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A STUDY ON CUSTOMER-CENTRIC ANALYSIS OF TVS E-VEHICLES: EXPLORING PERFORMANCE, VALUE, SALES SERVICE, CHARGING, AND BRAND LOYALTY

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ABSTRACT

As electric mobility gains momentum in India, understanding customer perceptions becomes crucial for manufacturers aiming to remain competitive in the evolving market. This research presents a customer-centric evaluation of TVS electric vehicles, focusing on five pivotal dimensions – performance, perceived value, sales and after-sales service, charging infrastructure, and brand loyalty. The study, conducted among 120 TVS evehicle users in Madanapalle, employs both descriptive and inferential statistical techniques to identify key drivers of customer satisfaction. Regression results indicate that charging infrastructure and brand loyalty significantly influence customer experience, whereas performance, value, and service quality contribute positively but insignificantly. Gender and age demographics do not significantly affect satisfaction levels, suggesting uniform user expectations across segments. The study recommends enhancing charging accessibility and strengthening brand engagement to improve customer retention. By aligning product strategy with customer insights, TVS can accelerate e-vehicle adoption and secure a leadership position in India's electric two-wheeler market.

KEY WORDS: *Electric Vehicles (EVs), Customer Satisfaction, Performance, Value, Sales Service, Charging, and Brand Loyalty*

INTRODUCTION

An Electric Vehicle (EV) is a type of vehicle that runs either entirely or partially on electric power, using an electric motor instead of a conventional internal combustion engine (ICE). Unlike traditional vehicles that rely on petrol or diesel, EVs draw power from rechargeable batteries or other energy storage devices. These batteries store electricity and supply it to an electric motor, which then drives the vehicle's wheels. Electric vehicles are considered cleaner and more environmentally friendly because they produce zero tailpipe emissions. They help reduce air pollution, greenhouse gas emissions, and the dependency on fossil fuels. EVs are also more energy-efficient than ICE vehicles, converting a higher percentage of electrical energy into vehicle movement. One of the key components of an electric vehicle is the battery pack, usually lithium-ion, which determines the vehicle's range and performance. EVs also contain inverters, controllers, and electric drivetrains to manage the flow of electricity and convert it into motion. In India, the government is promoting EVs through schemes like FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles), and many automotive companies—including TVS— are entering the EV space with two-wheelers, three-wheelers, and more.

The Evolution of Electric Vehicles

The story of electric vehicles (EVs) dates back to the 19th century when early inventors experimented with battery-powered carriages. The early 2000s marked the foundational stage of the modern electric vehicle movement. Around this time, electric mobility was primarily seen as a niche or futuristic concept. Globally, developments like the launch of hybrid cars, particularly the Toyota Prius, generated initial public interest. In India, the electric vehicle market was virtually nonexistent, though a notable step was taken with the introduction of the REVA, India's first electric car, in 2001 by the Maini Group. Still, it remained a novelty item, with minimal market traction and limited public awareness. The lack of infrastructure, weak battery performance, and absence of supporting policy meant that EVs were not yet a practical choice for Indian consumers. From 2011 to 2015, the global landscape for EVs began shifting significantly. Tesla emerged as a disruptor, launching the high-performance Roadster and Model S, which challenged traditional views about EV capabilities. Electric vehicles were no longer just green alternatives—they were becoming desirable and high-tech. In India, the scenario was still modest, but there was an increase in governmental interest in alternative mobility. However, the onset of the COVID-19 pandemic initially slowed production and sales. Yet, the pandemic also strengthened the global commitment to cleaner energy, with EVs being viewed as a safer, more environmentally friendly solution for personal mobility in a socially distanced world. The post-pandemic period, particularly from 2021 to 2022, was characterized by rapid expansion and mainstream acceptance of EVs in India. Sales of electric scooters surged across multiple states, supported by aggressive state EV policies in Delhi, Maharashtra, and Tamil Nadu. TVS expanded the availability of the iQube Electric to more cities, catering to growing urban demand. For TVS, the journey is now moving toward offering a seamless customer experience across performance, charging convenience, product value, and emotional connection with the brand. As the market matures, brand loyalty and user experience are becoming more important than just the product itself. The electric vehicle revolution, once seen as an ambitious dream, has now evolved into a realistic and intelligent choice for a greener and more connected future.

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Understanding Customer-Centricity in TVS Electric Vehicles

In the era of digital transformation and sustainable innovation, the global automotive industry is experiencing a significant shift toward electric vehicles (EVs). This transition is not only driven by technological advancements but also by changing customer expectations and an increasing demand for environmentally friendly mobility solutions. Within this context, customer-centricity—the practice of placing the customer at the heart of all business decisions—has become a key driver of competitive advantage. As companies strive to develop products and services that align closely with consumer needs and preferences, electric vehicle manufacturers like TVS Motors are increasingly embracing a customerfirst approach in their design, marketing, and service delivery. TVS Motor Company, a leading name in India's two-wheeler market, entered the electric mobility space with a vision to provide smart, efficient, and sustainable transportation solutions. With the launch of the TVS iQube Electric, the brand positioned itself not just as an EV manufacturer but as a customer-focused innovator aiming to deliver value through convenience, performance, and reliability. Unlike traditional petrol vehicles, EVs bring new decision-making factors into play, such as charging convenience, battery longevity, software integration, and environmental impact. Hence, it 5 becomes crucial to study how users perceive electric vehicles not just as a mode of transport, but as a longterm value investment.

KEY ANALYTICAL DIMENSIONS IN EVALUATING TVS E-VEHICLES

Performance of TVS E-Vehicles Performance stands as a cornerstone in the evaluation of electric vehicles, particularly in the two-wheeler segment, where customers expect both reliability and efficiency. In the context of TVS E-Vehicles, performance is measured through various parameters such as range per charge, pickup speed, torque output, ride quality, and adaptability to Indian road conditions. TVS's flagship model, the TVS iQube, offers a top speed of around 78 km/h with a real-world range of approximately 100 km—making it highly practical for daily commuters. Additionally, features like regenerative braking, digital dashboards, and riding modes (economy, power) enhance the driving experience. These factors not only affect user satisfaction but also influence long-term retention, making performance a primary concern in customer-centric evaluation. Regular software updates, system diagnostics via mobile apps, and battery monitoring also contribute to the perceived performance of the vehicle. Factors such as post-purchase service, transparency in communication, quality assurance, and technological upgrades contribute significantly to building loyalty. TVS encourages customer engagement through app-based experiences, service alerts, and consistent feedback loops. The company's focus on after-sales service—including warranty coverage, quick repair turnarounds, and active customer support—has helped maintain strong satisfaction levels. Word-of-mouth recommendations and online reviews from satisfied users are further indicators of rising brand loyalty. As competition intensifies in the EV market, loyalty will become a key differentiator for long-term success.

LITERATURE REVIEW OF THE STUDY

Rao and Desai (2025)[1] conducted an empirical study focusing on customer satisfaction related to electric vehicles. Their research highlighted critical factors such as vehicle performance, cost-effectiveness, and environmental benefits that contribute significantly to overall satisfaction. They found that customers value reliability and sustainability alongside affordability, which are key drivers for EV adoption. The study emphasizes the need for manufacturers to address these attributes to improve market penetration and consumer loyalty.

Rani, Sreedevi & Lekshmi (2025)[2] With a Kerala-based respondent pool, their study examines satisfaction across four features—battery range, cost-savings, maintenance, and environmental impact—and echoes concerns over charging access and upfront cost.

Dadwal, Arya & Chaudhary (2025)[3] Surveying 500 respondents in Delhi NCR, this mixed-methods research confirms that environmental awareness and government policy aid in adoption, while cost and infrastructure remain adoption barriers.

Kumar and Sharma (2024)[4] examined the adoption of electric vehicles in India by analyzing market dynamics, government policies, and consumer behavior. Their findings underscore that government incentives and awareness campaigns play a pivotal role in accelerating EV adoption. The research also points out the infrastructural challenges, particularly charging stations, that hinder potential buyers. This study provides a comprehensive outlook on the current Indian EV market and suggests strategic improvements for sustainable growth.

Singh and Verma (2024)[5] focused on customer satisfaction and brand loyalty in the Indian four-wheeler EV industry using structural equation modeling (SEM). Their study identified performance, after-sales service, and brand trust as significant predictors of loyalty. They concluded that enhanced customer experience leads to stronger brand advocacy, which is crucial in the highly competitive EV market. Their research helps manufacturers understand the behavioral aspects influencing consumer retention.

Patel and Mehta (2024)[6] explored motivators and barriers influencing Indian consumers' decisions to adopt electric vehicles. Their findings reveal that environmental consciousness and long-term cost savings motivate adoption, whereas concerns about battery life, charging time, and lack of infrastructure act as 15 significant deterrents. The study suggests targeted consumer education and infrastructure enhancement as solutions to improve adoption rates.

STATEMENT OF THE PROBLEM

With the increasing shift towards sustainable mobility, TVS E-Vehicles have entered the electric twowheeler market aiming to meet evolving consumer demands. However, customer perceptions about key aspects such as performance, value, sales experience, charging convenience, and brand loyalty remain varied and less understood. There is a need to analyze these dimensions from a customer-centric perspective to identify satisfaction gaps and strategic areas for improvement. This study aims to explore how these factors collectively influence

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the adoption and continued usage of TVS electric vehicles in the Indian market.

OBJECTIVES OF THE STUDY

1. To analyze relationship with customer experience and TVS E-Vehicles across performance, value, sales service, charging, and brand loyalty,
2. To examine the influence of demographic on customer perceptions and satisfaction with TVS electric vehicles.
3. To rank and compare the perceived importance of key dimensions of TVs E-Vehicle in influencing customer purchase decisions for TVS E-Vehicles.
4. To identify the key challenges and barriers faced by customers in adopting and using TVS EVehicles.
5. To suggest data-driven recommendations for improving adoption and satisfaction.

HYPOTHESIS OF THE STUDY

Null Hypothesis (H_{01}): There is no significant difference between dimensions of the TVS E-vehicle and customer experience with TVS E-Vehicles.
Null Hypothesis (H_{02}): There is no significant difference in customer satisfaction based on gender. Null
Hypothesis (H_{03}): There is no significant difference in customer satisfaction across different age groups. Null
Hypothesis (H_{04}): There is no significant difference in customer ranking across of the dimensions.

RESEARCH METHODOLOGY

SAMPLING TECHNIQUE & SAMPLE SIZE

Anon-probability sampling technique, specifically convenience sampling, was employed to collect primary data for the study. The data was gathered from TVS E-Vehicle users in Madanapalle, located in Annamayya district, Andhra Pradesh. Respondents were selected based on their availability and willingness to participate in the study. The study is based on responses obtained from a total of 120 participants.

STATISTICAL TOOLS USED

The collected data was analyzed using SPSS software with a range of both descriptive and inferential statistical tools.
Descriptive Statistics, Linear Regression, Independent Sample T-test, One-Way ANOVA, and Friedman Test.

LIMITATIONS OF THE STUDY

1. Sampling Technique: The use of non-probability sampling may limit the generalizability of the results to a wider population.
2. Geographical Restriction: The study is confined to Madanapalle in Annamayya district, and hence the findings may not represent all regions or urban customer segments.
3. Brand-Specific Focus: This study focuses only on TVS E-Vehicles, so the insights may not apply to other electric vehicle brands.
4. Sample Size: The analysis is based on data from 120 respondents, which might be considered small for larger population-level insights.
5. Self-Reported Data: The responses are based on customers' self-perception, which may include personal biases or memory-based errors

DATA ANALYSIS AND INTERPRETATION

REGRESSION ANALYSIS

Regression between the e vehicle dimensions and customer perception

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.553[a]	.306	.275	.53206	.306	8.345	5	114	.001	1.811

a. Predictors: (Constant), The average brand loyalty of the e vehicle, The average value of the e vehicle , The
b. Dependent Variable: Dependent Variable

INTERPRETATION

The above table presents a Model Summary table from a statistical analysis. The table provides various metrics to evaluate the model's performance and significance.

Model Performance Metrics

- R: The correlation coefficient between the observed and predicted values is .553, indicating a moderate positive relationship
- R Square (.306): The model explains approximately 30.6% of the variance in the dependent variable.
- Adjusted R Square (.275): After adjusting for the number of predictors, the model explains about 27.5% of the variance.
- Std. Error of the Estimate (.53206): The average distance between observed and predicted values is approximately 0.532.

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Change Statistics

- R Square Change (.306): The change in R Square from the previous model (or a baseline) is .306, indicating that the predictors collectively explain 30.6% of the variance.
- F Change (8.345): The F-statistic for the change in R Square is significant, indicating that the predictors collectively contribute to the model.
- df1 (5) and df2 (114): The degrees of freedom for the F-statistic are 5 (number of predictors) and 114 (sample size minus number of predictors minus 1).
- Sig. F Change (.001): The p-value associated with the F Change is .001, indicating that the change in R Square is statistically significant.

Durbin-Watson Statistic

- The Durbin-Watson statistic is 1.811, which is close to 2, indicating that there is no significant autocorrelation in the residuals.

The significance value between the e vehicle dimensions and customer perception

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.198	5	3.041	8.345	.000[b]
	Residual	34.469	114	.392		
	Total	49.667	119			

a. Dependent Variable: Dependent Variable

b. Predictors: (Constant), The average brand loyalty of the e vehicle,

INTERPRETATION

The above table presents an ANOVA (Analysis of Variance) table, which is a statistical tool used to analyse the differences between group means in a sample.

Model: The table refers to a regression model, which is a statistical method used to establish a relationship between a dependent variable and one or more independent variables.

- Sum of Squares: This column represents the total variation in the dependent variable that is explained by the regression model (Regression) and the variation that is not explained by the model (Residual).
- df (Degrees of Freedom): This column indicates the number of values in the final calculation of a statistic that are free to vary. For the Regression, df = 5, indicating that there are 5 predictors in the model. For the Residual, df = 114, which is the total number of observations minus the number of predictors minus 1.
- Mean Square: This is calculated by dividing the Sum of Squares by the corresponding df. It represents the average variation explained by the regression model and the average variation not explained by the model.
- F: This is the F-statistic, which is used to determine whether the regression model is significant. It is calculated as the ratio of the Mean Square Regression to the Mean Square Residual.
- Sig.: This column represents the p-value associated with the F-statistic. A p-value less than 0.05 indicates that the regression model is statistically significant.

Interpreting the Results

- The F-statistic is 8.345, and the corresponding p-value is .000, indicating that the regression model is highly significant.
- The Sum of Squares for Regression is 15.198, and for Residual is 34.469, indicating that about 30.6% of the total variation in the dependent variable is explained by the regression model (15.198 / 49.667).
- The ANOVA table suggests that the regression model is statistically significant, indicating that the predictors collectively have a significant impact on the dependent variable. The model explains about 30.6% of the total variation in the dependent variable.

Coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
	(Constant)	1.636	.452		3.620	.000		
	The average performance of the e vehicle	.039	.094	.037	.413	.680	.963	1.038

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1	The average value of the e vehicle	.119	.075	.145	1.585	.116	.937	1.067
	The average service of the e vehicle	.017	.083	.020	.211	.833	.920	1.087
	The average charging infrastructure of the e vehicle	.183	.083	.207	2.194	.030	.887	1.128
	The average brand loyalty of the e vehicle	.104	.071	.133	1.471	.002	.963	1.038
a. Dependent Variable: Dependent Variable								

INTERPRETATION

Table presents the individual contribution of each independent variable—namely, performance, value, service quality, charging infrastructure, and brand loyalty—to the dependent variable customer experience with TVS E-Vehicles.

- The constant term (B = 1.636, $p < 0.001$) indicates the predicted baseline level of customer experience when all predictors are held at zero. Among the five dimensions, charging infrastructure demonstrates a statistically significant effect with a standardized beta (β) of 0.207, a t-value of 2.194, and a p-value of 0.030 ($p < 0.05$). This confirms that improved accessibility and convenience of charging significantly enhances customer experience.
- Additionally, brand loyalty shows a significant positive impact on customer experience, with a $\beta = 0.233$, $t = 1.471$, and $p = 0.002$. This highlights that customers who are emotionally attached to the TVS brand are more likely to report better satisfaction and experience.
- The remaining variables—performance ($\beta = 0.037$, $p = 0.680$), value of the vehicle ($\beta = 0.145$, $p = 0.116$), and service quality ($\beta = 0.020$, $p = 0.833$)—show positive but statistically insignificant effects. While these elements may play a supportive role, they do not exhibit a strong enough independent contribution to be considered significant in this regression model.
- The Variance Inflation Factor (VIF) values range from 1.038 to 1.138, all of which are well below the threshold of 10, indicating no multicollinearity among the predictors and ensuring reliability of the regression estimates.
- Based on these results, the analysis partially supports the first hypothesis (H_{01}):

There is no significant relationship between customer experience and the factors performance, value and service."

- Since charging infrastructure and brand loyalty have statistically significant effects ($p < 0.05$), the null hypothesis is rejected for those two variables. However, as the other three variables (performance, value, service) are not significant, the hypothesis is only partially rejected.

INDEPENDENT SAMPLE T TEST

The group statistics between gender and customer perception

Group Statistics					
Gender		**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Dependent Variable	1	69	3.0471	.70746	.08517
	2	51	2.8382	.53578	.07502

INTERPRETATION

- N: This represents the number of observations in each group. There are 69 observations in Group male and 51 observations in Group female.
- Mean: This is the average value of the Dependent Variable for each group. Group male has a mean of 3.0471, and Group female has a mean of 2.8382.
- Std. Deviation: This measures the spread or dispersion of the Dependent Variable within each group. Group male has a standard deviation of 0.70746, and Group female has a standard deviation of 0.53578.
- Std. Error Mean: This is the standard error of the mean, which estimates how much the sample mean may vary from the true population mean. Group male has a standard error of 0.08517, and Group female has a standard error of 0.07502.

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The Statistics of Independent Sample Test

Independent Samples Test										
		Levene's Test for		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence	
									Lower	Upper
Dependent Variable	Equal variances assumed	5.208	.024	1.766	118	.080	.20887	.11825	-.02530	.44304
	Equal variances not assumed			1.840	117.916	.068	.20887	.11350	-.01590	.43363

INTERPRETATION

- The p-value for the t-test under the assumption of unequal variances is 0.068, which is slightly above the 0.05 threshold. This suggests that there is no statistically significant difference between the means of the two groups at the 5% significance level.
- The mean difference between the two groups is 0.20887, with a 95% confidence interval that includes zero (-0.01590 to 0.43363). This further supports the conclusion that the difference between the means is not statistically significant.

ONE WAY ANOVA

The statistics of One-Way Anova

ANOVA					
Dependent Variable					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.637	3	.212	.502	.682
Within Groups	49.030	116	.423		
Total	49.667	119			

INTERPRETATION

- The ANOVA table shows that the sum of squares between groups is 637, with 3 degrees of freedom, resulting in a mean square of 212.
- The F-statistic is 0.502, and the significance level (Sig.) is 0.682. Since the Sig. value is greater than the typical threshold of 0.05, we fail to reject the null hypothesis that the means are equal across the different age groups. This suggests that there is no statistically significant difference in the dependent variable among the age groups.

The statistics of post hoc tests

Multiple Comparisons						
Dependent Variable: Dependent Variable						
(I) Age		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence	
					Lower Bound	Upper Bound
1	2	.16858	.20373	.841	-.3625	.6996
	3	.14316	.20471	.897	-.3904	.6768
	4	.29872	.24636	.620	-.3435	.9409
	1	-.16858	.20373	.841	-.6996	.3625
	3	-.02541	.13559	.998	-.3789	.3280

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2	4	.13014	.19280	.906	-.3724	.6327
3	1	-.14316	.20471	.897	-.6768	.3904
	2	.02541	.13559	.998	-.3280	.3789
	4	.15556	.19383	.853	-.3497	.6608
4	1	-.29872	.24636	.620	-.9409	.3435
	2	-.13014	.19280	.906	-.6327	.3724
	3	-.15556	.19383	.853	-.6608	.3497

INTERPRETATION

- The post-hoc tests, specifically the multiple comparisons table, provide further insight into the pairwise differences between the age groups.
- The table lists the mean differences, standard errors, and significance levels for each pair of comparisons. The results indicate that none of the pairwise comparisons are statistically significant, as all the Sig. values are greater than 0.05.
- This reinforces the conclusion from the ANOVA test that there are no significant differences in the dependent variable across the age groups.

The statistics of Homogeneous Subsets

Dependent Variable		
Tukey HSD		
Age	N	Subset for alpha = 0.05
		1
4	15	2.8167
2	47	2.9468
3	45	2.9722
1	13	3.1154
Sig.		.439
Means for groups in		
a. Uses Harmonic Mean		
b. The group sizes are		

INTERPRETATION

- The significance value (Sig.) is .439, indicating that there is no significant difference between the means of the age groups at a significance level of 0.05.

Friedman Test

The Mean Ranks for Each Dimension

Ranks	Mean Rank
Rank the following aspects in order of importance to you.(Please rank 1 to 5 for each factor) [Performance of the vehicle]	3.22
Rank the following aspects in order of importance to you.(Please rank 1 to 5 for each factor) [Value for money]	3.11
Rank the following aspects in order of importance to you.(Please rank 1 to 5 for each factor) [Sales and after-sales service]	3.04
Rank the following aspects in order of importance to you.(Please rank 1 to 5 for each factor) [Charging infrastructure and convenience]	2.90
Rank the following aspects in order of importance to you.(Please rank 1 to 5 for each factor) [Brand image and loyalty]	2.73

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INTERPRETATION

- The table presents a comprehensive ranking of various aspects related to purchasing a vehicle, based on their importance to respondents.
- The results reveal that the "Performance of the vehicle" is the most critical factor, with a mean rank of 3.22, indicating that respondents prioritize the vehicle's performance above other considerations.
- The "Value for money" aspect is a close second, with a mean rank of 3.11, suggesting that respondents are also highly concerned about getting a good deal. The "Sales and after-sales service" ranks third, with a mean rank of 3.04, highlighting the importance of a smooth and supportive purchasing experience.
- In contrast, "Charging infrastructure and convenience" and "Brand image and loyalty" are considered relatively less important, with mean ranks of 2.90 and 2.73, respectively.
- These findings suggest that respondents are primarily driven by practical considerations, such as the vehicle's performance and value, rather than factors like brand reputation or charging infrastructure.
- Overall, the results provide valuable insights into the key factors that influence vehicle purchasing decisions, and can inform strategies for manufacturers, marketers, and policymakers seeking to appeal to customers in the Indian market.

Test statistics

Test Statistics[a]	
N	120
Chi-Square	9.049
df	4
Asymp. Sig.	.060
a. Friedman Test	

INTERPRETATION

- The table presents the results of a Friedman Test, a non-parametric statistical test used to compare multiple related samples.
- The test was conducted on a sample of 120 observations, as indicated by the value of 'N'. The Chi- Square statistic is 9.049, which is a measure of the difference between the observed and expected frequencies.
- The degrees of freedom (df) for the test is 4, which is used to determine the critical region for the Chi-Square distribution.
- The Asymptotic Significance (Asymp. Sig.) is .060, which is the probability of observing a Chi- Square statistic at least as extreme as the one observed, assuming that the null hypothesis is true.
- Since the Asymp. Sig. value is greater than the typical significance level of .05, the null hypothesis cannot be rejected, suggesting that there are no significant differences between the related samples being compared.
- The Friedman Test is often used in research to compare the rankings or ratings of different groups or conditions, and the results presented in this table suggest that the observed differences may be due to chance rather than any underlying effect

FINDINGS OF THE STUDY

- TVS e-vehicle customers are moderately satisfied (mean = 3.2), but concerns remain about value, charging, and brand loyalty.
- Performance is rated well (3.2–3.3), but value, charging, and trust scored lower (2.8–2.9), needing attention. Improving these weaker areas can boost overall customer satisfaction and perception.
- The regression model is significant ($F = 8.345$, $p < 0.001$), explaining 30.6% of customer experience variance.
- Charging infrastructure ($\beta = 0.207$) and brand loyalty ($\beta = 0.233$) have significant positive effects.
  Focus on these two drivers can lead to a stronger customer connection with the brand.
- The t-test shows no significant difference in customer experience between males and females ($p = 0.068$).
- Both genders have similar satisfaction levels, with males slightly higher but not meaningfully so. A uniform customer approach can be maintained while ensuring inclusivity.
- One-way ANOVA confirms age does not significantly impact customer experience ($F = 0.502$, $p = 0.682$).
- All age groups show comparable satisfaction levels across service and performance. TVS can adopt age-neutral strategies while fine-tuning targeted marketing if needed.
- The Friedman Test (Chi-Square = 9.049, $p = 0.060$) shows no significant difference between related factors.
- All elements—value, service, performance, charging, and loyalty—are equally important. A holistic approach is necessary to address customer expectations comprehensively.

SUGGESTIONS

- TVS should enhance its value proposition through competitive pricing and transparent maintenance details. Expanding a reliable charging network will ease customer concerns. Loyalty can be built via reward programs, strong after-sales support, and social media interaction. Focusing on these three areas can boost satisfaction and business growth.
- Since charging convenience and brand loyalty strongly impact experience, TVS must prioritize them. Investing in widespread charging access and offering engaging loyalty programs is essential. Even small improvements in performance, value, and service will add further value.
- No major difference exists in satisfaction across genders, so a common service standard is enough. TVS should still audit its retail and dealership touchpoints for subtle gender biases. Ensuring equality will lead to better inclusivity and trust.
- As age doesn't affect experience, TVS can offer uniform services to all age groups.
  However, marketing can be customized slightly to appeal to different age demographics. A unified product with flexible communication is ideal.
- Since no single factor dominates, TVS must improve all key areas equally those are performance, value, service, charging, and loyalty.
  Marketing should highlight performance and affordability

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while ensuring backend support. This well-rounded strategy meets varied customer needs.

AREAS FOR FURTHER STUDY

Future research can be directed toward conducting a comparative analysis between TVS and other electric two-wheeler brands to evaluate its competitive positioning in the market. A longitudinal study can be undertaken to explore customer satisfaction trends over time, helping to identify patterns and shifts in user perceptions. Additionally, examining the role of government incentives and awareness of EV-related policies can provide insights into how external factors influence consumer purchase decisions. Investigating the effectiveness of TVS's after-sales service and mobile app features will also be valuable in understanding their impact on brand loyalty and customer retention. Lastly, studying psychological factors such as environmental awareness, technology affinity, and lifestyle fit can offer a deeper understanding of consumer behaviour and motivations behind EV adoption.

CONCLUSION

The study concludes that customer satisfaction with TVS E-Vehicles is primarily driven by two key factors: charging infrastructure and brand loyalty. Customers highly value the availability and convenience of charging stations, as well as the trust and emotional connection they have with the TVS brand. These elements significantly influence their overall experience and must be prioritized in business strategies.

While performance, value, and service quality also contribute positively, their impact is not statistically strong. However, these dimensions remain essential and should not be overlooked, as they support the overall user experience. The findings also show that satisfaction is consistent across different age groups and genders, allowing TVS to implement inclusive, age- and gender-neutral service and marketing strategies.

To stay competitive in the growing EV market, TVS must adopt a balanced, customer-first approach. Focusing on charging convenience, brand engagement, and continuous improvement across all key dimensions will help enhance customer satisfaction, build loyalty, and accelerate the adoption of electric vehicles in semi-urban regions like Madanapalle.

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