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CONSUMER PERCEPTION AND PREFERENCE TOWARDS FUEL AND ELECTRIC VEHICLES IN COIMBATORE DISTRICT

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ABSTRACT

The automobile industry is also in a state of transition with the growing trend of electric vehicles as an alternative to fuel vehicles. The purpose of this paper is to examine consumer perception of fuel vehicles in comparison to electric vehicles in terms of awareness, cost factors, environmental factors, performance factors, and purchase intention. The paper is descriptive in nature and is based on primary data collected from 60 respondents using a structured questionnaire. Simple percentage analysis and Chi-square test have been applied to examine the relationship between demographic variables and consumer behaviour. The paper suggests that even though fuel vehicles are in high demand in comparison to electric vehicles, the trend of electric vehicles is gaining momentum in terms of consumer behaviour. However, the paper also suggests that demographic factors play an important role in determining consumer behaviour. However, lack of charging points and high costs are a few drawbacks for electric vehicles. However, in the long run, electric vehicles can gain momentum with increased awareness and support from the government.

KEYWORDS *Electric Vehicles, Fuel Vehicles, Consumer Perception, Buying Behaviour, Environmental Awareness*.

INTRODUCTION OF THE STUDY

The transport sector plays a vital role in the development of the economy, but it also pollutes the environment to a large extent. The fuel vehicles, which operate on petrol and diesel, have been in use for a long time because of their convenience, wide network, and lower cost. However, owing to the rise in fuel prices, environmental pollution, and government initiatives for electric vehicle usage, electric vehicles have come up as a new mode of transport. The electric vehicles operate on batteries, and there is no pollution from these vehicles, making them environment-friendly compared to fuel vehicles. However, in spite of their advantages, the perception of the customers regarding electric vehicles varies due to their high cost, charging points, battery life, and maintenance. The objectives of this research are to compare the perception of the consumers

regarding fuel and electric vehicles and to identify the factors affecting their purchase decisions.

OBJECTIVES OF THE STUDY

- To analyze the factors that influence the consumer's preference towards fuel-driven vehicles and electric vehicles.
- To examine the relationship between demographic variables and consumer preference for fuel and electric vehicles.

REVIEW OF LITERATURE

Yadav, R. & Pathak, G. S. (2017) examined the determinants of green purchase behaviour in India. Their study, published in Ecological Economics, highlights that although consumers express positive environmental attitudes, these intentions do not always translate into actual purchasing behaviour. High costs and convenience-related concerns act as major barriers. In the context of electric vehicles (EVs), the study suggests that despite awareness about environmental benefits, consumers continue to prefer fuel vehicles due to affordability and ease of use.

Mohan, D. & Dhingra, C. (2018) discussed electric mobility in India from a transport-planning perspective in Energy Policy. The study emphasizes that fuel vehicles are perceived as more adaptable to India's diverse road and travel conditions. While EV adoption shows potential, acceptance is higher in structured urban settings where infrastructure support is relatively better. This indicates that infrastructure availability significantly influences consumer perception.

Mathur, S. & Tiwari, G. (2020) in their publication in Transport Policy, analyzed consumer expectations and policy implications related to electric mobility in India. The study found that dissatisfaction regarding charging infrastructure, battery range, and charging speed continues to strengthen the dominance of fuel vehicles. The authors stress that policy measures must align with consumer expectations to accelerate EV adoption.

Kaur, A. & Singh, B. (2021) examined EV acceptance among Indian youth in Young Consumers. Their findings reveal strong environmental concern and positive attitudes toward EVs among young consumers. However, affordability issues and charging limitations reduce actual purchase intention. Fuel vehicles are perceived as more practical given current income levels and infrastructure limitations.

Arora, S. & Goyal, P. (2022) in their study published in International Journal of Consumer Studies, this empirical study investigates factors influencing purchase intention toward electric vehicles in India. The research identifies perceived economic benefits, environmental concern, and social influence as major positive drivers of EV adoption. However, consumers still consider fuel vehicles less risky, more reliable, and more versatile for long-term use. The study concludes that improving consumer confidence and reducing perceived risks are essential for increasing EV market penetration in India.

RESEARCH GAP

Despite numerous studies comparing fuel vehicles and electric vehicles, it has been found that most studies concentrate on certain practical issues such as costs, fuel efficiency, maintenance, and availability of charging stations. While these issues are certainly significant, they do not reveal exactly why consumers still prefer fuel vehicles or what exactly drives other consumers to prefer electric vehicles. The role of emotional and psychological factors has not been explored thoroughly.

Moreover, few studies have been conducted on generational differences, particularly on Gen Z consumers. Generally, young consumers have different opinions on certain issues, and their opinions on these issues could impact their vehicle preferences.

STATEMENT OF THE PROBLEM

People are becoming more aware of issues related to the environment, the rising costs of fuels, and the need for cleaner lifestyles. This is a key reason for people showing increased interest in electric vehicles. They are clean and can save a lot in the long run. Electric vehicles are also a technological advancement in the automobile sector. However, people are still hesitant to switch from traditional vehicles to electric vehicles. They are concerned about how far an electric vehicle can go, where they can charge their vehicles, how long the batteries can run, and whether it is worth the additional amount charged for an electric vehicle. Due to all these issues, traditional vehicles are still the most comfortable and popular option for people.

LIMITATIONS OF THE STUDY

- The research is confined to the Coimbatore district population, which may not reflect the perception of people from other areas with different economic conditions, infrastructural facilities, and awareness of electric vehicles.
- The responses may be based on self-reported measures, as the data is collected through questionnaires. It may also lead to personal bias, which may not be reliable.
- The sample size may not reflect the entire population of the consumers, as the participation may be voluntary, which may attract people having strong opinions either positive or negative towards electric vehicles.

REASEARCH METHODOLOGY

REASEARCH DESIGN

The study is primarily based on primary data collected through a structured questionnaire administered to consumers in the Coimbatore District

SAMPLING METHOD

The sample unit of the study consists of individual vehicle owners and potential vehicle buyers in the Coimbatore District.

The study adopts a Non-Probability Sampling Method, specifically Convenience Sampling.

TOOLS USED

The data were analysed using SPSS software, applying Simple Percentage Analysis and Chi-Square Analysis.

I SIMPLE PERCENTAGE

TABLE:1

DEMOGRAPHIC PROFILE OF RESPONDENT

S. No	Demographic Variable	Category	No. of Respondents	PERCENTAGE
1	Gender	Male	30	60%
		Female	20	40%
2	Age	0 – 20 years	18	35.29%
		21 – 30 Years	27	52.94%
		31 – 40 Years	5	9.80%
		41-50 YEARS	1	1.96%
		Above 50Years	0	0.00
3	Educational Qualification	SSLC / HSC	7	13.73%
		Undergraduate	34	66.67%
		Postgraduate	5	9.80%
		Professional Degree	3	5.88%
4	Occupation Status	Student	18	35.29
		Private sector employee	27	52.94
		Government employee	5	9.80
		Business/self-employed	1	1.96
		Others	0	0.00
5	Monthly Income Level	Below ₹15,000	13	25.49
		₹15,001–₹30,000	28	54.90
		₹30,001–₹50,000	3	5.88
		Above ₹50,000	3	5.88
6	Family Structure	Nuclear family	18	35.29
		Joint family	33	64.71
7	Residential Area (Coimbatore District)	Urban	27	52.94
		Semi-urban	13	25.49
		Rural	11	21.57

8	Type of Vehicle Currently Owned	Fuel-based vehicle	45	88.24
		fuel and electric vehicle	1	1.96
		Both	2	3.92
		None	2	3.92
9	Vehicle Category Used Most Often	Two-wheeler	46	90.20
		Four-wheeler	1	1.96
		Both	4	3.92
10	Period of Vehicle Usage:	Less than 1 year	9	17.65
		1–3 years	18	35.29
		3–5 years	9	17.65
		More than 5 years	15	29.41
11	Main Purpose of Vehicle Use	Daily travel	27	52.94
		Business activities	13	25.49
		Personal needs	10	19.61
		Long-distance travel	1	1.96
		Daily travel	27	52.94
12	Approximate Monthly Fuel Charging Expense:	Below ₹1,000	10	19.61
		₹1,001–₹3,000	31	60.78
		₹3,001–₹5,000	6	11.76
		Above ₹5,000	4	7.84
13	Have you ever thought about buying a Fuel and fuel and electric Vehicle	Yes	34	66.67
		No	11	21.57
		Undecided	5	9.80
14	Main Source of Information about fuel and electric Vehicles	Television/Newspapers	2	3.92
		Social media	34	66.67
		Friends/Relatives	12	23.53
		Vehicle dealers	3	5.88

Source: Primary Data

The simple percentage analysis of 60 respondents reveals that the majority (60%) are male and most (52.94%) belong to the 21–30 years age group, indicating that young adults dominate the study. A significant portion (66.67%) are undergraduates and 52.94% are private sector employees, with more than half (54.90%) earning between ₹15,001–₹30,000 per month, showing that middle-income salaried individuals form the main consumer group. Most respondents (64.71%) belong to joint families and 52.94% reside in urban areas of Coimbatore district. A large majority (88.24%) currently own fuel-based vehicles and 90.20% mainly use two-wheelers, primarily for daily travel (52.94%). Most respondents spend ₹1,001–₹3,000 per month on fuel or charging (60.78%). Importantly, 66.67% have considered purchasing fuel or electric vehicles, and

social media (66.67%) is the major source of information, indicating increasing awareness and growing interest in electric vehicles among consumers.

II CHI SQUARE ANALYSIS

TABLE:2

OCCUPATION AND CONSUMER PERCEPTION ADOPTION

OCCUPATION	CONSUMER PERCEPTION ADOPTION				CHI SQUARE
	LOW	MEDIUM	HIGH	TOTAL	
Student	2	12	1	15	13.108[a] 041 (S)
Private Employee	4	15	11	30	
Government Employee	1	0	0	1	
Business / Self-employed	1	5	0	6	
TOTAL	**8**	**32**	**12**	**52**	

Interpretation

The Chi-square value is 13.108 and the p-value is less than 0.05. Hence, the null hypothesis is rejected. There is a significant association between occupation and consumer perception of adopting fuel and electric vehicles.

TABLE: 3

RESIDENTIAL AREA AND CONSUMER PERCEPTION OF ADOPTION

RESIDENTIAL AREA	CONSUMER PERCEPTION OF ADOPTION				CHI SQUARE
	LOW	MEDIUM	HIGH	TOTAL	
Urban	3	22	2	27	**24.226 0(S)**
Semi-Urban	1	3	9	13	
Rural	4	7	1	12	
TOTAL	**8**	**32**	**12**	**52**	

Interpretation

The Chi-square value is 24.226 and the p-value is less than 0.05. Therefore, the null hypothesis is rejected. There is a highly significant association between residential area and consumer perception of adoption.

TABLE: 4

VEHICLE PERIOD OF USAGE AND CONSUMER PERCEPTION

	CONSUMER PERCEPTION	CHI-SQUARE

PERIOD OF USAGE	LOW	MEDIUM	HIGH	TOTAL	
LESS THAN 1 YEAR	1	7	1	9	**13.974[A] 030(S)**
1–3 YEARS	2	7	9	18	
3–5 YEARS	3	5	1	9	
MORE THAN 5 YEARS	2	13	1	16	
TOTAL	**8**	**32**	**12**	**52**	

Interpretation

There is a significant association between vehicle usage period and consumer perception of adopting fuel and electric vehicles.

TABLE 5

LEVEL OF PERCEPTION AND CONSUMER PERCEPTION OF ADOPTION

LEVEL OF PERCEPTION	CONSUMER PERCEPTION OF ADOPTION				CHI SQUARE
	LOW	MEDIUM	HIGH	TOTAL	
2	1	1	0	2	**p-value = 0.039)**
3	2	5	0	7	
4	4	7	1	12	
5	1	19	11	31	
TOTAL	**8**	**32**	**12**	**52**	

Interpretation

The Chi-square value is 13.291 and the p-value is less than 0.05. Hence, the null hypothesis is rejected. There is a significant association between level of perception and adoption of fuel and electric vehicles.

FINDINGS

- The majority of respondents are young adults (21–30 years), indicating that younger consumers play a key role in shaping vehicle preference trends in Coimbatore District.
- Fuel-based vehicles, particularly two-wheelers, dominate current ownership and usage patterns, mainly for daily commuting purposes.
- Fuel-based vehicles, particularly two-wheelers, dominate current ownership and usage patterns, mainly for daily commuting purposes.

- Middle-income private sector employees constitute the primary consumer segment, highlighting the influence of income stability on vehicle choice.
- Social media serves as the major source of information, significantly influencing awareness and perception toward electric vehicles.
- A significant association exists between occupation and customer perception of adoption ($p < 0.05$), indicating that employment status affects openness toward EVs.

SUGGESTIONS

- The government and other entities should expedite the setting up of public EV charging infrastructure, particularly on highways, malls, workplaces, etc., in the Coimbatore region.
- Fast charging infrastructure should be developed to minimize wait times for consumers.
- Awareness drives, test drive events, educational seminars on EV technology, etc., should be conducted.

CONCLUSION

This comparative study on the consumer perception in Coimbatore district reveals that there is a clear preference for fuel vehicles, and the main reason behind this is the convenience, pricing, performance, and infrastructure factors. However, there is a growing awareness and positive attitude towards electric vehicles, especially among the younger generation and environmentally conscious consumers. The main problems that are acting as a barrier in the adoption of electric vehicles are the higher cost, range anxiety, and infrastructure-related issues. However, this study reveals that with specific support from the government, better infrastructure, and financial support, the consumer perception regarding electric vehicles can be transformed in the future. In essence, the fuel vehicles are preferred in the current market, and the reason behind this is the traditional strengths and infrastructure, and in the future, the growth of electric vehicles in Coimbatore is likely to be positive, provided that specific support is provided to consumers in line with their expectations and requirements.

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