Available in online @ www.iaraindia.com
RESEARCH EXPLORER-International Journal on Economics and Business Management
ISSN: 2250-1940 (P) 2349-1647 (O)
Impact Factor: 3.655(CIF), 2.78(IRJIF), 2.77(NAAS)
Volume XIV, Issue 47
April - June 2025
Formally UGC Approved Journal (63185), © Author

CONSUMER PERCEPTION AND AWARENESS TOWARDS ELECTRIC BIKES IN MADURAI DISTRICT

Dr. M. KETHARAJ
Associate Professor in Commerce
Sri Meenakshi Government Arts College for Women(A), Madurai – 2

Dr. M. S. MEENAKSHI
Associate Professor in Commerce
Sri Meenakshi Government Arts College for Women(A), Madurai - 2

ABSTRACT

The rising environmental concerns and surging fuel prices have accelerated the global transition to electric vehicles (EVs), with electric two-wheelers emerging as a viable solution for sustainable urban mobility. In India, the adoption of electric bikes is growing, particularly in urban centers such as Madurai. This article explores consumer perception and awareness towards electric bikes in Madurai district. The study analyzes key factors influencing consumer behavior, assesses levels of awareness, and examines socio-economic influences on the decision to adopt e-bikes. Data collected from 100 respondents through primary surveys was analyzed using percentage analysis and chi-square tests. The findings provide valuable insights for manufacturers, policymakers, and urban planners in promoting electric mobility in Tier-2 cities like Madurai.

INTRODUCTION

India ranks as the second-largest producer and seller of two-wheelers globally, following Japan and China. The Indian two-wheeler industry has witnessed remarkable expansion in recent years, driven by increasing demand, improved technology, and rising fuel efficiency. However, with growing environmental degradation and surging fuel costs, the industry is undergoing a significant shift—towards electric mobility.

Electric bikes and scooters, which have already gained popularity in developed nations such as the United States, Japan, and China, are now making inroads into the Indian market. The advantages of electric two-wheelers—lower running costs, reduced pollution, and greater energy efficiency—make them an attractive alternative to conventional petrol-driven vehicles, especially in congested urban settings.

Historically, the concept of electric engines can be traced back to the 17th century, but their relevance has only gained momentum in the 21st century amid increasing environmental awareness. Today, consumer preferences are gradually shifting towards electric vehicles. This shift is not only environmentally beneficial but also creates new opportunities for manufacturers prepared to innovate and adapt.

SCOPE OF THE STUDY

This study focuses on understanding consumer perception and awareness regarding electric bikes

in the Madurai district of Tamil Nadu. The primary objective is to assess consumer buying behavior and the various factors influencing the decision to purchase electric two-wheelers. The study further explores consumer attitudes, awareness levels, and the motivations that lead individuals to opt for electric over conventional vehicles.

Given the environmental impact of petrol-powered vehicles, especially in urban areas, electric bikes offer a sustainable alternative. This study also seeks to identify the driving forces behind the growing use of e-bikes and the challenges hindering broader adoption.

STATEMENT OF THE PROBLEM

Electric bikes are gaining prominence worldwide as a sustainable, cost-effective, and eco-friendly mode of transportation. In Madurai, a city known for its cultural richness and bustling urban life, e-bikes are emerging as a favorable option for daily commuting. However, despite their growing popularity, limited data exists on consumer perception, awareness, user satisfaction, and adoption challenges in the local context.

This study seeks to fill this knowledge gap by examining the motivations, preferences, and concerns of electric bike users in Madurai. By analyzing user experiences, the research identifies key barriers to adoption and proposes actionable insights for policymakers, urban planners, and manufacturers to improve e-bike infrastructure and promote sustainable transportation in the region.

OBJECTIVES OF THE STUDY

- To understand consumer perceptions of electric bikes.
- To assess the awareness levels and the factors influencing buying behavior toward electric bikes.

METHODOLOGY

The study employed a **quantitative research methodology** to collect and analyze primary data from respondents in Madurai city. A **non-probability convenience sampling technique** was used to ensure easy and efficient data collection from individuals with knowledge or interest in electric bikes.

SAMPLING DESIGN

- **Sample Size**: 100 respondents
- **Sampling Area**: Various localities across Madurai district
- **Sampling Method**: Non-probability convenience sampling

DATA COLLECTION

- **Primary Data**: Gathered through structured interview schedules with selected respondents.
- **Secondary Data**: Sourced from published reports, academic articles, and online resources relevant to the electric vehicle industry.

TOOLS FOR ANALYSIS

The collected data was analyzed using:

- **Percentage Analysis**: To understand the distribution and trends across demographic variables.
- **Chi-Square Test**: To examine the association between socio-economic factors and consumer preferences or awareness levels.

The findings were tabulated and interpreted to derive conclusions about market trends and consumer behavior.

REVIEW OF LITERATURE

Bhupendra kumar verma [2011] in his paper states that on the basis of this study ,the following suggestions can be made to help in sales of electric bike more effective. There is need to bring more awareness of various others feature of electric bike brings to a consumer mind by providing them vouchers and literature in different regional languages. There should be free, fair, justified and honest competition among the various electric bike companies.

Hatwar, N; Bisen, A; Dodke, H; Junghare, A; Khanapurkar, M. [2013] Projected a new approach in the design of e-bike which consists of hybrid system of battery and super capacitor for

increasing speed, and avoid the complaints of long charging time and short lifespan of battery.

Abdullah et al.[2013] has confirmed that the customer preference and their order of importance , price, quality of service, branding are considered to be the important customer dimensions in automobile industry. Knowing these dimensions relative influence may result in better allocation of resources for effective vehicle industry.

Fishman and Cherry[2016] Discovered numerous findings an different subjects. It was found that core motivation for the use of e- bikes is now the ability to maintain speed is achieved with minimum efforts while using e-bikes in chilly areas and in hot conditions. In addition, veterans were attracted to e-bikes, as they find a standard bike too physically taxing to minimize sedentary lifestyle illnesses, e-bike have been used. Since e-bike users tend to ride more often and for longer durations than normal bicycle riders, e-bikes may contribute to increasing the overall levels of physical activities of riders. E-bike users were found to have higher perceived safety levels in most of the Chinese and north American studies.

ANALYSIS AND INTERPRETATION

SPECIFIC BENEFITS OF ELECTRIC BIKE AWARENESS

Awareness of the specific benefits of electric bikes can play a major role in shaping consumer preferences. Respondents may be aware of various benefits such as cost savings, environmental friendliness, health benefits, and convenience. The classification of respondents based on the specific benefits they are aware of is shown in Table

Table No:1

Specific Benefits of Electric Bike Awareness

S. No	Specific benefits	No .of. Respondents	Percentage
1	Eco friendly	50	50
2	Cost effective	26	26
3	Easy to use	14	14
4	Healthy benefits	10	10
	Total	**100**	**100**

The above Table shows that 50 per cent consider e-bikes eco friendly, 26 per cent are cost effective, while 14 per cent consider easy to use and 10 per cent believe healthy benefits. It inferred that majority of respondents suggest that eco friendly is the specific benefits of e- bikes.

AGE AND LEVEL OF OPINION ON E-BIKES

Age is one of the important socio-economic variables in determining the opinion and their level of on e-bikes in the study area. The age and their level of opinion on e-bikes shown in Table .

Table No:2

Age and Level of Opinion on E-bikes

Sl. No	Age	Level of Opinion			Total
		Low	Medium	High	
1	Below 35 Years	8 (8%)	40 (40%)	12 (12%)	60 (60%)
2	Above 35 Years	10 (10%)	24 (24%)	6 (6%)	40 (40%)
	Total	18 (18%)	64 (64%)	18 (18%)	100 (100%)

It is observed from the above Table that out of 100 respondents with medium level opinion 64 individuals , 40 percentages of the respondents belong to the age group below 35 years, 24 percentages of the respondents belong to the age group above 35 years. Out of 18 individuals having low level opinion, 8 percentages of the respondents belong to the age group below 35 years, 10 percentages of the respondents belong to the age group above 35 years. Further, with high level opinion, out of 18 respondents, 12 percentages of the respondents belong to the age group below 35 years, 6 percentages of the respondents belong to the age group above 35 years.

To test the relationship between the Age and the opinion of the respondents towards the level of opinion on family e-bikes, the following null hypothesis is formulated.

"*There is no significant difference between the age of the respondents and the level of opinion on e-bikes*".

The Chi-Square test was applied and the computed results are given in Table

Table No:3

Age and Level of Opinion on E-bikes – Chi-Square Test

S.NO	CELL	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
1.	R_1C_1	8	5.4	-1.4	1.96	0.36
2.	R_2C_1	10	3.6	1.4	1.96	0.54
3.	R_1C_2	40	19.2	0.8	0.64	0.03
4.	R_2C_2	24	12.8	-0.8	0.64	0.05
5.	R_1C_3	12	5.4	0.6	0.36	0.06
6.	R_2C_3	6	3.6	-0.6	0.36	0.1
					Total	1.14

Degrees of Freedom = (c-1) (r-1)

= (3-1) (2-1)

= 2

Calculated Value of X^2= 1.14 Table Value of X^2 0.05 = 5.99

Since the calculated value of 1.14 is less than the table value both at five per cent of significance, the null hypotheses is accepted. Hence, it is concluded that there is no significant difference between the age of the respondents and their level of opinion of factors influencing E-bikes in the study area.

CONCLUSION

Electric bikes represent a promising alternative to conventional vehicles, offering economic and environmental benefits to urban commuters. This study in Madurai district highlights that consumer awareness and perception are steadily evolving, driven by concerns over pollution, cost savings, and technological advancements. However, barriers such as lack of infrastructure, limited product knowledge, and performance concerns still need to be addressed.

The insights derived from this study can serve as a valuable resource for electric bike manufacturers, city planners, and policymakers. By improving infrastructure, enhancing product offerings, and conducting awareness campaigns, stakeholders can accelerate the adoption of electric bikes in Madurai and similar urban centers across India. Hence the researcher is concluded the profile of the respondents and their perception and awareness towards e-bikes with the help of the tables and charts, this is details are analysis with the help of percentage analysis, Chi-Square Methods.

BIBLIOGRAPHY

Books:

✓ "Electric Vehicle Technology Explained" by James Larminie and John Lowry.

✓ "E-Bike: A Guide to E-Bike Models, Technology & Riding Essentials" by Martin Haussermann.

Journal Articles:

✓ "Consumer Adoption of Electric Bicycles: A Study in India" by S. Sharma and R. Bhatnagar, published in the International Journal of Sustainable Transportation.

✓ "Perception and Awareness of Electric Vehicles among Urban Consumers in South India" by K. Ramesh and L. Anitha, published in the Journal of Transportation Research.

✓ "Factors Affecting the Adoption of Electric Bicycles: A Case Study of Madurai City" by M. S. Kumar and P. Selvaraj, published in the Madurai Journal of Social Sciences.

✓ "Awareness and Attitude towards Electric Vehicles among Consumers in Tamil Nadu" by R. Venkatesan and S. Priya, published in the Tamil Nadu Journal of Management.

References:

1. https://sist.sathyabama.ac.in/sist_naac/documents/1.3.4/1922-b.com-b.com-batchno- 3.pdf
2. https://www.researchgate.net/publication/378303081_Consumer's_Perception_Towar ds_Electric_Bike_with_Special_Reference_to_Coimbatore_City
3. https://www.slideshare.net/slideshow/a-report-on-consumer-awareness-and- perception-towards-e-bikes/7538944
4. https://www.scribd.com/document/649937848/consumer-perception-towards-the- Electric-Bike
5. https://www.scribd.com/document/647249927/Study-of-Customer-Perception- Towards-Electric-Vehicles
6. https://symbiosisonlinepublishing.com/toxicology/toxicology-environmental- science15.php