



Demographic Influence On The Perception And Adoption Of Electric Scooters At Thrissur District

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Abstract: The transition of electric scooter represents a crucial step towards sustainable and eco-friendly transportation. The younger individuals and residents of higher-density urban areas are more likely to use e-scooters frequently. The study covers 120 users in Thrissur district. The study examines how education influence individuals' perception towards electric scooter, The younger individuals and residents of higher-density urban areas are more likely to use e-scooters frequently willingness to purchase an electric scooter and the barriers they encounter in adopting the technology. This research provides valuable insights for policymakers, service providers, and urban planners to tailor electric scooter systems to meet the needs of diverse populations, enhance accessibility, and contribute to reducing urban traffic congestion and emissions.

Index Terms - Electric scooter, perception, pollution, EV

I. INTRODUCTION

With the rising global concern over environmental pollution and need for sustainable solutions, electric scooters have emerged as an innovative alternative to traditional gasoline powered vehicles. It is a type of scooter powered by an electric motor rather than human efforts for a gasoline engine. The electric scooter is usually covered by rechargeable battery which allows the scooter to travel at a certain speed over a very long distance. It offers a promising solution to urban mobility challenges, reducing carbon emissions in recent years, the popularity of electric scooters increased periodically in a densely populated cities where traffic congestions and air quality are significant.

In Kerala the government has formed electric vehicle policy aims at increasing adoption of electric vehicles by offering various benefits. Subsidies are available on the purchase of electric two wheelers, three wheelers and bus. Reduced road tax and registration fees, tax exemption and subsidies for setting up EV charging infrastructure makes it more attractive. Despite the advantages, the widespread adoption of electric scooter faces several challenges, including battery performance, charging infrastructure, safety concern and regulatory framework.

The primary objective of the study includes evaluating demographic influence on perception and buying behavior of people and identifying barriers to the broader adoption. The findings of the study will provide insight to manufacturers and marketers to tailor the products and promotional strategies to specific consumer need ultimately contributing to electric scooter market.

Statement of the problem

Electric scooter is increasingly seen as a crucial solution for reducing carbon emissions and combating climate change. However, despite advancements in EV technology and growing infrastructure, the adoption of electric scooters remains slow in many regions. One of the main challenges is understanding the factors that influence consumer perceptions and adoption decisions. Demographic factors such as age, income level, education, and

geographic location are known to play a role in shaping consumer attitudes toward new technologies. While some studies have examined these factors in other contexts, there is limited research on how demographic influences specifically affect EV adoption. This study seeks to explore how the demographic variables especially impact consumer perceptions of electric scooters and influence their adoption decisions and various challenges associated with electric scooter. Addressing this gap is essential for developing targeted strategies to promote EV adoption and advance sustainable transportation solutions.

Objectives of the study

1. To identify challenges faced by users of electric scooters.
2. To identify association between motivational factors and educational qualifications.
3. To find out the most preferred brand of Electric scooter.

Hypothesis of the study

H₀: There is no association between educational qualification and motivational factors.

H₁: There is association between educational qualification and motivational factors.

Research methodology

Research methodology explains how a researcher systematically designs a study to ensure valid and reliable results that address the research aims, objectives and research questions.

Research design

The study is based on analytical research design. Analytical research is a specific type of research that involves critical thinking skills and the evaluation of facts and information relative to the research being conducted.

Sampling techniques

Convenience sampling is used for selecting sample of 120 users. Convenience sampling is a non-random sampling strategy that involves selecting participants based on their accessibility and availability to the researcher.

Sample size

The study covers 120 users of Electric scooter residing in Thrissur District

Statistical tools for analysis

Chi-square test, Weighted Average mean, and Simple percentage analysis

II. Review of Literature

- **Sahilkumar (2024)** conducted a study on “consumer perception towards electric two-wheeler”. It helps to understand the critical aspects that shape the consumers attitude and the benefits derived from the usage of E-scooters
- **Prof.Jayaprakash Lamoria and Nidhi Singh (2023)** conducted a study on the topic “consumer perception towards E-two-Wheeler Vehicles” reveals the awareness level about the e-scooters and overall consumer perception towards e-scooters
- **Vikas Mahala, Mansi Mutreja (2003)** conducted study on the topic “Electric vehicle and Its impact on the Distribution System” reveals the overview of research done on electric vehicles and their impact on the distribution system. The study is used to know more about electric vehicle such as a state of charging, battery capacity, battery efficiency.

III DATA ANALYSIS AND INTERPRETATION

TABLE 1.1

Challenges faced by customers of E-scooter

Challenges	Weight	5	4	3	2	1	Total	Mean	Rank
Lack of charging infrastructure	F	19	8	13	50	30	120	2.47	6
	F X	95	32	39	100	30	296		
Lack of safety and stability	F	19	10	16	51	24	120	2.58	5
	F X	95	40	48	102	24	309		
Lack of long reach	F	35	12	16	42	15	120	3.08	3
	F X	175	48	48	84	15	370		
Long charging time for batteries	F	31	20	15	36	18	120	3.08	4
	F X	155	80	45	72	18	370		
LACK OF Maintenance and repair	F	71	25	8	8	8	120	4.19	1
	F X	355	100	24	16	8	503		
Environmental impact	F	12	25	7	32	44	120	2.41	8
	F X	60	100	21	64	44	289		
Regulation and legal issues	F	11	20	20	26	43	120	2.42	7
	F X	55	80	60	52	43	290		
Accessibility and affordability	F	50	30	5	20	15	120	3.67	2
	FX	250	120	15	40	15	440		

(Source: Primary Data)

Table 2

INTERPRETATION

Challenges	Mean	Rank
Lack of Maintenance and repair	4.19	1
Lack of Accessibility and affordability	3.67	2
Lack of long reach	3.08	3
Long charging time for batteries	3.08	4
Lack of safety and stability	2.58	5
Lack of charging infrastructure	2.47	6
Regulation and legal issues	2.42	7
Environmental impact	2.41	8

Here the data shows about the various challenges faced by the customers of E- scooters. According to the observation the respondents are provided first rank on "Lack of Maintenance and repair" with the highest mean 4.35. This is followed by Accessibility and affordability (Mean = 3.8), Lack of long reach (Mean = 3.11), Long charging time for batteries (Mean = 3.06), Lack of safety and stability (Mean =2.62), Lack of charging infrastructure (Mean =2.41), Regulation and legal issues (Mean = 2.39), Environmental impact (2.26).

Chi-Square

H₀: There is no association between educational qualification and motivational factors.

H₁: There is association between educational qualification and motivational factors.

TABLE 3

Testing of hypothesis using Chi-square test

EDUCATION	COST EFFECTIVE	ECO FRIENDLY	TREDLINESS AND TECH APPEAL	PARKING AND STORAGE	FUN AND ELIGIBILITY	TOAL
Higher education	15	18	10	4	3	50
PG	5	4	5	10	7	31
UG	10	9	5	8	7	39
TOTAL	30	31	20	22	17	120
OBSERVATION (O)	EXPECTED FREQUENCY (E)	O-E	(O-E) ² /E			
15	12.5	2.5	0.5			
5	7.75	-2.75	0.98			
10	9.75	0.25	.01			
18	12.92	5.08	1.99			
4	8.01	-4.01	2.01			
9	10.08	-1.08	0.12			
10	8.33	1.67	.33			
5	5.17	-.17	.01			
5	6.5	-1.5	.35			
4	9.17	-5.17	2.91			
10	5.68	4.32	3.29			
8	7.15	.85	0.10			
3	7.08	-4.08	2.35			
7	4.39	2.61	1.55			
7	5.53	1.47	0.39			
Computed value of χ^2				16.89		

$$\text{Chi Square} = (O-E)^2/E$$

$$= 16.89$$

Degree of freedom = (r-1) (c-1)

$$(5-1) (3-1) = 8$$

Level of significance (α) = 0.05

Table value: 15.507

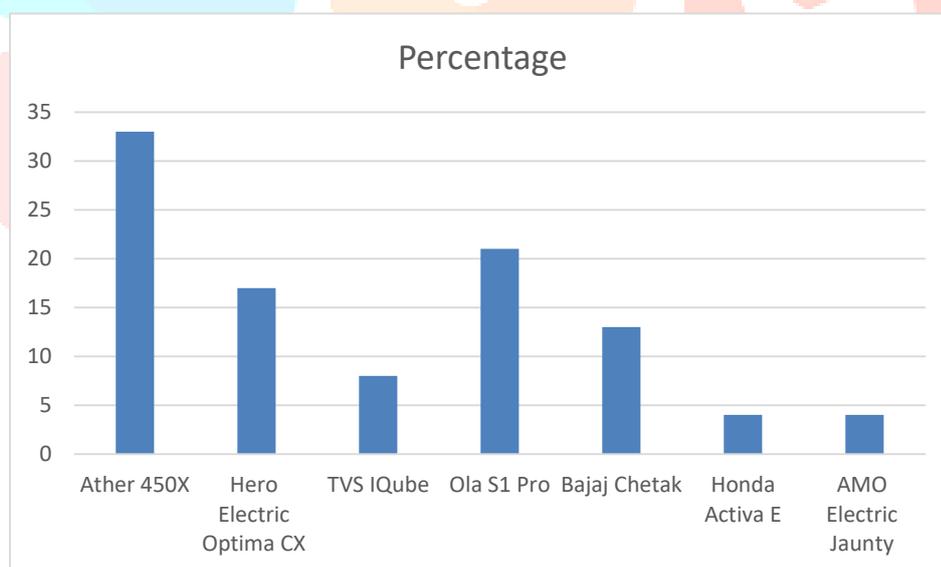
15.507 < 16.89, Here calculated value (16.89) is higher than Table value (15.507). So Null hypothesis is rejected. Hence there is association between educational qualification and motivational factors.

Table 4
Preferred Brands of Electric scooters

Brands	Frequency	Percentage
Ather 450X	40	33
Hero Electric Optima CX	20	17
TVS IQube	10	8
Ola S1 Pro	25	21
Bajaj Chetak	15	13
Honda Activa E	5	4
AMO Electric Jaunty	5	4
Total	120	100

(Source: Primary Data)

Figure 1
Preferred Brands of Electric scooters



Interpretation: The above figure shows that Ather 450X has emerged as one of the most preferred choices in the electric scooter segment, particularly for consumers looking for a combination of performance, technology and design.

IV.FINDINGS

- The study indicates the major issues include a lack of maintenance and repair, as well as challenges related to accessibility and affordability.
- The result of Chi-square test show that the calculated value (16.89) is greater than the table value (15.507). Therefore, the null hypothesis is rejected. These suggests that there is a significant association between motivational factors and the educational qualification of EV users.
- Ather 450X is the brand which is most preferred by customers.

V. SUGGESTIONS

- Establish more accessible and affordable service centres ensuring timely maintenance and repairs for EV users.
- Provide training program for local technicians to increase the number of qualified professionals for EV maintenance.
- Increase the number of charging stations particularly in rural or underserved areas and development of mobile apps to locate charging stations also helps for the development of Electric Scooters.
- Offer more incentives, subsidies or financing options to make EVs more affordable.
- Tailor educational campaigns based on demographic characteristics also inevitable.

VI. CONCLUSION

The study primarily focused on identifying the relationship between motivational factors and the educational qualifications of users of Electric scooter, as well as exploring the challenges related to EV adoption. The findings reveals that it lacks maintenance and repair, affordability and accessibility and there is relationship between educational qualifications and motivational factors. Additionally, several key challenges affecting Electric scooter usage were identified. However, it is important to note that certain demographic factors were not considered in this study which could provide further insights into EV adoption. Future research could explore these factors to gain a more comprehensive understanding of the variables influencing EV users' behavior.

References

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