



## A Study on Consumer Usage and Preference toward Electric Two Wheeler

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### ABSTRACT:

This research explores the factors influencing consumer usage and preferences toward electric two-wheelers, with a focus on Chennai, India. By analysing consumer behaviour, perceptions, and preferences, this study aims to offer valuable insights for industry stakeholders. The rise of electric two-wheelers has transformed urban mobility by providing eco-friendly and cost-effective alternatives. However, understanding consumer motivations is essential for improving product offerings and customer satisfaction. This research examines factors such as performance, cost savings, environmental impact, and government incentives to provide a comprehensive understanding of consumer preferences and their influence on the success of electric two-wheelers

Keywords: Electric two wheeler, consumer preference, urban mobility

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### Introduction:

**Introduction to Electric Two-Wheelers** Electric vehicles (EVs), particularly electric two-wheelers, have seen significant growth globally and in India over the last decade. As concerns over environmental sustainability and carbon emissions rise, electric mobility has become a vital alternative to traditional internal combustion engine (ICE) vehicles. The two-wheeler segment, which forms a large part of India's transportation ecosystem, has seen a growing shift towards electric models, driven by their lower operational costs and eco-friendliness.

**Consumer Behavior and Preferences** Understanding consumer behavior is crucial in identifying the factors that drive the decision to switch from conventional two-wheelers to electric ones. Consumers are generally influenced by a variety of factors such as performance (speed, range), cost savings (fuel and maintenance), environmental consciousness, and convenience (ease of charging, access to infrastructure). In this context, comparing the value proposition between traditional two-wheelers and electric models becomes central to understanding consumer preference

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### Methodology:

The research methodology for this study is structured to systematically investigate consumer usage and preferences towards electric two wheelers. A descriptive research design is employed to analyze characteristics within the target population. convenience sampling is used to select respondent based on accessibility and willingness suitable for exploratory research. The population size is considered infinite focusing on users of electric two wheelers, with a sample size of 109. data collection includes primary data through questionnaires and secondary data sourced from the internet existing studies and scholarly publication to enrich the findings

### Objective:

1. To study the consumer usage and Preferences towards Electric Two-wheeler
2. To identify the most preferred features and functionalities in electric two wheelers among user
3. To identify consumer willingness and key factors influencing the adoption of electric two wheelers as a primary mode of transportation

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### Data Analysis and Interpretation

1 PERCENTAGE ANALYSIS FOR AGE OF THE CONSUMERS

Age					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 18	1	.9	.9	.9
	18 - 24	80	73.4	73.4	74.3
	25 -32	16	14.7	14.7	89.0
	33 - 40	9	8.3	8.3	97.2
	Above 40	3	2.8	2.8	100.0
	Total	109	100.0	100.0	

From the above table it shows that out of 109 consumers 1% are below 18 , 80% are between 18 – 24 years , 16% are between 25 – 32 years, 9% are between 33 – 40 years, 3% are above 40 years

PERCENTAGE ANALYSIS FOR GENDER OF THE CONSUMERS

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	84	77.1	77.1	77.1
	female	25	22.9	22.9	100.0
	Total	109	100.0	100.0	

From the above table it shows that out of 109 consumers 77.1% are male and 22.9% are female

Percentage analysis for most important feature you consider when purchasing an electric two wheeler

What is the most 18 feature you consider when purchasing an electric two-wheeler?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Battery range	37	33.9	33.9	33.9
	Charging time	28	25.7	25.7	59.6
	Design style	6	5.5	5.5	65.1
	Price	27	24.8	24.8	89.9
	Brand reputation	11	10.1	10.1	100.0
	Total	109	100.0	100.0	

From the above table it shows that out of 109 consumers are selecting 37% of battery range, 28% of charging time, 6% of design style, 27% of price, 11% of brand reputation

PERCENTAG ANALYSIS FOR HOW MANY KILOMETERS ON A SINGLE CHARGE WOULD BE IDEAL FOR YOUR DAILY COMMUNITY NEEDS

How many kilometres on a single charge would be ideal for your daily commuting needs?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Below 25 km	5	4.6	4.6	4.6
	25 - 50 km	22	20.2	20.2	24.8
	50 - 75 km	36	33.0	33.0	57.8
	75 - 100 km	24	22.0	22.0	79.8

	Above 100 km	22	20.2	20.2	100.0
	Total	109	100.0	100.0	

The table shows that the majority of respondents (36%) prefer a commuting range of 50 to 75 km per charge for electric two-wheelers. Smaller groups prefer ranges below 25 km (5%), 25 to 50 km (22%), 75 to 100 km (24%), and above 100 km (22%). This indicates a strong preference for moderate range vehicles, though a significant portion also favors longer distances.

### CHI – SQUARE ANALYSIS

To find out the association between gender and the importance of safety features in the choice of an electric two-wheeler

**(H<sub>0</sub>):** There is no significant association between gender and the rate of the importance of safety features (e.g., ABS, traction control) in the choice of an electric two-wheeler

**(H<sub>1</sub>):** There is a significant association between gender and the rate of the importance of safety features (e.g., ABS, traction control) in the choice of an electric two-wheeler

TEST STATISTICS	Gender	Rate the importance of safety features ( Eg ABS , Traction control) in your choice of electric two wheeler
CHI – SQUARE	110.152	151.350
Df	1	3
Asymp. Sig	.000	.000

From the above table, we can find that the significant value is 0.000, which is less than table value 0.05, so the Null hypothesis is rejected and Alternative hypothesis is accepted

Therefore, there is a significant association between gender and the rate of the importance of safety features (e.g., ABS, traction control) in the choice of an electric two-wheeler.

### ANOVA ANALYSIS

To find out the significant differences between age and factor would most influence your decision purchase an electric two-wheeler

**(H<sub>0</sub>):** There are no significant differences in the factors that influence the decision to purchase an electric two-wheeler among different groups (e.g., based on demographic characteristics)

**(H<sub>1</sub>):** There are significant differences in the factors that influence the decision to purchase an electric two-wheeler among different groups.

ANOVA					
Which factor would you most influence your decision to purchase an electric two-wheeler					
	Sum of squares	df	Ean Square	F	Sig.
Between group	8.475	4	2.119	1.978	.097
Within group	411.350	384	1.071		
total	419.825	388			

The above table shows that the one-way ANOVA was conducted to identify that influence the decision to purchase an electric two-wheeler among different groups. The significant value  $p = 0.097$

So, there are no significant differences in the factors that influence the decision to purchase an electric two-wheeler among different groups (e.g., based on demographic characteristics)

### WEIGHTED AVERAGED METHOD

Rank the following feature in order of importance to you when considering an electric two-wheeler

DESCRIPTIVE STATISTICS	MEAN VALUE
SPEED	4.00
BATTERY LIFE	4.04
ACCELERATION	3.86
COMFORT	4.34
MAINTANANCE COST	3.78

The table indicates that Comfort (4.34) is the top priority for consumers when choosing an electric two-wheeler, followed by Battery Life (4.04) and Speed(4.00). Acceleration(3.86) and Maintenance Cost (3.78) are important but rank lower. This suggests consumers value comfort and performance features most.

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## Results

The research on consumer preferences for electric two-wheelers reveals that the majority of respondents (73.4%) are aged 18-24, with a significant male representation (77.1%). Key features influencing purchase decisions include Comfort (mean score of 4.34), Battery Life (4.04), and Speed (4.00), with Battery Range being the most important feature (33.9%) for consumers. Most respondents prefer a range of 50-75 km per charge for daily commuting. Chi-square analysis indicates a significant association between gender and the importance of safety features, while ANOVA shows no significant differences in purchase factors among different age groups. Overall, comfort and practical performance are prioritized by consumers, with varying preferences related to safety between genders.

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## Conclusion

This study highlights that the adoption of electric two-wheelers is influenced by a combination of factors including battery performance, cost considerations, and the availability of safety and technological features. The findings indicate a growing interest in electric two-wheelers among younger consumers, particularly those who prioritize modern features and are conscious of their environmental impact. As consumers increasingly seek vehicles that offer a balance between performance and affordability, manufacturers have an opportunity to capture market share by focusing on enhanced battery capabilities, fast-charging infrastructure, and price competitiveness. By addressing these needs and aligning their offerings with consumer preferences, companies can significantly contribute to the growth of the electric two-wheeler market, promoting sustainable and energy-efficient transportation options.

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List all the material used from various sources for making this project proposal

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