

A STUDY ON CONSUMER PERCEPTION TOWARDS ELECTRIC VEHICLES

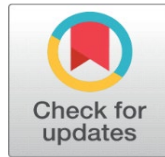
¹Dr. Punit Kumar Kanujiya  , ²Mr. Durgesh Yadav , ³Hargun Sahni , ⁴Mr. Shyam Sunder Yadav 

¹ Assistant Professor, Department of Commerce, National PG College An Autonomous CPE NAAC Grade 'A' College of Lucknow University, India.

² Research Scholar, Department of Commerce, University of Lucknow, Lucknow, India

³ Assistant Professor, Department of Commerce, Meerut College Meerut

⁴ Research Scholar, Department of Commerce, University of Lucknow, Lucknow



Corresponding Author

Dr. Punit Kumar Kanujiya,
drpunit.nationalpgcollege@npgc.in

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ABSTRACT

There has been a global shift towards cleaner and more energy-efficient means of transportation due to the rising urbanization and growing concerns about environmental sustainability. As India experiences fast urbanization and population increase, the adoption of electric vehicles (EVs) has become a vital strategy to address energy security and environmental concerns.

The Indian government has implemented a number of incentives, subsidies, and policy frameworks to encourage manufacturers and consumers to shift towards greener mobility, marking a substantial advancement in the adoption of electric vehicles. As India experiences fast urbanization and population increase, the adoption of electric vehicles (EVs) has become a vital strategy to address energy security and environmental concerns.

Purpose of the study: The primary objective of this research is to examine Indian consumers' attitudes on electric automobiles. India is tackling environmental issues, thus the government is coming up with good laws to encourage the sales of electric cars, which will help the nation reach the UN climate targets of lowering greenhouse gas emissions. Furthermore, the electric vehicle market has great growth potential, and India is one of the world's largest automotive marketplaces.

Methodology: This study uses questionnaires and a quantitative technique to investigate the expression of the problem. This study empirically examines the factors that influence Indian consumers and opinions and desires to buy electric cars. It provides information to government officials and EV manufacturers about what Indian consumers expect from EVs.

Keywords: Electric Vehicles (EVs), Consumer Perception, Sustainable Transportation, Green Vehicles, Environmental Awareness

1. INTRODUCTION

India is spearheading the global effort to identify sustainable transportation choices. India is a nation renowned for its rapid industrialization and population growth. Electric vehicles (EVs) are a critical technology that India is utilizing to reduce carbon emissions, combat air pollution, and create a brighter future. A favorable regulatory environment and

expanding infrastructure for charging have helped the electric vehicle market in India to grow dramatically in recent years.

Electrifying India's transportation future-

Market Growth and Policy Support: Industry report state that India's sales of electric vehicles have increased significantly in recent years. According to data, 23,37,761 electric vehicle units have been sold through the financial year of 2023. These remarkable sales are attributable to the introduction of new EV models, advancements in technology, and the increasing public acceptance of electric mobility.

EV Sales and Industry Developments: India has been actively building out its network of charging infrastructure. The Ministry of Heavy Industries has approved the building of 2,877 electric car charging stations throughout several states, along with 1,576 stations spread across 16 highways and 9 expressways, as part of the FAME India plan. With the help of this expanding network of public and private charging stations positioned thoughtfully throughout towns, business districts, and roads, electric vehicle owners will find it simpler to conveniently charge their cars.

Favorable Charging Infrastructure: India has made progress in lowering emissions and enhancing air quality by implementing electric mobility in public transit. Electric buses have been adopted in a number of cities, while electric rickshaws and taxis have also been introduced in various states. In addition to lowering carbon footprints, these measures have opened the door for a more sustainable and clean transportation ecosystem.

Future Projections: India and the electric car market is expected to grow in the future. Analysts predict that the government and the encouragement of technological development and electronic mobility will lead to a strong increase in the sale of electric cars. Thanks to local production and further development of battery technology, electronic vehicles should become more affordable and accessible to a greater number of individuals.

Insight on consumer perception:

Consumer Perception is the process of gathering information about a product and analyzing it to generate an insightful opinion about it. A customer's perception of a product is shaped by what they see, including promotions, adverts, customer reviews, comments on social media, etc.

A customer's perception process starts when they see or hear about a certain product. This process continues until a customer's perception of the product starts to take shape. Customers' perceptions of a firm are influenced by its behavior. The layout of goods in a physical store, the shapes and colors of your brand, the advertisements you run, the offers you make—all of these elements influence how potential customers perceive you.

2. SIGNIFICANCE OF THE STUDY

- **Importance of Consumer Preference:** Consumer preference for electric cars (EVs) is a critical component in accomplishing organizational objectives. The study's focus on the fundamental elements driving consumer desire benefits businesses and the overall economy of the country indirectly.
- **Environmental Significance:** evs can help the environment and fight climate change by significantly reducing greenhouse gas emissions. Reaching environmental objectives and encouraging EV adoption can both benefit from an understanding of consumer attitudes.
- **Obstacles for EV Adoption:** Until internal combustion engine cars are entirely replaced by electric vehicles (EVs), a few obstacles must be overcome. If we want the widespread usage of e-vehicles, these barriers must be recognized and eliminated.
- **Long-term Vision:** The goal of the study is to help shape the future of EV technology by addressing consumer concerns and expectations. Researcher, legislator, and industry planning for sustainable transportation can benefit from the insights gathered.
- **Overall Impact:** By aligning with consumer expectations and desires, the study helps shape future advancements in the electric vehicle market. Research findings can direct marketing tactics, policy decisions, and creative thinking in the automotive industry.

3. LITERATURE REVIEW

Praveen Kumar (2013) India may consider small-scale reinforcements instead of a major overhaul to address the load issues locally. It is advisable to promote home charging. Location, population density, traffic flow and safety must be carefully considered before implementing large-scale charging infrastructure..

Philippe lebeau (2015) This study looked into how urban logistics systems might incorporate electric vehicles. Lower last-mile expenses could be achieved by a fleet equipped with various technologies. Among minivans, electric automobiles are frequently the most competitively equipped models.

Fanchao Liao (2017) This study compared psychological and economic theories of consumer demand for electric cars. Electric vehicles (EV) are considered very useful when looking at their economic and technical aspects. These include how much they cost to buy and use, how long they take to charge, how well they work and what brands they offer. The density of charging stations has a favorable effect on the distribution and usability of electric cars.

Pritam k. Gujarati (2018) The Indian scenario differs in that EV/PHEV's current market share is approximately 0.1%. Nowadays, nearly every vehicle considers using fossil fuels for propulsion. Through the release of greenhouse gases into the atmosphere, these contribute to global warming. The disparity between the amount of petroleum produced and consumed domestically is growing. About 70% of India's yearly oil requirements are imported. Consequently, it is essential to investigate the challenges and elements related to sustainable and environmentally friendly solutions.

Pretty Bhalla (2018) The analysis and conclusions show that while people are aware of the environmental benefits, governments and EV manufacturers should invest more to increase vehicle and social acceptance by expanding infrastructure and emphasizing technology as a means to increase trust. . The choice of a person and a car is influenced by several aspects such as price, availability of infrastructure, comfort, technology, social acceptance and trust.

Janardan prasad Kesari (2019) Developing a strong plan for launching electric vehicles (EV) in India and ensuring its flawless implementation is a difficult but important task for the government. However, it might take five or six years before people embrace and widely use private electric vehicles.

Yogesh Aggarwal (2019): This study discovered some severe issues: it can be challenging to convert from a scooter to an electric vehicle for people who need to travel longer distances but already own a bike like the Hero Splendor. On the other hand, users of scooters who just need to travel short distances would find an electric automobile worth considering. This weight issue is most noticeable on bike models with engines under 150cc.

4. OBJECTIVES

1. To determine whether electric vehicles are effective.
2. To assess the level of customer understanding and awareness regarding electric vehicles.
3. To study electrified car preferences among consumers.
4. To determine the elements impacting the adoption of electric vehicles.
5. To understand the environmental effects of electric vehicles.

5. RESEARCH METHODOLOGY

A survey through questionnaire was used to collect research sample data . We used practical non-random sampling methods. The sample consisted of owners of petrol, electric and hybrid cars, and the aim was to collect comments on how electric vehicles of the future are perceived and adopted. Data was collected from all class of people majorly comprising of students and professionals. Based on sample it was assumed that the entire population was aware of the technology used and potential benefits of using electric vehicles. A total of 211 respondents filled the survey, with varied demographics like age, occupation, education level, annual income etc. Out of which 11 were rejected because of incomplete information and the remaining 200 were used for the study

6. DATA ANALYSIS AND INTERPRETATION

In this study awareness, perception, and preferences regarding electric vehicles, percentages are used to analyse the collected data. The following findings and interpretations are based on the data provided:

As per demographic profile, the demographic variables of gender, age group, qualification, annual income, and designation were analysed. The data showed that the majority of respondents were female (59.5%), with the highest percentage of respondents falling into the age group of 21-25 (59.5%). Most respondents had graduation or post-graduation qualifications (81% combined) and the majority had an annual income below 100,000 (63.5%). The largest group of respondents identified themselves as students (58.5%)

Table 1 Demographic Distribution

VARIABLE	CLASSIFICATION	NO.OF RESPONDENTS	PERCENTAGE OF RESPONDENTS
GENDER	Male	81	59.5
	Female	119	40.5
	Other	-	-
AGE-GROUP	18-20	15	7.5
	21-25	119	59.5
	25-30	32	16.0
	30 and above	34	7.5
QUALIFICATION	Higher secondary	19	9.5
	Graduation	81	40.0
	Post graduation	81	41.5
	Phd	10	5.0
	Professional	4	2.0
	Others	6	3.0
ANNUAL INCOME	Below 100000	127	63.5
	100000-300000	26	13.0
	300000-500000	23	11.5
	Above 500000	24	12.0
DESIGNATION	Employee	26	13.0
	Business	29	14.5
	Student	117	58.5
	Professionals	11	5.5
	Other	17	8.5

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Knowledge and Attitude towards Electric Vehicles

Table 2. Awareness regarding EV'S

Particulars	No. of respondents	Percentage
Strongly disagree	6	3
Disagree	2	1
Neutral	34	17
Agree	126	63
Strongly agree	32	16

Source: Author's own computation

The data from a survey with 200 participants is shown in Table 2. Ninety-six percent of participants reported knowing about the benefits of electric automobiles, according to the data. Out of all the respondents, this amounts to 63%. Moreover, 16 percent of the respondents, or 32 people, stated they agreed with and had a thorough understanding of the advantages of electric cars.

34 respondents (17%) were neutral, indicating that people are not very convinced about the benefits of electric cars. Only a smaller number of participants - specifically two respondents - disagreed with the concept of electric vehicles and their benefits, as did another smaller group of six respondents. Taken together, the data show that a significant proportion of participants are aware and believe that electric cars are affordable.

Sources of Awareness for Electric Vehicles

Table 3. Source of awareness of electric vehicle

Particulars	No. Of respondents	Percentage
Television	65	32.5
Word of mouth	72	36
Social media	127	63.5
Newspaper	59	29.5
Website	47	23.5
Other	11	5.5

Source: Author's own computation

Table 3 displays the outcomes of the survey's second question, which inquired about the channels through which respondents became acquainted with electric vehicles and which shows that social media holds the highest influence, being the primary conduit through which 63.5% of respondents obtained knowledge about electric vehicles. Word of mouth closely followed with 36% of respondents learning about electric vehicles through personal conversations. Television played a significant role with 32.5% of respondents gaining awareness from this medium. Newspaper articles contributed to the awareness of 29.5% of participants, while websites were instrumental in educating 23.5% of the respondents. Lastly, a small proportion of 5.5% acquired awareness through other sources.

In conclusion, social media's substantial impact in disseminating information about electric vehicles highlights the evolving role of digital platforms in shaping public awareness and understanding.

Ownership Profile of Vehicles: Fuel Types and Technology

Table 4 Type of Vehicle Owned by Respondents

Particulars	No. Of respondents	Percentage
Electric	22	11
Hybrid	9	4.5
Petrol/Diesel	170	84.5

Source: Author's own computation

As demonstrated in Table 4, the survey captured the vehicle ownership preferences of 200 respondents. Among them, 170 individuals (84.5%) possessed traditional fuel-powered vehicles, specifically those running on petrol or diesel. Comparatively, 22 respondents (11%) were owners of electric vehicles, while a smaller cohort of 9 respondents (4.5%) opted for hybrid vehicles that combine both traditional fuel and electric technologies.

This information collectively reveals that a significant proportion of respondents Favor conventional fuel-powered vehicles, while a notable subset is progressively engaging with electric and hybrid options, reflecting a dynamic shift in vehicle preferences towards more environmentally conscious choices.

Factors Driving Electric Vehicle Preference

Table 5. Reason For Preference

Particulars	No. Of respondents	Percentage
Less operating cost	70	35
Easy to drive	56	28
Produce less carbon Emission	133	66.5
Reduce dependency on petrol	86	43

Source: Author's own computation

Table 5 illustrate the reason for respondents' preferences for electric cars over conventional fuel-powered models. In the questionnaire, participants received a list of factors to take into account while choosing an electric vehicle. Among the respondents, a notable 133 individuals (66.5%) identified "less carbon emission" as their primary incentive for favoring electric vehicles. This was followed closely by 86 respondents (43%) who cited "reduced dependency on petrol and diesel" as a pivotal reason. Furthermore, 70 respondents (35%) indicated "lower operating costs" as a compelling factor, while 56 respondents (28%) highlighted the attribute of "ease of driving" in their choice of electric vehicles.

These findings underscore a significant shift in consumer preferences towards electric vehicles, primarily driven by their environmentally conscious outlook, desire for reduced dependency on conventional fuels, and economic considerations.

Factors Influencing Non-Ownership of Electric Vehicles

Table 6. Reasons For Not Having an Electric Vehicle

Particulars	No. Of respondents	Percentage
Limited choice	72	36
Less load delivery	43	21.5
Recharging is time taking	78	39
Non availability of charging stations	121	60.5
Stigma of owning an electric vehicle	32	16
Electricity cost	42	21

Source: Author's own computation

Table 6 showcases the array of reasons contributing to the non-preference for electric vehicles, as elucidated by respondents in the survey questionnaire. The lack of a charging infrastructure was highlighted by 121 out of 200 respondents (60.5%) as a major barrier to owning an electric car, while 39% of respondents cited the lengthy process of recharging as another hindering issue. Notably, the limited choice in terms of electric vehicle models, the perceived cost of electricity, and the apprehension related to owning an electric vehicle were also identified as substantial reasons contributing to non-adoption.

These findings shows that the prominence of charging infrastructure as a concern emphasizes the need for expanding the charging network to address a significant barrier to electric vehicle adoption.

Recognizing the Environmental Impact of Petrol and Diesel-Powered Vehicles

Table 7. Awareness Regarding Harm Caused by Petrol/Diesel Vehicle

Particulars	No. Of respondents	Percentage
Yes	164	82
No	12	6

Maybe	24	12
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Source: Author's own computation

Table 7, portrays a significant aspect of the study, illustrating respondents' awareness concerning the adverse impacts of vehicles powered by petrol and diesel. Through a direct query, participants were asked whether they were cognizant of these negative effects.

The data reveals that a substantial majority of 164 respondents, equivalent to 82% of the total, affirmed their awareness of the detrimental consequences associated with vehicles running on petrol and diesel fuels. Contrastingly, a mere 6% of participants expressed lack of awareness concerning these harms, signifying a relatively small segment of the surveyed population. Furthermore, 12% of respondents provided a "maybe" response, suggesting some degree of uncertainty or partial awareness. In summation, this heightened awareness is pivotal in promoting sustainable transportation alternatives and fostering a more environmentally conscious approach to vehicle choices.

Desired Enhancements for Electric Vehicles: Respondent Preferences

Table 8. Additional Features Desired by Consumers in Electric Vehicle

Particulars	No. Of respondents	Percentage
Increased battery capacity	141	70.5
Battery swap facility	81	40.5
Enhanced speed	88	44
Increased load capacity	81	81
Better design	49	49

Source: Author's own computation

Table 8 presents a comprehensive overview of the preferences voiced by respondents regarding the supplementary attributes they envision in electric vehicles. Among the 200 participants, 141 individuals (70.5%) expressed the desire for an increased battery capacity within electric vehicles. This goal emphasizes how important it is to have a longer battery life in order to guarantee that electric cars may be used for a variety of trips.

Moreover, 88 respondents (44%) advocated for augmented speed capabilities in electric vehicles and 40.5% of respondents conveyed the aspiration for both increased load capacity and the introduction of a battery swap facility. These preferences reflect practical considerations concerning the versatility and convenience of electric vehicles for various tasks and extended travel. Additionally, 49 respondents (24.5%) voiced a desire for improved design aesthetics in electric vehicles, indicative of the growing demand for vehicles that not only excel in functionality but also exhibit appealing and innovative visual characteristics.

In conclusion, the data underscores a multifaceted array of preferences, ranging from performance to practicality and aesthetics, revealing the dynamic expectations of potential electric vehicle users as the market for such vehicles continues to evolve.

Preferred Electric Vehicle Brands: Consumer Choices

Table 9 Brand Preference for Electric Vehicle

Particulars	No. Of respondents	Percentage
Ather	18	9
Ola	23	11.5
Toyota	20	10
Tata	77	38.5
Mahindra	33	16.5

Kia	18	9
MG	11	5.5

Source: Author's own computation

Table 9 offers a clear depiction of the diverse brand preferences among respondents in the context of electric vehicle purchases. Notably, Tata with 38.5% of respondents favoring it as their desired brand. Following closely, Mahindra captures the interest of 16.5% of respondents, reflecting a notable second preference.

Ola, with 11.5% of respondents choosing it, secures the third spot in terms of brand preference for electric vehicles. Toyota holds a significant presence at 10%, showcasing its appeal among the surveyed population. Both Ather and Kia, with 9% each, share a comparable level of favourability among respondents. The remainder, accounting for 5.5% of the total, expresses a preference for MG as their chosen brand for electric vehicles.

In conclusion, the data provides insights into the varied brand preferences within the electric vehicle market, with Tata and Mahindra emerging as front-runners. This trend could be attributed to the resonance of these brands with the national identity of the respondents, reflecting a blend of consumer loyalty and a growing interest in domestic electric vehicle options.

Perception of Affordability and Value for Money in Electric Vehicles

Table 10. Affordability And Value for Money

Particulars	No. Of respondents	Percentage
Yes	115	57.5
No	27	13.5
Maybe	58	29

Source: Author's own computation

In Table 10, the survey's findings reveal that among the 200 respondents, a considerable portion of 115 individuals (57.5%) hold the belief that electric vehicles offer affordability and value for money. On the other hand, 27 respondents (13.5%) said they did not think electric cars are a worthwhile or economical investment. This viewpoint may result from worries about things like the small range of models available for electric vehicles or perceived drawbacks like smaller batteries.

Furthermore, 58 respondents (29%) opted for the "maybe" category. Their choice might signify a degree of uncertainty, perhaps due to a lack of comprehensive knowledge about electric vehicles or reservations stemming from potential trade-offs.

Overall, the combined insights from the chart and table underscore a prevailing sentiment of contentment among a majority of respondents regarding the affordability and value for money those electric vehicles offer.

Perceived Environmental Impact of Electric Vehicles

Table 11. Positive Impact on Environment

Particulars	No. Of respondents	Percentage
Yes	157	78.5
No	14	7
Maybe	29	14.5

Source: Author's own computation

Within the survey questionnaire, participants were posed with the question of how they perceive the environmental impact of electric vehicles, as depicted in Table 11.

According to the analysis, a significant part of the respondents (78.5%) feel that electric cars definitely have good environmental effects. Of those respondents there are 157. However, 14 respondents doubted the environmental benefits of electric vehicles, representing a different point of view. This perspective may be due to concerns about battery disposal and the environmental impact of batteries.

Furthermore, a segment of 14.5% of respondents resides in the "maybe" category, reflecting a degree of uncertainty or a balanced perspective on the matter.

It highlights the necessity for informed discourse and continued research to comprehensively understand the intricate interactions between transportation choices and environmental outcomes.

Satisfaction with Government Subsidies and Tax Benefits for Electric Vehicles

Table 12. Subsidies And Tax Benefits by Government

Particulars	No. Of respondents	Percentage
Yes	100	50
No	41	20.5
Maybe	59	29.5

Source: Author's own computation

Table 12 indicates that a noteworthy 50% of respondents are content with the incentives extended by the government, reflecting their satisfaction with the ongoing initiatives.

On the contrary, 20.5% of respondents hold the perspective that the provided benefits do not meet their expectations or requirements. This viewpoint could be attributed to various factors, including the perceived magnitude of the benefits or the specific needs of individual respondents. Remarkably, 59 respondents (29.5%) fall within the "maybe" category. This position denotes a certain amount of ambiguity, which may result from a lack of understanding or knowledge regarding the scope and significance of the incentives. The data as a whole illustrates the divergent opinions regarding government incentives for electric vehicles. While the majority of people seem to be happy with the initiatives, the existence of dissenting views highlights how important it is to maintain open channels of communication and carry out comprehensive awareness campaigns to ensure that the public is better informed about the effectiveness of these actions.

Willingness to Invest More in Electric Vehicles

Table 13. Willingness To Spend More

Particulars	No. Of respondents	Percentage
Yes	69	34.5
No	53	26.5
Maybe	78	39

Source: Author's own computation

Table 13 data presents a prevalent sense of hesitancy among respondents when contemplating higher expenditures on electric vehicles. The underlying causes of this uncertainty are complex and involve a number of variables. A notable 69 respondents (34.5%) displayed eagerness to allocate additional funds towards electric vehicles. Their motivation stems from diverse factors, including a desire to safeguard the environment, reduce dependence on conventional fuels, and

contribute to sustainability. Conversely, 53 respondents (26.5%) unequivocally conveyed their disinclination to increase spending on electric vehicles. This perspective could be rooted in contentment with their present traditional fuel-powered vehicles, and an associated perception that electric vehicles may not warrant additional investment. Summarizing these responses.

In conclusion, consumer perspectives emphasize the importance of transparent communication, innovative features, and competitive pricing to address reservations and encourage a more robust embrace of electric vehicles in the market.

Perceived Performance Efficiency of Electric Vehicles

Table 14. Depicting Performance Efficiency of Electric Vehicles

Particulars	No. of respondents	Percentage
Yes	88	44
No	41	21.5
Maybe	71	31.5

Source: Author's own computation

Performance efficiency, a pivotal metric encompassing both electric vehicle range and electricity consumption, serves as a vital criterion in evaluating electric vehicle capabilities. It operates on the premise that higher efficiency translates to fewer kilowatts of energy needed for a charge, resulting in the desired distance coverage. As demonstrated by the findings in Table 14, a notable 88 respondents (44%), express confidence in the superior performance efficiency of electric vehicles. This perspective underlines an optimistic outlook on the efficacy of electric vehicles in efficiently utilizing energy resources for extended travel.

On the other hand, 35.5% of participants fall into the "maybe" category, signifying a considerable level of ambiguity regarding the performance efficiency of electric vehicles. This ambiguity may result from a lack of experience with electric cars or an incomplete understanding of their potential.

Notably, 20.5% of participants (i.e. 41 respondents) doubted the effectiveness of electric vehicles, indicating that they do not believe that electric vehicles will be exceptionally successful.

Taken together, the data portrays a prevailing inclination among respondents towards viewing electric vehicles as boasting better performance efficiency. This perception underscores the industry's progress in optimizing electric vehicle technology and its potential to revolutionize energy-efficient transportation.

Satisfaction with the Durability of Electric Vehicles

Table 15. Satisfaction In Terms of Durability of EV s

Particulars	No. Of respondents	Percentage
Yes	74	37
No	70	35
Maybe	56	28

Source: Author's own computation

Table 15 captures respondent sentiment concerning the durability of electric vehicles. Among the 200 participants, 74 respondents, accounting for 37% of the total, express contentment with the durability of electric vehicles. On the other hand, 35% of respondents indicate dissatisfaction with electric vehicle durability. A notable 28% of participants fall into the "maybe" category, signaling uncertainty about the durability aspect.

Notably, electric vehicles hold an advantage in terms of durability compared to their internal combustion engine counterparts. With fewer components and moving parts, electric vehicles generally require less maintenance and replacement. Unlike traditional vehicles that rely on intricate engines, electric vehicles centre around a battery, transmission, and motor.

Analyzing the data, it becomes evident that a considerable proportion of respondents who possess awareness regarding electric vehicles are satisfied with their durability. This sentiment likely stems from the perceived longevity and lower maintenance needs associated with electric vehicles, reflecting a positive aspect of their adoption.

Readiness to Transition to Electric Vehicles based on Infrastructure Availability

Table 16. Availability Of Infrastructure on Purchase Decision

Particulars	No. Of respondents	Percentage
Strongly disagree	12	6
Disagree	4	2
Neutral	57	28.5
Agree	104	52
Strongly agree	23	11.5

Source: Author's own computation

The survey questionnaire posed a pivotal question regarding respondents' willingness to transition to electric vehicles, contingent upon the availability of suitable infrastructure. The graph represented by Table 16 illustrates a compelling narrative of respondent attitudes towards this scenario. Notably, a significant 52% of respondents expressed their agreement with the notion that they would embrace electric vehicles if a robust infrastructure were in place. A subset of 11.5% exhibited even stronger conviction by strongly agreeing with this proposition. This group is potentially on the cusp of electric vehicle ownership but is hampered by the current limitations of infrastructure. In contrast, 28.5% of participants adopted a neutral stance, signifying a balanced perspective on the matter. This group might be awaiting further developments in infrastructure or could be awaiting more comprehensive information to make an informed decision. In comparison, 2% of respondents were against the proposal, and 6% were against it very strongly. This infrastructure encompasses not only charging stations but also other critical aspects such as vehicle design, ease of access, and operational support. It further emphasizes the need for robust infrastructure development to accelerate the transition towards electric vehicles, as consumer interest and demand are contingent upon the presence of a comprehensive and reliable support ecosystem.

Perceived Superiority of Electric Vehicles Over Traditional Fuel Vehicles

Table 17 Comparison Between Electric Vehicle and Traditional Fuel Running Vehicle

Particulars	No. Of respondents	Percentage
Strongly disagree	10	5
Disagree	9	4.5
Neutral	62	31
Agree	98	49
Strongly agree	21	10.5

Source: Author's own computation

In the survey, participants were asked which car they thought was better, and the findings are displayed in Table 17. An influential 49% of respondents voiced agreement that electric vehicles outperform their traditional fuel counterparts.

This preference could be attributed to a range of factors, including reduced carbon emissions and decreased reliance on conventional fossil fuels. A parallel reflection within the chart showcases a significant 31% of respondents occupying a neutral stance. This stance may stem from a limited grasp of the nuances between electric vehicles and traditional petrol/diesel-powered vehicles, indicative of a potential gap in awareness.

Contrastingly, 10.5% of respondents conveyed a strong alignment with the assertion, strongly agreeing that electric vehicles indeed hold superiority in comparison. In contrast, 9.5% expressed disagreement, signaling their conviction that vehicles propelled by petrol or diesel are a preferable choice.

From the amalgamated data, an evident interpretation emerges: a substantial majority of respondents view electric vehicles as superior to traditional fuel vehicles. This sentiment underscores a growing inclination towards sustainable and environmentally-conscious transportation alternatives, although a notable proportion remains neutral or in disagreement, emphasizing the importance of education and communication to bridge understanding and awareness gaps.

Influence of Social Factors on Electric Vehicle Purchase Decision

Table 18. Factors Influencing Buying Decisions

Particulars	No. Of respondents	Percentage
Yes	71	53.5
No	36	18
Maybe	57	28.5

Source: Author's own computation

To gain a comprehensive understanding of consumer perspectives, the survey questionnaire delved into the potential sway of social factors on purchasing behaviour. The outcome of this exploration is vividly captured in Table 18.

An intriguing 53.5% of respondents concurred that their purchasing decisions would be markedly influenced by social factors. This compelling statistic serves as a testament to the substantial influence wielded by social circles in shaping preferences, highlighting the significant sway that friends, family, and societal expectations hold in the sphere of luxury goods procurement. In stark contrast, a distinct 18% of respondents maintained an unequivocal stance, asserting that their purchase choices would remain impervious to social influences. This subset of individuals exhibits a resolve to anchor their decisions solely on intrinsic necessities and personal inclinations, unburdened by external pressures. Concurrently, 28.5% of respondents assumed a position of uncertainty, revealing a sense of ambivalence concerning the extent of social factors' sway over their purchasing behaviour.

The overarching insight gleaned from this dataset underscores that a majority of respondents—underscored by the substantial 53.5% not only acknowledge but anticipate their purchasing decisions to be guided by social factors. This phenomenon underscores the nuanced interplay between individual decisions, societal conventions, and the ever-evolving tapestry of luxury goods consumption within the distinctive contours of the Indian context.

Future Projection of Electric Vehicle Penetration in India

Table 19. Future Status of Electric Vehicle in India

Particulars	No. Of respondents	Percentage
Increase	180	90
Decrease	7	3.5
Unchanged	13	6.5

Source: Author's own computation

Anticipated Future Landscape of Electric Vehicles in India: Insights from Table 19 captures the perspectives of respondents regarding the future trajectory of electric vehicles in India. A visual representation through the accompanying chart further enhances our understanding.

Evidently, a substantial 90% of respondents, corresponding to 180 responses, hold a strong belief that the future holds an augmented role for electric vehicles, indicating an upward surge in their sale and adoption. This collective anticipation foresees a burgeoning consumer base and a thriving market for electric vehicles in the times to come.

However, only 3.5% of those surveyed believe that the tendency may eventually wane. Many factors, including the current situation of the industry and potential roadblocks, most likely contributed to this opinion.

A smaller fraction, comprising 6.5% of respondents, envisages an unchanged scenario, implying that electric vehicle adoption might remain relatively constant over time. This viewpoint may result from a cautious approach, given the intricate interactions between many factors impacting customer behavior.

Overall, the data reveals a common opinion held by most respondents, which is that expansion and growth will characterize the future of electric vehicle use in India. This foresight positions electric vehicles on a trajectory of transformation, substantiating the industry's potential to reshape the country's transportation dynamics.

Deal Pricing Range for Electric Cars in the Indian Market

Table 20. Preferred Cost for Electric Cars

Particulars	No. Of respondents	Percentage
2 to 5 lakhs	90	45
5 to 10 lakhs	86	43
10 to 15 lakhs	16	8
15 lakhs and above	8	4

Source: Author's own computation

The cost of a product serves as a pivotal factor influencing purchasing decisions and ultimately shaping a product's market success. In this context, the survey inquired about the preferred pricing range for electric cars among the respondents. The findings shed light on the dynamics of consumer preferences in the Indian market.

A notable 45% of respondents expressed a strong inclination towards electric cars priced between 2 to 5 lakh rupees. This preference aligns with a segment of the market that seeks affordability without compromising on the benefits of electric vehicle technology.

Surprisingly, an almost equivalent 43% of respondents favoured electric car pricing ranging from 5 to 10 lakh rupees. This range, perceived as more realistic by a significant portion of respondents, suggests a balanced approach between affordability and features.

Further, 8% of respondents indicated a willingness to invest in electric cars priced between 10 to 15 lakh rupees, possibly seeking additional features, performance, or brand prestige.

Lastly, a smaller yet noteworthy 4% of respondents were open to the idea of purchasing electric cars exceeding the 15 lakh rupees mark. This group might be drawn to premium electric car offerings or prioritize specific features and capabilities.

In summation, the data underscores the pivotal role of pricing in shaping electric car preferences. A nuanced interplay between affordability, features, and brand perception guides consumer choices. These insights highlight the importance of aligning electric car offerings with diverse market segments to cater to a wide range of preferences and affordability consideration.

Recommendation of Electric Vehicle Usage to Other

Table 21. Recommendation To Others

Particulars	No. Of respondents	Percentage
Yes	173	86.5
No	27	13.5

Source: Author's own computation

In the final survey question, participants were asked if they would be inclined to suggest electric cars to others, including friends, relatives, coworkers, and acquaintances. The subsequent representation in Table 21 offers compelling insights into this aspect. An overwhelming 86.5% of respondents expressed a resounding affirmative stance, articulating their intent to endorse the usage of electric vehicles to their social circles. This substantial majority signifies a significant alignment with the concept of electric vehicles, reflecting a prevailing enthusiasm and belief in the positive attributes they offer.

Conversely, a more reserved 13.5% of respondents provided a clear negative response, indicating their reluctance to endorse electric vehicle adoption to others. This subset of respondents might be influenced by personal reservations, potential misconceptions, or a lack of alignment with the benefits electric vehicles present.

Drawing interpretation from this dataset, it becomes evident that a considerable proportion of respondents are poised to be advocates for electric vehicle adoption. This bodes well for the future of electric vehicles, as the trend of endorsement and recommendation holds the potential to amplify their acceptance and usage within broader society. As a result, the data underlines a promising trajectory for the proliferation of electric vehicles, in line with the enthusiastic sentiments of the majority of respondents.

7. FINDINGS

1. The majority of respondents claim to be aware of electric vehicles and their relative merits. Only a small percentage disagreed or strongly disagreed with being aware.
2. Social media emerged as the primary source of awareness for electric vehicles.
3. Maximum respondent's own petrol/diesel vehicles, while a smaller percentage own electric vehicle, and even fewer own hybrid vehicles.
4. The top reasons for preferring electric vehicles were producing fewer carbon emissions and reducing dependency on petrol and diesel
5. The primary reasons for not owning electric vehicles were the non-availability of charging stations.
6. The majority of respondents claimed to be aware of the harm caused by vehicles running on petrol and diesel. Only a small percentage disagreed or strongly disagreed with this awareness.
7. Respondents expressed a desire for increased battery capacity battery swap facilities.
8. Tata and Mahindra were the preferred brands for purchasing electric vehicles among the respondents. Ola and Toyota also received notable mentions.
9. A smaller minority of respondents disagreed with the more than half of respondents who thought electric vehicles were inexpensive and good value.
10. The majority of respondents thought that electric cars were better for the environment than other types of cars; just a small portion did not agree.
11. Satisfaction with Subsidies and Tax Benefits: Half of the respondents (50%) expressed satisfaction with the subsidies and tax benefits provided by the government on electric vehicles. However, a notable portion (29.5%) were uncertain or neutral about their satisfaction.
12. A substantial portion of respondents expressed a willingness to spend more on electric vehicles.
13. Almost 50% of the participants thought that electric cars outperform conventional fuel-powered cars in terms of performance and efficiency.
14. Respondents were divided in their satisfaction with the durability of electric vehicles, with 37% expressing satisfaction, 35% dissatisfaction, and 28% unsure.

15. According to the majority of respondents, social considerations like family and friends will have an impact on their decision to buy an electric vehicle.
16. The vast majority of participants anticipated that the status of electric vehicles in India would improve in the future.
17. While a sizable fraction of respondents chose a range of 5 to 10 lakhs, the majority of respondents preferred electric automobiles priced between 2 and 5 lakhs.

These findings suggest that there is a significant awareness and acceptance of electric vehicles among the respondents, with considerations such as cost, infrastructure availability, and social influence playing important roles in their decision-making process. Respondents also expressed a preference for features like increased battery capacity and a desire for brands like Tata and Mahindra. However, challenges such as the limited availability of charging stations and concerns about durability and affordability still exist for wider adoption of electric vehicles.

8. CONCLUSION

Conclusively, the study's results highlight the increasing cognizance and approval of electric cars (EVs) among participants, indicating a favorable transition towards eco-friendly mobility alternatives. The survey illuminated various factors influencing individuals' preferences and decisions regarding EV adoption. The findings made clear how important it is to advance the EV market through partnerships with financial institutions, energy providers, research and development, consumer education, infrastructure development, incentives, and cooperation with the auto industry.

Despite the challenges, respondents expressed a willingness to invest more in electric vehicles and expressed strong interest in battery capacity and reliable brands such as Tata and Mahindra.

In addition, international cooperation and knowledge sharing will accelerate progress by leveraging international expertise and experience. By working together to implement these recommendations, governments, industry stakeholders, and consumers can pave the way for a future with increased electric vehicle adoption, reducing the carbon emissions, and transportation environment. The path to the mass adoption of electric vehicles may be challenging, but with collaboration, the idea of an autonomous transportation system will come to pass.

CONFLICT OF INTERESTS

None

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