"A Study on Green Mobility in Transition: Assessing Public Readiness and Marketing Strategies for Electric Vehicle Adoption"

(With Special Reference to Bapatla District, A.p)

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Introduction:

The rapid shift toward sustainable transportation has positioned electric vehicles (EVs) as a vital solution to reduce greenhouse gas emissions and urban air pollution. With rising fuel costs and growing environmental concerns, both consumers and governments are showing increased interest in EV adoption. India, in particular, has launched initiatives like FAME-II and state-level policies to accelerate this transition. However, public perception, awareness, infrastructure readiness, and financial accessibility remain key factors influencing EV uptake. This study aims to assess public readiness and the effectiveness of marketing strategies in promoting EV adoption, providing valuable insights for manufacturers, policymakers, and other stakeholders.

Objectives

- To understand public awareness, perception, and behavioral readiness toward the adoption of electric vehicles.
- To analyze, using a structured survey, the influence of marketing strategies on consumer interest in electric vehicles.
- To evaluate how external motivators, including government incentives and flexible financing options, influence consumers' intention to purchase electric vehicles.

Sample Size- The study was conducted with a **sample size of 50 respondents**, carefully selected to represent a diverse group of potential electric vehicle users. This sample provides preliminary insights into public perceptions, though a larger sample would strengthen the generalizability of the findings.Sampling Method: Simple Random Sampling

Study area: The study was conducted in **Bapatla district**, an emerging region in Andhra Pradesh with increasing awareness of sustainable transport solutions. Bapatla offered a suitable mix of urban and semi-urban respondents, enabling a diverse understanding of public perceptions, readiness, and challenges related to electric vehicle adoption in a developing district context.

Sampling Technique : The study used **simple random sampling** as the sampling technique to ensure equal representation and reduce bias. This method allowed for fair selection of 50 respondents from the Bapatla district.

Target audience: The target audience for this study includes **current electric vehicle users** and individuals who **intend to purchase EVs in the near future**. This group provides relevant insights into both user experience and potential buyer perceptions.

Consolidated Demographic Table

S. No.	Variable	Category	Frequency	Percentage (%)
1	Age Group	18–25	7	14.30%
		26–35	19	38.10%
		36–45	24	47.60%
2	Gender	Male	36	71.40%
		Female	14	28.60%
3	Education Level	10th–12th Pass	2	4.80%
		Graduate	10	19.00%
		Post Graduate	33	66.70%
		Professional/Technical Degree	5	9.50%
4	Occupation	Private Employee	33	66.70%
		Government Employee	5	9.50%
		Business Owner	4	9.50%
		Homemaker	5	9.50%
		Student	3	4.80%
5	Monthly Income	Below 10,000	5	9.50%
		10,001 – 25,000	12	23.80%
		25,001 – 50,000	16	33.30%
		50,001 – 1,00,000	12	23.80%
		Above 1,00,000	5	9.50%
6	Area of Residence	Urban	31	61.90%
		Semi Urban	14	28.60%
		Rural	5	9.50%

Interpretation:

Most respondents (47.6%) are from the 36–45 age group, indicating mature adults as primary EV stakeholders. A strong majority are male (71.4%) and postgraduates (66.7%), suggesting an educated and professionally oriented audience. Private employment is the most common occupation (66.7%), and the monthly income segment ₹25,001–₹50,000 (33.3%) shows middle-income dominance. Urban residents (61.9%) are the major participants, highlighting better EV awareness and accessibility in urban areas.

Frequencies Distribution of Green Mobility in Transition: Assessing Public Readiness and Marketing Strategies for Electric Vehicle Adoption

S.NO	Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
1	Electric Vehicles are Environmentally Friendly and Help Reduce Pollution.	21(42%)	21(42%)	6 (12%)	1 (2%)	1 (2%)	50
2	Electric Vehicles are more Economical over time Compared to Petrol or Diesel Vehicles.	10 (20%)	18 (36%)	18 (36%)	2 (4%)	2 (4%)	50
3	Government Incentives and Subsidies Positively Influence my Interest in Buying an Electric Vehicle	12 (24%)	16 (32%)	14 (28%)	5 (10%)	3 (6%)	50
4	Charging Stations for Electric Vehicles are Sufficiently available and accessible in my area	2 (4%)	8 (16%)	8 (16%)	18 (36%)	14 (28%)	50
5	A Better Understanding of Electric Vehicle Features and Maintenance would Increase my Willingness to buy one.	10 (20%)	24 (48%)	10 (20%)	6 (12%)	0 (0%)	50
6	Social Media and Online Advertisements Effectively Increase my Knowledge about Electric Vehicles.	16 (32%)	20 (40%)	10 (20%)	2 (4%)	2 (4%)	50
7	Recommendations and Experiences Shared by Current	8 (16%)	22 (44%)	14 (28%)	5 (10%)	1 (2%)	50

	Electric Vehicle Users Build my Confidence in EVs.						
8	Flexible Financing options such as EMIs or Loans make Electric Vehicles more appealing to me.	22 (44%)	10 (20%)	12 (24%)	4 (8%)	2 (4%)	50
9	Owning an Electric Vehicle reflects a Modern, Responsible, and Eco-friendly Lifestyle	12 (24%)	24 (48%)	10 (20%)	2 (4%)	2 (4%)	50
10	Open to Participating in Test drives or awareness events related to Electric Vehicles	12 (24%)	26 (52%)	10 (20%)	1 (2%)	1 (2%)	50

1. **Electric Vehicles are Environmentally Friendly and Help Reduce Pollution:**

The above table depicts that a vast majority of respondents—42% strongly agree and another 42% agree—believe electric vehicles help reduce pollution. With only 4% expressing disagreement and 12% staying neutral, it is evident that there is strong public consensus on the environmental benefits of EVs.

2. **Electric Vehicles are more Economical over time Compared to Petrol or Diesel Vehicles:**

As shown in the table, 56% of respondents (20% strongly agree and 36% agree) feel EVs are economical in the long run. However, 36% remain neutral, suggesting a degree of uncertainty or lack of clarity regarding the long-term cost savings of EV ownership.

3. **Government Incentives and Subsidies Positively Influence my Interest in Buying an Electric Vehicle:**

The data indicates that 56% of respondents agree that government incentives positively influence their interest in purchasing an EV. Meanwhile, 28% are neutral and 16% express disagreement, implying a potential gap in awareness or satisfaction with current incentive policies.

4. **Charging Stations for Electric Vehicles are Sufficiently Available and Accessible in My Area:**

The above table highlights a key challenge—64% of respondents (36% disagree and 28% strongly disagree) feel that charging infrastructure is inadequate in their area. Only 20% agree, while 16% remain neutral, underscoring the need to expand and publicize EV charging facilities.

5. **A Better Understanding of Electric Vehicle Features and Maintenance Would Increase My Willingness to Buy One:**

As reflected in the table, 68% of respondents (20% strongly agree and 48% agree) believe that enhanced awareness of EV features and maintenance would increase their willingness to purchase one. This emphasizes the importance of educational and outreach initiatives.

6. **Social Media and Online Advertisements Effectively Increase My Knowledge About Electric Vehicles:**

The table shows that 72% of respondents view digital platforms as effective in enhancing their knowledge of EVs. Only a small portion (8%) disagree, with 20% remaining neutral, suggesting that online campaigns play a key role in EV promotion.

7. **Recommendations and Experiences Shared by Current Electric Vehicle Users Build My Confidence in EVs:**

According to the data, 60% of respondents are positively influenced by the experiences shared by current EV users, while 28% are neutral and 12% express disagreement. This indicates the persuasive power of peer experiences in shaping public confidence.

8. **Flexible Financing Options Such as EMIs or Loans Make Electric Vehicles More Appealing to Me:**

The table clearly reveals that 64% of respondents consider financing options like EMIs or loans to be appealing, thereby making EVs more accessible. A moderate 24% are neutral and only 12% disagree.

9. **Owning an Electric Vehicle Reflects a Modern, Responsible, and Eco-friendly Lifestyle:**

As illustrated in the table, 72% of respondents agree with the notion that owning an EV represents a modern and responsible lifestyle. Only 8% disagree, while 20% are neutral, suggesting that lifestyle branding can be a powerful motivator for EV adoption.

10. **Open to Participating in Test Drives or Awareness Events Related to Electric Vehicles:**

The table indicates that a significant 76% of respondents are open to attending EV test drives or awareness events. With only 4% opposed and 20% neutral, this reflects strong public readiness for direct engagement and learning experiences related to electric vehicles.

Descriptive Statistics of Public Perception on Electric Vehicle Adoption

S.No	Statement	Mean Score	Standard Deviation
1	EVs are Environmentally Friendly	4.38	0.72
2	EVs are more Economical	3.9	0.87
3	Govt Incentives Influence Purchase	3.94	0.97
4	Charging Stations are Accessible	2.9	1.19
5	Understanding EV Features Helps	3.98	0.83
6	Social Media Increases Awareness	4.18	0.84
7	EV User Recommendations Help	3.86	0.84
8	Flexible EMIs make EVs Appealing	4.27	0.97
9	EVs Reflect a Modern Lifestyle	4.08	0.8
10	Open to Test Drives/Awareness Events	4.12	0.73

1. EVs are environmentally Friendly (Mean = 4.38, SD = 0.72)

This high mean score indicates that respondents **strongly agree** that electric vehicles (EVs) are environmentally beneficial and help reduce pollution. The relatively **low standard deviation** suggests that this opinion is **widely shared and consistent** among the participants. This reflects a strong collective awareness about the role of EVs in addressing climate and air quality issues.

2. EVs are more Economical Over Time (Mean = 3.90, SD = 0.87)

The mean score is close to 4, indicating a **general agreement** that EVs are cost-effective in the long run. However, the slightly **higher SD** implies **moderate variability** in opinions — some respondents are fully convinced, while others are more cautious. This variation may stem from differences in individual experiences, awareness of running costs, or concerns over high initial purchase prices.

3. Government Incentives Influence Purchase Decisions (Mean = 3.94, SD = 0.97)

Participants moderately agree that government incentives and subsidies positively impact their interest in purchasing EVs. The **near-4 mean** suggests a favorable view overall. However, the **high SD** indicates **diverse perspectives** — some find these incentives compelling, while others may not be sufficiently aware of them or do not consider them decisive in their purchasing decision.

4. Charging Stations are Accessible (Mean = 2.90, SD = 1.19)

This is the **lowest mean score**, indicating that respondents **disagree or are unsure** about the accessibility of EV charging infrastructure. Moreover, the **highest SD** among all items shows that **opinions vary significantly** — some may have good access to charging stations, while others may not have any nearby facilities. This highlights a **critical gap in infrastructure** that must be addressed to improve EV adoption.

5. Better Understanding of EV Features Increases Willingness to Buy (Mean = 3.98, SD = 0.83)

The high mean suggests that **knowledge and awareness of EV features and maintenance positively influence purchase decisions**. The moderate SD shows that while most agree, some individuals may still need more information or remain unsure. This emphasizes the importance of **consumer education and hands-on experiences**.

6. Social Media and Online Ads Increase Awareness (Mean = 4.18, SD = 0.84)

With a strong mean score, this statement confirms that **digital media platforms are playing a key role in spreading awareness** about electric vehicles. The relatively **low SD** supports that this is a **broadly accepted view**, and marketing through digital channels appears to be effective across different demographic groups.

7. EV User Recommendations Build Confidence (Mean = 3.86, SD = 0.84)

People **generally agree** that **peer experiences and recommendations** contribute to their confidence in considering EVs. However, the **moderate SD** indicates that this is not equally influential for everyone — some may trust peer reviews more than others. Encouraging current EV users to share experiences can be a valuable promotional tool.

8. Flexible Financing Makes EVs Appealing (Mean = 4.27, SD = 0.97)

This is one of the **highest mean scores**, indicating **strong agreement** that financial mechanisms like EMIs or loans significantly enhance the attractiveness of EVs. Yet, the **high SD** shows a notable spread in opinions — while many appreciate financing flexibility, others might face constraints related to credit access, interest rates, or institutional support.

9. EVs Reflect a Modern and Responsible Lifestyle (Mean = 4.08, SD = 0.80)

Participants **widely perceive EV ownership as a symbol of modernity and environmental responsibility**. The relatively **low SD** implies a **common understanding and shared value system**, especially among environmentally conscious or urban populations. This view aligns well with the growing trend of green consumerism.

10. Open to Test Drives/Awareness Events (Mean = 4.12, SD = 0.73)

The high mean reflects a **strong willingness among participants to engage in EV-related awareness activities**. The **low SD** shows that this opinion is **consistently shared**, indicating a valuable opportunity for marketers and policymakers to organize **interactive campaigns, roadshows, and demo drives** to boost firsthand experience and trust in EV technology.

Suggestions for EV Manufacturers, Policy Makers, and Stakeholders

1. Expand Charging Infrastructure

Charging station availability remains a major barrier to EV adoption. Stakeholders should accelerate the development of public and private charging points across urban and rural areas. Integration with navigation apps and real-time availability tracking will further boost user confidence.

2. Enhance Financial Accessibility

While flexible EMIs and loans are valued, they are not equally accessible to all. Collaborations between manufacturers, banks, and government bodies can offer attractive financial schemes, including zero-interest loans, extended tenures, and subsidies—especially for first-time or rural buyers.

3. Conduct Awareness & Test Drive Campaigns

Public willingness to engage in awareness events is high. Organizing regular EV test drives, educational roadshows, and university outreach programs can bridge the gap between curiosity and adoption. Hands-on experience often converts interest into purchase.

4. Promote Environmental Benefits in Campaigns

The majority of respondents understand and appreciate the eco-friendly nature of EVs. Marketing campaigns should emphasize the role of EVs in reducing carbon footprints and urban pollution, aligning with broader goals of sustainability and climate action.

5. Educate Consumers on EV Features & Maintenance

Lack of knowledge can lead to hesitation. Manufacturers and dealers must offer simple educational materials—such as mobile apps, FAQs, videos, and service demos—to make users comfortable with EV technology, battery care, and routine maintenance.

6. Leverage Social Media & Peer Influence

Social media is a powerful tool for shaping public opinion. Brands and policy agencies should engage influencers, satisfied users, and EV communities to share real-world experiences. Testimonials, reviews, and interactive Q&A sessions can enhance credibility and outreach.

Conclusion:

The survey findings reveal a generally positive public attitude toward electric vehicles, especially regarding environmental benefits, financial schemes, and digital awareness. However, challenges such as insufficient charging infrastructure and gaps in consumer knowledge still hinder widespread adoption. A collaborative effort from manufacturers, policymakers, and community influencers is essential to bridge these gaps and accelerate India's transition to green mobility.

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