

# GREEN MOBILITY AND CONSUMER PREFERENCE TOWARDS ELECTRIC VEHICLES WITH SPECIAL REFERENCE TO COIMBATORE CITY

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## ABSTRACT

This study examines the factors influencing the adoption of electric vehicles and the challenges faced by consumers in shifting from conventional vehicles. Despite growing environmental awareness, several barriers continue to affect consumer acceptance. High initial cost remains one of the major concerns for potential buyers. Limited availability of charging stations also creates inconvenience for users. Battery performance and driving range further influence purchase decisions. Lack of strong after-sales support reduces consumer confidence. Financial assistance such as subsidies and easy loan options can improve affordability. Improving fast-charging facilities can enhance convenience. Better battery technology can increase reliability and usability. Overall, improved infrastructure, affordability, and service support can significantly encourage the adoption of electric vehicles.

**Keywords:** *Environmental Sustainability, Purchase Decision,, Green Mobility, Electric Vehicles Adoption, Sustainable Transportation, Consumer Awareness.*

## INTRODUCTION

India is steadily moving toward sustainable transportation through the adoption of electric vehicles (EVs). The increasing need to reduce air pollution and dependence on fossil fuels has strengthened the demand for cleaner mobility solutions. Government incentives and supportive policies have encouraged manufacturers to introduce a wider range of EV models across various segments. Electric two- and three-wheelers are widely accepted because of their affordability, whereas electric cars are gaining popularity in urban areas. Technological advancements in battery performance and the expansion of charging infrastructure have improved user confidence and reduced range anxiety. Electric mobility is also being adopted in public transport, increasing its visibility and acceptance by the public. As consumer awareness of environmental benefits and long-term cost savings increases, factors such as pricing, convenience, and brand image continue to influence adoption. Overall, EVs play a vital role in shaping a cleaner and more sustainable transportation future in India.

## STATEMENT OF THE PROBLEM

India is steadily moving toward sustainable transportation through the adoption of electric vehicles (EVs). The increasing need to reduce air pollution and dependence on fossil fuels has strengthened the demand for cleaner mobility solutions. Government incentives and supportive policies have encouraged manufacturers to introduce a wider range of EV models across various segments. Electric two- and three-wheelers are widely accepted because of their affordability, whereas electric cars are gaining popularity in urban areas. Technological advancements in battery performance and the expansion of charging infrastructure have improved user confidence and reduced range anxiety. Electric mobility is also being adopted in public transport, increasing its visibility and acceptance by the public. As consumer awareness of environmental benefits and long-term cost savings increases, factors such as pricing, convenience, and brand image continue to influence adoption. Overall, EVs play a vital role in shaping a cleaner and more sustainable transportation future in India.

## OBJECTIVES OF THE STUDY

1. To determine whether electric vehicles are effective.
2. To study electrified vehicle preferences among consumers.
3. To understand the environmental effects of electric vehicles.

## NEED FOR THE STUDY

The need for environmentally friendly modes of transportation has grown owing to rising fuel consumption, climate change, and environmental pollution. Because they reduce carbon emissions and support environmental protection, electric vehicles (EVs) are regarded as cleaner alternatives to gasoline- and diesel-powered vehicles. However,

consumers' awareness, perception, and willingness to accept this new mode of transportation are just as important factors in determining EV adoption as technology. Many consumers remain hesitant despite government incentives, such as tax breaks and subsidies, because of the high initial cost, limited charging infrastructure, concerns about battery life, and lack of proper knowledge. Purchase decisions are also influenced by misperceptions and uncertainties. Marketing plays a crucial role in raising public awareness, educating customers about the economic and environmental advantages of EV technology, and establishing consumer trust in EVs. Marketers, policymakers, and industry stakeholders can benefit from the findings of this study, which examines consumer perceptions and the role of marketing in promoting electric vehicles.

### SCOPE OF THE STUDY

The marketing of electric vehicles (EVs) and the ways in which various marketing strategies influence consumers' perceptions of green mobility are the primary topics of this study. It examines consumer awareness, attitudes, and preferences regarding EVs, particularly in terms of environmental benefits, cost savings, technology, and ease of use. This study also analyzed key marketing elements such as advertising, promotions, brand image, pricing strategies, digital marketing, social media, online reviews, and word-of-mouth communication. Additionally, it considers the impact of government policies, incentives, and charging infrastructure on consumer confidence and EV adoption in the UAE. This research is limited to a specific region and is based on primary data from selected respondents. Instead of concentrating on technical details, it focuses on marketing and consumer behaviour. The findings aim to provide insights for improving marketing strategies and promoting the adoption of electric vehicles.

### RESEARCH METHODOLOGY

- ✚ **AREA OF THE STUDY:** The study was conducted among consumers in Coimbatore city.
- ✚ **PRIMARY DATA:** Primary data was collected directly from respondents using a structured questionnaire prepared in Google Forms. The questionnaire contained 28 questions covering demographic details, awareness, perception, purchase intention, and future outlook of electric vehicles.
- ✚ **PERIOD OF THE STUDY:** The study was conducted over a period of December 2025 to February 2026.
- ✚ **TOOLS AND TECHNIQUES:** Percentage analysis, CHI SQUARE, ANOVA, Ranking Analysis.

### LIMITATIONS OF THE STUDY

- The study is limited to a specific geographical area, and the findings may not represent consumer perceptions in other regions.
- A small sample size restricts the ability to generalize the results to the entire population.
- The study is based on primary data collected through questionnaires, which may involve personal bias or inaccurate responses from respondents.

### PERCENTAGE ANALYSIS

**TABLE NO.: 1**  
**AGE OF THE RESPONDENT**

AGE	NO. OF RESPONDENT	PERCENTAGE
<20 YEARS	28	22.6
21 YEARS – 25 YEARS	68	54.8
26 YEARS – 30 YEARS	17	13.7
>30 YEARS	11	8.9
<b>TOTAL</b>	<b>124</b>	<b>100</b>

(SOURCE: PRIMARY DATA)

### INTERPRETATION

The data shows that most respondents (54.8%) belong to the 21–25 years age group. About 22.6% of the respondents are below 20 years. Only 13.7% fall under the 26–30 years category. A small percentage (8.9%) are above 30 years. This indicates that young adults form the majority of the sample. Therefore, the study findings mainly reflect the views of the 21–25 years age group.

**TABLE NO.: 2**  
**OCCUPATION OF THE RESPONDENT**

OCCUPATION	NO. OF RESPONDENT	PERCENTAGE
STUDENT	44	35.5
EMPLOYEE	37	29.8
BUSINESS	25	20.2
HOMEMAKER	15	12.1
OTHERS	3	2.4
<b>TOTAL</b>	<b>124</b>	<b>100</b>

*(SOURCE: PRIMARY DATA)***INTERPRETATION**

The occupational profile of the 124 respondents reveals that 35.5% are students, making them the largest group in the sample. 29.8% are employees, indicating a sizable working-professional segment, while 20.2% are involved in business activities. 12.1% are homemakers, and 2.4% belong to other occupational categories.

**TABLE NO.: 3**  
**AWARENESS OF GREEN MOBILITY**

AWARENESS	NO. OF RESPONDENT	PERCENTAGE
YES	83	66.9
NO	27	19.4
SOMEWHAT	16	13.7
<b>TOTAL</b>	<b>124</b>	<b>100</b>

*(SOURCE: PRIMARY DATA)***INTERPRETATION**

The data indicates that 66.9% of the 124 respondents (83 individuals) are aware of green mobility, showing a majority have knowledge about environmentally friendly transportation options. 19.4% (27 respondents) are unaware, suggesting a sizable segment that lacks information on the concept. Additionally, 13.7% (16 respondents) are only somewhat aware, implying partial or limited understanding.

**TABLE NO.: 4**  
**TYPE OF VEHICLE CURRENTLY OWNED**

VEHICLE CURRENTLY OWNED	NO. OF RESPONDENT	PERCENTAGE
PETROL/DIESEL	64	51.6
ELECTRIC	25	20.2
CNG	21	16.8
HYBRID	5	4
NONE	9	7.3
<b>TOTAL</b>	<b>124</b>	<b>100</b>

*(SOURCE: PRIMARY DATA)***INTERPRETATION**

The survey of 124 respondents reveals that the majority (51.6%) own petrol/diesel vehicles, making them the most common type of vehicle in the sample. Electric vehicles are owned by 20.2% of respondents, indicating a notable but smaller segment inclined toward EVs. CNG vehicles are owned by 16.8% of the participants, showing moderate adoption. Hybrid vehicles have the lowest ownership at 4%, suggesting limited penetration in the market. Additionally, 7.3% of respondents do not own any vehicle.

**TABLE NO.: 5**  
**PREFERRED TYPE OF ELECTRIC VEHICLE**

PREFERRED EV TYPE	NO. OF RESPONDENT	PERCENTAGE
TWO-WHEELER	61	49.2
THREE-WHEELER	21	16.9
FOUR-WHEELER	42	33.9
<b>TOTAL</b>	<b>124</b>	<b>100</b>

*(SOURCE: PRIMARY DATA)***INTERPRETATION**

Among the same 124 respondents, two-wheelers are the most preferred electric vehicle type, chosen by 49.2% of people, highlighting a strong interest in lightweight, urban mobility solutions. Four-wheelers are preferred by 33.9% of respondents, indicating a sizable market for electric cars. Three-wheelers are the least favored, selected by only 16.9%, suggesting they are niche compared to two- and four-wheel options.

**TABLE NO.: 6**  
**FUTURE OF ELECTRIC VEHICLES IN INDIA**

FUTURE OF EV IN INDIA	NO. OF RESPONDENT	PERCENTAGE
INCREASE	84	67.7
DECREASE	20	16.1

REMAIN THE SAME	20	16.1
<b>TOTAL</b>	<b>124</b>	<b>100</b>

(SOURCE: PRIMARY DATA)

#### INTERPRETATION

67.7% of respondents (84 out of 124) believe EV adoption in India will increase. 16.1% think it will decrease, and another 16.1% expect it to remain the same. The majority are optimistic about EV growth, indicating a positive market outlook for electric mobility in India.

**TABLE NO.: 7**  
**OVERALL WILLINGNESS TO SHIFT ELECTRIC VEHICLES**

WILLINGNESS TO SHIFT	NO. OF RESPONENT	PERCENTAGE
FREQUENTLY	41	33.1
SOMETIMES	54	46.8
RARELY	21	16.9
NEVER	4	3.2
<b>TOTAL</b>	<b>124</b>	<b>100</b>

(SOURCE: PRIMARY DATA)

#### INTERPRETATION

33.1% (41 people) are frequently willing to shift to EVs. 46.8% (54 people) are willing sometimes. 16.9% (21 people) are rarely willing. 3.2% (4 people) are never willing. Most respondents are open to switching to EVs – either frequently or sometimes (79.9% combined). Only a small fraction (3.2%) are completely unwilling.

**TABLE NO.: 8**  
**AGE VS OVERALL WILLINGNESS TO SHIFT FROM CONVENTIONAL VEHICLES TO EVS**

AGE GROUP	FREQUENTLY	SOMETIMES	RARELY	NEVER	TOTAL
BELOW 20 YEARS	10 (35.7%) [24.4%]	12 (42.9%) [20.7%]	5 (17.9%) [23.8%]	1 (3.6%) [25.0%]	<b>28</b> <b>(100%)</b> <b>[22.6%]</b>
21–25 YEARS	23 (33.8%) [56.1%]	32 (47.1%) [55.2%]	10 (14.7%) [47.6%]	3 (4.4%) [75.0%]	<b>68</b> <b>(100%)</b> <b>[54.8%]</b>
26–30 YEARS	4 (23.5%) [9.8%]	10 (58.8%) [17.2%]	3 (17.6%) [14.3%]	0 (0.0%) [0.0%]	<b>17</b> <b>(100%)</b> <b>[13.7%]</b>
ABOVE 30 YEARS	4 (36.4%) [9.8%]	4 (36.4%) [6.9%]	3 (27.3%) [14.3%]	0 (0.0%) [0.0%]	<b>11</b> <b>(100%)</b> <b>[8.9%]</b>
<b>TOTAL</b>	<b>41</b> <b>(33.1%)</b> <b>[100%]</b>	<b>58</b> <b>(46.8%)</b> <b>[100%]</b>	<b>21</b> <b>(16.9%)</b> <b>[100%]</b>	<b>4</b> <b>(3.2%)</b> <b>[100%]</b>	<b>124</b> <b>(100%)</b>

#### CHI-SQUARE TEST RESULT

TEST	VALUE	DF	P-VALUE
Pearson Chi-Square	3.573	9	0.937

**H<sub>0</sub>:** There is no significant association between age group and frequency of response.

**H<sub>1</sub>:** There is a significant association between age group and frequency of response.

#### INTERPRETATION

Since the p-value (0.937) is greater than 0.05, the null hypothesis (H<sub>0</sub>) is accepted and the alternative hypothesis (H<sub>1</sub>) is rejected. This indicates that there is no statistically significant association between age group and frequency of response. In other words, the frequency pattern (Frequently, Sometimes, Rarely, Never) does not significantly differ across different age groups. All age groups show a similar response pattern.

**TABLE NO.: 9**

**ANOVA RESULT FOR OCCUPATION OF THE RESPONDENT**

**H<sub>0</sub>:** There is no significant difference among occupational groups.

**H<sub>1</sub>:** There is a significant difference among occupational groups.

SOURCE OF VARIATION	SUM OF SQUARES	DF	MEAN SQUARE	F VALUE	SIG. (P-VALUE)
Between Groups	12.268	3	4.089	3.492	0.018
Within Groups	140.506	120	1.171		
<b>TOTAL</b>	<b>152.774</b>	<b>123</b>			

**RESULT**

Since the p-value (0.018) is less than 0.05, the null hypothesis is rejected.

**INTERPRETATION**

A one-way ANOVA was conducted to examine whether there is a significant difference based on occupation of the respondent. Since the p-value (0.018) is less than 0.05, the result is statistically significant. This indicates that there is a significant difference between the groups based on occupation.

**TABLE NO.: 4.10****RANKING OF ADDITIONAL FEATURES EXPECTED IN ELECTRIC VEHICLES**

ADDITIONAL FEATURES	N	MEAN	STD. DEVIATION	RANK
More load capacity	124	3.37	1.086	<b>I</b>
Higher battery capacity	124	3.36	1.252	<b>II</b>
Higher speed	124	3.26	1.249	<b>III</b>
Battery swap facility	124	3.15	1.247	<b>IV</b>
Better design	124	3.09	1.243	<b>V</b>

Valid N (listwise): 124

**INTERPRETATION**

Based on the mean scores, More load capacity (Mean = 3.37) is the most preferred additional feature expected in electric vehicles, followed closely by Higher battery capacity (Mean = 3.36). Better design (Mean = 3.09) received the lowest preference among respondents. This indicates that functional performance features are prioritized over aesthetic aspects.

**FINDINGS OF THE STUDY**

1. The study reveals that male respondents (56.7%) outnumber female respondents (43.3%), indicating higher participation of males in the survey.
2. Most of the respondents (54.8%) belong to the 21–25 years age group, showing that young adults form the dominant segment of the sample.
3. In terms of occupation, students (35.5%) and employees (29.8%) constitute the largest groups, suggesting that the study mainly reflects youth and working-class perspectives.
4. Awareness about green mobility is relatively high, with 66.9% of respondents being aware, while nearly one-third still lack full awareness.
5. Social media (48.4%) is the most influential source of EV awareness, making digital platforms the key driver of information.
6. Most of the respondents (51.6%) still own petrol/diesel vehicles, indicating conventional fuel dominance despite rising EV interest.
7. Electric vehicles are owned by 20.2% of respondents, showing emerging but limited adoption.
8. Among EV types, electric two-wheelers are the most preferred (49.2%), highlighting their suitability for urban mobility.

9. OLA is the most preferred EV brand (24.2%), followed by Mahindra and TATA, indicating strong market positioning of these brands.
10. Social influence plays a major role, as 64.5% of respondents agree that social factors affect EV purchase decisions.
11. A majority (67.7%) believe that EV adoption in India will increase, reflecting positive future expectations.
12. Most respondents prefer affordable EVs priced between ₹2–5 lakhs (47.6%), showing price sensitivity in purchase decisions.
13. A significant proportion of respondents show positive behavioural intent, as 83.9% would recommend EVs and 79.9% are willing to shift to EVs either frequently or sometimes.
14. The One-Way ANOVA results show that occupation has a significant influence on the study outcome ( $p = 0.018 < 0.05$ ), whereas income has no significant influence ( $p = 0.657 > 0.05$ ), indicating that respondents differ meaningfully based on occupation but not based on income.
15. The Chi-square test result shows that gender and age do not significantly influence awareness or response behaviour, but income significantly affects the perception of EV affordability.

### SUGGESTIONS OF THE STUDY

- Expanding EV charging infrastructure in public and residential areas will make electric vehicle usage more convenient for everyday travel. Charging points in malls, workplaces, and highways can improve accessibility. Home-based charging options will further encourage adoption.
- Providing more fast-charging facilities can significantly reduce waiting time for users. It makes EVs more practical for long-distance travel. This helps in reducing range anxiety among consumers.
- Reducing the initial cost of electric vehicles through subsidies and incentives can make them more affordable. Financial support from the government can attract price-sensitive buyers. This will help in increasing large-scale adoption.
- Offering easy EMI and loan schemes can attract middle-income consumers. Flexible payment options make EV ownership financially manageable. Low-interest financing can motivate purchase decisions.
- Conducting awareness campaigns through colleges, social media, and public programs can educate people about EV benefits. Young consumers can become early adopters. These campaigns also help in clearing misconceptions.
- Improving battery performance and extending driving range increases reliability. Longer range reduces frequent charging needs. This enhances consumer confidence in EVs.
- Strengthening after-sales service and maintenance support builds customer trust. Quick service reduces ownership concerns. Reliable support improves long-term satisfaction.
- Introducing exchange schemes for old petrol or diesel vehicles can motivate consumers to switch to EVs. It reduces the financial burden of transition. This supports faster adoption.
- Encouraging public-private partnerships can improve EV infrastructure development. Collaboration speeds up expansion. Private investment reduces pressure on government resources.
- Promoting environmental benefits and long-term cost savings through marketing can influence consumers. Highlighting sustainability attracts responsible buyers. Awareness of savings improves interest in EV adoption.

### CONCLUSION

According to this survey, electric cars are emerging as a viable choice for environmentally friendly transportation. Many respondents have a favourable attitude of EVs and are aware of environmental issues, particularly young people. They are aware that electric cars lower pollution and save gasoline. EVs are still not as widely used as gasoline and diesel cars, though. High initial costs, a shortage of charging stations, issues with battery performance, and inadequate service facilities are the primary issues noted. The data also demonstrates that while career has some impact on perception and purchasing decisions, gender and age have little effect on awareness. Overall, the use of electric vehicles may rise in the future with increased technology, government assistance, and infrastructure.