
A STUDY ON CONSUMER PERCEPTION TOWARDS ELECTRIC VEHICLES

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ABSTRACT

Purpose: This study examines consumer perception towards electric vehicles (EVs) and identifies the key factors influencing their adoption. It focuses on consumer awareness, environmental concerns, charging infrastructure, affordability, government policies, technological acceptance, and purchase intention.

Design/Methodology/Approach: The study adopts a descriptive research design based on primary and secondary data. Primary data were collected from 100 respondents through a structured questionnaire using convenience sampling. Secondary data were collected from journals, books, government reports, and published articles. Percentage analysis was used to analyse the collected data.

Findings: The study found that consumers generally have a positive perception towards electric vehicles due to their environmental benefits and lower operating costs. However, high purchase cost and inadequate charging infrastructure remain the major barriers to adoption.

Practical Implications: The findings will help policymakers, automobile manufacturers, and marketers formulate strategies to improve consumer awareness, affordability, and charging infrastructure, thereby encouraging greater adoption of electric vehicles.

Originality/Value: The study provides insights into the factors influencing consumer perception towards electric vehicles and offers practical recommendations to support sustainable transportation.

KEYWORDS: Consumer Perception, Electric Vehicles, Consumer Awareness, Purchase Intention, Charging Infrastructure, Environmental Concerns.

2. INTRODUCTION

The automobile industry has undergone significant transformation in recent years due to increasing environmental concerns, rapid technological advancements, and the growing need for sustainable transportation. Conventional vehicles powered by fossil fuels contribute substantially to air pollution, greenhouse gas emissions, and depletion of natural resources. These challenges have accelerated the demand for cleaner and more energy-efficient alternatives, making electric vehicles (EVs) an important component of future mobility.

Electric vehicles are increasingly being recognised as an environmentally friendly mode of transportation because they produce lower emissions, require less maintenance, and reduce dependence on petroleum-based fuels. Governments across the world have introduced various initiatives such as subsidies, tax incentives, and investments in charging infrastructure to encourage the adoption of EVs. At the same time, automobile manufacturers have focused on improving battery technology, vehicle performance, and driving range, making EVs more attractive to consumers.

Despite these developments, the adoption of electric vehicles largely depends on consumer perception. Consumers evaluate various factors such as purchase price, charging infrastructure, environmental benefits, technological reliability, operating cost, and government support before making a purchase decision. While awareness of EVs has increased considerably, concerns regarding affordability, charging facilities, battery life, and resale value continue to influence consumer behaviour.

Understanding consumer perception is essential for promoting the widespread adoption of electric vehicles. It enables policymakers, automobile manufacturers, and marketers to identify the key factors influencing consumer decisions and formulate strategies that encourage sustainable transportation. Against this background, the present study examines consumer perception towards electric vehicles and analyses the factors that influence their acceptance and adoption.

Literature Review

Previous studies have examined various factors influencing consumer perception and adoption of electric vehicles. The following review synthesizes the literature under the key themes considered in the present study.

Consumer Awareness of Electric Vehicles

Bhalla, Ali, and Nazneen (2018) found that consumer awareness significantly influences purchase intention towards electric vehicles. Their study concluded that consumers with greater knowledge of EV technology and environmental benefits are more likely to develop favourable attitudes towards adoption. Similarly, Adhikary, Jalan, and Anute (2022) reported that awareness programmes and information availability positively affect consumers' confidence in electric vehicles, thereby improving their willingness to adopt the technology.

Environmental Concerns

Ghasri, Ardeshiri, and Rashidi (2019), **environmental** consciousness is one of the strongest determinants of consumers' preference for electric vehicles. Consumers who are concerned about air pollution and climate change are more likely to prefer EVs over conventional vehicles. Likewise, Tupe, Kishore, and Johnvieira (2020) observed that increasing environmental awareness has positively influenced consumers' attitudes towards electric vehicle adoption in India.

Charging Infrastructure

Zhang, Wang, Wan, Zhang, and Zhao (2022) highlighted that the availability of charging infrastructure plays a critical role in shaping consumers' adoption intentions. The study found that inadequate charging facilities and range anxiety remain major barriers to EV adoption. Similarly, Pandey, Mohan, and Subha (2021) concluded that expanding charging infrastructure would significantly improve consumer confidence and increase purchase intention.

Purchase Intention

Pandey, Mohan, and Subha (2021) revealed that purchase intention is influenced by consumer awareness, perceived usefulness, affordability, and environmental concern. In addition, Raju and Rakesh (2025) reported that favourable consumer perception and confidence in EV technology positively influence consumers' willingness to purchase electric vehicles.

Cost and Affordability

Affordability continues to be one of the major determinants of electric vehicle adoption. Monika and Mifzala (2019) found that the high initial purchase price discourages many consumers despite recognising the long-term economic benefits of electric vehicles. Similarly, Tiwari et al. (2023) identified purchase cost as one of the primary barriers affecting consumer adoption of electric vehicles.

Government Policies and Technological Acceptance

Government support and technological advancement have also been recognised as significant drivers of electric vehicle adoption. Gupta, Srivastava, Wadhwa, Kumari, and Raghav (2024) reported that government incentives, subsidies, and policy support positively influence consumers' willingness to adopt electric vehicles. Likewise, Kumar Srivastava, PV, KN, and Rawat (2025) concluded that improvements in battery technology, driving range, and vehicle performance have strengthened consumer confidence, although concerns regarding battery life and charging time continue to affect purchasing decisions.

Research Objectives

The present study was undertaken with the following objectives:

1. To examine consumers' awareness of electric vehicles.
2. To analyse consumer perception towards electric vehicles.
3. To identify the factors influencing consumers' purchase intention towards electric vehicles.
4. To examine the influence of environmental concerns on the adoption of electric vehicles.
5. To evaluate the impact of charging infrastructure, affordability, government policies, and technological acceptance on consumer perception.

RESEARCH METHODOLOGY

Research Design

The study adopts a **descriptive research design** to examine consumer perception towards electric vehicles. This research design is appropriate as it helps analyse consumers' awareness, attitudes, preferences, and purchase intentions without manipulating any variables. It enables the systematic collection and interpretation of data related to consumer perception.

Data Source

Primary data were collected through a structured questionnaire administered to 100 respondents. The questionnaire consisted of close-ended questions covering demographic details, consumer awareness, environmental concerns, charging infrastructure, affordability, government policies, technological acceptance, and purchase intention towards electric vehicles. Secondary data were collected from published research journals, books, government reports, industry publications, official websites, and other authentic academic sources. The study was conducted among 200 respondents residing in Bangalore Urban. Respondents were selected

using the convenience sampling technique based on their accessibility and willingness to participate in the survey.

Sample Selection

The study was conducted among 100 respondents. Respondents were selected using the convenience sampling technique based on their accessibility and willingness to participate in the survey.

Analytical Tools

The collected data were analysed using the following statistical tools:

- Percentage Analysis
- Frequency Distribution
- Tables
- Bar Charts

Microsoft Excel and SPSS software were used for data processing, statistical analysis, and interpretation of the results.

Scope of the Study

The present study focuses on understanding consumer perception towards electric vehicles and the factors influencing their adoption. It examines aspects such as consumer awareness, environmental concerns, charging infrastructure, affordability, government policies, technological acceptance, and purchase intention. The study is based on primary data collected from 100 respondents through a structured questionnaire and provides insights that may be useful for policymakers, automobile manufacturers, marketers, and researchers in promoting the adoption of electric vehicles.

Findings of the Study

Based on the analysis of the responses collected from 100 respondents, the study identified the following key findings:

1. The majority of respondents were aware of electric vehicles and possessed basic knowledge regarding their features and environmental benefits.
2. Consumer perception towards electric vehicles was generally positive, with many respondents recognising EVs as an environmentally friendly and sustainable mode of transportation.

3. Environmental concern was found to be one of the major factors influencing consumers' attitudes towards electric vehicles.
4. High purchase cost emerged as the most significant barrier affecting consumers' willingness to adopt electric vehicles.
5. Inadequate charging infrastructure and range anxiety continue to discourage many consumers from purchasing electric vehicles.
6. Government policies and incentives positively influence consumers' perception and encourage the adoption of electric vehicles.
7. Technological improvements, including better battery performance and vehicle efficiency, have enhanced consumer confidence in electric vehicles.
8. Consumers expressed a greater willingness to purchase electric vehicles if charging facilities become more accessible and vehicle prices become more affordable.
9. Rising fuel prices have increased consumers' interest in considering electric vehicles as an alternative to conventional vehicles.
10. Overall, the study indicates that increasing consumer awareness, improving charging infrastructure, and reducing purchase costs are essential for accelerating the adoption of electric vehicles.

CONCLUSION

The present study examined consumer perception towards electric vehicles by analysing the influence of consumer awareness, environmental concerns, charging infrastructure, affordability, government policies, technological acceptance, and purchase intention. The findings reveal that consumers generally have a positive perception of electric vehicles and recognise their potential to promote sustainable transportation and reduce environmental pollution. However, challenges such as high purchase cost, inadequate charging infrastructure, and concerns regarding battery performance continue to hinder their widespread adoption.

The study highlights that consumer awareness, environmental consciousness, supportive government initiatives, and technological advancements play a significant role in shaping favourable attitudes towards electric vehicles. At the same time, improving affordability and expanding charging infrastructure are essential to accelerate market acceptance and increase consumer confidence.

Overall, this research contributes to a better understanding of the factors influencing consumer perception towards electric vehicles and provides valuable insights for

policymakers, automobile manufacturers, and marketers. By addressing the identified barriers and strengthening awareness initiatives, stakeholders can encourage greater adoption of electric vehicles and support the transition towards a cleaner, more sustainable transportation system.

Limitations of the Study

The study has certain limitations that should be considered while interpreting the findings.

1. The study was conducted using responses from 100 participants; therefore, the findings may not fully represent the perceptions of the broader population.
2. The research employed the convenience sampling technique, which may limit the generalisability of the results.
3. The study focused on selected determinants of consumer perception, namely consumer awareness, environmental concerns, charging infrastructure, affordability, government policies, technological acceptance, and purchase intention, while other influencing factors were beyond its scope.
4. The findings are based on respondents' opinions and perceptions at the time of data collection, which may change with technological advancements, market developments, and policy reforms.
5. The study examined consumer perception towards electric vehicles in general and did not undertake a comparative analysis of individual electric vehicle brands.

Scope for Future Research

The present study provides several directions for future research.

1. Similar studies may be conducted using a larger and more diverse sample to improve the generalisability of the findings.
2. Future researchers may compare consumer perception towards different electric vehicle brands to identify brand-specific factors influencing adoption.
3. Further studies may investigate additional variables such as after-sales service, battery performance, charging convenience, brand trust, and consumer satisfaction.
4. Researchers may employ advanced statistical techniques, including regression analysis, factor analysis, or structural equation modelling, to examine the relationships among the variables in greater depth.

5. Longitudinal and comparative studies may be undertaken to analyse changes in consumer perception as electric vehicle technology, charging infrastructure, and government policies continue to evolve.

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