ISSN (ELECTRONIC): 2945-3135

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INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH & REVIEWS

Journal homepage: www. ijmrr. online/ index. php/ home

DETERMINANTS OF BEHAVIORAL INTENTION TOWARDS E-VEHICLES AMONG GEN Z

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How to Cite the Article: ***Ali Umer & Rachana Mohan Agrawal. (2024)****. Determinants of Behavioral Intention Towards E-Vehicles Among Gen Z Digital Wallet Users In Rural Areas. International Journal of Multidisciplinary Research & Reviews, 3(4), 157-163.*

DOI: https://doi.org/10.56815/IJMRR.V3I4.2024/157-163

Keywords

Theory of Planned Behavior,
E-vehicles.

Abstract

As environmental concerns grow, electric vehicles (EVs) are becoming an essential part of the global transition toward sustainable energy. The purpose of the study is to evaluate factors influencing adoption of EVs among GEN Z.it is seen that GEN Z behaviour is significantly influenced by social norms (Subjective Norms), Attitude towards EVs and Environmental concern also play a key factor influencing adoption of EVs among GEN Z. Further Studies can be conducted incorporating Mediating and Moderating construct in the Existing model.

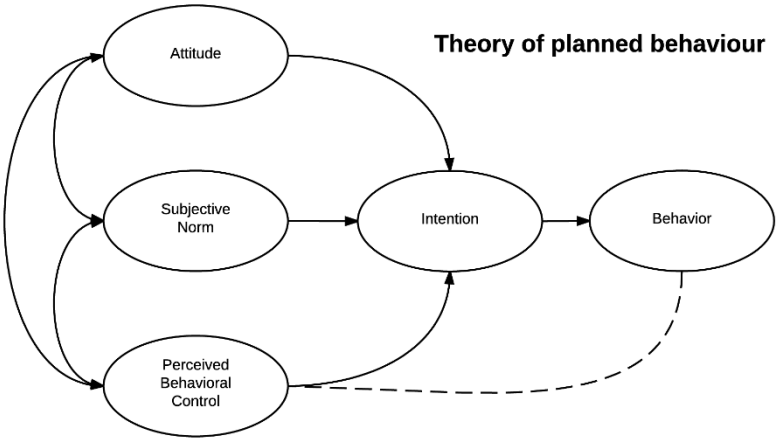
1. INTRODUCTION

1.1. Electronic Vehicles refers to those vehicles which do not consume fuel and run completely on electricity consumption. This is viewed as a method for tackling the problem of increasing pollution levels in cities and is used as a tool for curbing out the harmful effects of pollution on the people and environment as a whole. Electronic vehicles are used as a method to reshape the global business landscape through introduction of new paradigms which changes the course of traditional industrial environment which focuses on combustion engine vehicles; the e-vehicles are referred to as innovative product which transforms as well as reorganizes the current automobile industry. The e-vehicle market

globally is estimated to reach 39.208 million units by the year 2030, which means the market for electronic vehicles is growing and expanding. But even though, it has been noticed that there is reluctance on part of the individuals in taking decisions with respect to purchase or switching to electronic vehicles in spite of having developed an infrastructure for the same by various organizations and the government and also the advancements made. According to the sales data of 2019, the sales turnover of electronic vehicles was 2.6% only out of the overall global sales turnover of the automobile industry as well as the rate of inventory was only 1% approximately. The primary reasons which were found was that the customers are reluctant to consider e-vehicles because of lack of infrastructure regarding public charging.

As more and more electronic vehicles are being introduced in the automobile market, it is showing string signs of potential for replacing internal combustion engine vehicles. The environment friendly policies that are being adopted by the governments all over the globe through enforcement of a ban on operating of internal combustion engine vehicles in the cities, that could result in disintegrating of the current market of internal combustion engine vehicles. The social benefits in transforming into use of electronic vehicles are rising continuously, but the diffusion of electronic vehicles still remain stagnant.

1.2 Theory of Planned Behaviour (TPB) is a psychological framework that explains human behaviour based on three key factors: Attitude, Subjective Norms, and Perceived Behavioural Control. According to TPB, an individual's intention to perform a behaviour is influenced by their positive or negative evaluation of the behaviour (Attitude), the influence of others or social pressures (Subjective Norms), and the perceived ease or difficulty of performing the behaviour (Perceived Behavioural Control). TPB provides a comprehensive understanding of how these factors interact to shape decision-making and behaviour, making it a valuable tool for predicting and influencing behaviours like adopting new technologies or practices.



2. LITERATURE REVIEW

1. **Navalagund, N., Mahantshetti, S., et al (2020)** analyzed in their research study about understanding the behavioral factors which influence the adopting of electric vehicles by the

consumers of Karnataka. The increased concern with respect to the sustainability development as well as the environment, various methods are being explored for the purpose of transportation. The research focuses on developing alternative methods for combating the ill effects of increasing level of pollution which is responsible for harming both the environment as well as the health of the people residing in the society as well. The data collected is analyzed through Structural equation modeling which reveals Pro Environmental Behavior plays partial mediation in the purchase intention. The analysis shows, no significant association of cost and financial benefits with respect to purchase intentions.

2. **Mishra, S. & Malhotra, G. (2019)** examined in their research about the challenges of severe pollution of air as well as regarding the congestion of traffic because of increased urbanization as well as increased use of automobiles. Therefore, the need for switching to alternative methods arises like the introduction of Electric Vehicles. The research focuses on exploring the various factors which are pertaining to create a purchase intention regarding electronic vehicles which combines both psychological as well as economic perspectives. The research reveals the concerns regarding environment and the performance feature as major factors that influences the consumers in India regarding Electronic Vehicles.
3. **Swaroop, K., Murali, K., et al (2022)** highlighted in their research study about the use of Electrical vehicles as an alternative for combatting pollution and creating a society which focuses on sustainability and being environment friendly. The research was carried out on 130 respondents through questionnaire method for understanding the factors which influence purchase of e-vehicles among 4 major cities of Chennai, Bengaluru, Kochin and Hyderabad. The study involves five determinants such as infrastructural changes, price differences, speed and environmental concerns. The findings indicate a positive association among the variables on purchasing of e-vehicles.
4. **Patel, V. (2022)** focused through their research study about adopting the use of Electronic Vehicles among the automobile users in the market. There are various studies which have been conducted for understanding the intentions of the customers in a much better manner regarding the purchase of e-vehicles. Some researches of last has emphasized on the enhanced understanding of individuals regarding environment and thus this factor greatly influences the purchasing of such products which are eco-friendly. The individuals which are environmental conscious focuses on knowing the ill effects regarding pollution in the environment and showing their contribution to solve this problem. The research would be beneficial to the manufacturing companies of e-vehicles in knowing the importance to develop awareness regarding environment in the consumers and to market the same ideology.

5. **Hwang, J., Rho, J., et al (2023)** investigated in their research the role played by the significant personal psychological or cognitive as well as the social factors through drawing on commitment to change theory & social cognitive theory. The research highlights the consideration of individuals regarding the awareness about the environment which is a major factor which is helping in to make decisions with respect to transitioning to the use of e-vehicles. The transitioning requires transformation on the social level rather than on the changes in individual level. The conclusions explicated variables which have a significant as well as a strong impact on switching intention of having a personal e-vehicle, especially focusing on the consumer factors and their approach is generalized with the various transformational technologies.
6. **Kumar, S., Khan, A., et al. (2023)** discussed the transitioning to Electric Vehicles which has acquired significant importance globally because of their potentiality in mitigating the environmental issues that are being caused because of conventional internal combustion engine vehicles. The Indian government has through offering various incentives has promoted the use of e-vehicles as a factor for reducing emission of carbon, enhancing energy security and fostering sustainable mode of transportation. The main objective of the study is exploring the effect of the incentives offered by the government so as to adopt Electric Vehicles, especially from the point of view of the students at Lovely Professional University. The research provides valuable insight regarding the usefulness of government incentives as well as sheds light on various factors that influences the adoption of Electric Vehicles in India on a larger scale.

3. OBJECTIVES OF THE STUDY

1. To analyze factors influencing behavioral intention towards E-vehicles among Gen Z.
2. To give appropriate suggestion to enhance the Adoption of EVs among Gen Z.

Hypothesis:

1. Attitude towards EVs has a positive impact on intention towards E-vehicles.
2. Subjective Norms significantly influences behavioral intention towards E-vehicles.
3. Environmental Concern significantly influences behavioral intention towards E-vehicles.

4. RESEARCH METHODOLOGY

Data analysis

Data has been collected from 182 EVs owners to evaluate factors influencing Behavioral intention towards EVs as minimum required sample size to build Partial least square Structural equation model is 173 as per Soper (2024). Both primary and secondary data collection sources have been used in the current study. Non-Random sampling has been applied in the current study. The software used to build SEM model is SMART PLS.

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Anticipated effect size:	0.3
Desired statistical power level:	0.9
Number of latent variables:	4
Number of observed variables:	18
Probability level:	0.05

Calculate!

Minimum sample size to detect effect: 173
Minimum sample size for model structure: 88
Recommended minimum sample size: 173

Figure No:1 Structural Equation Model

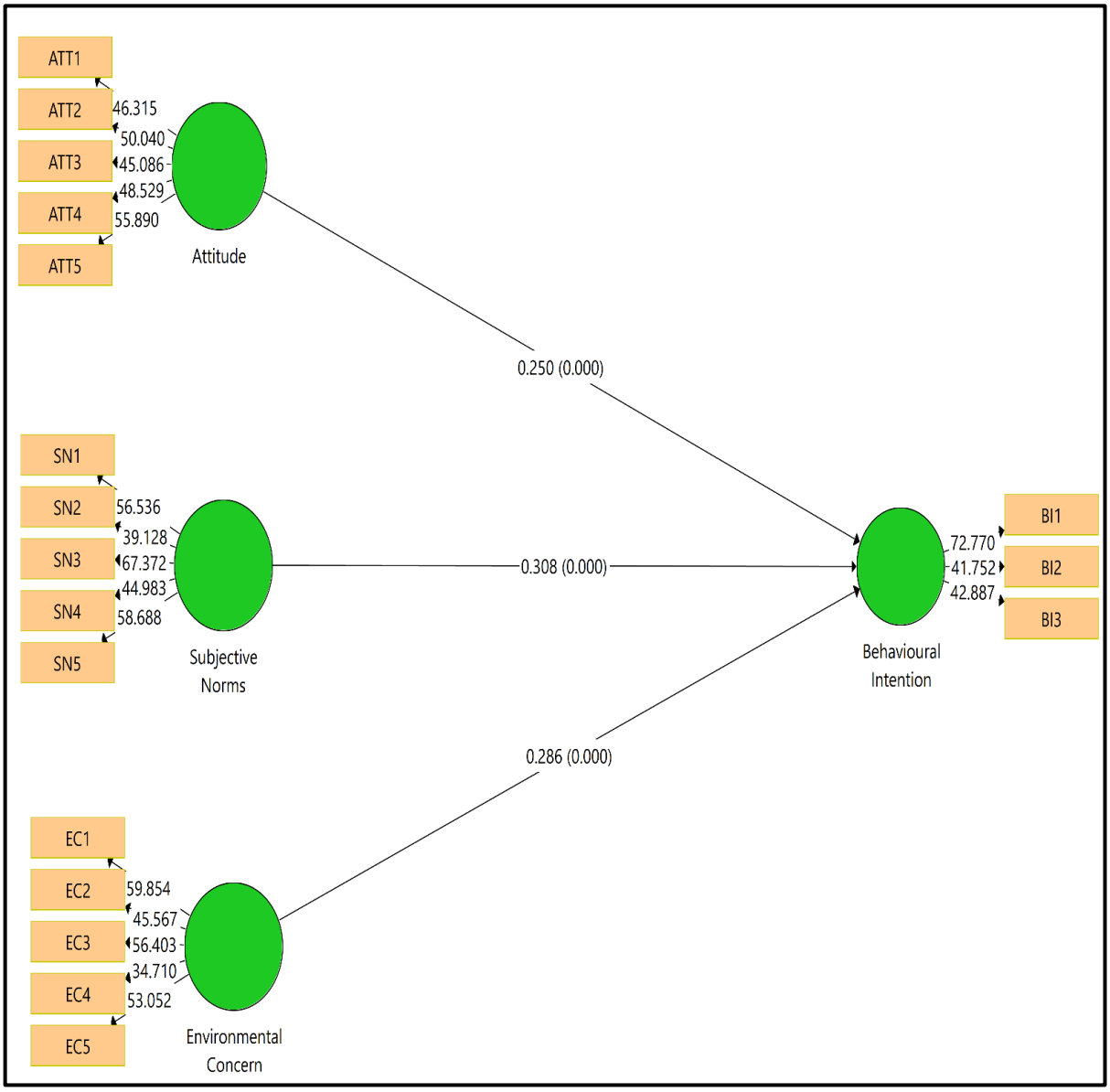

Table 1: Hypothesis Testing

Path	Beta Coefficient	T – statistics	P-values
Attitude Behavioral intention towards E-Vehicle	0.250	4.596	0.000
Environmental Concern Behavioral intention towards E-Vehicle	0.286	5.447	0.000
Subjective Norms Behavioral intention towards E-Vehicle	0.308	5.136	0.000

The results indicate that three key factors—Attitude, Environmental Concern, and Subjective Norms—significantly influence Behavioural Intention towards E-Vehicles, as all three paths have positive Beta Coefficients and statistically significant P-values ($p = 0.000$). Among these, Subjective Norms exhibit the strongest influence ($\beta = 0.308$, $T = 5.136$), suggesting that social pressure and influence from peers, family, or societal expectations play a crucial role in shaping individuals' intentions to adopt E-Vehicles. Environmental Concern follows closely ($\beta = 0.286$, $T = 5.447$), indicating that individuals who are more aware of environmental issues and sustainability are more inclined towards adopting E-Vehicles. Attitude towards E-Vehicles also has a significant positive impact ($\beta = 0.250$, $T = 4.596$), highlighting those favourable perceptions, such as viewing E-Vehicles as beneficial or convenient, contribute to the intention to adopt them.

5. CONCLUSION

The study highlights that Attitude, Environmental Concern, and Subjective Norms are all significant predictors of Behavioural Intention towards adopting E-Vehicles. Among these, Subjective Norms have the strongest influence, followed by Environmental Concern and Attitude. These findings suggest that a combination of personal beliefs, societal influence, and environmental awareness drives individuals' intentions to embrace E-Vehicles, emphasizing the importance of both individual and social factors in promoting sustainable transportation.

6. SUGGESTIONS

Manufacturers of E-Vehicles should focus on enhancing the positive attitudes toward their products by highlighting the convenience, cost-effectiveness, and long-term benefits of E-Vehicles. Additionally, they should incorporate environmental sustainability into their marketing strategies, emphasizing how using E-Vehicles contributes to reducing carbon footprints and protecting the environment. To address Subjective Norms, manufacturers could collaborate with influential figures, community leaders, and social influencers to foster a culture of adoption. Creating awareness campaigns that target both individual consumers and societal groups can help reinforce the social benefits of E-Vehicle adoption, thereby accelerating their acceptance and market growth.

7. AUTHORS CONTRIBUTION

The authors agreed to have no connections or engagements with any group or body that provides

financial and non-financial assistance for the topics and resources covered in the article.

8. CONFLICT OF INTEREST

The authors declared that no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

9. PLAGIARISM POLICY

The authors declare that any kind of violation of plagiarism, copyright, and ethical matters will be handled by all authors. Journalists and editors are not liable for the aforesaid matters.

10. SOURCES OF FUNDING

The authors received no financial aid to support the study.

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