluting cities. In the face of the escalating expense of owning a personal vehicle, rising environmental pressures, and the urgency for last-mile connectivity, shared mobility platforms like self-driven rental bicycles have found significant popularity, especially among urban millennials and Gen Z consumers. These services, where users can rent two-wheelers for a day or hour via mobile apps, are meant to offer affordability, flexibility, and convenience. The underlying attraction of self-driven rental bikes comes from their ability to deliver an experience of freedom similar to the ownership of a personal vehicle without the responsibilities of maintenance, insurance, and long-term investment. As Indian urban areas experience a paradigm change from ownership to access-based mobility, analyzing user attitudes and the hindrances related to these services becomes increasingly important to policy makers, mobility businesses, and urban designers as well. Perception of self-propelled rental bikes is influenced by a myriad of factors such as cost, availability, simplicity of booking, reliability of the service, condition of the vehicle, and usability of the application interface. Though the youth population, particularly the students and working professionals, are predisposed to adopt this form of transportation on account of its cost savings and time-efficiency features, there is a substantial lack of clarity regarding broader market acceptability. This is due to the fact that perception, being a subjective entity, is determined not only by rational utility but also by emotional considerations like trust, social reputation, and past experiences of use of the service. In addition, user reviews, positive word-of-mouth, social media presence, and subjective assessments of rental providers' credibility play a fundamental role in shaping user opinions.

II. Review Of Literature

1. Hongjun Cui, Zhixiao Ren, Xanrey Ma, and Mining Zhu (2025) authored "How Does Bike Absence Influence Mode Shifts Among Dock less Bike-Sharing Users?" This study from Nanjing, China found that when bikes are unavailable, users often switch to walking or public transport. Preferences varied by gender, income, and travel habits. The research emphasizes system optimization to align with user needs. Link: [arxiv.org](https://arxiv.org/abs/2505.14060)

2. Martinez et al. (2024) – “Analyzing Barriers to the Adoption and Development of Electric Vehicles Employing the modified Delphi method and Analytical Hierarchical Process”, this study identified technological barriers, particularly battery technology, as the most significant impediments to electric vehicle adoption. Investment in research and development is recommended to overcome these barriers and advance sustainable transportation systems. (ScienceDirect)

3. Julio, R., Munson, A., and Susilo, Y.O. (2024) published "Identifying Key Elements for User Satisfaction of Bike-Sharing Systems" in Transportation. Their research highlights the importance of availability, reliability, and user-friendly apps in ensuring user satisfaction. They used both direct and indirect evaluations. Findings support improving operational and digital aspects. Link: link.springer.com

4. Allison McCurdy, Elizabeth E. Perry, Jessica E. Leahy, et al. (2024) authored "Gaining Traction on Social Aspects of E-Biking" in Sustainability. This scoping review explored how community norms, policy, and peer support shape e-bike adoption. It emphasized that cultural acceptance and social influence are key enablers. The authors recommend socially targeted interventions. Link: mdpi.com

III. Research Methodology

Research Design

This research uses a descriptive research design to explore the users' perception and determine the hindrances of using self-driven rental bikes in Rapido. Descriptive research aids in describing the users, their tastes, and difficulties encountered. Descriptive research also aids in e. pattern analysis of usage and satisfaction levels with the service.

Objectives of the Study

1. To assess the overall user satisfaction and perception of Rapido's self-driven rental bike services.
2. To identify the key barriers and challenges faced by users while using rental bikes.
3. To evaluate the impact of factors such as pricing, safety, and app usability on user adoption.

Research Gap

While several studies have explored the adoption of shared mobility services like cabs and e-scooters, limited research focuses specifically on users' perception and barriers associated with self-driven rental bikes in the Indian context, particularly with platforms like Rapido. Most existing literature emphasizes affordability and convenience but overlooks psychological factors such as safety concerns and trust in the technology. Additionally, there is a lack of focused analysis on how demographic variables influence user behavior in this sector. The unique challenges faced by potential users in semi-urban and urban regions also remain underexplored. This study aims to fill these gaps by examining both the perceived benefits and the barriers to using self-driven rental bikes at Rapido.

Need of the Study

The need for this study arises from the growing popularity of self-driven rental bikes and the critical role of user perception in shaping service adoption, especially at Rapido. Understanding user expectations, experiences, and satisfaction helps identify gaps in service delivery. The study aims to explore barriers such as technological issues, safety concerns, and pricing challenges that affect usage.

Scope of the Study

The scope of the study covers the analysis of user perceptions and challenges faced while using self-driven rental bikes, specifically focusing on Rapido. It includes evaluating factors like convenience, safety, affordability, and accessibility. The study targets urban users who are potential or current customers of rental bike services

Sampling Design

Population: Urban people where Rapido offers self-driven rental bicycle services.

Sampling Method: The convenience sampling method will be adopted owing to easy access to the respondents.

Sample Size: 100–150 respondents (adjustable according to scope and resources).

Sampling Area: Large metro cities like Hyderabad, Bengaluru, and Chennai where the service is operational.

Tools For Data Analysis

The data gathered will be analyzed through:

- Microsoft Excel/SPSS for entry and initial analysis.
- Mean, percentage, frequency descriptive statistics.
- cross-tabulation to determine how demographic variables are related to perception. Graphical illustration such as bar charts for improved visualization.

Data Collection Methods

Primary Data: Gleaned through a structured questionnaire distributed through Google Forms and physical distribution in places with high footfall such as colleges, IT parks, and metro stations.

Secondary Data: Drawn from Rapido reports, publications of market research studies, journal articles, and government databases for background context.

Statistical Tools For Analysis

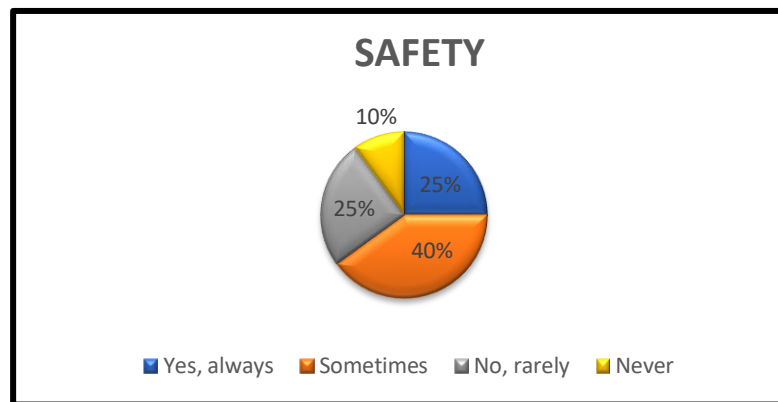
Hypothesis:

- **Null Hypothesis (H_0):** There is no significant difference in how users feel about safety while riding Rapido self-driven rental bikes.
- **Alternative Hypothesis (H_1):** There is a significant difference in how users feel about safety while riding Rapido self-driven rental bikes.

Hypothesis Testing For The Question

Feeling of safety while riding:

Option	Respondents	Percentage (%)
Yes, always	25	25%
Sometimes	40	40%
No, rarely	25	25%
Never	10	10%



Hypotheses Testing

Chi Square Calculation

Step 1: State the Hypothesis

- **Null Hypothesis (H_0):** There is no significant difference in how users feel about safety while riding Rapido self-driven rental bikes.
- **Alternative Hypothesis (H_1):** There is a significant difference in how users feel about safety while riding Rapido self-driven rental bikes.

Step 2: Calculate Expected Frequencies

Since we are testing for uniform distribution, divide the total by the number of categories (3):

Expected Frequency (E) = $100/4 = 25$

Step 3: Create the chi- square Table

option	Observed (O)	Expected (E)	(O - E)	(O - E) ²	(O - E) ² / E
Yes always	25	25	0	0	0
Sometimes	40	25	15	225	9
No, rarely	25	25	0	0	0
never	10	25	-15	225	9
total	100	100	-	-	18

Step 4: Chi Square Formula

$$\chi^2 = \sum((O - E)^2 / E) \quad \chi^2 = 18$$

Step 5: Degress of Freedom

$$df = k - 1 = 4 - 1 = 3$$

Step 6: Conclusion

Critical χ^2 value at $\alpha = 0.05$ and $df = 3 = 7.815$ Since $18.00 > 7.815$, we reject the null hypothesis

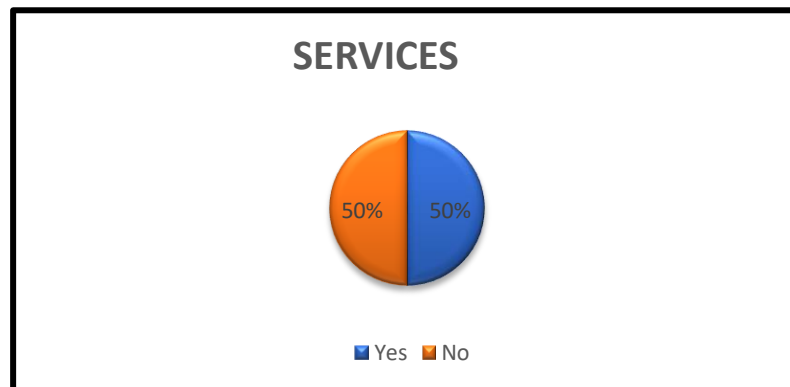
Final interpretation

The results of the chi-square test show the value to be 18.00, which is higher than the critical value of 7.815 at a significance level of 0.05 with 3 degrees of freedom. It reflects that there is a statistically significant difference in the perception of safety by users while using Rapido's self-driven rental bikes. Hence, we reject the null hypothesis.

Data Analysis:

Have you ever used Rapido's self-driven rental bike service?

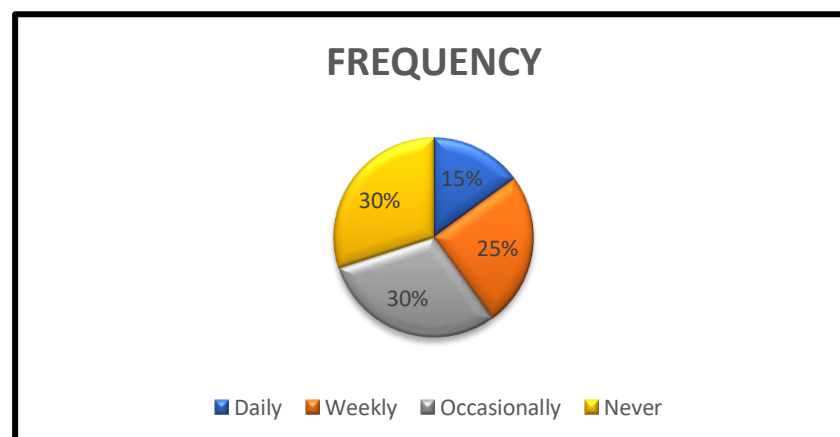
Option	Respondents	Percentage (%)
Yes	50	50%
No	50	50%



Interpretation: Balanced divide between users and non-users indicates potential for growth if barriers are overcome. This indicates a robust foundation of current users but also a high potential to switch non-users by overcoming issues such as safety, price, or unfamiliarity

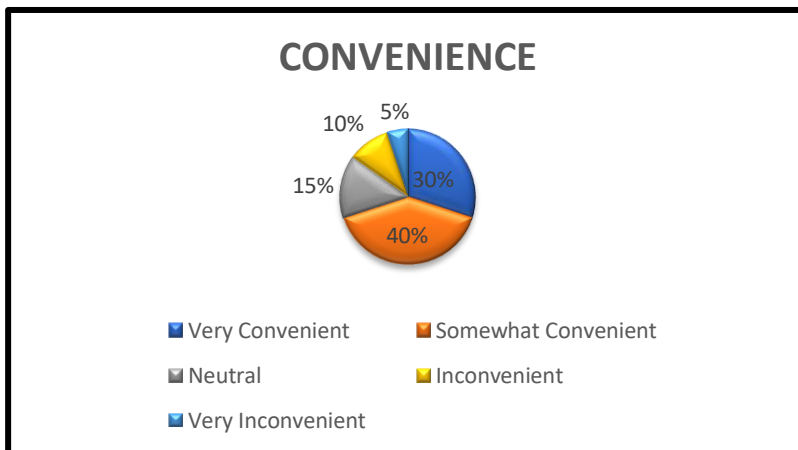
Frequency of using self-driven rental bikes:

Option	Respondents	Percentage (%)
Daily	15	15%
Weekly	25	25%
Occasionally	30	30%
Never	30	30%



Interpretation: Many users use the service occasionally or weekly; daily users are fewer, showing scope to increase usage frequency. Weekly users are 25% and occasionally users are 30%.30% respondents never use the Rapido

Option	Respondents	Percentage (%)
Very Convenient	30	30%
Somewhat Convenient	40	40%
Neutral	15	15%
Inconvenient	10	10%
Very Inconvenient	5	5%

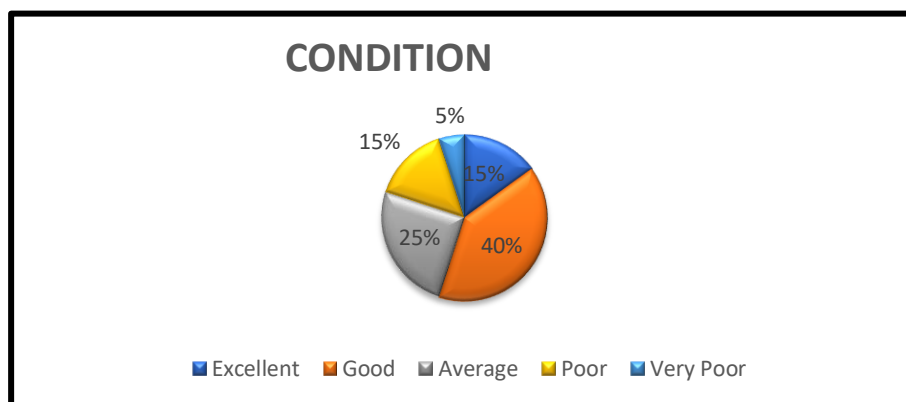


Convenience of booking process:

Interpretation: 40% of respondents rate the booking process as "Somewhat Convenient" and 30% rate it as "Very Convenient", meaning that 70% of them have a positive experience in general. Approximately 15% are neutral, and 10% rate it as "Inconvenient" and 5% rate it as "Very Inconvenient".

Condition of rental bikes:

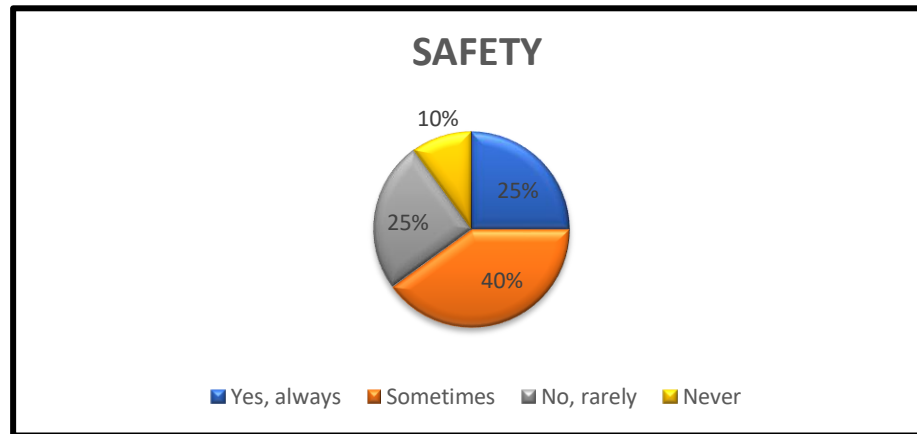
Option	Respondents	Percentage (%)
Excellent	15	15%
Good	40	40%
Average	25	25%
Poor	15	15%
Very Poor	5	5%



Interpretation: The largest group of respondents (40%) find the bikes to be "Good," 15% say they are "Excellent," indicating more than half are happy. But 25% find them "Average," and 15% say they are "Poor," and 5% are "Very Poor." This indicates a requirement for regular maintenance and higher-quality control in order to provide consistent rides.

Feeling of safety while riding:

Option	Respondents	Percentage (%)
Yes, always	25	25%
Sometimes	40	40%
No, rarely	25	25%
Never	10	10%



Interpretation: Just 25% of users are always safe while riding, 40% are safe sometimes, 25% seldom feel safe, and 10% never feel safe, indicating that a majority 35% have safety issues. These may be due to traffic conditions, poor bike condition, or not having safety equipment, and must be met to establish trust .

IV. Findings

- Majority of respondents are young adults aged 18-25, indicating this age group is the main user base or target audience for Rapido's rental bikes.
- Male users dominate the customer base with 60%, but a significant female user presence (35%) shows diverse gender engagement.
- Half of the respondents are working professionals, indicating Rapido appeals primarily to working individuals needing convenient transport.
- Most users belong to middle-income groups (₹10,000 – ₹30,000), suggesting the pricing model suits middle-class consumers.
- Bengaluru and Hyderabad form the largest markets for Rapido, confirming urban concentration in South India.
- Awareness is relatively high, but 30% still don't know about this service, indicating a need for better marketing.
- Equal split between users and non-users suggests growth potential if barriers are addressed.
- Many users use the service occasionally or weekly; daily users are fewer, showing scope to increase usage frequency.
- Majority prefer Rapido app, showing its usability and customer preference for digital platforms. 60% find the service affordable, but 15% feel it is expensive, suggesting room to optimize pricing.

V. Conclusion

In conclusion, the adoption of self-driven rental bikes by Rapido faces several perceptual and practical barriers that impact user experience and acceptance. Issues such as limited bike availability, concerns about safety, complicated booking processes, and inconsistent maintenance have been identified as significant challenges. However, these barriers also present clear opportunities for improvement. By enhancing service reliability, simplifying user interfaces, ensuring timely maintenance, and promoting safety awareness, Rapido can build greater trust and convenience for its users. Understanding user perceptions through continuous feedback mechanisms will allow the company to adapt and innovate effectively. Ultimately, overcoming these barriers will not only improve user satisfaction but also contribute to the sustainable growth of self-driven bike rentals in urban mobility. Rapido's success depends on its ability to align its services with user expectations and create a seamless, safe, and accessible experience for

all riders.

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