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## A study on customer satisfaction towards electric bikes with special reference to Coimbatore city

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### Abstract

India is the second largest producer and manufacturer of two-wheelers in the world. It stands next to Japan and China in terms of the number of two-wheelers produced and domestic sales. Indian two-wheeler industry has got spectacular growth in the last few years. The face of auto industry that was redefined with the invention of fuel-efficient technology is all set to see dawn of a new era in two-wheeler industry. It's not petrol or diesel or any other fuel, but it is electricity that has initiated a revolution in two-wheeler industry in India. Indian two-wheeler industry has embraced the new concept of Electric Bikes and Scooters that are very popular mode of personal transport in the developed countries like America, Japan and China. With the rising cost of fuel at International level, increasing levels of pollution and congestion in transport system especially in urban areas, higher running and maintenance cost of vehicle, the electrically charged bikes or scooters have very bright future in area of personal transportation. This Paper studies about satisfaction level of customers towards electric bike with special reference to Coimbatore city and the sample collected for the study was 200 respondents.

**Keywords:** Introduction, Statement of problems, Objectives, Research methodology, Limitation, Review of literature, Analysis and Interpretation, Findings, Suggestion and Conclusion

### Introduction

The feeling of freedom and being one with the Nature comes only from riding a two-wheeler. Indians prefer the two wheelers because of their small manageable size, low pricing and maintenance, and availability of loans on liberal terms. Indian streets are full of people of all age group riding two-wheelers. The populace sees motorized two wheelers as a symbol of status. Majority of Indians, especially the youngsters prefer motorbikes rather than cars. Capturing a large share in the two-wheeler industry, bikes and scooters cover a major segment. Bikes are considered to be the favourite among youth, as they help in easy commutation. Large variety of two wheelers is available in the market, known for their latest technology and enhanced mileage. Indian bikes, scooters and mopeds represent style and class for both men and women in India.

India is the second largest producer and manufacturer of two-wheelers in the world. It stands next to Japan and China in terms of the number of two-wheelers produced and domestic sales. Indian two-wheeler industry has got spectacular growth in the last few years. The face of auto industry that was redefined with the invention of fuel-efficient technology is all set to see dawn of a new era in two-wheeler industry. It's not petrol or diesel or any other fuel, but it is electricity that has initiated a revolution in two-wheeler industry in India. Indian two-wheeler industry has embraced the new concept of Electric Bikes and Scooters that are very popular mode of personal transport in the developed countries like America, Japan and China. With the rising cost of fuel at International level, increasing levels of pollution and congestion in transport system especially in urban areas, higher running and maintenance cost of vehicle, the electrically charged bikes or scooters have very bright future in area of personal transportation.

During the last few decades, environmental impact of the petroleum-based transportation infrastructure, along with the peak oil prices, has led to renewed interest in electric transportation infrastructure. Electric vehicles differ from fossil fuel-powered vehicles in that the electricity they consume can be generated from a wide range of sources, including fossil fuels, nuclear power, and renewable sources such as tidal power, solar power, and wind power or any combination of those.

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Global warming is becoming the major concern all around the world. There are several policies, promise and pledges with the ever-increasing emission of greenhouse gases. There is an increased fear of environment pollution at every step with modern technology and innovation. Transportation and communication have under gone paradigm shift along with this. We are also experiencing the negative effects of industrialization in the form of global warming. Under these circumstances there are so many vehicles emitting impure carbon particles and carbon-dioxide pollution into the air. With increased number of fossil fuel dependent vehicles, there is a greater level depletion of fuel resource. It is here that automobile companies felt need to innovate motor pad vehicle that will get charged through electricity and will not be depending on fossil fuels. So many automobile manufacturing companies invested in research and development to bring forth E-bike that will help people to save the fuel.

### Statement of the problem

Two-Wheeler industry is one of the largest industries in the automobile sector of global market. Being the leader in product and process technologies in the manufacturing sector, it has been recognized as one of the drivers of economic growth. An average two-wheeler customer can be described as one who is at active stage of development of the organization. The difference that exists in income, literacy and culture make it a difficult task to Point out the two wheeler customers and his choice of preference. As he is living in an active environment, his needs will keep getting altered. With high traffic and not so well built roads, bikes are the most convenient, efficient and cost effective mode of transportation in India. People all over the country prefer to travel on bikes, which give them utility and cost efficient mode for transport. When it comes to electric bikes, the cost efficiency of these bikes are even better than normal bikes as there is no fuel consumption in electric bikes and in countries like India where there majority are of middle class families who cannot afford high fuel prices, electric bikes are the solution.

Introduction of e-bikes is a perfect solution to cut costs and energy consumption. There can be many models of e-bike and customer satisfaction towards e-bikes decides the fate of e-bikes. In this context, a study of this nature is felt relevant and an attempt is being made to analyze the customer satisfaction in detail.

### Scope of the study

The study aims at finding the customer satisfaction towards e-bikes with respect to Coimbatore city. The study also aims to find out the customer's perception towards electric bikes. The study by ascertaining the factors that motivate end users to purchase electric bikes is expected to enable respective companies to improve their services, sales promotions etc. The study also aims at analyzing the level of customer satisfaction with respect to the e-bikes and their dealers. Customer's expectations are also gauged to help the companies regarding after sales service.

### Objectives of the study

1. To study the level of customer satisfaction for electric bikes.
2. To find out the factors influencing the purchase of electric bikes.

### Methodology of the study

#### Sources of data

- **Primary data**

The primary data has been collected through questionnaires filled by 200 respondents using electric bikes.

- **Secondary data**

The secondary data has been sourced from various journals and websites

#### Area covered and sampling technique

All the respondents have been chosen from the Coimbatore city based on convenient random sampling

#### Tools used

- Simple percentage Analysis
- Kendall's (W) Co-efficient of concordance

#### Limitations of the study

1. The survey is based on the respondents chosen at random from Coimbatore city. Hence the results of the study cannot be generalized.
2. The sample size has been restricted to 200 respondents.
3. The respondent's views and opinions may hold good for the time being and may vary in future.

#### Review of literature

Mukesh Sharma (2002) <sup>[1]</sup> conducted "A Study on Consumer Awareness and Perception towards Genxt Electric Bikes". The study identifies and evaluates the consumer perception towards various factors about electric bike. The result of this study shows that there is a combination of both positive and negative effect on consumer perception. It also shows that maximum number of respondents is not aware of Genxt Electric bikes. So various promotional activities need to be taken in order to increase the awareness level & thereby increase the sales. Most of the respondents consider the cost and the mileage while purchasing a bike, so there are ample potential to electric bike in two wheeler sectors. But their battery performance, speed and appearance are the major factors, which is affecting the sales of electric bikes.

James Belias, Pyrou Chung, James Macdonald (2003) <sup>[2]</sup>, conducted a study on "Encouraging E-bike use: This report examines the regulation of power assisted bicycles in Australia and overseas. The current regulations are reviewed and reasons for revising the regulations in Australia are outlined. The study explores the issues of relevance to the framing of regulations covering these vehicles, and identifies the actions that are needed to enable these vehicles to make a larger contribution to the urban transport task.

Weinert, C.T. Ma, and C. Cherry (2006) <sup>[3]</sup> in their study on "The Transition to Electric Bikes in China: History and Key Reasons for Rapid Growth." Examines how and why e-bikes developed so quickly in China with particular focus on the key technical, economic, and political factors involved. This case study provides important insights to policy makers in China and abroad on how timely regulatory policy can change the purchase choice of millions and create a new mode of transportation.

Chris Cherry and Robert Cervero November (2006) <sup>[4]</sup>. Reveals in their study on "Use Characteristics and Mode Choice Behavior of Electric Bikes in China," the electric bike usage in two large Chinese cities Kunming and Shanghai. The study indicates that electric bike users are

generally more educated and earn more than bicycle users. Electric bike users take more and longer trips in an average weekday than bicycle users and LPG users take much longer trips. In both Kunming and Shanghai, electric bike users were observed to spend a larger portion of their travel time stopped at signals than bicycles, as expected because of their higher free-flow speed.

Viorel Trifa, Calin Marginean, Liviu Zarnescu (2006) [5] conducted a Case Study Regarding “The Implementation of an Electric Bicycle Using Reluctant Motors”. The article deals with an overview regarding the implementation of individual urban transportation using reluctant motor driven electric bicycles. A particular case of Cluj-Napoca city is taken as reference. Study of opportunity, state of the art in the field of electrical driven bikes and a proposed solution in this field are presented. The study indicates the good performances with respect to requirements of an individual transportation vehicle in case of a hilly city as Cluj-Napoca. Jonathan X. Weinert and Chaktan Ma, (2006) [6] conducted a study on “The Transition to Electric Bikes in China: Effect on Travel Behavior, Mode Shift, and User Safety Perceptions in a Medium-Sized City”. The authors have surveyed bike and e-bike users in Shijiazhuang, a medium-sized city with particularly high two-wheeled vehicle (2WV) use, to identify differences in travel characteristics and attitudes. The study shows that e-bikes are providing low-income commuters a mode of transportation that provides high levels of personal mobility at low personal cost. This has important implications on energy use, accessibility and urban expansion of cities. People underserved by public transportation are shifting to e-bike and Women feel safer on an e-bike compared to regular bike, however they have strong reservations about increasing e-bike speed capability.

Cherry C., Weinert J., Ma Z. (2007) [7] conducted a study on “The Environmental Impacts of Electric Bikes in China,” and found that Electric bikes have captured a large share of trips in many Chinese cities. They provide high levels of mobility and use little energy. This research investigates and quantifies the environmental implications of electric bike use in China particularly energy use, air pollution, solid waste and water use. A framework for policy analysis is presented and potential regulatory mechanisms are discussed. This investigation brings out the quantifying environmental impacts so that problematic parts of the life cycle can be addressed, rather than banning electric bikes all together.

**Analysis and interpretation**

This chapter deals with the analysis and interpretation of the study on the topic “A Study on Customer’s Satisfaction towards Electric bikes with respect to Coimbatore city” based on a population of 200 customers. The collected data are classified, tabulated and the following statistical measures are employed to fulfil the objectives of the study.

1. Simple percentage Analysis
2. Kendall’s (W) Co-efficient of concordance

**Simple percentage Analysis**

**Awareness about e-bike manufacturing companies- multiple responses**

Table shows the awareness about the manufacturers of electric bike among the respondents. The table shows the

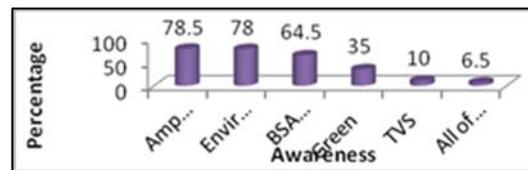
multiple responses about Ampere, Enviro sports & motors, Green automobiles, TVS, BSA motors and all of the above.

**Table 1:** Distribution of respondents according to their awareness about e-bike manufacturing companies

Companies	No. of. Respondents	Percentage
Ampere	156	78.5
Enviro Sports & Motors	157	78
BSA Motors	129	64.5
Green	70	35.0
TVS	20	10.0
All of the above	13	6.5
<b>Total</b>	<b>200</b>	<b>100.0</b>

The above table shows that 78.5 % of the respondents are aware of ampere, 78% of the respondents are aware of Enviro sports and motors, 64.5% of the respondents are aware of BSA Motors, 35% of the respondents are aware of Green automobiles, 10 % of the respondents are aware of TVS, 6.5% of the respondents are aware of all the manufacturing companies mentioned.

It is found that majority of (78.5%) the respondents are aware of Ampere.



**Chart 1:** Classification of respondents according to their awareness about e-bike manufacturing companies

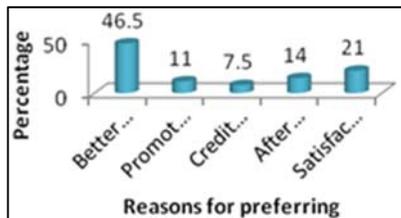
**Reasons for preferring a particular electric bike dealer**

The table shows the various reasons for the respondents preferring their respective electric bike dealers. The various reasons are Better Customer Service, Promotional Offers, Credit Facility, after sales service and satisfactory response to Customer complaints.

**Table 2:** Distribution of respondents according to their Reasons for preferring a particular electric bike dealer

Reasons for preferring	No. of. Respondents	Percentage
Better Customer Service	93	46.5
Promotional Offers	22	11.0
Credit Facility	15	7.5
After sales service	28	14.0
Satisfactory response to Customer complaints	42	21.0
<b>Total</b>	<b>200</b>	<b>100.0</b>

The above table reveals that 46.5% of respondents choose their dealer for better customer service, 21% of respondents choose their dealer for satisfactory response to customer complaints, 14% of respondents choose their electric bike dealer for their after sales service, 11% for promotional offers and 7.5% for the credit facilities provided by their electric bike dealers’



**Chart 2:** Classification of respondents according to their Reasons for preferring a particular electric bike dealer

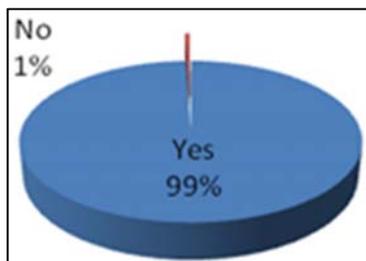
**Test drives**

Table shows whether the respondents had test drives or not

**Table 2:** Distribution of respondents who had/not had test drives

Test drives	No. of. Respondents	Percentage
Yes	199	99.5
No	01	05
Total	200	100.0

From the above table it is clear that 99.5% of respondents had a test drive and only .5% of respondents did not have any test drive.



**Chart 2:** Classification of respondents who had/not had test drives

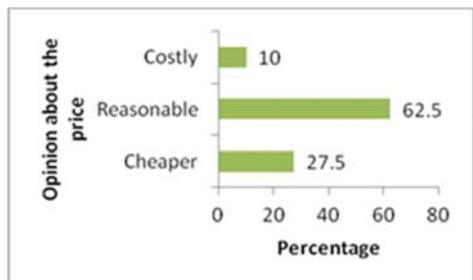
**Opinion about the price of the electric bike**

The table shows the respondent’s opinion about the price of electric bikes

**Table 3:** Distribution of respondents according to their opinion about the price of the electric bike

Price	No. of. Respondents	Percentage
Cheaper	55	27.5
Reasonable	125	62.5
Costly	20	10.0
Total	200	100.0

The above table shows that 62.5% of respondents feel that the price of electric bikes is reasonable and 27.5% feels that the price is cheaper and 10% are of the opinion that the price is costly.



**Chart 3:** Classification of respondents according to their opinion about the price of the electric bike

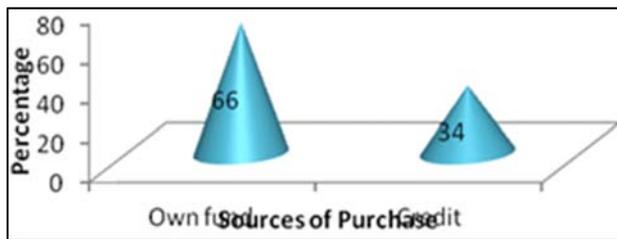
**Source of finance for purchase**

The table shows the sources of finance for purchase of electric bikes

**Table 4:** Distribution of respondents according to their Source of finance for purchase

Source of Finance	No. of. Respondents	Percentage
Own fund	132	66.0
Credit	68	34.0
Total	200	100.0

It is observed from the above table that 66% of respondents purchase electric bikes out of own fund and 34% purchase through credit funds. It is concluded that a majority of (66%) respondents have purchased electric bikes out of their own funds.



**Chart 4:** Classification of respondents according to their Source of finance for purchase

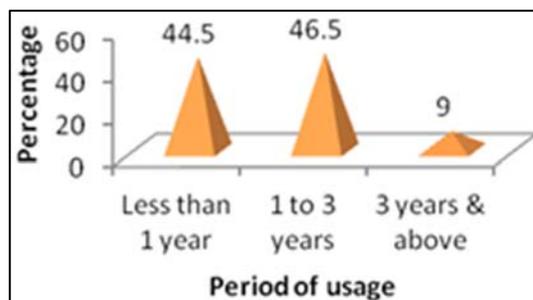
**Period of usage**

The table shows the distribution of respondents based on the period of using electric bikes

**Table 5:** Distribution of respondents according to their period of usage of electric bike

Period of usage	No. of. Respondents	Percent
Less than 1 year	89	44.5
1 to 3 years	93	46.5
3 years & above	18	9.0
Total	200	100.0

It is understood from the above table that 46.5% of respondents are using electric bikes for 1 to 3 years, 44.5% use electric bikes for less than 1 year and 9% use electric bikes for more than 3 years.



**Chart 5:** Classification of respondents according to their period of usage of electric bike

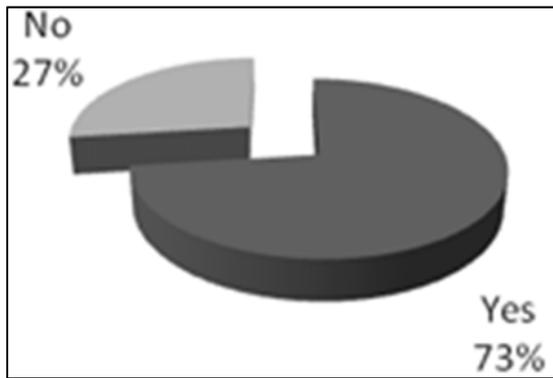
**Willingness to suggest electric bike**

Table shows that whether the respondents like to suggest electric bike to others

**Table 6:** Distribution of respondents according to their willingness to suggest electric bikes

Like to suggest	No. of Respondents	Percent
Yes	146	73.0
No	54	27.0
Total	200	100.0

The above table shows that 73% of respondents would suggest electric bikes to their friends and 27% says that they won't suggest electric bikes.



**Chart 6:** Classification of respondents according to their willingness to suggest electric bikes

**Rank analysis using Kendall's w**

**Kendall's co-efficient of concordance (W)**

Kendall's co-efficient of concordance is used to find the similarity among the respondents in ranking. The Kendall's (W) vary between 0 and 1. Higher the value of (w) higher the similarity among the respondents in assigning ranks.

**Table 7:** Reasons for purchasing electric bikes

Reasons	Mean Rank
Low operation costs	1.94
Easy Maintenance	2.88
Easy to Handle	4.39
User friendly	5.45
Less Weight	5.43
Absence of legal formalities	4.04
Status Symbol	8.11
New in Market	7.26
Absence of air & noise pollution	5.49

**Kendall's coefficient of concordance**

Kendall's W	.510
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The above Kendall's coefficient of concordance table, found that the least mean score falls for the low operation cost and the value is 1.94 that implies the low operation cost is the main reason that influenced the respondents to purchase electric bike.

**Findings**

1. Majority (78.5%) of the respondents are aware of Ampere.
2. 46.5% of respondents prefer their electric bike dealers for better customer service.
3. Majority (99%) of the respondents had test drives
4. Majority (62.5%) of the respondents feel that the price of the electric bikes is reasonable.

5. Majority (66%) of respondents purchase electric bikes with their own fund
6. Most (46%) of respondents are using electric bikes for 1 to 3 years.
7. Majority (73%) of the respondents suggest electric bikes.

**Rank analysis using Kendall's W**

1. Kendall's W for the reason low operation cost of electric bike is 0.510, which indicates that most of the respondents have purchased e-bike because of low operation cost

**Suggestion**

- More advertisement is needed for the vehicle as many people are not aware of electric bike
- E-bikes are used only for short distance because of low battery capacity, so manufacturers should concentrate on research and development to increase the capacity of e-bike
- Another major problem in e-bike is the need for frequent charging of the batteries, to overcome this problem charging centers should be opened at various places.

**Conclusion**

The concept of e-bike has entered into Coimbatore in the past 4-5 years and the same is gaining momentum, as there are around 10 dealers currently for e-bike in the city. As an eco-friendly product it is more suitable for city as it can reduce the emission of harmful gases and thereby it can reduce the atmospheric pollution. Due to frequent increase in the fuel prices, the electrically charged vehicles seem to be the cheapest one compared to the traditional vehicles. E-bikes are more suitable for rural areas where the numbers of petrol bunks are not adequate, so that the rural people can charge the vehicle with the help of electricity.

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