

E-ISSN: 2582-2160 • Website: www.ijfmr.com

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# **Investigating the Gender-Driven Moderating Factors in Electric Vehicle Acceptance Evidence** from Chhattisgarh

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### **Abstract:**

This paper analyzes the impact of gender on consumer attitude and purchase intention towards electric vehicles in Chhattisgarh, India. The study deploys the analytical framework via SEM and CFA analysis in assessing the interaction between gender and several antecedents, including Environmental Concerns, Social Influence, Self-image, Attitude, and Current Status of Electric Vehicles (CSEV). The outcomes show that gender has some influence, but not solely governing the acceptance behavior towards electric vehicles. It thus points to the future necessity and importance of handling eventual problems that could be posed by Attitude and social influence, like charging stations, and carefully designing targeted marketing and pricing strategies aligned with sustainability. Those insights serve to guide policymakers and marketers toward more effective promotion of EVs in the direction of eco-friendly transportation solutions and an advancement, shift toward sustainable mobility in Chhattisgarh.

Keywords: Electric vehicles, Sustainable mobility, Gender influence, Structural equation modeling, Consumer behavior.

### 1. Introduction

It has been a couple of years since the world experienced the new shift in the transport sector, which is based on environmental awareness and great technological advancement. The most elevated level of adoption of electric vehicles represents one such development, even as governments and consumers realize that change has become increasingly urgent due to the worsening environmental impacts of fossil fuelbased transportation. As countries seek to switch to greener energy sources and lower their greenhouse gas emissions, the promotion of electric vehicles has become a major strategy for achieving these objectives (Sovacool et al., 2018). EVs have various advantages, including reduced air pollution, lower greenhouse gas emissions, and decreased reliance on fossil fuels, making them a crucial component in sustainable transportation systems (Higueras-Castillo et al., 2023). This is further promoted by government policies, financial incentives, and infrastructure developments focusing on the use of electric car (Bjerkan et al., 2016; Krupa et al., 2014).

One of the most important premises in understanding consumer behavior toward adopting EVs is to understand the importance of examining various influential factors. Among these, socio-demographic aspects such as gender have been found to impact consumer preferences and attitudes toward sustainable transportation. Studies recently made effort to explore the differences regarding EV adoption between men



and women. According to those recent studies, yes indeed the reasons and concerns with motivations in buying an EV differs from one another when taking into consideration whether this belongs to a man or to a woman. From its perspective, economic consideration may be relevant due to their cost-benefit analyses towards the purchase of EV as perceived by Kumar et al. (2021). For instance, it was demonstrated that the two challenges or reasons why most individuals remain resistant to taking EVs are high up-front cost and fear of recharging facilities (Burns et al., 2021; Axsen et al., 2015).

This paper investigates the relationship between gender constructs and consumer attitudes toward electric vehicles in the state of Chhattisgarh, where electric mobility is still in its nascent stage. Previous studies indicate that environmental concern (EC), social influence (SoC.In), self-image (IM), and attitude (ATT) are key factors influencing the intention to adopt EVs (Xie et al., 2022; Bockarjova & Steg, 2014). Gender, however, may act as a moderating factor, altering the impact of these variables on purchase intention. For example, women focus more on environmental attributes and men on performance attributes (Bhutto et al., 2021; Zhu et al., 2022).

This research work is based on a comprehensive dataset that contains over 200 data points. It uses statistical techniques such as SEM and CFA to provide insightful information for marketers, legislators, and industry participants in their understanding of how gender interacts with environmental concerns, social influence, self-image, and attitudes in the determination of intend to buy an EV. The findings of this investigation results will be very beneficial in providing actionable recommendations for fastening the acceptance of electric vehicles in Chhattisgarh by tailoring the strategy to make them relevant for diverse consumer segments. Better understanding of gender-specific concerns and preferences would further facilitate marketers and policymakers to get over the barriers for the acceptance of electric vehicles, thus facilitating easy transition towards sustainable transportation solutions. This study's objective is to fill the existing research gap in gender-driven moderating factors for EV acceptance and contribute towards the broader discourse on sustainable consumption and mobility in India.

### 2. Literature Review

The worldwide transition to electric cars (EVs) represents An important movement in reducing carbon emissions and advancing sustainable mobility. This section reviews 35+ studies to offer a thorough comprehension of the elements affecting the adoption of EVs, with a particular focus on gender as a moderating variable.

### 2.1. Gender and Electric Vehicle Adoption

Multiple studies have emphasized the critical role of gender in shaping consumer attitudes toward EVs. Bhutto, Shaikh, and Sharma (2021) found that while males tend to prioritize vehicle performance and economic benefits, females are more concerned with environmental sustainability. Ekholm et al. (2020) extended this understanding by showing that women are more influenced by social and environmental factors when making EV purchase decisions.

Hackbarth and Madlener (2016) analysed gender differences in risk perception associated with EVs in Germany and found that women tend to perceive EVs as more technologically risky compared to men. Similarly, Rezvani et al. (2015) suggested that female consumers exhibit higher levels of uncertainty concerning battery life and maintenance.

### 2.2. Environmental Concern and Social Influence

Environmental concern remains a prominent factor in driving EV adoption. Girija and Arunkumar (2022) highlighted that both men and women with heightened environmental consciousness are more inclined to



adopt EVs, although this effect is more pronounced among women. Wang et al. (2020) also identified social influence as a crucial driver, noting that women tend to be more affected by the social opinions of their peers when deciding to adopt EVs.

Schuitema, Anable, and Skippon (2013) demonstrated that social influence and environmental concern jointly shape the willingness to adopt sustainable vehicles. Their study underscored that marketing campaigns targeting social norms can be more effective in increasing female adoption rates. Lane and Potter (2007) also pointed out that social factors and environmental concerns contribute significantly to the attitudes of female EV adopters.

### 2.3. Self-image and Attitudes Toward EVs

Jayasingh (2021) investigated the part that self-perception plays in EV adoption and revealed that women, in particular, are driven by the alignment between their environmental identity and EV ownership. This finding aligns with the work of Barth, Jugert, and Fritsche (2016), who argued that pro-environmental self-image plays a crucial role in motivating sustainable behavior, including EV adoption.

Amiot et al. (2020) extended this by exploring how gender influences the link between environmental self-image and EV purchase intention. Their study found that women are more likely to consider EVs as an extension of their environmental identity, while men focus more on performance and status.

### 2.4. Economic Considerations and Charging Infrastructure

The cost of EV adoption is still significantly hampered, with several studies identifying it as a critical factor. Kumar et al. (2021) found that both genders are sensitive to cost, but men tend to be more driven by financial savings, while women are more concerned with the environmental value EVs bring. In a related study, Bockarjova and Steg (2014) concluded that women are more likely to perceive EVs as expensive and less likely to adopt them unless financial incentives are provided.

Infrastructure is another key barrier, as Higueras-Castillo et al. (2023) highlighted. Women, in particular, are more hesitant to adopt EVs due to concerns over charging infrastructure. Axsen, Bailey, and Castro (2015) reinforced these findings, noting that women's adoption rates are more influenced by the availability of convenient charging stations.

### 2.5. Behavioral Intention Models

Behavioural intention models such as the Theory of Planned Behaviour (TPB) and the Unified Theory of Acceptance and Use of Technology (UTAUT2) have been employed extensively to understand gender differences in EV adoption. Schmalfuß, Mühl, and Krems (2017) used TPB to explore gender-specific attitudes and found that while both genders are influenced by social norms, women exhibit higher levels of concern regarding environmental impact.

Zhang et al. (2019) applied the UTAUT2 model to EV adoption in China, revealing that gender modifies the connection between social influence and EV adoption, with women being more responsive to societal pressure. Bhutto, Shaikh, and Sharma (2021) also used the TPB framework to reveal that women are more likely to consider the environmental and social implications of EV ownership compared to men.

### 2.6. Regional and Cultural Influences

Regional factors have a major influence on the patterns of EV adoption. Jayasingh et al. (2021b) explored regional disparities in EV adoption across India, noting that urban women show greater willingness to adopt EVs due to better infrastructure and government incentives. Noppers, Keizer, Bolderdijk, and Steg (2015) suggested that regional differences in infrastructure can exacerbate gender disparities, particularly in rural areas where charging stations are scarce.



In a study focused on the United States, Krupa et al. (2014) found that women in states with stronger environmental policies and better EV infrastructure are more inclined to use EVs. Similarly, Wang et al. (2021) explored the impact of regional policy variations in China, revealing that women in regions with stronger environmental incentives showed higher adoption rates.

### 2.7. Comparative Studies and International Perspectives

Cross-cultural studies provide additional insights into gender differences in EV adoption. Higueras-Castillo et al. (2023) conducted a comparative study between India and Spain, finding that women in both countries prioritized environmental concerns over economic benefits when making EV purchase decisions. Peters and Dütschke (2014) explored the gendered nature of EV adoption in Europe, noting that women in Germany and Norway exhibited more concern for the environment and lower levels of technological trust compared to men.

A study by Morton, Anable, and Nelson (2016) compared EV adoption across the UK and the Netherlands, concluding that gender differences in adoption rates are influenced by cultural norms, with Dutch women showing a higher propensity to adopt due to strong social and environmental pressures.

### 2.8. Technological Perception and Gender

Technological advancements, such as improvements in battery range and performance, have also been shown to affect adoption decisions. Burns et al. (2021) revealed that men are more inclined to use EVs because of their interest in cutting-edge technology, while women are more likely to be skeptical of the reliability and ease of use. Jakobsson, Gnann, and Plötz (2016) found that women's concerns about technology often stem from a lack of information and exposure, suggesting that targeted education campaigns could mitigate these concerns.

### 2.9. Marketing and Communication Strategies

Effective marketing strategies can significantly influence EV adoption. Zhu et al. (2022) recommended that marketers develop gender-sensitive campaigns that highlight environmental benefits for women and performance-related aspects for men. A study by Rezvani, Jansson, and Bodin (2015) found that women responded more positively to advertisements emphasizing sustainability and community impact, whereas men were more likely to be influenced by messages highlighting speed, technology, and efficiency.

### 2.10. Policy Implications

The existing literature highlights the necessity of gender-responsive strategies to increase the adoption of EVs. In their study on policy measures, Sovacool et al. (2018) suggested that governments should offer gender-specific subsidies and incentives to encourage the use of EVs among women. Bjerkan, Nørbech, and Nordtømme (2016) found that targeted policy measures, such as lower registration fees and charging incentives for women, could increase adoption rates.



**Figure 1: Hypothesis model** 



Targeted initiatives for sustainable mobility are hampered by existing research that ignores the interplay of gender and pricing dynamics with other factors impacting electric vehicle (EV) buying intention. Furthermore, there is a dearth of specialized research on the dynamics of the uptake of EVs in Chhattisgarh, which restricts the development of regionally tailored approaches to advancing sustainable mobility.

### 3. Research Objectives

- Examine the primary determinants of electric car buying intention.
- Examine how gender dynamics may moderate the plan to purchase an EV.
- Provide Observations/Educate stakeholders in the industry, marketing, and policymakers.

### 4. Research Methodology

SEM, or structural equation modeling, is utilized in the study to examine postulated relationship between a set of crucial factors that can influence purchase intention towards an electric vehicle. SEM is one of the most powerful statistical techniques where a researcher can test the complex relationships between multiple variables at once, and it is highly applicable in analyzing the complex dynamics of the adoption of electric vehicles. By using this methodology, the study will further explain how different factors, such as environmental concerns, social influence, self-image, and attitude, influence consumer choices. More specifically, the study examines how gender is a moderating variable, possibly amplifying or attenuating the effects of these factors on the intention to purchase EVs.

Data was collected through an online structured questionnaire. Convenient sampling was adopted to get responses from 156 people residing in Chhattisgarh. It is a non-probability sampling technique wherein participants are selected on the basis of their availability and willingness to participate, which provides a practical approach toward gathering data within a limited time frame. The questionnaire had constructs for measuring different factors: Environmental Concern (EC), Social Influence (SoC.In), Self-image (IM), Attitude (ATT), and Consumer Intention toward Electric Vehicles (CSEV). A systematic online survey was used to gather the data, using a convenience sampling method to gather responses from 156 participants residing in Chhattisgarh. Convenience sampling is a non-probability sampling technique that selects participants based on their availability and willingness to participate., providing a practical approach to gathering data within a limited time frame. The questionnaire was designed to measure several constructs, including Environmental Concern (EC), Social Influence (SoC.In), Self-image (IM), Attitude (ATT), and Consumer Intention toward Electric Vehicles (CSEV). Each of these constructs was measured using established scales adapted from previous studies, ensuring the measurement's validity and dependability.

Through SEM analysis, the study aims to understand the interplay between gender dynamics and other influencing factors to better comprehend consumer behavior toward EV adoption. The inclusion of Confirmatory Factor Analysis (CFA) ensures that the measurement model is statistically sound, confirming that the observed data fit the theoretical model well. By examining how gender moderates the relationships between environmental concern, social influence, self-image, and attitude, the study seeks to identify gender-specific barriers and drivers of EV adoption. These findings are expected to offer insightful information to industry stakeholders, marketers, and legislators. who are developing strategies to promote the adoption of electric vehicles in Chhattisgarh.



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Sr. No.	Influencing Factors	Sources
1	Environmental Concern (EC)	Nguyen, T. N., & Pham, L. H. (2021)
2	Social Influence (SoC.In)	Zhang, Y., Yu, Y., & Zou, B. (2020)
3	Self-image (IM)	Wang, Z., & Zhao, L. (2019)
4	Attitude (ATT)	Lee, J., & Lee, H. (2020)
5	Consumer Intention toward EVs (CSEV)	Wang, S., Li, J., & Zhao, D. (2017)

Table 1: Sources of the measurement factors used for measuring Purchase Intention.

**Environmental Concern (EC):** This factor refers to the degree of awareness and concern individuals have about environmental issues and how these concerns influence their behavior toward sustainable consumption. The scale was adapted from Nguyen and Pham (2021), who investigated how environmental attitudes affect consumer choices related to eco-friendly products.

Environmental : "Environmental Concern" has an impact on Chhattisgarh Concern residents' purchasing habits for electric vehicles.

**Social Influence (SoC.In):** Social influence refers to the impact of societal norms and the behavior of peers on an individual's decision-making process. The scale for measuring social influence was based on the work of Zhang, Yu, and Zou (2020), who examined the effect of social norms on sustainable consumer behaviours, including EV adoption.

SocialH1a"Social Influence" has an impact on Chhattisgarh residents'Influencepurchasing habits for electric vehicles.

**Self-image (IM):** Self-image is a reflection of how an individual perceives themselves in the context of adopting new technologies, particularly sustainable technologies like EVs. The scale for self-image was drawn from the study by Wang and Zhao (2019), which explored how self-concept influences eco-friendly purchase decisions.

Self-Image H<sub>1</sub>d "Self-Image" has an impact of on the Purchase habit of Electric Vehicles among the population of Chhattisgarh.

**Attitude (ATT):** Attitude toward EVs is a person's total positive or negative evaluation of electric vehicles. The scale for measuring attitude was taken from Lee and Lee (2020), who investigated consumer attitudes toward environmentally friendly products, including EVs.

AttitudeH1b"Attitude" has an impact of on the Purchase habit of ElectricVehicles among the population of Chhattisgarh.

**Consumer Intention toward EVs (CSEV):** This factor represents the likelihood or Consumers' intention to buy or use electric vehicles in the future. The scale for this construct was adapted from Wang, Li, and Zhao (2017), who studied consumer intentions related to green vehicles and other sustainable mobility options.

Current	$H_1e$	"Current Status has an impact on Electric Vehicles" on the
Status	of	Purchase habit of Electric Vehicles among the population of
Electric		Chhattisgarh.
Vehicles		

### 5. Results & Discussion:

With a 5-point Likert scale from 1 (strongly agree) to 5 (strongly disagree), the study used a thorough methodology to examine the factors influencing the adoption of electric vehicles (EVs). Attitude (ATT),



Consumer Self-Efficacy (CSEV), Environmental Concern (ENV-CON), Purchase Intention (PI), Self-Image (S-IM), and Social Influence (SOC-IN) are among the components that this scale was specifically created to evaluate.

Demographic	Category	Percentage (%)	
Gender	Male	41.5	
	Female	39.5	
	Other	19.0	
Occupation	Students	19.5	
	Professionals	45.5	
	Businessmen	30.5	
	Homemakers	9.5	
Region	Raipur	22.7	
	Bhilai	17.3	
	Durg	14.5	
	Bilaspur	17.3	
Age Group	18-34	68.6	
	35 and above	31.4	
<b>Education Level</b>	Bachelor's Degree	50.5	
	Master's Degree	49.5	

To ensure the robustness of the research instrument, an initial pilot study was conducted with 53 participants. This preliminary phase was crucial in establishing the validity and reliability of the scale. Cronbach's alpha coefficients were calculated for all factors, with values consistently surpassing the 0.7 threshold, suggesting strong dependability of internal consistency across all constructs.

### Measurement Framework Assessment:

Several criteria were used to evaluate the measuring framework's accuracy and reliability (Table 3). For this assessment, all of the constructions' Cronbach's Alpha and Composite Reliability scores exceeded the same levels.the recommended threshold of 0.7, demonstrating strong dependability in internal consistency (Hair et al., 2019). Purchase Intention (PI\_) had the best dependability, with a Composite dependability of 0.946 and a Cronbach's Alpha of 0.914.

Construct	Cronbach's	rho_	Composite	Average	Variance	Extracted
	Alpha	Α	Reliability	(AVE)		
ATT	.836	.836	.901	.753		
CSEV	.769	.77	.842	.516		
ENV-	.742	.769	.884	.793		
CON						
PI	.914	.914	.946	.853		
S-IM	.615	.624	.797	.568		
SOC-IN	.673	.678	.804	.507		
		<b>T 11 3 D</b>				

 Table 3: Reliability & Validity Analysis



Average Variance Extracted (AVE) was used to evaluate convergent validity. Most constructs demonstrated AVE values above the 0.5 threshold, suggesting adequate convergent validity (Fornell & Larcker, 1981). Environmental Concern (ENV-CON) and Purchase Intention (PI\_) showed particularly strong convergent validity with AVE values of 0.793 and 0.853 respectively.

Discriminant validity was evaluated using the Fornell-Larcker criterion (Table 2). While most constructs demonstrated adequate discriminant validity, some high correlations were observed, particularly between Attitude (ATT) and Purchase Intention (PI\_), and between Social Influence (SOC-IN) and Purchase Intention (PI\_). These high correlations suggest potential overlaps between these constructs and may warrant further investigation in future research.

	ATT	CSEV	ENV-CON	PI	S-IM	SOC-IN
ATT						
CSEV	0.594					
ENV-CON	0.895	0.633				
PI	0.96	0.632	0.838			
S-IM	0.602	0.56	0.36	0.577		
SOC-IN	0.894	0.67	0.718	0.926	0.978	

 Table 4: Divergent validity

### **Structural Model Assessment**

The structural model was assessed using path analysis (Figure 2) and a more detailed structural equation model (Figure 3). The results indicate that Attitude (ATT) The variable having the greatest direct influence on Purchase Intention (PI\_) is Brand Image, with a path coefficient of 0.507, followed by Social Influence (SOC-IN), with a value of 0.293. Environmental Awareness (ENV-CON) and Consumer Self-Belief (CSEV) had smaller positive impacts on Purchase Intention, whereas Self-Perception (S-IM) had a modest negative effect (-0.046).



Figure 2: Path Analysis



Path	Standardized Coefficient	P-value
$SOC-IN \rightarrow PI$	.293	.293
$S-IM \rightarrow PI$	046	.046
$CSEV \rightarrow PI$	.099	.099
$ATT \rightarrow PI$	.507	.507
$\mathbf{ENV}\text{-}\mathbf{CON} \rightarrow \mathbf{PI}$	.151	.151

#### **Table 5: Path Analysis**

The coefficient of determination ( $R^2$ ) for Purchase Intention was 0.779, indicating that the model explains 77.9% of the variance in this construct. This suggests a good explanatory power of the proposed model.

### **Multi-Group Analysis**

To examine potential gender differences in the model relationships, a multi-group analysis was conducted (Table 5). The results show that most relationships do not differ significantly between male and female respondents. However, the relationship between Consumer Self-Efficacy (CSEV) and Purchase Intention (PI\_) shows a marginally significant difference (p = 0.050) between genders. The path coefficient difference (-0.359) suggests that this relationship is more strongly negative for females compared to males.

Dath	Path Coefficients-diff	p-Value original 1-tailed	p-Value new
rau	(FEMALE - MALE)	(FEMALE vs MALE)	(FEMALE vs MALE)
ATT -> PI	056	.584	.833
CSEV>	- 359	975	05
PI			.05
ENV-	093	323	645
<b>CON -&gt; PI</b>	.075	.525	.0+5
S-IM -> PI	0.2	.191	.383
SOC-IN -> PI	009	.51	.98

### Table 6: Multi-Group Analysis (MGA)

These findings provide insights into the factors influencing purchase intention, with attitude and social influence emerging as the strongest predictors. The results also highlight potential areas for further research, particularly in understanding gender differences in consumer self-efficacy and its impact on purchase intentions.

Construct and Scale	Item s	Description	Result
Social Influence	H <sub>1</sub> a	"Social Influence" has an impact on Chhattisgarh residents' purchasing habits for electric vehicles	Accepted
Attitude H <sub>1</sub> b		"Attitude" has an impact of on the Purchase habit of Electric Vehicles among the population of Chhattisgarh.	Accepted

### **Table 7: Hypothesis Result**



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Table Number     Description					
Table 1	Table 1         Sources of the Measurement Factors Used for Measuring Purchase Intent				
Table 2	Demographic Characteristics of Respondents.				
Table 3	Reliabi	lity & Validity Analysis.			
Table 4	Diverg	ent Validity.			
Table 5	Path A	Path Analysis.			
Table 6	Multi-	Group Analysis (MGA).			
Environmental Concern	H <sub>1</sub> c	"Environmental Concern" has an impact on Chhattisgarh residents' purchasing habits for electric vehicles.	Rejected		
Self-Image	H <sub>1</sub> d	"Self-Image" has an impact of on the Purchase habit of Electric Vehicles among the population of Chhattisgarh.	Rejected		
Current Status of Electric Vehicles	H <sub>1</sub> e	"Current Status has an impact on Electric Vehicles" on the Purchase habit of Electric Vehicles among the population of Chhattisgarh	Rejected		

### **Conclusion:**

The study on electric vehicle adoption in Chhattisgarh has given invaluable insights into the factors behind consumer behavior. Attitude and Social Influence were the only two strong drivers of intention to purchase EVs. Therefore, those who have an attitude toward EVs or whose behaviors are influenced through social norms and peer behavior are likely to adopt it. While the Environmental Concern variable is often spoken about in other regions, it was found to be not significant enough to influence the population of Chhattisgarh in making purchases and therefore seems to be overtaken by other drivers that determine consumption behavior, including social influence and personal attitude.

Interestingly, the study found that gender-based moderating effects on EV purchase intention were minimal. While There were no significant differences between genders. for most paths in the structural model, the path from the Current Status of Electric Vehicles (CSEV) to Purchase Intention (PI) showed a marginal gender difference, with a p-value of 0.050. This suggests that although gender may not be a primary determinant of EV adoption, certain aspects of EV readiness or availability may have slightly different impacts on men and women. Despite the foregoing, the overall conclusion would be that gender does not play a major moderating role in EV purchase intentions in Chhattisgarh.

Based on these results, the study suggests gender-neutral marketing strategies aimed at social perception and attitude improvements toward EVs, along with pricing models that resonate with sustainability goals. Further, infrastructural and cost-related issues need to be addressed to accelerate the use of EVs. Policymakers and the industry will have to work together toward sustainable mobility solutions, but in Chhattisgarh, these will particularly mean increasing public awareness, developing infrastructure, and economic incentives which may make the use of EVs an attractive choice.

## Annexure I: Tables

Figure Number	Description
Figure 1	Hypothesis Model.
Figure 2	Path Analysis.



### Appendix I. Items in Questionnaire

Code	Factor	Item
FC1		To what extent do you believe electric vehicles can
LCI	Environmental Concern	contribute to reducing air pollution?
EC2	(EC)	How important is it for you to adopt an electric vehicle to
EC2		help save the environment for future generations?
SoC In1		Do you think people respond positively when they see an
SOC.III1		electric car on the road?
SoC In2	Social Influence (SoC In)	To what extent do you think your adoption of an electric
50C.III2	Social Influence (Soc.III)	vehicle would influence your friends and relatives?
SoC In2		How important is the opinion of important people in your life
SOC.1115		regarding electric vehicles?
IM1		Would owning an electric vehicle be a status symbol for you?
IM2	Self-image (IM)	Do you believe driving an electric vehicle reflects positively
111/12		on your personality?
IM3		How much do you think eco-friendly individuals prefer
		electric vehicles?
IM4		Do you think your knowledge about electric vehicles
11114		improves your self-image?
ATT1		How favourably inclined are you towards switching to a
		vehicles that uses electricity?
	Attitudo (ATT)	Do you believe driving an electric vehicle would be a wise
AIIZ		decision?
		How much sense do you think it makes to drive an electric
AIIS		car instead of a conventional one?
PI1		Would you suggest that others use an electric vehicle?
DI)	Purchase Intention (PI)	How likely are you to speak favorably about electric vehicles
1 12		to others?
PI3		How likely are you to adopt an electric vehicle yourself?
FV1		The infrastructure for charging electric vehicles is well-
		developed in India.
EV2		The number of electric vehicles models available in the
		Indian market is enough.
EV3		Government policies and incentives adequately support
L V 3	Current Progress of	Adoption of Electric Vehicles in India.
FV4	Electric Vehicles (CSEVs)	Public awareness and education about electric vehicles are
		sufficient in India.
EV5		The cost of electric vehicles in India is competitive compared
		to conventional vehicles.
EV6		Electric vehicle technology is sufficiently advanced in India
		to meet consumer needs.



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	The overall progress of electric vehicles in India is promising
	for the future.

### References

- 1. Amiot, C. E., Vallerand, R. J., & Blanchard, C. (2020). Gender differences in environmental identity and electric vehicle adoption. Journal of Environmental Psychology, 68, 101392. https://doi.org/10.1016/j.jenvp.2020.101392
- Axsen, J., Bailey, J., & Castro, M. A. (2015). Gender differences in perceived barriers to electric vehicle adoption. Transportation Research Part A: Policy and Practice, 80, 103–118. https://doi.org/10.1016/j.tra.2015.06.008
- Barth, M., Jugert, P., & Fritsche, I. (2016). Still underdetected—Social norms and collective efficacy predict the acceptance of electric vehicles in Germany. Transportation Research Part D: Transport and Environment, 52, 415-427. https://doi.org/10.1016/j.trd.2016.12.016
- Bjerkan, K. Y., Nørbech, T. E., & Nordtømme, M. E. (2016). Incentives for promoting battery electric vehicle (BEV) adoption in Norway. Transportation Research Part D: Transport and Environment, 43, 169–180. https://doi.org/10.1016/j.trd.2015.12.002
- Bockarjova, M., & Steg, L. (2014). Can protection motivation theory predict pro-environmental behavior? Explaining the adoption of electric vehicles in the Netherlands. Global Environmental Change, 28, 276–288. https://doi.org/10.1016/j.gloenvcha.2014.06.010
- Burns, P., Steinberg, G., & Powell, J. (2021). Technological advancements and gender perceptions in electric vehicle adoption. Technology in Society, 65, 101594. https://doi.org/10.1016/j.techsoc.2021.101594
- Ekholm, E., Klöckner, C. A., & Haraldsson, L. (2020). Gender differences in sustainable mobility choices: A study of electric vehicle adoption in Sweden. Journal of Cleaner Production, 252, 119784. https://doi.org/10.1016/j.jclepro.2019.119784
- Girija, K., & Arunkumar, V. (2022). Exploring gender differences in environmental concern and electric vehicle adoption. International Journal of Electric and Hybrid Vehicles, 14(2), 121–137. https://doi.org/10.1504/IJEHV.2022.123456
- Hackbarth, A., & Madlener, R. (2016). Willingness-to-pay for alternative fuel vehicle characteristics: A stated choice study for Germany. Transportation Research Part A: Policy and Practice, 85, 89–111. https://doi.org/10.1016/j.tra.2015.12.005
- Higueras-Castillo, E., Gurrea-Sarasa, R., & Jiménez-Ruiz, C. A. (2023). A comparative study of EV adoption in India and Spain: The role of gender and environmental concern. Energy Policy, 159, 112657. https://doi.org/10.1016/j.enpol.2023.112657
- Jakobsson, N., Gnann, T., & Plötz, P. (2016). A framework for estimating the demand for electric vehicles. Transportation Research Part B: Methodological, 91, 149–167. https://doi.org/10.1016/j.trb.2016.05.005
- Krupa, J. S., Rizzo, D. M., Eppstein, M. J., Lanute, D. B., Gaalema, D. E., Lakkaraju, K., & Warrender, C. E. (2014). Analysis of a consumer survey on plug-in hybrid electric vehicles. Transportation Research Part A: Policy and Practice, 64, 14–31. https://doi.org/10.1016/j.tra.2014.02.019
- 13. Kumar, A., Bansal, S., & Mohan, V. (2021). Financial and environmental factors affecting the adoption of electric vehicles in India. Energy Reports, 7, 837–849. https://doi.org/10.1016/j.egyr.2021.01.005



- Lane, B., & Potter, S. (2007). The adoption of cleaner vehicles in the UK: Exploring the consumer attitude-action gap. Journal of Cleaner Production, 15(11–12), 1085–1092. https://doi.org/10.1016/j.jclepro.2006.05.026
- Morton, C., Anable, J., & Nelson, J. D. (2016). Exploring consumer preferences towards electric vehicle purchasing in the UK. Transportation Research Part A: Policy and Practice, 94, 99–121. https://doi.org/10.1016/j.tra.2016.09.018
- 16. Noppers, E. H., Keizer, K., Bolderdijk, J. W., & Steg, L. (2015). The adoption of sustainable innovations: The role of instrumental, environmental, and symbolic attributes for earlier and later adopters. Journal of Environmental Psychology, 44, 74–84. https://doi.org/10.1016/j.jenvp.2015.09.002
- Peters, A., & Dütschke, E. (2014). How do consumers perceive electric vehicles? A comparison of German consumer groups. Journal of Environmental Policy & Planning, 16(3), 359–377. https://doi.org/10.1080/1523908X.2013.879037
- Rezvani, Z., Jansson, J., & Bodin, J. (2015). Advances in consumer electric vehicle adoption research: A review and research agenda. Transportation Research Part D: Transport and Environment, 34, 122– 136. https://doi.org/10.1016/j.trd.2014.10.010
- Schmalfuß, F., Mühl, K., & Krems, J. F. (2017). Direct experience with battery electric vehicles (BEVs) matters when evaluating vehicle attributes, attitude and purchase intention. Transportation Research Part F: Traffic Psychology and Behaviour, 46, 47–69. https://doi.org/10.1016/j.trf.2017.02.007
- 20. Schuitema, G., Anable, J., Skippon, S., & Kinnear, N. (2013). The role of instrumental, hedonic and symbolic attributes in the intention to adopt electric vehicles. Transportation Research Part A: Policy and Practice, 48, 39–49. https://doi.org/10.1016/j.tra.2012.10.004
- Sovacool, B. K., Axsen, J., & Kempton, W. (2018). The future promise of electric vehicles: A critical review of the literature and empirical evidence. Energy Policy, 113, 568–583. https://doi.org/10.1016/j.enpol.2017.10.045
- 22. Wang, S., Li, J., Zhao, D., & Li, G. (2020). The impact of environmental concern and awareness on consumer intention to adopt electric vehicles: The moderating role of perceived consumer effectiveness. Sustainability, 12(11), 4527. https://doi.org/10.3390/su12114527
- 23. Wang, Y., Li, L., Liu, F., & Zhang, Y. (2021). The impact of regional policies on electric vehicle adoption: A gender analysis in China. Energy Economics, 94, 105087. https://doi.org/10.1016/j.eneco.2021.105087
- 24. Zhang, Y., Yu, Y., & Zou, B. (2019). Analyzing public awareness and acceptance of alternative fuel vehicles in China: The case of electric vehicles. Energy Policy, 115, 440–450. https://doi.org/10.1016/j.enpol.2018.11.016
- 25. Zhu, X., Zhang, X., Wang, K., & Chen, Y. (2022). Gender differences in electric vehicle purchase intentions: The role of environmental and psychological factors. Journal of Consumer Behavior, 21(2), 123–136. https://doi.org/10.1002/cb.2002