Major Research Project Report on

Consumer perceptions on electric two-wheelers

Submitted by:

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2K21/DMBA/122

Under the guidance of:

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DECLARATION

This is to certify that I have completed the Project titled "**Consumer Perception on Electric Two-Wheelers**" under the guidance of "**Mr. Abhinav Chaudhary**" (Professor) in the partial fulfillment of the requirement for the award of the degree of "Masters in Business Administration" from "Delhi School of Management, Delhi Technological University."

It is also certified that the project of ours is an original work and the same has not been submitted earlier elsewhere.

Shubham Kanojia
(2K21/DMBA/122)

CERTIFICATE

This is to certify that the project titled "**Consumer Perceptiontowards Electric two-Wheelers**" is an academic work done by **Shubham Kanojia** and is submitted in the partial fulfillment of the requirement for the award of the degree of "Masters in Business Administration" from "Delhi School of Management, Delhi Technological University," under the guidance and direction of Mr. Abhinav Chaudhary, Professor.

To the best of our knowledge and belief the data and information presented by them in the project has not been submitted earlier elsewhere.

Signature of Guide

Place:

Date:

ACKNOWLEDGEMENT

Words often fail to express one's feelings towards others, still I would like to express my sincere gratitude towards our guide **Mr. Abhinav Chaudhary** (Professor) for his able guidance, continuous support and cooperation throughout our project, without whom the present work would not have been possible.

I would also like to extend our sincere & heartfelt obligation towards all the respondents who helped me in the collection of all the necessary data and information that helped me proceed with this research project and made it a successful task.

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ABSTRACT

Overlapping environmental concerns are driving the production and sales of electric vehicles. Global sharks like Bosch, AVL, Cummins, and other manufacturers were drawn to India because of its highly skilled and semi-skilled technology workforce, large client base, and affordable labour prices and enter India to manufacture electric two-wheelers.

The numerous aspects that have an impact on and influence a consumer's decision to invest in and buy these cars must be studied in order to understand prejudged attitudes and perceptions towards electric 2-wheelers. Electric 2-Wheeler purchases are influenced by a number of variables, including environmental concerns, performance, infrastructure, price sensitivity, and an individual's perception of these variables.

Infrastructure and price sensitivity set the stage for how customers will view electric two-wheelers, while cost and performance have an adverse effect on how quickly consumers will adopt electric two-wheelers. As a result, in order to encourage and promote the use of electric vehicles, the government must step in and make a contribution because it has a substantial impact through the development of environmental regulations, the provision of infrastructure, the subsidization of the cost of vehicles, and the lowering of bank interest rates.

We all know that the 2 wheeler and vehicle industries are among the worst polluters of the environment because of the quantity of CO2 and other harmful petrol emissions that have a significant impact on the planet's pollution and climate change scenarios. Therefore, it's crucial to encourage people to buy electric cars. This study took into account four key factors, including price sensitivity, environmental consciousness, infrastructure, and performance mentioned in questionnaire that influence consumers' intentions to buy electric two-wheelers.

1. NTRODUCTION

1.1 Overview of the Indian Automotive Industry

One of the economies in the world with the quickest growth rates is India. Since India's independence, a variety of industries, including textile, agriculture, automobile, etc., have experienced significant growth. These industries have benefited and grown steadily as a result of the assistance they have received from numerous government and charity programs.

The automotive industry is one of India's most significant sectors, and it has grown to the point that it now serves as a major engine of the nation's economic expansion. Not only that, but industry participation is rising steadily on a global scale. The government has made significant contributions to the expansion of the automobile industry, allowing it to carve out a distinct niche for itself among the manufacturing industries.

The Historic background of two-wheelers: In India, two-wheelers are one of the most significant modes of mobility. In India, the first two-wheelers appeared in the 1950s. For the Indian Army, the Government of India ordered the 350 cc "Bullet" in 1955 from the Royal Enfield Company of United.When the market was first opened to fresh businesses like Yezdi and Rajdoot in the 1970s. Then, at that time, Bajaj made its market debut with the "chetak," which gave India's two-wheeled vehicle market a boost with "scooters."

Due to the liberalisation that was taking place at the time, the automotive industry was deregulated in the 1990s. The rivalry in this market rose after the liberalisation, and the reforms put in place at that time made Indian exports competitive.

Consumers in the automotive industry had a limited selection of models and options in the past. However, once liberalisation occurred, this industry underwent a sudden shift and expansion as a result of the numerous foreign firms who entered the market as a result of the newly created reforms. It was observed that numerous international businesses began working with regional producers in an effort to increase market share in accordance with customer demands. This change and evolution in the automobile industry not only enhanced their contribution to economic growth but also benefited a number of others.

Current Trend: The automobile sector has advanced significantly since the 1950s, when it only produced 40,000 vehicles annually. Currently, there are frequent updates and new debuts that are made available to consumers, and the Indian automotive sector has slowly but surely made its way and emerged as a significant player in the global automotive industry. 23 million automobiles were produced in India during the fiscal year 2021. In addition, India is now the biggest producer of tractors, 2nd biggest producer of buses, and producer of 2- and 3-wheeled vehicles globally.

The electric 2-wheeler business in India has been expanding quickly thanks to new manufacturing centers, 100% FDI accessibility, and improved infrastructure facilities. India, with its enormous population, presents an enormous unexplored market for manufacturers of electric 2-wheelers, who are receiving growing assistance from the federal government.

1.2 An Overview of the Indian Electric Vehicle Industry

The Indian government has made an effort to convert its manufacturing industry into a global leader in both R&D and production. The NATRIP was created by the government to serve as a link between it and business. Five testing and research labs have been constructed as of 2005. Recently, the electric vehicle sector has also proposed grant testing infrastructure after the year structure for performance certification. (EV) as a component of the FAME programme by the NATRIP Implementation Society. The initiative Implementation and Approval Committee (PISC) approved the dubious and ambitious initiative in 2019 that aims to have India's government sell entirely electric cars. As part of the FME (Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles in India) programme, the government of India has selected 11 major cities for the presentation of electric vehicles (VE) in its open vehicle forum. The government estimated that this programme would cost 10,000 crore rupees over the fiscal years 20-23.

The government announced an annual valuation of 1.5 lakh rupees (US $2,146) on the plot issued on the credit used for purchasing electric vehicles as part of the Union Budget for 2019-2020. To the end of November 2019, venture capital inflows into new electric car companies increased by over 170% to $ 397 million. In 64 urban areas of 26 states, the government has authorised 5,595 electronic transmissions for intra-city and city-to-city operations under FME II.

The future of the global automobile industry lies with electric cars (EV). A future in which the activity's establishment is proposed and unions manage to make it successful. Over 2 million electric vehicles, including BEVs, PHEVs, and FCEVs, were sold globally in 2018. The majority of these vehicles have integrated this new innovation into its ecosystem, which demonstrates the growing popularity of these vehicles in this statistic. In any case, the United States, China, and Japan accounted for more than 70% of these transactions. Despite all, India still has a long way to go on the global front, but the entry of electric vehicles into the Indian market has been a remarkable start to the journey.

Electric 2-wheelers are the most prevalent type of EV, with a market size of over 25 million units, and their demand has been impacted by the rising demand in Asian nations. The main Asian nations of Japan, China, and India have influenced and raised demand for electric 2-wheelers.

Approximately 1,51,19,387 two-wheelers were sold in India in 2020–21, and 143837 of those were electric two-wheelers. Electric 2-wheelers are not widely used in India, primarily due to issues including high initial costs, insufficient charging stations, and expensive battery replacement expenses.

The main types of electric two-wheelers are bicycles, mopeds, scooters, and motorcycles. Electric motorbikes and scooters are the two types of electric two-wheelers that are most frequently utilised in India. These electric 2-wheelers are better suited for a country like India because they include a portable battery that can be charged using a regular outlet.

Electric motorcycles and two-wheelers should be adopted in developing nations like India for another reason: they are very efficient and produce less noise and pollution.

The electric 2-wheeler business in India has been expanding quickly thanks to new manufacturing centres, 100% FDI accessibility, and improved infrastructure facilities. India, with its enormous population, presents an enormous unexplored market for manufacturers of electric 2-wheelers, who are receiving growing assistance from the federal government.Consumer adoption of electric vehicles has been the subject of numerous research papers and studies, while consumer attitudes and perceptions regarding electric two-wheelers have received far less attention. This study focuses on the uptake of electric vehicles 2 wheelers and determine the elements that influence a consumer's decision to purchase an electric 2 wheeler.

1.3 Leading manufacturers of electric 2-wheelers in India

India wants to have 100% of its population electrified by 2030. The Indian government is working hard to attain this aim, and cleaner transportation is becoming more prevalent. Major players are continually investing in R&D in this market and growing their footprint, including Mahindra Electric and Hero Motocorp. Startups like Ather Energy, Ola Electric, Okinawa Autotech, and others have seen a growth in sales over time. The Electric 2-wheeler Industry is anticipated to expand at a compound annual growth rate of 75-80% between FY22 and FY25.

Top Electric Two-Wheeler Companies by Their Market Share

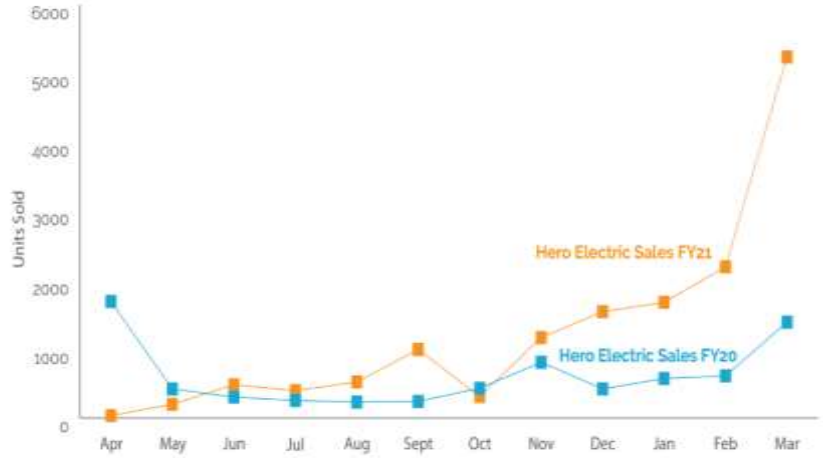
Name	Market Share (FY21)	No of Dealers in India	No. of Models
Hero Electric	36%	600+	10
Okinawa	17%	550	7
Ampere	14%	300	8
Ather	11%	15	2
Revolt	4%	11	2
Bajaj	4%	2	1
Benling	3%	52	4
TVS	2%	2	1

1) **Hero Electric**

Hero Electric, a division of Hero Motocorp, has grown to be the industry leader in the electric 2-wheeler market, holding a market share of over 36%. Hero Electric entered this industry in 2017 by releasing its first scooter powered by lithium-ion batteries. Hero Electric hasn't looked back since, and at this point, it has dealership networks spanning more than 600 cities and 325 cities nationwide.

With a market share of more than 36%, Hero Electric, a subsidiary of Hero Motocorp, has become the market leader for electric 2-wheelers. Hero Electric made its entry into this market in 2017 when it unveiled its first scooter with lithium-ion batteries.

Since then,Hero Electric hasn't turned back and now has dealership networks in more than 600 and 325 cities countrywide.



Hero Electric Two Wheeler Sales

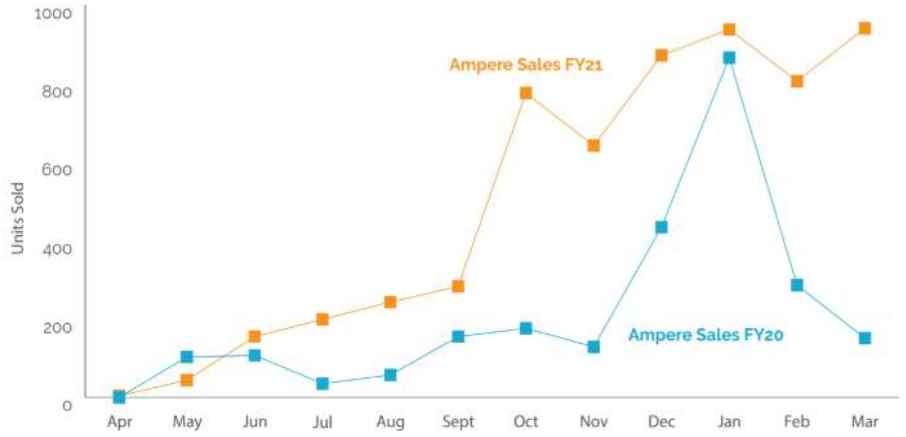
2) Okinawa Autotech

A private limited corporation with its headquarters in Haryana, Okinawa Autotech only produces electric 2-wheelers in India. Okinawa Autotech intends to expand its operations by opening 450 dealerships nationwide, up from the present 24 outlets. Okinawa Autotech, which already produces electric scooters, intends to expand into the market for producing E-motocycles. Nearly 29,995 units were sold by the corporation in the Indian market in 2021, and they passed the milestone of 100,000 units sold.

Okinawa Autotech Sales

3) **Ampere Vehicles**

Ampere Vehicles, a subsidiary of Greaves Cotton Company with a Bengaluru base and a 14% market share, is a business. One of the oldest businesses in this sector, Ampere Vehicles, beat Ather Energy by delivering about 12,470 units. This business encourages the empowerment of women and so employs 30% female employees. The company provides consumers with electric 2-wheelers such the Reo, Magnus EX, Magnus Pro, Zeal, and Reo Elite.



Ampere Vehicles Sales

4) **Ather Energy**

This 2013-founded Bangalore-based business holds 11% of the market. The business only produces two models, the Ather 450X and 450 Plus, yet even with just two models, it sold over 10,921 units in 2021. Ather Energy will need to raise new capital and expand its operations in order to remain competitive in the market, as the industry's degree of competition rises.

Ather Energy Electric two wheelers sales

In addition, Revolt and Bajaj each account for 4% of the overall market share, while TVS and Benling each account for 3%. It is clear that new rivals are stepping into ma

2. LITERATURE REVIEW

As EVs are once more becoming popular in the Indian transportation sector, we can see that history is repeating itself. Prior to 1918, the use of electrical cars was in full swing, but they suffered a setback with the advent of gasoline-powered internal combustion vehicles. But in 2017, electric vehicles (EV) made a comeback, and this time around they were being bought for greater distances. In addition, the government has helped to improve the system for maintaining and supporting EVs. Two elements result from technological adoptions and perceptions: the characteristic of the technology comes first, then the attribute of the adopter. It can be described as "innovation theory of diffusion (IDT) (Rogers, 1962) and its following expansions (such as the TOE framework, Tornatzky and Fleischer, 1990)" when viewed through the managerial perspective. Thus, utility performance, usability , social impact, and enabling conditions are all factors in the adoption of new technology (Venkatesh and Davis, 2000; Venkatesh et al., 2003). While turning to electric motors, the aforementioned aspects show to be essential.

In 2007, Lane and Potter performed a research of UK citizens as well as a survey of prospective buyers of electric vehicles that was based on two theories: the theory of planned conduct and the value belief norm theory. After conducting the study, he came to the conclusion that the principal elements positively influencing the acquisition and sales of electric vehicles were the vehicles' usability, dependability, performance, energy efficiency, and safety. However, there had been no research or evidence to support the attitude of Indian customers towards the adoption of electric vehicles. There was no pertinent research to substantiate how Indian customers perceived and adopted new technologies.

The precise facts of their usage remain unknown despite growing public awareness of environmentally friendly goods, renewable energies, and environmental protectionism. The majority of consumers in industrialised nations are not aware of the advantages green products can have for the environment. To put it another way, people hardly ever hold themselves accountable for the harm done to our ecosystem. It is crucial to include effective marketing tactics and awareness campaigns to raise public involvement in environmental preservation. Lack of exposure will cause the demand for green products to lie on the line, which would discourage many businesses from entering this market. The public's faith in green products must grow in order to balance the supply and demand ratio "(Sandeen, 2009)".

Buyers are paying more attention to products that are environmentally friendly. In addition to the customer's responsibility to the environment, they appreciate the perception that others have of them differently in that they pay extra for a product out of a desire to preserve the environment, which in turn inspires the buyer to safeguard the environment. in 2009 (De Craecker and De Wulf).

Cost is one amongst the factors that several studies have found may increase consumers' willingness to purchase green products (De Craecker and De Wulf, 2009). Marketers should first consider the business, the type of the product, and the target audience before developing an effective valuation system. Buyers' perceptions of pricing can be favourably influenced if they believe they can save money by buying an electric vehicle.

Customers now prioritize the ecological impact when making daily purchasing decisions. While people have started to understand that everyone has a responsibility to handle environment and to genuinely take care of the same, governments have also been forced to provide clear plans regarding ecological conservation (Chen, 2010).

According to Oliver and Lee (2010), some factors, such as social orientation, mental self-portrait, and social traits, influence people's decisions to take action in favour of the environment. Additionally, a similar study demonstrates that people in Asia cooperate more and perceive a connection between natural and conventional traits. This behaviour enables consumers to learn information about green products.

Recently, there has been an increase in pollution on a global scale, and the impacts it has had are now being felt by everyone. All people in the globe should band collectively and begin gathering resources for the research results and consequences in order to solve this issue.2010 (Dief and Font).

It is necessary to develop a learning and instruction programme that will help individuals comprehend their environmental obligations and consumer behaviour. Consumers need to be aware that the ecological foundation of ecological goods and services is pricy and pricey. Making consumers aware of how important it has become to switch to green products—even though they are more expensive—that are good for both the environment and their well-being is now a necessity of the hour. Such support for eco-friendly products could cover overcharges (Eicholtz et al., 2010).

According to many research, customers are becoming more concerned about the substantial commuting distance that electric vehicles can cover on a full battery (DeGermancy and Breitner, 2013).

Concern for the environment and the environmentally friendly nature of a product do not guarantee that a green product will be offered. The apparent perceived value of being green is important for fostering long-term relationships between businesses and clients. The maintenance of the customer connection is substantially impacted by this. The value of the saw and the intention to purchase green are significantly related. There are numerous item characteristics that draw customer attention. As a result, when customers have positive experiences with green products, their perceptions of those products are elevated in their minds, and they are more likely to enthusiastically recommend those products to others, increasing the likelihood that those individuals would make green product purchases. (2012) Chen and Chang.

According to Chen (2010), "green trust" refers to how much a consumer is willing to rely on green products as a result of their ability and dependability in terms of green performance. Self-confidence significantly influences consumers' intentions to purchase. Consideration for the environment in environmentally friendly items has an impact on green confidence (Chen and Chang, 2013). Consumer mistrust towards firms will grow if they do not adhere to environmental regulations or boost the greenness of their products.

Low prices have a positive effect on consumers, and some of them prefer promotions that are offered as discounts. Value addition has a significant impact on how customers value deals and can boost sales (Rahman and Mate, 2013).

Longer charge times are another another performance aspect to consider when buying an electric car. Customers of EVs may experience anxiety and a sense of unease when they have to travel long distances from charging points due to the autonomy issue (Lim et al., 2014). In summary, self-sufficiency, charging time, and reliability and health concerns are tied to an EV live buy.

In the last few years, there has been a tremendous surge in EV adoption research. In a recent study, Rejwani et al. (2015) investigated attempting to appropriate electric vehicles using various fictitious systems, receiving a mixture of, conduct similar conduct of consumers' electric vehicles from various fictitious perspectives, organised and exemplary.

Various words, such as environmental branding or green marketing, which encompass consumers, organisations, and governments, depict the relationship between marketing and the environment. The main goal of green advertising is to increase awareness of pollution and the anxieties that contribute to it becoming increasingly severe (Kumar, 2015).

Data on greenery has an impact on environmentally conscious consumers, who are then affected in turn. Unfortunately, a lot of people lack knowledge about ecological problems or have little knowledge of them, therefore they don't act responsibly (Harvey, 2015).

Only when consumers are confident and aware that the products do less damage to the environment and the items are recyclable do consumers prefer to trust the products and intend to purchase electric 2-wheelers.

According to a the customer Federation of America survey from 2015, consumers who are more interested in buying electric vehicles also tend to be better knowledgeable about them. In any case, only 21% of the respondents claimed that they knew a "considerable lot" and far less claimed to know a "lot" about electric automobiles.

3. RESEARCH OBJECTIVES AND METHODOLOGY

3.1 Objective of the study

1. To research the elements that influence a consumer's decision to purchase an electric two-wheeler.

2. Examine how these different components interact with one another

3. Study Consumer's thinking and perception in adopting Electric two wheelers.

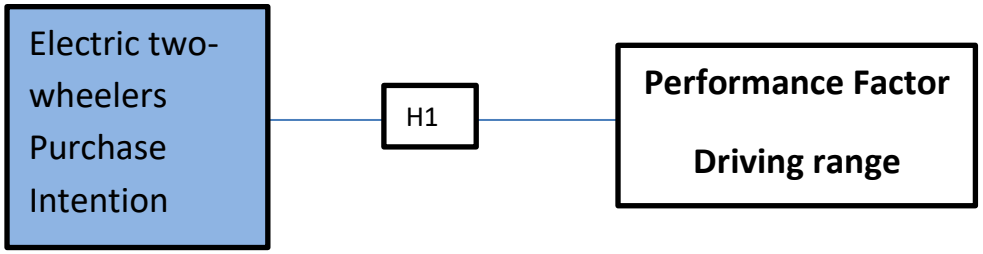
4. To determine what influences a customer's decision to purchase an electric two-wheeler.

And also learn what influences a consumer's decision to purchase an electric two-wheeler.

Hypothesis

H0: There is no significant relationship between Gender and Performance factor of Electric 2 wheelers driving range.

H1: There is significant relationship between Gender and Performance factor of Electric 2 wheelers driving range.



3.2 Research Methodology

In this project research that is descriptive has been used. A 114-person sample population's primary data is gathered utilizing an online questionnaire. Additionally, the Chi-Square test is utilized to evaluate the hypothesis.

Without attempting to modify or control any variables, descriptive research tries to describe and investigate a phenomena or situation.

Without attempting to alter any of the factors or test any hypotheses, the research in this example tries to define and examine customer perspective towards electric automobiles in India. The research approach entails gathering information via questionnaires and focus group talks, examining the information to spot trends and themes, and making judgement in light of the results. As a result, it falls under the

category of descriptive research.

The survey assists in gathering quantitative information from a sample group Indian consumer who are relevant. The study asks about how consumers feel about electric 2 wheelers, what influences people's buying decisions, and what adoption challenges there are.

In order to encourage the use of Electric 2-wheelers in India, the findings are provided in the form of a study with suggestions for regulators and manufacturers.

Conclusions about consumer behaviour are made using data analysis findings.

Finding trends, patterns, and issues in data is the aim of the study.

3.3 Research Design

Surveys via the internet and in-person focus groups are used to gather data.

By distributing questionnaires to pre-selected study samples, the descriptive research project known as "Research Design" was evaluated. A method of statistics called the chi-square test is used to evaluate actual outcomes with predictions. This test's goal is to establish if a discrepancy between actual and anticipated data is the result of chance or a connection among the variables under consideration.

If the test outcome is statistically significant (P 0.05), the test hypothesis is invalid or needs to be rejected.

Conclusions about consumer behavior are made using data analysis and finding trends, patterns, and issues in data is the aim of the study.

4. DATA ANALYSIS AND INTERPRETATION

4.1 Chi – Square Test

The stated hypothesis is tested using Chi-Square test above which will help determine the level of significance, and whether to accept the null hypothesis or reject it.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender * Performance Factors of E.V [I would buy an Electric 2 Wheeler if increased driving range is provided]	114	100.0%	0	0.0%	114	100.0%

Gender * Performance Factors of E.V [I would buy an Electric 2 Wheeler if increased driving range is provided] Crosstabulation

			Performance Factors of E.V [I would buy an Electric 2 Wheeler if increased driving range is provided]					
			Agree	Disagree	Neutral	Strongly Agree	Strongly Disagree	Total
Gender	Female	Count	18	7	18	12	1	56
		Expected Count	21.1	5.4	13.3	15.2	1.0	56.0
	Male	Count	25	4	9	19	1	58
		Expected Count	21.9	5.6	13.7	15.8	1.0	58.0
Total		Count	43	11	27	31	2	114
		Expected Count	43.0	11.0	27.0	31.0	2.0	114.0

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	6.505[a]	4	.164
Likelihood Ratio	6.591	4	.159
N of Valid Cases	114		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is .98.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.239	.164
	Cramer's V	.239	.164
N of Valid Cases		114	

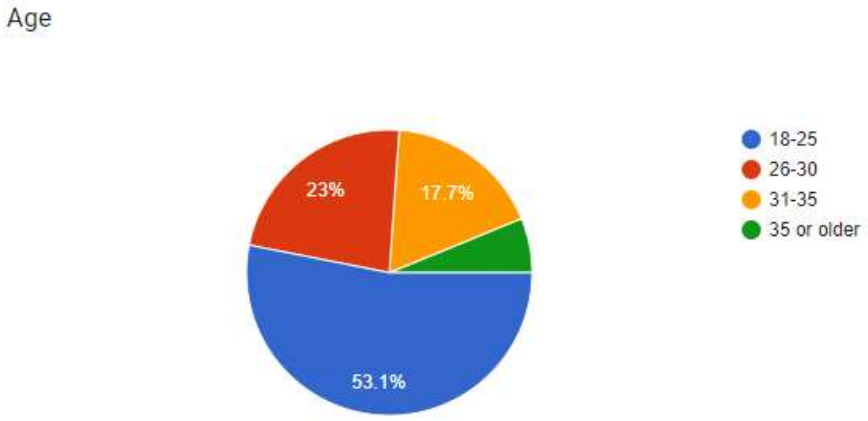
The p value for Pearson and likelihood ratio test is 0.164 and 0.159 respectively

based on chi-square test. At a significance level of 0.5, test failed to rule out null hypothesis and shows that there is no connection between gender and performance component of driving range.

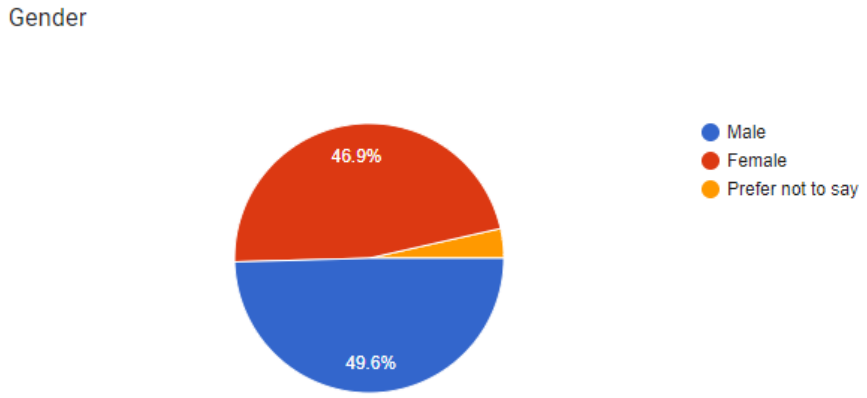
Therefore, we reject the alternative hypothesis (H1), as there is no significant relationship between Gender and Performance factor of Electric 2 wheelers driving range.

4.2 Questionnaire Analysis

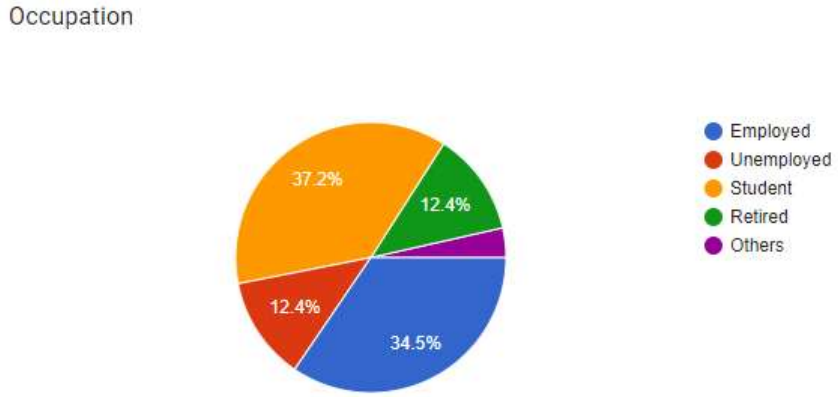
An interpretation of the questionnaire filled by the respondents.



Out of the sample size, 53.1% of the responders are between the ages of 18 and 25 and 23% of them are between 26-30.This indicates that the bulk of the people responding to survey are among younger generation. This result suggests that consumers' perceptions of electric 2-wheelers are most likely influenced by younger people and are the target market for electric 2-wheelers.

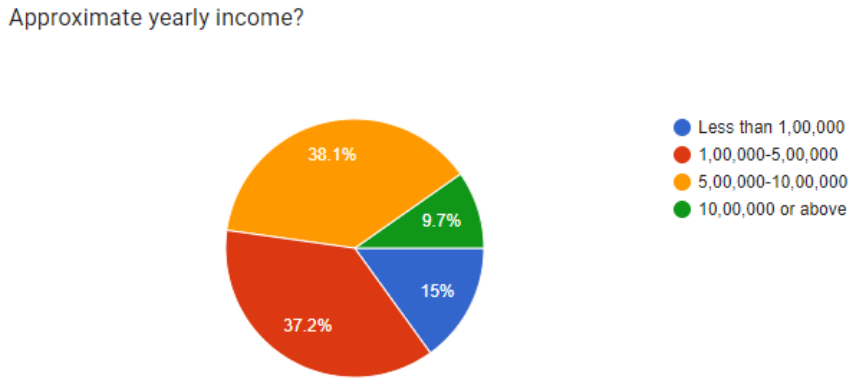


According to the responses 49.6% are male and 46.9% are female and 3.5% preferred not to say. This suggests that both male and female are almost equally interested in electric 2-wheelers.This demonstrate that the interest level of both genders are similar for electric 2 wheelers.

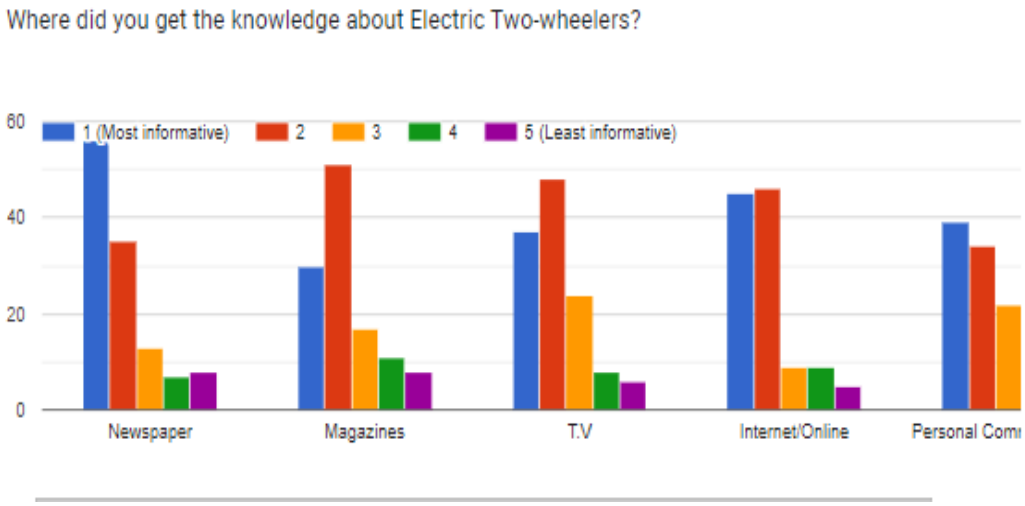


Particularly, 34.5% of respondents identify as employed, and 37.2% identify as students and 12.4% are unemployed and retired individuals and rest 3.5% others.

This implies that opinions on electric 2-wheelers are actively being provided by both students and working people. It suggests that both groups are interested in electric 2-wheelers, as it may save their cost of transportation by using electric 2 wheelers. The very high proportion of respondents who were students may also indicate that younger people, who are probably students, are especially interested in electrical 2-wheelers.

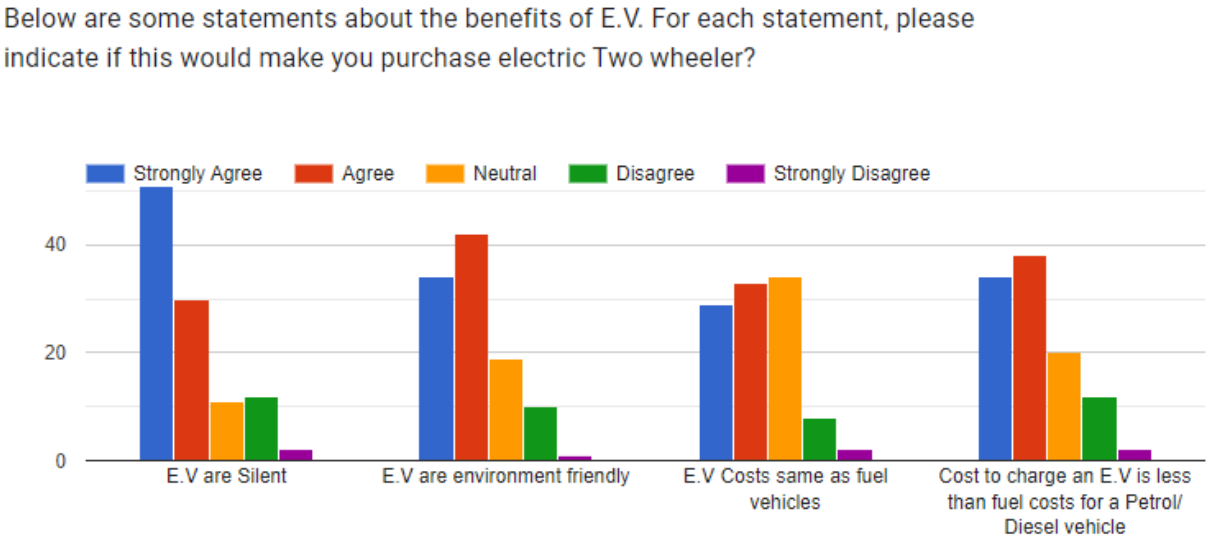


The two major yearly income groups according to the responses are 38.1% who have income between 5 to 10 lakhs and other major group is 37.2% who have yearly income of 1 to 5 lakhs. A considerable percentage of those who responded were in the middle-income bracket, earning between 1 and 10 lakhs per year. This could help in understanding how various income groups feel about electric 2-wheelers and to create focused marketing strategies that match their individual needs and concerns, it can also be helpful for manufacturers to analyze their attitudes, preferences, and behaviors.

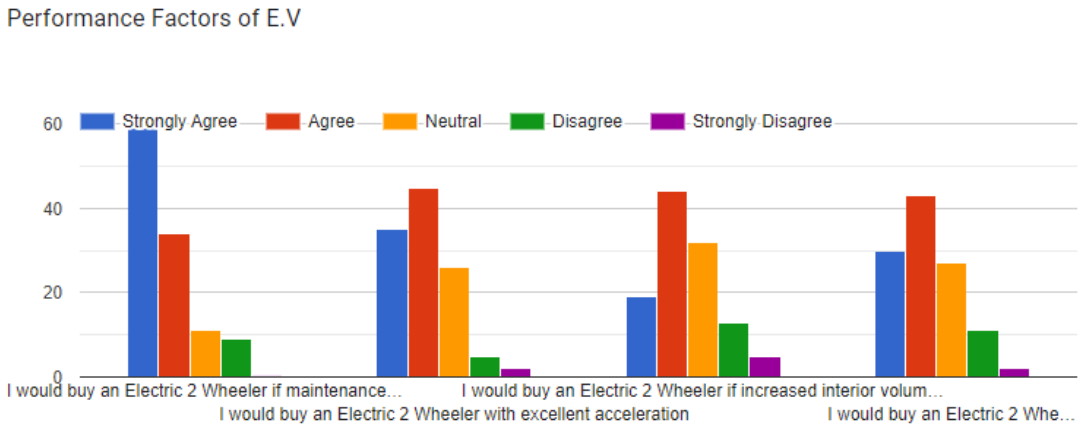


The sources of information that consumers typically use to learn about electric two-wheelers are shown in the graphical chart above, the majority of individuals looking to the internet for information on electric 2-wheelers followed by Newspapers and television are the most prevalent sources of information, indicating that conventional media is still continuing to influence how consumers perceive electric 2-wheelers. While as a source of knowledge magazines appear to have less of an impact than the internet, daily newspapers, and T.V. This also shows that how crucial digital media is in influencing customer attitudes.

The above pie chart shows that a consumer could stop from buying an electric tow wheeler are purchase cost 33.6% and followed by recharging cost 29.2% and maintenance cost 23.9%. These three groups are majorly high from stopping a consumer purchase, as a consumer may feel the initial purchasing cost of an electric 2 wheelers are high and recharging and maintenance cost are also the issue of consumers which may make them unwilling to make a purchase.

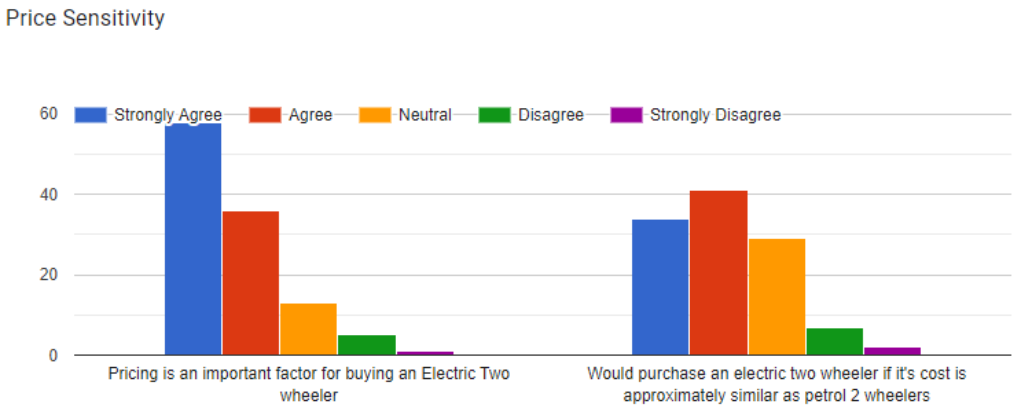


The advantages of electric vehicles are illustrated in the above bar graph that customers typically consider to be a key consideration before buying an electric two-wheeler like according to the respondents Electric scooters are silent and do less noise pollution. 69.2% believes that EV is environment friendly and can contribute to improve the air quality and 80 out of 114 respondents could potentially make a purchase because it cost lower to charge EV Scooter than fuel scooter.

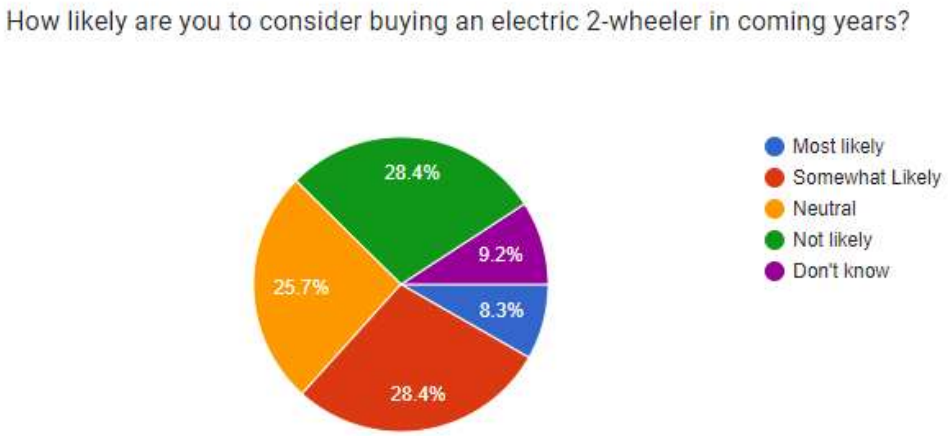


Performance factor for Electric 2 wheeler that respondent consider is shown by above chart which depicts that respondent or consumer.

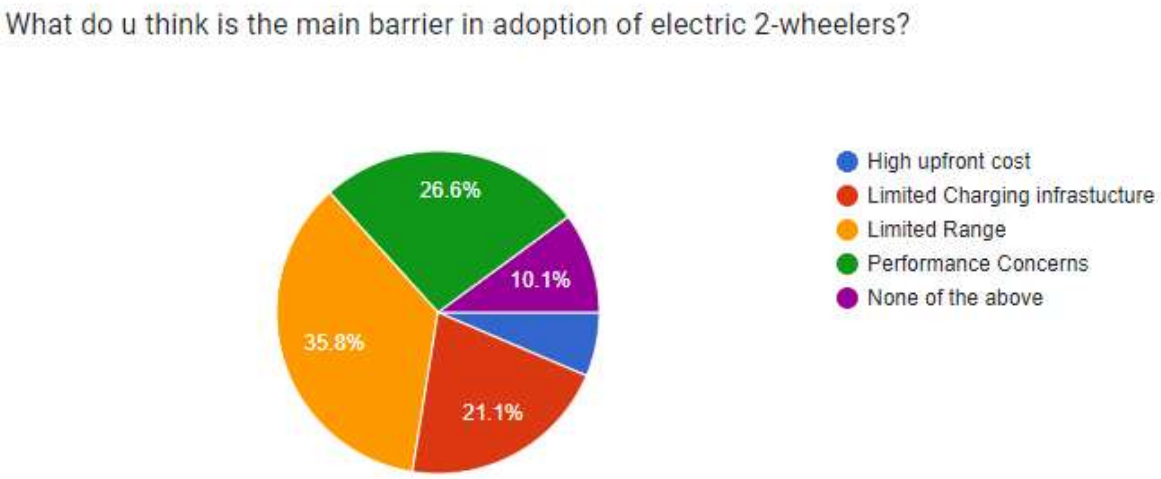
Majority of them prioritize the driving range that an EV scooter can cover and 81 out of 114 respondents wants better and smooth acceleration with torque and also the char show that many are concerned with maintenance and better boot space as batteries occupies the boot space.



The above chart shows that consumers are price sensitive and 83.5% thinks it is an important factor and also lower EV scooter price than fuel scooter can serve to more customer range and attract them. And also have opinion that it should at-least have similar rates if not less as higher price than fuel scooter can become a barrier for manufacturers.



The above pie chart shows 28.4% are somewhat likely to buy an e-scooter and 28.4% are not likely to buy an electric scooter whereas 25.75 are neutral and 9.2% have not given a thought for it and 8.3% are most likely to buy. So these mixed opinion shows that consumers are still hesitating in buying Electric 2 wheeler and manufacturers should do further research and development, advertisement to capture the market.



The major limitation for consumer is limited range 35.8% are concerned with range as they may face trouble in covering their journey and 21.1% also feels that the infrastructure for charging is not developed so they may get stuck on their way.

And 26.6% think that electric two wheelers may underperform if the battery is not fully charged.

5. MANAGERIAL IMPLICATIONS

Some companies have been working to increase their awareness of the environment. They think that an item's 'greenery' element alone is sufficient to make it profitable to sell it. However, it's interesting to note that the electric vehicle business has started using environmentally friendly advertising in a new way. They have made an effort to develop and implement a green plan that will entice consumers to purchase electric automobiles. Even while the study claims that there are many other elements that influence consumers' decisions to buy green vehicle products, "greenery of EV" isn't a sufficient argument.

It assisted in identifying and demonstrating that performance-related elements are what motivate consumers to purchase electric 2-wheelers.

The cost element may also have a negative impact on consumers' decisions to buy electric two-wheelers. It is essential to develop and put into action a plan that corresponds with long-term consumer demand. This approach has a number of benefits, including the ability to increase income while still attempting to lower R&D expenses. Many businesses today utilize green marketing, and they could be ready to assist and provide potential customers a better viewpoint. More than its rivals, a company that works to preserve and protect the environment gains respect from the public.

6. LIMITATIONS OF THE STUDY

There are restrictions to every search. While the objective should be as precise as feasible, some restrictions were found because of the technique and nature of the approach:

- The total number of respondents to this study is 114 only. Thus the conclusions are not a representation or a reflection of the entire population of India which may affect the results and findings about the consumer's perception county wide.
- The survey designed to gather the data was only distributed to those who were easily accessible. Additionally, a few participants didn't finish the questionnaire, and only a select sample of respondents took part. Consequently, the information gathered may vary depending on the region.
- The statistics may have been modified by some responders due to misunderstanding or individual prejudice.
- In addition, since the opinions of all people were not taken into account, it can be argued that the research's findings cannot be generalized.

7. CONCLUSION

This study's main objective was to investigate consumer perceptions of electric two-wheelers. Aspects including price sensitivity, concern for the environment, and performance have been taken into account and assessed after analysing a large number of research papers for the literature study.

The study's and findings suggest that manufacturers of electric 2-wheelers may potentially utilize them to develop marketing plans. If people are properly informed and India begins to switch from petrol to electric 2-wheelers, the condition of the air will improve as well as will be further environmental advantages. The report also demonstrates that buyers are still experimenting with electric vehicles and weigh a variety of criteria before making a purchase.

The study conclude that in order to increase the social acceptance of electric vehicles, the Indian government and the manufacturers of these vehicles must invest more in building infrastructure and place a higher emphasis on vehicle performance. The outcome clearly shows that the general public is aware of the benefits of nature, yet this will not persuade them to purchase electric vehicles. People are beginning to adopt electric vehicles, which will be integrated with the responsibilities of government agencies and producers, with funding for the production of vehicles, how consumers feel should be established by offering those mentioned amenities in order to make the desire a reality, and pollution. Many are working to prevent respiratory ailments in India in the future, and it is a major concern for the entire world.

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ANNEXURE- QUESTIONNAIRE

Study on consumers perception towards electric two wheelers

* Indicates required question

1. Age *

Mark only one oval.

- ◯ 18-25
- ◯ 26-30
- ◯ 31-35
- ◯ 35 or older

2. Gender *

Mark only one oval.

- ◯ Male
- ◯ Female
- ◯ Prefer not to say

3. Occupation *

Mark only one oval.

- ◯ Employed
- ◯ Unemployed
- ◯ Student
- ◯ Retired
- ◯ Others

4. Approximate yearly income? *

Mark only one oval.

- ◯ Less than 1,00,000
- ◯ 1,00,000-5,00,000
- ◯ 5,00,000-10,00,000
- ◯ 10,00,000 or above

5. Where did you get the knowledge about Electric Two-wheelers? *

Check all that apply.

	1	2	3	4	5
Newspaper	☐	☐	☐	☐	☐
Magazines	☐	☐	☐	☐	☐
T.V	☐	☐	☐	☐	☐
Internet/Online	☐	☐	☐	☐	☐
Personal Communications	☐	☐	☐	☐	☐

6. Which of the following list of costs could stop you from purchasing an electric two-wheeler? *

Mark only one oval.

- ◯ Purchase Cost
- ◯ Recharging Cost
- ◯ Maintenance Cost
- ◯ Resale Cost

7. Below are some statements about the benefits of E.V. For each statement, please indicate if this would make you purchase electric Two wheeler? *

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
E.V are Silent	◯	◯	◯	◯	◯
E.V are environment friendly	◯	◯	◯	◯	◯
E.V Costs same as fuel vehicles	◯	◯	◯	◯	◯
Cost to charge an E.V is less than fuel costs for a Petrol/Diesel vehicle	◯	◯	◯	◯	◯

8. Performance Factors of E.V *

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I would buy an Electric 2 Wheeler if maintenance cost is lower for EV's as compared to fuel 2 wheelers	◯	◯	◯	◯	◯
I would buy an Electric 2 Wheeler with excellent acceleration	◯	◯	◯	◯	◯
I would buy an Electric 2 Wheeler if increased interior volume within the vehicle is provided	◯	◯	◯	◯	◯
I would buy an Electric 2 Wheeler if increased driving range is provided	◯	◯	◯	◯	◯

9. Price Sensitivity *

Mark only one oval per row.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Pricing is an important factor for buying an Electric Two wheeler	◯	◯	◯	◯	◯
Would purchase an electric two wheeler if it's cost is approximately similar as petrol 2 wheelers	◯	◯	◯	◯	◯

10. How likely are you to consider buying an electric 2-wheeler in coming years? *

Mark only one oval.

- ◯ Most likely
- ◯ Somewhat Likely
- ◯ Neutral
- ◯ Not likely
- ◯ Don't know

11. What do u think is the main barrier in adoption of electric 2-wheelers? *

Mark only one oval.

- ◯ High upfront cost
- ◯ Limited Charging infrastucture
- ◯ Limited Range
- ◯ Performance Concerns
- ◯ None of the above