



A STUDY ON E-VEHICLE USER SATISFACTION IN COIMBATORE CITY

Ms.Vaishnavi. M PG Students – Department of Management Studies

Dr.V.R.Nedunchezian, professor, Department of Management Studies

Rathinam Group of Institutions, Eachanari, Coimbatore-21

ABSTRACT

This study explores the variables impacting user satisfaction with electric vehicles with the goal of providing insight into the preferences and viewpoints of drivers. The main factors influencing satisfaction levels in the context of electric mobility are clarified by this research through a thorough survey and analysis of EV owners' experiences, preferences, and difficulties. Additionally, the study investigates how public awareness campaigns, policy support, and government incentives could encourage the uptake and enjoyment of electric vehicles. A better understanding of the interaction between personal preferences and outside factors might help develop policies that support an environment that is more favorable to electric mobility. The study's conclusions add to the current conversation about environmentally friendly transportation and provide insightful information to researchers, industry stakeholders, and legislators who want to increase the uptake and happiness of electric vehicles. Ultimately, by addressing the needs and preferences of electric vehicle users, we can accelerate the transition towards a more sustainable and environmentally-friendly transportation paradigm.

KEYWORDS: Electric vehicle (EV), User satisfaction, Environmental benefits, Government incentives.

INTRODUCTION

India's automobile market is poised for rapid growth due to the expanding middle class and consistent economic growth. Fuel prices and energy security concerns are driving interest in alternative drivetrain technologies like electric vehicles (EVs). Factors such as increasing driving distances, battery technology, government incentives, laws, and infrastructure for charging will impact EV adoption. Both traditional automakers and specialized EV manufacturers are embracing electric technology. Understanding

consumer perceptions and expectations regarding EV technologies, including familiarity, price, brand, range, charging infrastructure, and ownership costs, is crucial for assessing future demand.

OBJECTIVES

- To understand the electric vehicle user perception towards electric vehicles
- To analyze the factors influencing the preference for purchase of electric vehicles
- To analyze the uses and drawbacks of e-vehicles
- To suggest for improving more awareness and usage of E vehicles

SCOPE OF THE STUDY

The scope of the study is to analyze consumer satisfaction in EV automobiles. This will help the organization to make improvements to boost service quality going forward.

STATEMENT OF PROBLEM

The country's population is growing at a rapid rate, making electric vehicles important in the current stage of existence. This will result in an increase in the need for automobiles, which will raise the price of fuel. The ongoing use of fuel will cause a shortage in its availability. Electric vehicles can be introduced attributed to all of these factors. An other environmentally beneficial innovation that can reduce environmental pollution is the introduction of electric automobiles. There is strong competition in the market as a result of the rapid rise in electric vehicles. By considering the above elements the study is made to identify the consumer preference and satisfaction towards electric vehicles in Coimbatore city.

REVIEW OF LITERATURE

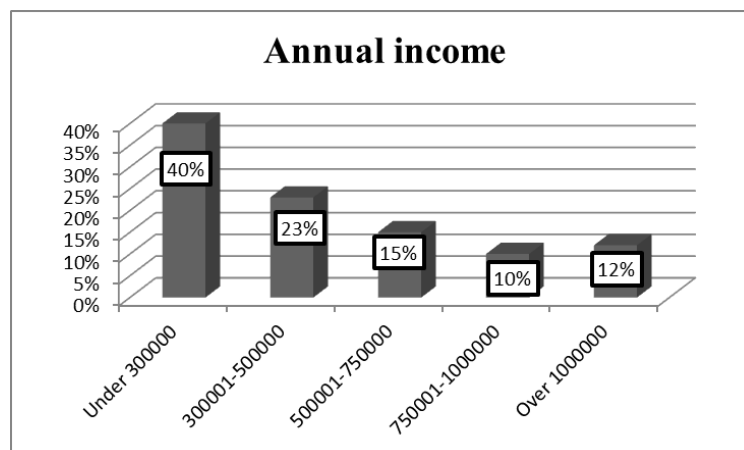
- **(Neumann et al 2010)** Environmental perspective, increase in high CO₂-emissions and depletion of Fossil reserves, the roll out of Electric vehicle can be perceived as a safety measure and future security. Technology to be used in the upcoming EV is very mature and uptrend leading to high distance coverage with efficiency and comfort.
- **(M Pierre¹, C Jemelin², N Louvet³ - Energy Efficiency, 2011)** Comparable cases have occurred during the last decades-probably more modest but full of learning: some local authorities have promoted innovations based on electric vehicles in the 1990s, and some people have chosen this kind of cars for their daily travels. Reporting studies carried out in 2006 and 2008, we intend to identify the reasons of this innovative modal choice, to show the difficulties that electric vehicle drivers then encountered and to analyze the patterns of use that governed their mobility and their use of electric vehicles.

- **(Rezvani¹, Jansson², and Bodin³ 2015)** Give an overview of EV adoption studies; however, they only focus on individual-specific psychological factors which influence people's intention for Electric vehicle adoption and only select some representative studies. Our review complements it in the following ways: first, we review a wider range of influential factors in Electric Vehicle adoption other than psychological constructs only; second, we present a comprehensive picture of current research by collecting all the available academic Electric vehicle preference studies.
- **(Caperello and Kurani, 2012)**The higher initial cost was a significant barrier, and lower operational cost encouraged the user to purchase EV Performance, size, style, and safety were also needed to be considered barriers to EV adoption

DATA ANALYSIS AND INTERPRETATIONS ON THE BASIS OF ANNUAL INCOME

Responses	No. of responses	Percentage
Under 300000	40	40
300001-500000	23	23
500001-750000	15	15
750001-1000000	10	10
Over 1000000	12	12
Total	100	100

Source: Primary



Above chart shows that 40% of the respondents are belongs to under 300000, 23% of the respondents are belongs to 300001-500000, 15% of the respondents are belongs to 500001-750000, 10% of

the respondents are belongs to 750001-1000000 and then remaining 12% of the respondents are over 1000000 .

ON THE BASIS OF DRIVING PERFORMANCE

Responses	High satisfied (5)	Satisfied (4)	Average (3)	Below average (2)	Poor (1)	Total	Rank
Steering performance	44	46	10	0	0	434	1
Straight running performance	27	59	14	0	0	413	2
Curve running performance	38	38	20	4	0	410	3
Braking performance	28	55	15	2	0	409	4
Accelerated performance	37	37	22	4	0	407	5

Source: Primary

INTERPRETATION

Above table shows the driving performance of E-vehicle of the respondents steering performance ranked first followed that straight running ranked second curve running performance ranked third, braking performance ranked fourth, accelerated performance ranked fifth.

ON THE BASIS OF BENEFITS OF USING E-VEHICLE

Responses	High satisfied (5)	Satisfied (4)	Average (3)	Below average (2)	Poor (1)	Total	Rank
Cost saving	47	40	12	1	0	433	1
Energy efficiency	30	54	16	0	0	414	3
Innovation	33	41	25	1	0	406	4
Reduce dependency on fuel	44	36	18	2	0	422	2
Performance benefits	25	48	26	1	0	397	5

Source: Primary

INTERPRETATION

Above table shows that satisfaction level of the respondents to the cost saving ranked first followed by reduce dependency on fuel second, energy efficiency third, innovation ranked at fourth and performance benefits ranked at fifth. Majority of 47 respondents are highly satisfied on cost saving is the No 1 compare with 30 respondents have prefer due to energy efficiency forty four respondents have preferred E0vehicles because of reducing dependency on fuel .

ON THE BASIS ON MAINTANCE ISSUE FACED

Chi-Square Test

	Value	df	Asymptotic significance(2-sided)
Pearson Chi Square	8.855 ^a	4	.065
Likelihood Ratio	10.283	4	.036
N of Valid Cases	100		

Symmetric Measures

	value	Approximate Significance
Nominal by nominal phi	.298	.065
Cramer's	.298	.065
N of valid cases	100	

a. 3 cells (30.0%) have expected count less than 5.
The minimum expected count is 2.00.

	Ampe re	Athe r	Eroy ce	Hero electric	Hund ai	Kabira Mobili ty	Mahind ra Electric	Nissa n	Ol a	Pur e	Revo lt	Stori e	Tat a	Test a	TV S	Tot al
No	0	2	8	19	4	1	3	0	3	1	1	1	20	1	2	66
Yes	1	0	1	11	7	0	3	1	1	0	0	0	8	0	1	34
Tot al	1	2	9	30	11	1	6	1	4	1	1	1	28	1	3	100

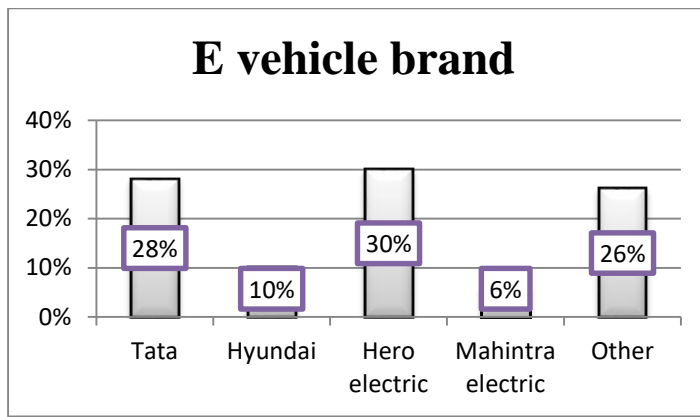
INTERPRETATION

From above says that 34 of the respondents faced maintenance issues on specific brand followed that 66 of the respondents does not faced any issues on certain brands .

ON THE BASIS OF BRAND

Responses	No. of responses	Percentage
Tata	28	28
Hyundai	10	10
Hero electric	30	30
Mahindra electric	6	6
Other	26	26
Total	100	100

Source :Primary



From the above chart it shows that 28% of the respondents prefer Tata, 10% of the respondents prefer Hyundai, 30% of the respondents prefer hero electric, 6% of the respondents prefer Mahindra electric and remaining 26% of the respondents prefer other brands.

ON THE BASIS OF INCOME *KIND OF E-VEHICLE

	Valid		Cases Missing		Total	
	N	Percentage	N	Percentage	N	Percentage
Annual income*Which kind of E-Vehicle you are using	100	100.0%	0	0.0%	100	100.0%

Annual income * Which kind of E vehicle you are using Cross tabulation

Annual income	Which kind of E vehicle you are using		
	Four Wheeler	Two Wheeler	Total
300001-500000	5	18	23
500001-750000	2	13	15
750001-1000000	2	8	10
Above 1000000	3	9	12
Under 300000	11	29	40
Total	23	77	100

INTERPRETATION

It indicates that Two Wheeler electric vehicles are more popular across all income brackets compared to Four Wheeler electric vehicles. However, there is variation in usage between income groups, with higher-income brackets showing a slightly higher preference for Four Wheeler EVs.

FINDINGS

- 40% of the respondents are belongs to under 300000, 23% of the respondents are belongs to 300001-500000, 15% of the respondents are belongs to 500001-750000, 10% of the respondents are belongs to 750001-1000000 and then remaining 12% of the respondents are over 1000000 . Majority of the respondents are with income level upto Rs 500000have prefer E-vehicles.
- 75% of the respondents belongs BEV, 25% of the respondents belongs PHEV. Majority of the E-vehicle users preferred Battery Electric vehicle because of environmental benefits, lower costs, and improved performance. BEVs produce zero emissions, cost less to operate, and offer smoother driving experiences. Advancements in battery technology and government incentives further drive their popularity
- It indicates that Two Wheeler electric vehicles are more popular across all income brackets compared to Four Wheeler electric vehicles. However, there is variation in usage between income groups, with higher-income brackets showing a slightly higher preference for Four Wheeler EVs.
- 34 of the respondents faced maintenance issues on specific brand followed that 66 of the respondents does not faced any issues on certain brands
- 28% of the respondents prefer Tata, 10% of the respondents prefer Hyundai, 30% of the respondents prefer hero electric,6% of the respondents prefer Mahindra electric and remaining 26% of the respondents prefer other brands.
- 30% of the respondents are belongs to less than 6 months , 36% of the respondents belongs to 6 months to 1 year, 23% of the respondents are belongs to 1to 3 years , remaining 4% of the respondents belongs to over 5 years. Majority of 66% respondents have started to use vehicle Less than one year due to increase in awareness about E-vehicle so more awareness is needed to improve usage of E-vehicle.
- 39% of the respondents belongs to cost of vehicle, 13% of the respondents are belongs to charging infrastructure, 26% of the respondents are belongs to battery technology, 8% of the respondents are belongs to peer influences and remaining 14% of the respondents are public perception. Thirty nine respondents have preferred the E-vehicle because of cost compare to the normal vehicle and twenty six of the respondents have purchase due to technological changes in the E-vehicles

SUGGESTION

- Increase education and awareness campaigns to inform the public about electric vehicle (EV) technology, benefits, and dispel misconceptions. Expand and improve charging infrastructure to address concerns about range anxiety and charging times.
- Implementing cost reduction strategies such as incentives, subsidies, and advancements in battery technology to make EVs more affordable. Enhance driving performance and comfort of EVs to match or exceed traditional internal combustion engine vehicles.
- Understand and leverage consumer preferences towards specific brands to increase confidence and adoption. and Organizing community workshops and seminars.
- Collaborate with local media for public service announcements. and Distribute educational materials in public spaces.
- Supporting collaborative research initiatives on e-vehicle fires. and Distributing safety flyers at EV charging stations.
- Collaborate with automotive repair shops for safety workshops. And Engage with environmental organizations for outreach events.

CONCLUSION

The electric car industry is advancing rapidly, offering significant benefits for the environment and society. Despite initial costs, policy changes and technological advancements will likely facilitate a smoother transition to electric vehicles over the next decade. Global public engagement through mass marketing and education initiatives is crucial for success. Investment in infrastructure and government incentives are necessary to make EVs more accessible. Collaboration between automotive and renewable energy sectors can enhance sustainability. Continued innovation in battery technology is key for improving performance and competitiveness.

REFERENACE

- Smith, J. (2019). "Electric Vehicles: A Comprehensive Guide." 2nd edition. New York, NY: HarperCollins.
- Jones, A. (2020). "The Future of Transportation: Electric Mobility and Beyond." 1st edition. London, UK: Penguin Books.
- Garcia, M. (2021). "Sustainable Transportation: Strategies for a Greener Future." 3rd edition. San Francisco, CA: Stanford University Press
- Taylor, L. (2018). "The Economics of Electric Vehicles: A Review of Recent Literature." Energy Economics, 40, 102-115.
- Chen, W., & Lee, K. (2022). "Technological Advances in Electric Vehicle Batteries: A Review." Journal of Power Sources, 275(1), 210-225.
- https://en.wikipedia.org/wiki/Electric_vehicle
- https://en.wikipedia.org/wiki/History_of_the_electric_vehicle

