



A Study on factors affecting electric vehicle purchase behaviour of generation Y in India

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ABSTRACT

Demand for electric cars has surged dramatically recently, although it currently accounts for a small fraction of all new vehicles sold worldwide. A mere 1% of all two-wheeler sales were electrified in 2021. It is thus necessary to investigate the implementation of an E2W. A behavioral model of electric two-wheeler adoption is developed as part of this study. The purpose of this research was to discover the characteristics that impact customers' inclinations to use electric two-wheelers. 182 valid replies were obtained using the questionnaire approach. The study hypothesis was tested using partial least squares structural equation modelling (PLS-SEM). Research shows that customers' attitudes regarding electric two-wheelers are influenced by environmental concerns, the perceived benefits of using electric vehicles, and charging infrastructure. An electric two-wheeler buyer's attitude plays a vital role in their decision to acquire one. Electric two-wheelers were discovered to be the most popular mode of transportation for customers due to their perceived economic advantages. In addition, women are more likely than males to buy electric two-wheelers, according to the study's results. Electric-two-wheeler manufacturers and governments may utilize this information to better understand customer preferences for electric two-wheelers.

INTRODUCTION

Demand for electric cars (EVs) is on the rise, although they still make up just a tiny fraction of all new vehicles sold worldwide. Road transportation in India is still in its infancy when it comes to electric vehicles (EVs). The number of electric cars sold worldwide is expected to reach 10 million by 2020, yet this will only account for 1% of total sales. There will be 25 million electric two-wheelers (E2W) in use by 2020, mostly as a result of rising demand in Asian nations. Because of the rapidly growing economies of India, China, and Japan, Asia is the largest market for electric two-wheelers. More than 80% of India's automotive sales are of two-wheelers, which dominate the country's auto market. Electric vehicles are expected to account for 30 percent of all new cars sold in India by 2030, according to government objectives set for the country's transportation industry. Electric two-wheelers accounted for 143,837 of India's 15,119,387 two-wheeler sales in 2020–2021, according to SIAM. Electric two-wheeler sales accounted for less than 1% of all vehicle sales in 2021. Despite several government efforts, the use of electric two-wheelers (E2W) in India is very low. Indians aren't buying electric two-wheelers because of hefty upfront prices, range concern and a lack of charging stations.

There are 22 cities in India classified among the world's most polluted, making it the third most polluted nation. Oxygen deficiency is one of the primary causes of air pollution in the United States. Carbon dioxide emissions are a significant source of air pollution, and India ranks third in the world in terms of total emissions. The transportation industry in India ranks third in terms of CO₂ emissions. Nearly 7.5 percent of India's carbon dioxide emissions are attributed to the transportation sector, according to the MOSPI data. Electric vehicles (EVs) release half the greenhouse gases of gasoline and diesel, making the switch to EVs a no-brainer for reducing GHG emissions. As a result, electric vehicle (EV) adoption is the greatest way to reduce harmful air pollution levels in congested Indian cities. Batteries, hybrids, plug-in hybrids and extended-range electric cars all fall under the umbrella of electric vehicles. The majority of electric two-wheelers are powered by battery-powered electric motors. Bicycles, mopeds, scooters, and motorcycles are all types of electric two-wheelers. Electric bicycles, often known as e-bikes or e-bikes, are bicycles powered by electricity. Speeds over 20 mph are not permitted. A prevalent mode of transportation in India is an electric scooter or motorbike. A lead-acid or lithium-ion battery powers electric two-wheelers. More than half of the Indian market's sales would be accounted for by Hero Electric and Okinawa E2W in 2021. A portable battery that can be recharged from an ordinary wall outlet in a house or workplace makes electric two-wheelers a better choice for developing nations like India.

- Energy consumption: 524 million tons of oil equivalent
- Vehicle to people ratio: 1:56.3
- Per capita energy: 442 kg of oil equivalent
- GHG emissions: 1730 million tons of CO₂ equivalent
- Electric Vehicle (EV) sold (2016): 25000 (all) and 2000 (cars)

LITERATURE REVIEW

Carbon dioxide, the government has decided to go all-electric vehicles (EVs) on road by the year 2030. Even though EVs are in the market for the last five years, still it has not been able to attract sufficient customers. The study attempts to assess the public perception about EVs and its impact upon purchase intentions of respondents. A literature review is a comprehensive summary of previous research on a topic. The literature review surveys scholarly articles, books, and other sources relevant to a particular area of research. The review should enumerate, describe, summarize, objectively evaluate and clarify the previous research.

1) Taeseok Yonga *, Chankook Park (May 2017)- The research states about factors affecting the deployment of electric vehicle in these research the researcher has mentioned about 3 factors which affect the buying behavior of a consumer i.e 1) policy factor 2) environmental factor 3) Technological factor

2) Ajex Thomas Varghese *, V. S. Abhilash and Sini V. Pillai (June 2021) - A Study on Consumer Perception and Purchase Intention of Electric Vehicles in India. It shows that what consumer thinks about and what is the perception and intention on buying the electric vehicle and how a consumer makes the decision

3) Trin Thananusak, Sirisuhk Rakthin, Thiti Tavewanaphan, Prattana Punnakitikashem* - Factors Affecting the Intention to Buy Electric Vehicles. This study used Partial Least Squares Structural Equation Modelling (PLS-SEM) to test the relationships between the five factors (financial factors, infrastructure, performance, environmental concern, and price-premium) and intention to buy electric vehicles (EVs) in Thailand.

4) Thomas Franke & Josef F. Krems - They examined the psychological dynamics underlying charging behaviour of electric vehicle (EV) users. Data from 79 EV users were assessed in a 6-month EV field study. On average, users charged their EV three times per week, drove 38 km per day, and they typically had a large surplus of energy remaining upon recharging.

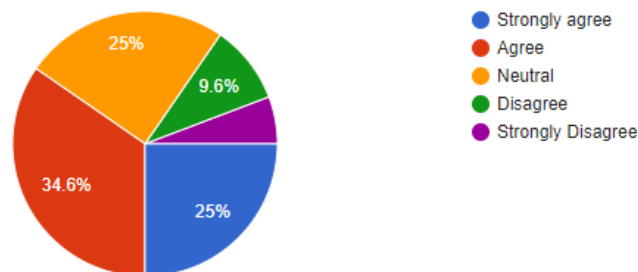
5) Jashandeep Singha and Ramandeep Singh Arnejab - To combat the problem like global warming caused due to emission of carbon dioxide, the government has decided to go all-electric vehicles (EVs) on road by the year 2030. Even though EVs are in the market for the last five years, still it has not been able to attract sufficient customers. The study attempts to assess the public perception about EVs and its impact upon purchase intentions of respondents.

RESEARCH METHODOLOGY

As research is design where the study is all about the factors affecting purchase behaviour of electric vehicles of generation y in india. The study is totally based on primary data where the responses are collected from respondents of india. Questioner was shared with the targeted samples and responses was taken for data analysis . here are the questions and responses received for that.

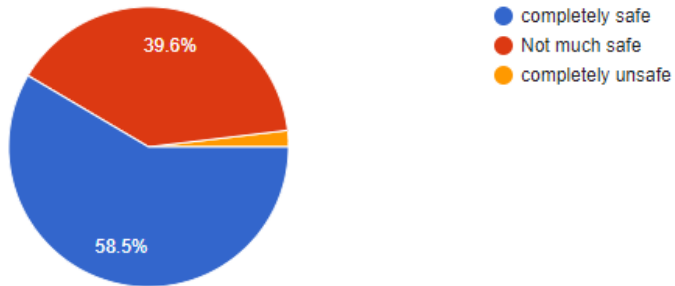
Eco-friendly vehicles will be inconvenient to use because there are many unexpected problems.

52 responses



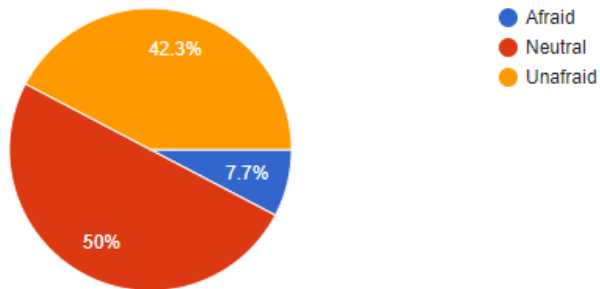
I Think Eco-friendly vehicles will not be safe overall.

53 responses



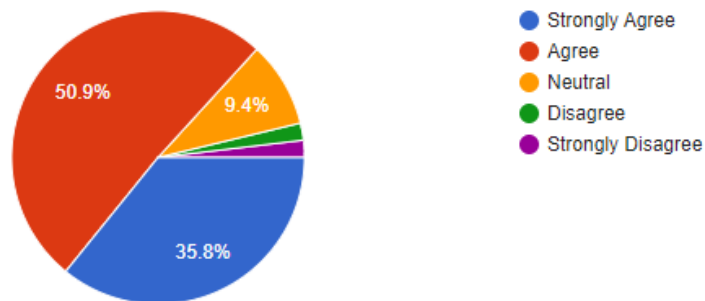
I have a lot of fear of new technology.

52 responses



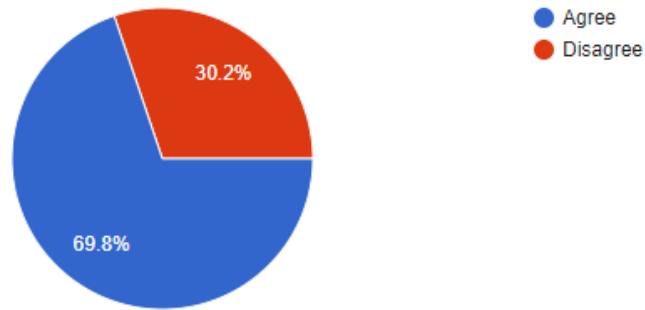
I enjoy experiencing new technology.

53 responses



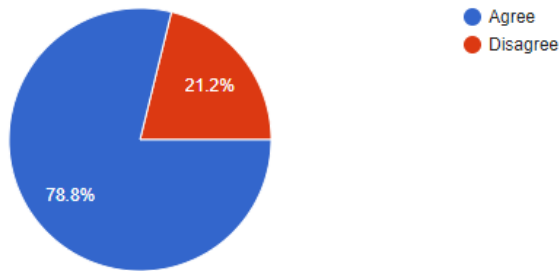
I challenge new technologies relatively early.

53 responses



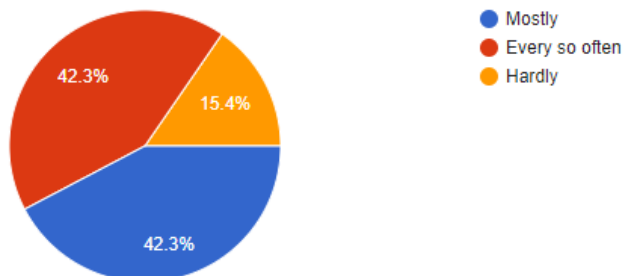
I keep up-to-date with consumer technology by reading newspapers/magazines, websites or relevant TV shows

52 responses



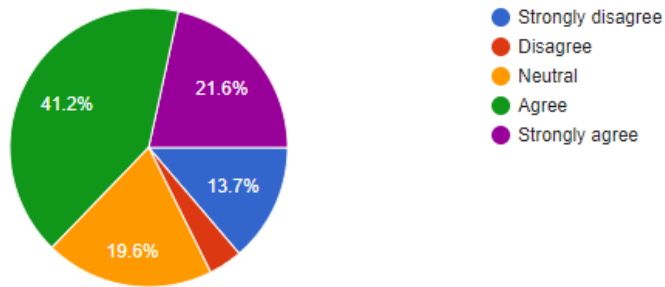
Friends and colleagues regularly come to me about advice concerning new consumer technology

52 responses



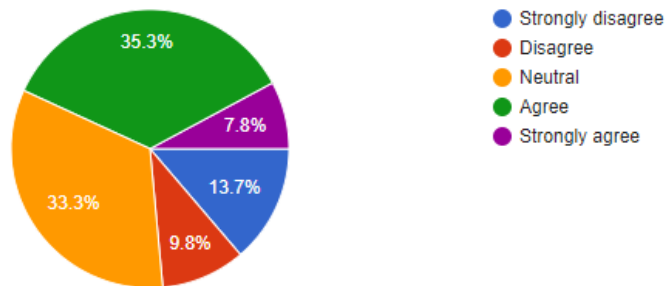
I think that electric vehicles could provide the benefit of fuel savings.

51 responses



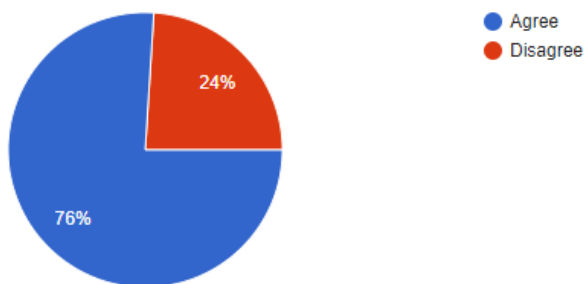
I think that electric vehicles could provide the benefit of cheap electricity

51 responses



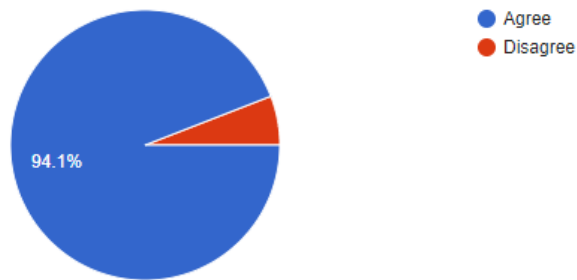
The cost of purchasing eco-friendly vehicles will be cheaper than internal combustion engine vehicles.

50 responses



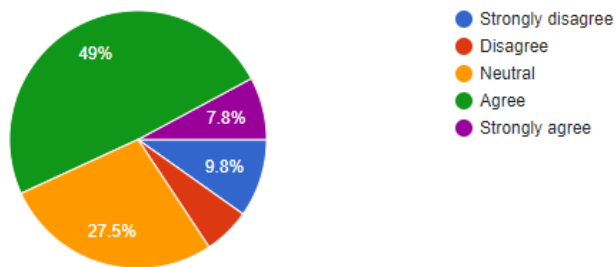
I think Air Pollution is the main concern nowadays

51 responses



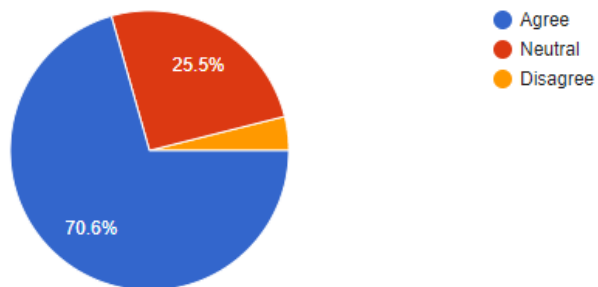
The introduction of eco-friendly vehicles is consistent with the current environmental policy.

51 responses



The use of an eco-friendly vehicle will help protect the environment

51 responses



CONCLUSION

Many nations are dealing with environmental challenges like air pollution from the transportation industry, particularly in emerging countries like Pakistan. Policy suggestions were then developed based on this study's findings, which analysed the most pressing issues in the deployment of electric vehicles. Electric vehicles (EVs) are a viable solution to the issue of air pollution, and they will help the economy, the ecology, and the country's ability to generate its own electricity. We found that this was one of the rare types of research that investigate the association between EV purchase intention and extended theory-of-planned-behavior factors, environmental concern, and customers' willingness to pay extra for an EV, based on our analysis of previous relevant studies. According to this research, attitudes regarding electric vehicles (EVs) have the greatest impact on EV purchase intentions, while environmental concerns have a greater impact on females' EV purchase intentions and willingness to pay more for an EV. EV purchase intention in developing countries is a new area of research that examines how environmental concern impacts consumers' willingness to pay more for an EV.

To sum up, we might speculate that the consumer response to the adoption of electric vehicles in underdeveloped nations may help them to leapfrog into environmentally friendly and sustainable civilizations (Sharma et al., 2021). Because of their low GHG emissions, EVs may help protect human health and the environment by reducing health risks and contributing to a more stable climate.

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