IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A STUDY ON CONSUMER PREFERENCES AND PURCHASES INTENTIONS TOWARD ELECTRIC VEHICLES (EVs) IN DELHI

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1. Introduction

The transition to electric vehicles (EVs) is crucial in addressing environmental and sustainability challenges, especially in urban centers like Delhi. As pollution levels rise and fossil fuel dependency deepens, the need for cleaner alternatives becomes more urgent. Despite governmental support and financial incentives, the adoption rate of EVs remains moderate in Delhi. This report investigates the key drivers and barriers that shape consumer preferences and purchase intentions related to EVs in the region.

2. Objectives of the Study

- To identify critical factors influencing consumer preference for EVs.
- To assess how demographic variables affect the intention to purchase.
- To evaluate the role of environmental concern and policy awareness.
- To examine infrastructure and economic barriers to adoption.
- To offer strategic recommendations for enhancing EV uptake in Delhi.

3. Literature Review Overview

Existing literature highlights that EV adoption is influenced by multiple dimensions, including:

- **Environmental concerns**: High awareness of climate change increases positive consumer attitudes (Rezvani et al., 2015).
- **Economic considerations**: Upfront costs deter buyers despite potential long-term savings (Hardman et al., 2017).
- **Infrastructure readiness**: Lack of charging points fuels range anxiety (Egbue & Long, 2012).
- **Sociodemographic factors**: Younger, educated urban populations are more inclined toward adoption (Zhang et al., 2019).

The Theory of Planned Behaviour and Rogers' Diffusion of Innovations Theory provide the theoretical underpinning for analyzing behavioural intentions in the context of EV adoption.

4. Research Methodology

- **Design**: Quantitative, cross-sectional, descriptive analysis.
- **Data Source**: Primary data via structured questionnaire; secondary data from government and academic sources.
- **Sample Size**: 200 respondents from urban Delhi.
- **Sampling Method**: Purposive sampling focused on vehicle owners or potential buyers.
- **Analysis Tools**: SPSS and Microsoft Excel used for correlation, regression, and descriptive analysis.

5. Key Findings

1. **Environmental Concern**
   A majority of respondents exhibited high concern for pollution, positively influencing their purchase intentions.
2. **Economic Barrier**
   High upfront costs remain a critical deterrent, despite awareness of long-term benefits.
3. **Infrastructure Limitations**
   Limited availability of charging stations increases range anxiety and reduces EV appeal.
4. **Policy Awareness**
   While incentives exist, lack of public knowledge regarding schemes weakens their impact.
5. **Demographic Insights**
   Consumers aged 26–35, particularly those with postgraduate qualifications, showed the highest interest in EVs.

6. Statistical Insights

- **Correlation Analysis**:
  - Environmental concern showed a strong positive correlation with purchase intention ($r = 0.56$).
  - Perceived cost had a negative correlation ($r = -0.47$), indicating cost-related reluctance.
- **Regression Analysis**:
  - Environmental concern ($\beta = 0.38$) and infrastructure availability ($\beta = 0.33$) significantly predicted purchase intentions.
  - Cost barriers ($\beta = -0.29$) were significant deterrents.

Model $R^2 = 0.62$ indicates a good explanatory power of these variables.

7. Discussion

The study confirms prior research that both psychological and practical factors influence EV adoption. Environmental awareness alone is insufficient unless supported by accessible infrastructure and financial feasibility. Moreover, low visibility and understanding of government incentives dilute their effectiveness.

8. Recommendations

- **Expand Charging Infrastructure**: Increase density and visibility of public charging stations.
- **Promote Awareness Campaigns**: Use digital and on-ground channels to educate consumers on EV benefits and subsidies.
- **Subsidize Cost Further**: Encourage flexible financing models (EMIs, battery leasing).
- **Enhance Model Availability**: Introduce affordable options across price ranges.
- **Strengthen After-Sales Support**: Offer warranties and create EV-specific service networks.

9. Limitations

- Sample restricted to Delhi; findings may not be applicable nationally.
- Non-probability sampling may introduce bias.
- Cross-sectional nature captures only a single time point, excluding evolving trends.

10. Conclusion

While the intention to adopt electric vehicles is growing among Delhi residents, tangible adoption remains challenged by economic, infrastructural, and informational gaps. A coordinated push involving government, industry, and public education can accelerate EV transition, improving urban sustainability and public health in Delhi.