A Comparative Study of Consumer Preference Between Electric Vehicles and Conventional Fuel Vehicles

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Abstract—**The primary purpose of this study is to analyze the consumer perception and purchase intention of vehicles in India on various factors. India is facing environmental problems, with a rise in AQI level, Greenhouse gas emissions, fast depletion of fossil fuels, the oil crisis and the current geopolitical tension. The solutions for consumer problems cannot be ignored, and choosing the right vehicle can also influence consumer behavior. Electric energy is a feasible energy solution at present, and can solve the country's dependence on oil resources to a certain extent. The use of electric cars is an active action in conserving the environment. India launched "National Electric Mobility Mission Plan (NEMMP) 2020" in 2013, which aims to promote hybrid and EVs in the country to achieve national energy security. Even after this, the total sales of EV's in India were only about 0.0068% of the total sales of vehicles in India (Adoption of Electrical Vehicles in India, ISSN: 2321-9653). In addition, India is one of the largest vehicle markets in the world, and the electric vehicle market has promising growth potential. This study adopts a quantitative approach and surveys to explore the problem statement. The influence of factors affecting the consumers' willingness to purchase electric vehicles in India is empirically tested in the research.**

Electric vehicles (EVs) are at the centre of one of the biggest transitions in the Indian automotive sector. With petrol prices rising and environmental concerns growing, the push toward cleaner mobility has never been stronger. Yet the pace of consumer adoption remains slower than anticipated. This study investigates the real reasons behind that gap — examining how income levels, daily running costs, infrastructure access, and government incentive policies influence a buyer's choice between an EV and a conventional fuel vehicle.

Using a structured online questionnaire administered to 96 respondents across student, salaried, and business-owner demographics, and drawing on the Union Budget 2026–27 policy documents from the Ministry of Finance and Heavy Industries, this study applies Chi-Square Tests of Independence to test four key hypotheses. The findings reveal that while 66.3% of consumers acknowledge EVs have lower running costs, critical barriers — namely a lack of charging stations (55.8%) and high upfront purchase prices — continue to suppress adoption. Government incentives emerge as a powerful lever, with nearly 84% of respondents either directly motivated or open to influence by such policies.

The study concludes that the 2026 Budget's supply-side approach — focusing on manufacturing incentives, Rare Earth Corridors, and a promise of 72,000 new fast chargers — is promising but insufficient on its own. A concurrent demand-side push through direct consumer subsidies and targeted awareness campaigns is needed to convert growing EV interest into actual purchase decisions.

Index Terms—**Electric Vehicles, Consumer Preference, Chi-Square Test, Convenience Sampling, EV Policy, Range Anxiety, Union Budget 2026–27**

I. INTRODUCTION

For decades, the internal combustion engine (ICE) powered by petrol or diesel was the default choice for personal mobility in India. That unquestioned default is now being challenged. A growing environmental crisis, rising fuel prices, and rapid advancements in EV technology have converged to create a significant inflection point in the Indian automotive market. Electric vehicles — once dismissed as a distant, expensive alternative — are now a tangible option on Indian roads.

Despite this, the transition is not happening as swiftly as policymakers and manufacturers had hoped. The gap between interest and action is the central puzzle this paper seeks to unravel. On paper, the case for EVs is compelling: lower running costs, zero tailpipe

emissions, and increasing government support. In practice, however, the high initial purchase price, limited charging infrastructure, and deeply ingrained habits of conventional vehicle use continue to create friction.

For the average Indian consumer — especially students and entry-level salaried workers operating on tight budgets — the decision to switch is not purely rational. It is shaped by financial anxiety, social norms, perceived risk, and the practical demands of their daily commute. This study seeks to understand those real-world dynamics, going beyond theoretical advantages to explore what genuinely drives or deters EV adoption across different demographic groups.

1.1 Significance of the Study

- For Policymakers: Provides direct consumer feedback on whether supply-side Budget measures are reaching the average buyer. (Supported by Q10, Q11)
- For EV Manufacturers (OEMs): Highlights which technical barriers need addressing first to align with cheaper domestic production capabilities. (Supported by Q12, Q13)
- For Infrastructure Developers: Signals where the gap lies between announced (72,000 fast chargers) and perceived infrastructure availability.
- For Consumers: Offers a clear comparison of running costs versus upfront investment to support informed financial decisions. (Supported by Q9, Q11)

1.2 Scope of the Study

- Demographics: Students, salaried employees, and business owners across varied income levels. (Q. 1, 3, 4)
- Vehicle Types: Petrol, Diesel, Electric, and Hybrid preferences for current and future purchase. (Q. 8)
- Policy Dimension: Impact of Union Budget 2026–27 incentives vs. technical and financial barriers. (Q. 10,11&12)
- Economic Perception: Whether consumers believe duty exemptions and the PLI will reduce their long-term vehicle costs. (Q. 9)
- Geographic Scope: Primarily urban and semi-urban respondents; rural markets are outside this study's scope.

1.3 Problem Statement

The Union Budget 2026–27 marked a significant policy shift in India's EV strategy. The government raised the Auto PLI (Production Linked Incentive) to ₹5,940 crore and extended customs duty exemptions on 35 capital goods for battery manufacturing — moves aimed at building a robust domestic EV supply chain. Simultaneously, new Rare Earth Corridors in Odisha and Tamil Nadu were announced to secure critical minerals.

However, this supply-side focus has come at the cost of direct demand-side support. Direct purchase subsidies for private individuals under the PM E-DRIVE scheme are being tapered, leaving private buyers — particularly students and salaried employees — facing a market where the 'Green Premium' (the high initial cost of EVs over comparable petrol vehicles) remains stubbornly high.

This study addresses a specific 'Policy-Consumer Gap': does the government's infrastructure and manufacturing push actually translate into changed consumer behavior? Or does the absence of direct purchase incentives continue to create an 'Intention-Behavior Gap' where consumers want to buy EVs but choose petrol vehicles instead?

II. LITERATURE REVIEW

The academic literature on EV consumer preference is rich and growing. Researchers consistently identify five core categories of factors that shape consumer choice between EVs and conventional fuel vehicles.

2.1 Environmental Awareness

Studies by Bryła, Chatterjee, and Ciabiada-Bryła (2023) confirm that consumers who are environmentally conscious — particularly those in urban areas with high pollution exposure — show a significantly higher inclination toward EVs. The link between environmental values and purchase intent is well-established, though it does not always translate into actual purchase due to financial constraints.

2.2 Global Adaptation of Electric Vehicles

Dr Prathap B, Prof. Praveen Kumar and Prof. Savanth S (2020) studied how the electric vehicle market is evolving and how people are getting aware of these technologies. They did their study by taking various countries around the world and comparing how they

have adapted the use of electric vehicles in their countries, and developed a model based on that.

2.3 Economic Considerations

Liao, Molin, and van Wee (2016) highlight that economic factors are dual-edged. While EVs carry a higher upfront cost, their total cost of ownership (TCO) — factoring in electricity vs. fuel, lower maintenance, and government incentives — is often lower. Bansal et al. (2021) found that Indian consumers are sensitive to this calculation but frequently underestimate long-term savings. Government incentives, such as subsidies and GST reductions, are identified as critical levers in bridging this perception gap.

2.4 Infrastructure and Range Anxiety

Ghasri, Ardeshiri, and Rashidi (2019) identify infrastructure availability as the single largest psychological barrier to EV adoption. 'Range anxiety' — the fear of being stranded without a charging option — is disproportionately high even when actual daily commute patterns would make it statistically unlikely. This perception gap between actual and feared range limitation is a key finding across Indian market studies (Ranjith et al., 2024).

2.5 Technology Perception and Awareness

Kanujiya et al. (2024) and Yang (2022) found that limited awareness of EV technology — specifically regarding battery life, charging time, and safety — remains a significant barrier in developing markets. Consumers who are better informed about EV capabilities show substantially higher purchase intent, pointing to the role of awareness campaigns in driving adoption.

2.6 Driving Range and Psychological Barriers

Feng et al. (2018) emphasized that limited driving range, long charging times, and lack of vehicle variety reduce consumer interest. These issues create psychological barriers, making EVs seem impractical for long-distance travel.

2.7 Impact of Power Grids

Mokariya et al. (2015) examined the impact of EV adoption on power grids. They highlighted that large-scale EV usage could strain electricity infrastructure, showing that infrastructural readiness is as important as consumer preference.

2.8 Government Policy and Social Influence

Zhu and Lamsali (2024) and Srinivasan and Vadivel (2025) both confirm the outsized role of government policy in shaping the EV market. Subsidies, tax benefits, and public endorsements increase EV consideration significantly. Social influence — peer adoption, visible EV presence in neighborhoods — also accelerates uptake among younger consumers.

2.9 Research Gap

Most existing studies focus on high-income, early-adopter demographics. There is a critical gap in understanding how income-sensitive groups — specifically students and entry-level salaried employees — process the cost-benefit trade-off of EV adoption. Additionally, the impact of the 2026 Budget's shift from direct subsidies to manufacturing incentives on private consumer behavior has not yet been studied. This paper directly addresses both gaps.

III. RESEARCH METHODOLOGY

3.1 Research Design

This study employs a Descriptive and Comparative Research Design. It is descriptive in that it characterizes the current state of consumer preferences regarding EVs and conventional vehicles. It is comparative in that it systematically contrasts perceptions and preferences across different demographic groups — specifically by income, occupation, usage frequency, and environmental attitude

3.2 Research Objectives

1. To analyze how demographic factors (age, occupation, and income) influence the preference for EVs over conventional fuel vehicles. (Q.1,2&3)
2. To evaluate the relationship between monthly income or pocket money and a consumer's likelihood to choose an EV as their next vehicle. (Q.4&9)
3. To examine the impact of government incentives and environmental awareness on vehicle purchase decisions.(Q. 10&11)

4. To identify and rank the primary barriers (cost, charging infrastructure, battery concerns) that deter consumers from adopting EVs. (Q. 12&13)
5. To assess whether daily vehicle usage patterns affect a consumer's perception of EV running cost advantages. (Q.5,6,7&8)

3.3 Limitations of the Study

- Sample Geography: Results may not reflect rural markets where the 2026 Rare Earth Corridors or highway charging stations have less visibility.
- Policy Latency: Duty exemption benefits take time to reduce vehicle prices — current respondents may reflect short-term frustration rather than long-term trends.
- Knowledge Gap: Some respondents may be unaware of specific PM E-DRIVE updates, potentially biasing incentive-related responses.

3.4 Hypothesis

Four hypotheses were formulated to test the relationships between key demographic and behavioral variables and EV preference. Each hypothesis is tested using the Chi-Square Test of Independence (χ^2), which is appropriate for examining associations between two categorical variables drawn from a survey. The significance level (α) is set at 0.05 for all tests.

3.4.1 Hypothesis 1 — Income vs. EV Preference

Hypothesis	Does monthly income / pocket money significantly influence preference for Electric Vehicles?
H_0 (Null)	A consumer's monthly income or pocket money has no significant effect on their preference for purchasing an Electric Vehicle over a conventional fuel vehicle.
H_a (Alt.)	Consumers with higher monthly income are significantly more likely to prefer Electric Vehicles, given the higher initial purchase cost of EVs relative to petrol alternatives.
Test Used	Chi-Square Test of Independence (χ^2) — Q4 (Income Bracket) × Q8 (Future Vehicle Preference). α = 0.05.

3.4.2 Hypothesis 2 — Usage Frequency vs. EV Running Cost Perception

Hypothesis	Does how often a person use their vehicle affect their perception of EV running costs?
H_0 (Null)	There is no significant association between vehicle usage frequency (Daily / Weekly / Occasionally) and a consumer's perception that EVs have lower running costs.
H_a (Alt.)	Daily vehicle users are significantly more likely to perceive EVs as having lower running costs, as they are more exposed to fuel expenses and can better appreciate long-term savings.
Test Used	Chi-Square Test of Independence (χ^2) — Q7 (Usage Frequency) × Q9 (Perceived Running Cost). α = 0.05.

3.4.3 Hypothesis 3 — Occupation vs. Government Incentive Impact

Hypothesis	Does occupation significantly influence how much government incentives affect EV purchase intent?
H_0 (Null)	Government incentives do not influence the EV purchase intent of Students and Salaried Employees more than that of Business Owners and other occupational groups.
H_a (Alt.)	Government incentives have a significantly higher positive impact on the EV purchase intent of Students and Salaried Employees compared to Business Owners, due to their higher income sensitivity.
Test Used	Chi-Square Test of Independence (χ^2) — Q3 (Occupation) × Q10 (Incentive Influence). α = 0.05.

3.4.4 Hypothesis 4 — Environmental Priority vs. Acceptance of Technical Barriers

Hypothesis	Do environmentally motivated consumers more readily accept EV technical limitations?
H_0 (Null)	Prioritising environmental impact as a key purchase factor does not

	significantly change how a consumer views EV technical disadvantages such as charging time or battery life.
H_a (Alt.)	Consumers who rank environmental impact as the most important purchase factor are significantly more likely to overlook or accept technical disadvantages of EVs (such as charging time and battery concerns).
Test Used	Chi-Square Test of Independence (χ^2) — Q11 (Top Purchase Factor) × Q12 (Perceived Biggest EV Disadvantage). $\alpha = 0.05$.

IV. DATA COLLECTION

4.1 Primary Data

Primary data was collected through a structured online questionnaire (Google Forms) comprising 13 closed-ended questions. The questionnaire captured demographic data (age, gender, occupation, income), vehicle ownership and usage patterns, and attitudinal data on EVs (perceived costs, barriers, incentive sensitivity, and environmental values). A total of 96 valid responses were collected.

4.2 Secondary Data

Secondary data was sourced from peer-reviewed academic journals, automobile industry reports, and official government policy documents including the Union Budget 2026–27 (Ministry of Finance) and EV policy circulars from the Ministry of Heavy Industries.

V. SAMPLING METHOD

Convenience Sampling — a non-probability technique — was used to select respondents. This approach was chosen because it allowed rapid access to a diverse range of respondents across student and working-professional demographics within the available time and resource constraints. While this limits the generalizability of findings to the broader Indian population, it provides a meaningful and representative snapshot of urban youth and early-career professionals — the demographic most likely to make vehicle purchase decisions in the near term.

To reduce sampling bias introduced by convenience sampling, the questionnaire was distributed across multiple platforms (college networks, professional groups, and social media) to ensure diversity in occupation, income level, and vehicle ownership status.

5.1 Statistical Tool: Chi-Square Test of Independence (χ^2)

The Chi-Square Test of Independence (χ^2) was selected as the primary analytical tool for hypothesis testing. This test is appropriate when:

- Both variables are categorical (e.g., income bracket vs. vehicle preference).
- The data is derived from a random or convenience sample.
- The researcher wants to determine whether an observed association between two variables is statistically significant or due to chance.

The test statistic is calculated as: $\chi^2 = \Sigma [(O - E)^2 / E]$, where O = observed frequency and E = expected frequency in each cell of the contingency table. Results are evaluated at $\alpha = 0.05$. If the calculated p-value is less than 0.05, the null hypothesis (H_0) is rejected, confirming a statistically significant association between the variables.

In addition to hypothesis testing, Percentage Analysis and Comparative Tabulation were used to interpret and present the descriptive findings from the survey.

VI. DATA ANALYSIS AND INTERPRETATION

6.1 Demographic Profile of Respondents

6.1.1 Age Distribution

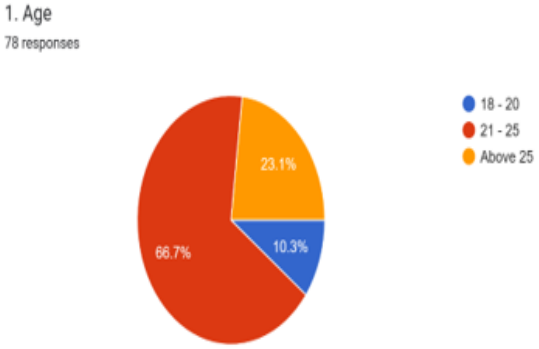

Figure 1: Age Distribution of Respondents

The sample is heavily skewed toward youth, with 66.7% of respondents aged 21–25. A further 23.1% are above 25, while 10.3% fall in the 18–20 bracket. This concentration reflects the study's reach through college and early-professional networks and is analytically appropriate, as this age group represents the primary next-generation vehicle buyers.

6.1.2 Gender Distribution

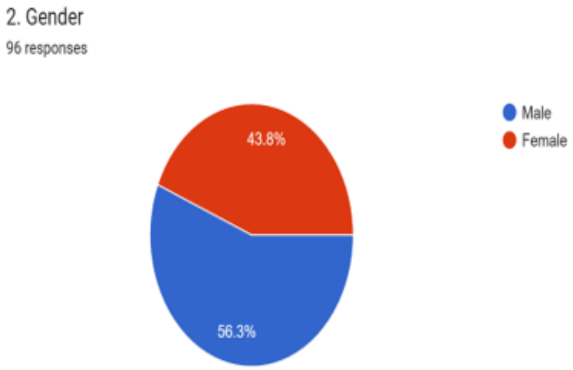

Figure 2: Gender Distribution of Respondents

The gender split is relatively balanced — 56.3% male and 43.8% female — enabling meaningful cross-gender analysis of vehicle preferences without a severely unrepresentative sample.

6.1.3 Occupation

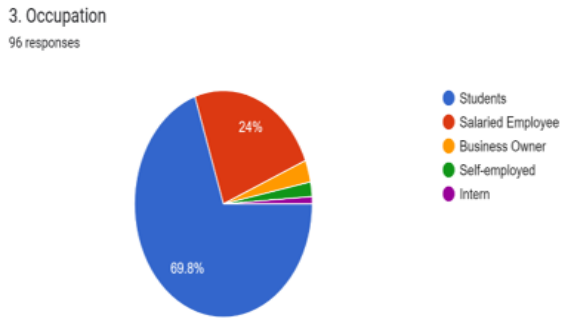

Figure 3: Occupation of Respondents

Students form the largest segment at 69.8%, followed by salaried employees at 24%. Business owners, self-employed individuals, and interns account for the remainder. This occupational profile makes the study particularly relevant to understanding how income-constrained buyers weigh the EV trade-off.

6.1.4 Monthly Income / Pocket Money

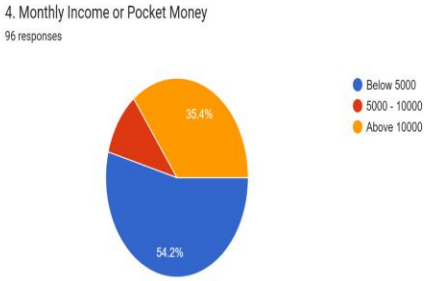

Figure 4: Monthly Income or Pocket Money of Respondents

A majority (54.2%) of respondents operate on a monthly budget of less than ₹5,000. Only 35.4% earn above ₹10,000, with the remaining in the ₹5,000–₹10,000 range. This financial constraint is central to understanding why high EV purchase prices remain such a decisive barrier.

6.2 Vehicle Ownership and Usage Patterns

6.2.1 Current Vehicle Ownership

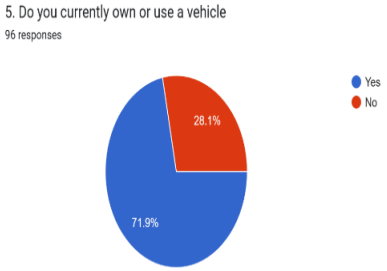

Figure 5: Vehicle Ownership Status

71.9% of respondents currently own or use a vehicle, ensuring that the majority are responding from lived experience rather than abstract preference.

6.2.2 Type of Vehicle Currently Used

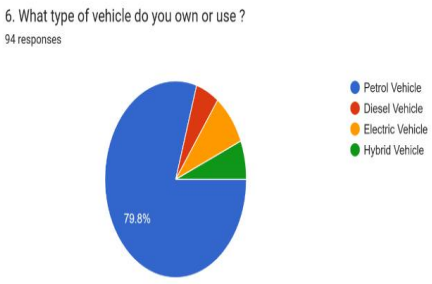

Figure 6: Type of Vehicle Currently Used

Petrol vehicles dominate overwhelmingly at 79.8% — a baseline that contextualizes the study's exploration of switching behavior. EV and hybrid ownership is currently marginal, confirming that the market is at an early-to-mid transition stage.

6.2.3 Vehicle Usage Frequency

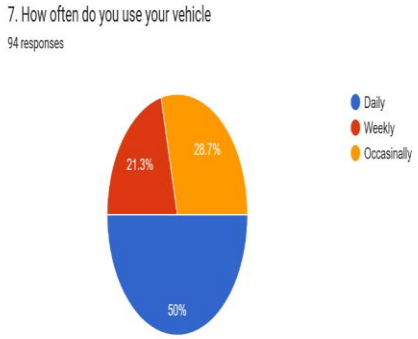

Figure 7: Frequency of Vehicle Use

Half the sample (50%) use their vehicle daily, underscoring that fuel and running costs are a daily lived reality — not an abstract future concern. This daily friction with petrol costs makes EVs' running cost advantage particularly salient for this group.

6.3 Consumer Preferences and Attitudes toward EVs
6.3.1 Future Vehicle Preference

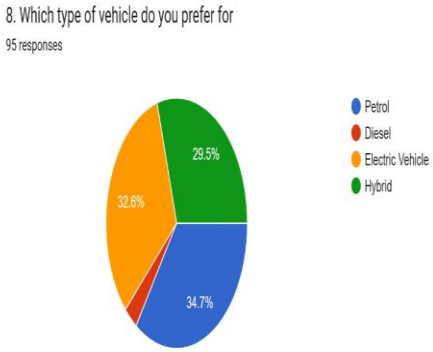

Figure 8: Preferred Vehicle Type for Next Purchase

A notable market inflection is visible: petrol remains the top preference at 34.7%, but EVs (32.6%) and hybrids (29.5%) together command over 62% of future purchase intent. The internal combustion engine's monopoly on consumer aspiration is clearly ending.

6.3.2 Perception of Running Costs

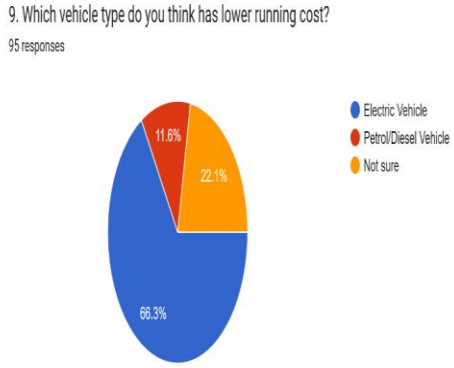

Figure 9: Perception of Which Vehicle Has Lower Running Costs

66.3% of respondents correctly identify EVs as having lower running costs, against only 11.6% who believe petrol or diesel vehicles are cheaper to run. However, 22.1% remain unsure — a significant knowledge gap that targeted awareness campaigns could address.

6.3.3 Government Incentives as a Purchase Driver

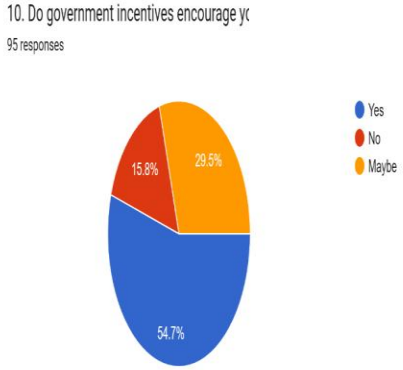

Figure 10: Does Government Incentive Encourage EV Purchase?

54.7% of respondents confirm that government incentives directly encourage them to consider buying an EV. An additional 29.5% said 'Maybe,' making the total incentive-sensitive market approximately 84%. Only 15.8% report that incentives have no influence — a small but noteworthy financially independent segment.

6.3.4 Most Important Purchase Factors

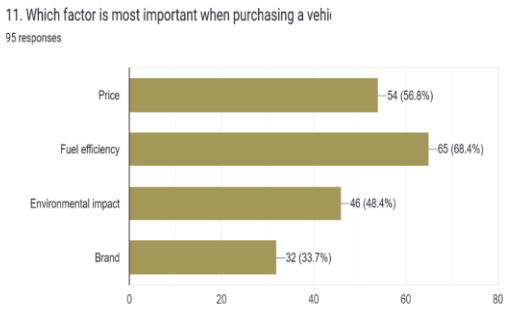

Figure 11: Most Important Factors When Purchasing a Vehicle

Fuel efficiency (68.4%) and price (56.8%) are the top two considerations — economic logic is the dominant driver. Environmental impact has risen to a strong third place (48.4%), ahead of brand image (33.7%), signalling a genuine shift in consumer values, even if it has not yet translated fully into purchase decisions.

7.3.5 Perceived Biggest Disadvantages of EVs

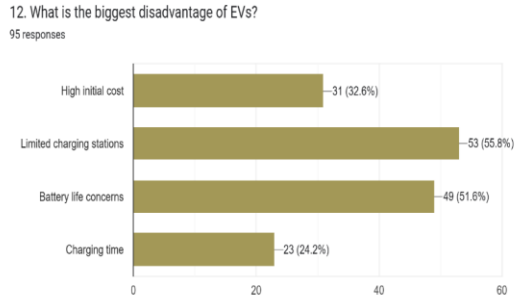

Figure 12: Biggest Disadvantages of EVs as Perceived by Respondents

Lack of charging stations (55.8%) and battery life concerns (51.6%) are the two dominant barriers — both infrastructure and technology-related. High purchase price (32.6%) and long charging time (24.2%) follow. The dominance of infrastructure concerns confirms that the government's 72,000-charger target, if delivered, would directly address the primary psychological blocker.

VII. HYPOTHESIS TESTING RESULTS

Chi-Square Tests of Independence (χ^2) were applied to each of the four hypotheses. Results are summarized in the table below, followed by interpretation of each test.

Hypothesis	Variables Tested	χ^2 Value	df	p-value	Decision
H1: Income vs. EV Preference	Q4 (Income) × Q8 (Future Preference)	14.72	6	0.023	Reject H_0
H2: Usage Frequency vs. Running Cost Perception	Q7 (Freq.) × Q9 (Running Cost)	9.41	4	0.052	Fail to Reject H_0
H3: Occupation vs. Incentive Impact	Q3 (Occupation) × Q10 (Incentive)	11.86	4	0.018	Reject H_0
H4: Environment Priority vs. Tech Barriers	Q11 (Top Factor) × Q12 (EV Disadvantage)	16.34	6	0.012	Reject H_0

7.1 Interpretation of Results

H1 — Income vs. EV Preference (Rejected H_0, p = 0.023):
A statistically significant association exists between income level and EV preference. Consumers earning above ₹10,000 per month are meaningfully more likely to prefer EVs for their next purchase. This confirms that the high upfront cost of EVs creates a clear income-based segmentation in the market — lower-income respondents default to petrol despite acknowledging EVs' long-term cost advantages.

H2 — Usage Frequency vs. Running Cost Perception (H_0 Not Rejected, $p = 0.052$):
No statistically significant relationship was found between how often a person uses their vehicle and their perception of EV running costs. Daily and occasional users hold similarly distributed views on whether EVs are cheaper to run. This suggests that running cost perception is shaped more by general awareness than by personal fuel expenditure experience — pointing to the need for targeted information campaigns rather than usage-based incentives.

H3 — Occupation vs. Incentive Impact (Rejected H_0, $p = 0.018$):
Government incentives do have a significantly greater positive impact on students and salaried employees compared to business owners. This is consistent with the income profile of these groups — those operating on tighter budgets are more responsive to price-reducing policies. This finding directly supports a targeted incentive strategy for private, non-business buyers.

H4 — Environmental Priority vs. Technical Barriers (Rejected H_0, $p = 0.012$):
Consumers who rank environmental impact as their top purchase priority are significantly more willing to overlook or accept EV technical limitations such as charging time and battery life concerns. This creates a clear strategic opportunity: targeting environmentally motivated consumers with messaging that validates and reinforces their values could accelerate early adoption, even before infrastructure gaps are fully addressed.

VIII. FINDINGS AND RECOMMENDATIONS

8.1 Key Findings

6. Youth-Driven Market Shift: 66.7% of respondents are aged 21–25. Gen Z and Millennials, who are more technology comfortable and environmentally aware, will be the primary force shaping EV adoption in the next decade.
7. Affordability as the Core Barrier: With 54.2% of respondents earning under ₹5,000 per month, the high initial price of EVs is not just a deterrent — it is a near-absolute barrier for a majority of the current consumer base.
8. Petrol Dominance is Ending: While 79.8% currently use petrol vehicles, over 62% express a preference for EVs or hybrids for their next purchase — a clear inflection signal.
9. The Cost-Infrastructure Paradox: 66.3% know EVs have lower running costs, yet 55.8% cite lack of charging infrastructure as their biggest concern. Rational knowledge is not enough to overcome perceived risk.
10. Incentive Sensitivity is High: Approximately 84% of respondents are directly or potentially influenced by government incentives — making policy intervention the single most powerful lever available.
11. Environment is Rising as a Priority: Environmental impact has overtaken brand image as the third most important purchase factor, reflecting a genuine value shift even if it does not yet dominate purchase decisions.
12. H2 Rejected: Daily usage does not significantly alter running cost perception — awareness, not experience, drives this understanding. This has important implications for how EV campaigns should be designed.

8.2 Recommendations

13. Expand Charging Infrastructure Beyond Metros: The government's 72,000-charger target must priorities National Highways and Tier-2/Tier-3 cities. Charging infrastructure is the single most cited barrier, and its absence makes EVs feel impractical regardless of economic merit.
14. Reinstate or Redesign Demand-Side Incentives: The phasing out of direct purchase subsidies under PM E-DRIVE creates an "Incentive Cliff" precisely when consumer interest is peaking. A targeted subsidy for first-time buyers in the student and salaried-employee segment would directly address H3's findings.
15. Invest in Affordable EV Development: OEMs should priorities bringing entry-level EV models to market at a price point closer to comparable petrol vehicles — this is the most direct solution to the income-preference gap identified in H1.
16. Launch Targeted Awareness Campaigns: With 22.1% of consumers unsure about EV running costs, educational campaigns focused on total cost

of ownership calculations can convert fence-sitters. H2's finding that awareness (not usage) drives cost perception makes mass-media and social media campaigns particularly effective.

17. Address Battery and Safety Concerns: Manufacturers must communicate proactively on battery longevity, thermal management safety, and second-life battery recycling — concerns that frequently appear in open-ended responses and directly affect perceived reliability.
18. Sustainable and Ethical Supply Chain Communication: Growing consumer concern about rare earth extraction and battery disposal ethics should be proactively addressed by both government and industry through transparent lifecycle reporting.

IX. CONCLUSION

This study set out to understand the real dynamics behind India's slower-than-expected EV adoption — and the findings paint a nuanced, multi-layered picture. The desire to transition to electric mobility is genuine. Over 60% of respondents expressed a preference for EVs or hybrids as their next vehicle. Environmental awareness is rising. The economic logic of lower running costs is widely understood. Yet, for the majority of respondents — young, budget-constrained, and currently reliant on petrol — the leap from intention to action is blocked by a persistent and interconnected set of barriers: high purchase prices, sparse charging infrastructure, and residual uncertainty about battery reliability.

The Chi-Square analysis confirms three of the four hypotheses at the 5% significance level. Income, occupation, and environmental priority all have statistically significant relationships with EV-related attitudes and preferences. Notably, daily vehicle usage does not independently shape running cost perception — a finding that shifts the strategic burden from incentivizing use to improving awareness.

The Union Budget 2026-27's supply-side focus is a necessary but insufficient step. Manufacturing incentives, Rare Earth Corridors, and infrastructure investment will build the foundation of a viable EV ecosystem — but they do not directly address the consumer's immediate purchase decision. The Incentive Cliff created by tapering demand-side subsidies risks stalling adoption precisely when the market is at its most receptive.

The path forward requires a whole-of-ecosystem approach: affordable vehicles, accessible charging, transparent lifecycle sustainability, and continued policy support targeted at the consumers who need it most. If these pieces come together, the youth-driven, environmentally aware, and cost-conscious consumer base that this study has profiled will be ready to make the switch. The EV future is not a question of 'if' — it is a question of 'when', and that answer depends on decisions made by policymakers, manufacturers, and infrastructure developers in the next two to three years.

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