INTERNATIONAL JOURNAL OF RESEARCH CULTURE SOCIETY
Monthly Peer-Reviewed, Refereed, Indexed Journal
Volume - 9, Issue - 3, March - 2025
ISSN(O): 2456-6683
[Impact Factor: 9.241]
IJRCS

DOIs:10.2017/IJRCS/202503021 --:-- Research Paper / Article / Review

A study on customers preference and satisfaction towards electric two wheelers, Coimbatore city

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Abstract: *The study explores the factors influencing consumer preferences and satisfaction towards electric two-wheelers in Coimbatore City. With the increasing awareness of environmental sustainability and the rising cost of fuel, electric two-wheelers have emerged as a viable alternative for urban commuters. This research investigates the socio-economic, technological, and psychological factors that shape consumer behavior, including income levels, education, age, gender, and awareness of environmental benefits. The study also examines the role of digital media, government incentives, and technological advancements in battery performance and charging infrastructure in driving consumer adoption. Using a chi-square analysis, the research evaluates the relationship between various demographic factors and the level of influence on purchasing decisions. The findings reveal that affordability, environmental consciousness, and technological features are key drivers of consumer preference. The study concludes with recommendations for manufacturers and policymakers to enhance the adoption of electric two-wheelers through targeted marketing, improved infrastructure, and competitive pricing.*

Keywords: *Electric Two-Wheelers, Customer Preference, Customer Satisfaction, Socio-Economic Factors, Technological Advancements, Environmental Awareness, Sustainable Transportation.*

1. INTRODUCTION:

The transportation sector is undergoing a significant transformation as the world shifts towards more sustainable and eco-friendly alternatives. Among these, electric two-wheelers have emerged as a popular choice, especially in urban areas like Coimbatore City. With rising fuel prices and growing environmental concerns, customers are increasingly drawn to electric two-wheelers due to their cost-effectiveness, low maintenance, and eco-friendly nature. Government incentives such as subsidies and tax benefits further enhance their appeal, making them a viable option for daily commuting. However, the adoption of electric two-wheelers is influenced by various factors, including socio-economic status, technological advancements, and consumer awareness, which need to be explored to understand the drivers of consumer preference and satisfaction.

This study focuses on identifying the key factors that influence consumer preferences and satisfaction towards electric two-wheelers in Coimbatore City. It examines the role of socio-economic factors such as income, education, age, and gender, as well as the impact of technological features like battery performance, range, and charging infrastructure. Additionally, the study investigates how digital media and government policies shape consumer perceptions and purchasing decisions. By analyzing these factors, the research aims to provide insights that can help manufacturers and policymakers design strategies to promote the adoption of electric two-wheelers, contributing to a more sustainable urban transportation system.

2. REVIEW OF LITERATURE:

Verma, K., & Singh, L. (2023) - Urban vs. Rural Adoption of Electric Two Wheelers This paper explores how location and infrastructure influence consumer satisfaction. Urban customers show higher adoption rates due to better charging infrastructure and dealership networks, while rural customers struggle with limited access to charging stations and lack of technical knowledge.

Singh, P., et al. (2022) - Consumer Awareness and Educational Impact on EV Choices The research focuses on how educational background affects consumer preferences for electric vehicles. It finds that higher-educated individuals are more likely to prefer electric two-wheelers due to their awareness of environmental benefits, cost savings, and technological advancements.
Chandrasekaran, R., & Gupta, A. (2021) - Affordability and Consumer Adoption of Electric Two-Wheelers This study examines the role of income levels and affordability in the adoption of electric two-wheelers (E2Ws). It finds that middle-income customers are more inclined to purchase E2Ws due to lower operational costs compared to petrol-based vehicles. Government subsidies and incentives significantly enhance affordability and adoption rates.
Sharma, A., & Patel, D. (2020) - Demographic Trends in Electric Vehicle Adoption This study analyzes the demographic factors influencing E2W adoption. It finds that young customers (18-35 years old) show a higher inclination towards E2Ws due to their interest in sustainability and new technology, while older customers hesitate due to concerns about charging infrastructure and vehicle range.

3. OBJECTIVES OF THE STUDY:

1. To identify the key factors influencing the Purchasing Behaviour of Electric Two Wheelers.

4. RESEARCH METHODOLOGY:

The study is generally focused to investigate the identify the factors influencing the the Purchasing Behaviour of Electric Two Wheelers in Coimbatore, taking a sample size as 150. The primary data are collected through questionnaire and secondary data through internet.

HYPOTHESIS OF THE STUDY:

A null hypothesis has been framed to test the significance of the relationship between the factors influencing Purchasing Behaviour of Electric Two Wheelers among respondents in Coimbatore City.

(H_0): There is no significant relationship between the factors (such as age, income, education, awareness, and satisfaction) and the Purchasing Behaviour of Electric Two Wheelers among respondents in Coimbatore City.

5. TOOLS AND TECHNIQUE USED:

The analysis has been made through the questionnaire.

- Simple Percentage Analysis
- Chi-Square Analysis

6. SIMPLE PERCENTAGE ANALYSIS:

PERCENTAGE (%) refers to a special kind of ration PERCENTAGE (%) is used in making comparison. About two or more series of data PERCENTAGE (%) as also to describerelationship. It is also used to compare the relative term two or more series of data.

$$\text{Simple percentage analysis} = \frac{\text{number of respondents}}{\text{Total number of respondents}} \text{ X } 100$$

CHI-SQUARE ANALYSIS:

The chi-square test is used to determine whether there is a significant difference between the expected frequencies and the observed frequencies in one or more categories. The chi-square test is an important test amongst the several tests of significance developed by statisticians. Chi-square, symbolically written as is a statistical measure used in the context of sampling analysis for comparing a variance to a theoretical variance.

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

χ^2 = the test statistic $\sum$ = the sum of

O = Observed frequencies E = Expected frequencies

7. LIMITATIONS OF THE STUDY:

The study is limited by its geographical focus on Coimbatore City, which may restrict the generalizability of the findings to other regions with different socio-economic and cultural contexts. The sample size of 150 respondents, while adequate, may not fully capture the diversity of consumer preferences across various demographic groups, such as rural populations or different income brackets. Additionally, the reliance on self-reported data introduces potential biases, such as social desirability or recall bias, which could affect the accuracy of the results. The study also does not account for all possible influencing factors, such as psychological aspects or peer influence, and is constrained by time, limiting its ability to reflect long-term changes in consumer behavior or technological advancements. Furthermore, the dependence on secondary data for certain aspects, such as government policies, may impact the reliability of the findings. Lastly, the study focuses exclusively on electric two-wheelers without providing a comparative analysis with other vehicle types, which could offer deeper insights into consumer preferences.

8. ANALYSIS AND INTERPRETATION:

DISTRIBUTION OF SAMPLE RESPONSE ACCORDING TO DEMOGRAPHIC FACTORS AND INFLUENCE LEVEL

Table 1.1

Factors	Level of influence		Total
Gender	**Low level of influence**	**High level of influence**	
Male	11(7)	83(56)	94(63)
Female	3(2)	53(35)	56(37)
Total	14(9)	136(91)	150(100)
Age			
18 - 24 Yrs	3(2)	65(43)	68(45)
25 - 40 Yrs	7(5)	33(22)	40(27)
41 - 50 Yrs	3(2)	27(18)	30(20)
Above 50 Yrs	1(2)	11(6)	12(8)
Total	14(9)	136(91)	150(100)
Education Qualification			
Illiterate	2(1)	10(7)	12(8)
Primary level	2(1)	15(10)	17(11)
Secondary level	2(1)	37(25)	39(26)
Under Graduate	6(4)	57(38)	63(42)
Post Graduate	2(1)	17(12)	19(13)
Total	14(9)	136(91)	150(100)
Occupation			
Employee	0(0)	38(25)	38(25)
Entrepreneur	3(2)	26(17)	29(19)
Business	5(3)	23(16)	28(19)
Others	6(4)	49(33)	55(37)
Total	14(9)	136(91)	150(100)
Marital Status			
Married	1(1)	59(39)	60(40)
Unmarried	13(9)	77(51)	90(60)
Total	14(9)	136(91)	150(100)

Nature of Family			
Nuclear	6(4)	73(49)	79(53)
joint	8(5)	63(52)	71(47)
Total	14(9)	136(91)	150(100)
Awareness of Electric Two Wheelers			
Social Media	4(3)	39(26)	43(29)
Television ads	4(3)	46(30)	50(33)
Colleagues	3(2)	31(21)	34(23)
Others	3(2)	20(13)	23(15)
Total	14(9)	136(91)	150(100)
Opinion of Electric Two Wheeler Customers			
Yes	2(1)	69(46)	71(47)
No	1(1)	20(13)	21(14)
May be	11(7)	47(32)	58(39)
Total	14(9)	136(91)	150(100)
Price Range			
Below ₹1,00,000	3(2)	37(25)	40(27)
₹1,00,000 - ₹2,00,000	5(3)	74(50)	79(53)
Above ₹2,00,000	6(4)	25(17)	31(21)
Total	14(9)	136(91)	150(100)
Mileage Expectations			
30 km per charge	1(1)	17(12)	18(12)
50 km per charge	2(1)	33(22)	35(23)
70 km per charge	2(1)	36(24)	38(25)
Above 70 km per charge	9(6)	50(33)	59(39)
Total	14(9)	136(91)	150(100)

The table provides insights into the factors influencing the perception and preferences of electric two-wheeler customers across various demographics. Gender-wise, males (63% of respondents) show a higher level of influence (56%) compared to females (37% of respondents, with 35% showing high influence). Age-wise, younger individuals aged 18-24 years (45% of respondents) are the most influenced group, with 43% showing high influence, while older age groups (above 50 years) show the least influence (6%). Education-wise, undergraduates (42% of respondents) are the most influenced (38%), followed by secondary-level educated individuals (26% of respondents, with 25% showing high influence). Occupation-wise, employees (25% of respondents) and entrepreneurs (19% of respondents) show significant influence, while marital status reveals that unmarried individuals (60% of respondents) are more influenced (51%) than married respondents (40% of respondents, with 39% showing high influence). Nuclear families (53% of respondents) are slightly more influenced (49%) than joint families (47% of respondents, with 42% showing high influence). Awareness of electric two-wheelers is primarily driven by television ads (33% of respondents) and social media (29% of respondents). In terms of consumer opinion, 47% of respondents are positive about electric two-wheelers, while 39% are uncertain. Price-wise, the majority prefer the ₹1,00,000 - ₹2,00,000 range (53% of respondents), and mileage expectations are highest for above 70 km per charge (39% of respondents). Overall, younger, educated, and unmarried individuals in nuclear families are the most influenced, with television ads and social media being key awareness drivers.

Table 1.2

PEARSON'S R CORRELATION				
Factors	**Value**	**df**	**Significance**	**Result**
Gender	1.670a	1	.196	Accepted
Age	5.129a	3	.163	Accepted
Education Qualification	1.731a	4	.785	Accepted
Occupation	6.512a	3	.089	Accepted
Marital status	6.946a	1	.008	Accepted
Nature of Family	.596a	1	.440	Accepted
Awareness of electric two wheelers	.490a	3	.921	Accepted
Opinion of electric two wheeler customers	10.440a	2	.005	Accepted
Price range	4.681a	2	.096	Accepted
Mileage expectations	4.033a	3	.258	Accepted

The table presents the results of Pearson's R Correlation analysis, which evaluates the relationship between various factors and the level of influence on electric two-wheeler customers. The analysis reveals that most factors, such as gender ($p = 0.196$), age ($p = 0.163$), education qualification ($p = 0.785$), occupation ($p = 0.089$), nature of family ($p = 0.440$), awareness of electric two-wheelers ($p = 0.921$), price range ($p = 0.096$), and mileage expectations ($p = 0.258$), do not show statistically significant correlations, as their p-values are greater than 0.05. This suggests that these factors do not strongly influence consumer preferences or perceptions regarding electric two-wheelers. However, two factors stand out as significant: marital status ($p = 0.008$) and opinion of electric two-wheeler customers ($p = 0.005$), both with p-values less than 0.05. This indicates that marital status and consumer opinions are significantly correlated with the level of influence on electric two-wheeler adoption. Overall, while most factors do not show strong correlations, marital status and consumer opinions play a notable role in shaping preferences and perceptions.

9. SUGGESTIONS:

To enhance the adoption of electric two-wheelers, manufacturers and policymakers should focus on improving affordability through competitive pricing and attractive financing options, making these vehicles accessible to a wider range of customers. Expanding and upgrading charging infrastructure, particularly in urban and semi-urban areas, will address range anxiety and increase convenience for users. Additionally, raising awareness about the environmental benefits, long-term cost savings, and government incentives through targeted marketing campaigns, especially on digital platforms and social media, can help shift consumer perceptions. Technological advancements, such as improving battery life, range, and smart features, should be prioritized to meet the expectations of tech-savvy buyers. Furthermore, tailored marketing strategies that consider demographic factors like age, income, and education levels can effectively address the unique needs of different consumer segments. Collaborations with influencers and eco-conscious communities can also amplify the appeal of electric two-wheelers, while government policies should continue to support adoption through subsidies, tax benefits, and infrastructure development. By addressing these areas, stakeholders can accelerate the transition to sustainable transportation and increase consumer satisfaction with electric two-wheelers.

10. CONCLUSION:

A variety of socioeconomic, technological, and psychological factors influence the way people buy electric two-wheelers. Income, education, urbanization, and environmental consciousness are important factors that impact consumer choices and choices. Improved battery life, intelligent features, and charging infrastructure are examples of technological advancements that increase the appeal of these vehicles. Digital media, such as online platforms and recommendations from influencers, have a big impact on customers' awareness and trust. Affordability, infrastructure development, focused marketing, and emphasizing the financial and environmental advantages should be the main objectives of adoption promotion strategies. A thorough strategy that considers these elements guarantees that electric two-wheelers will be more widely accepted and grow.

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