

TO STUDY CONSUMER PERCEPTION TOWARDS TATA NEXON EV CAR IN PUNE CITY

Prajyot Kine

Student Pune Institute Of Business Management, Pune

Dr.Yachna Gharde

Assistant Professor, Pune Institute Of Business Management, Pune

Prof. Vineeta Mongia

Assistant Professor, Pune Institute Of Business Management, Pune

Prof. Shaiphali

Assistant Professor, Pune Institute Of Business Management, Pune

ABSTRACT

As the environment pollution is increasing it is the major concern for the global world. So it is need of Ev vehicles to reduce the environment pollution. So many governments are providing incentive on the prices of the cars. The main aim of the research was to examine the multiple methods & techniques for consumer perception towards Tata Nexon Ev car in Pune city. The descriptive research method was used with sample size of 32 using convince sampling techniques. Primary data was collected from the consumer buying Evs using questionnaire or Tata Nexon Ev & secondary data was collected from literature paper, books, internet sources.

So different factors are attracting the consumer to buy Tata Nexon Ev. From the research we concluded that the main attributes for perception towards Tata Nexon Ev are features, Well-beings, Extra benefits, Environment/Eco-friendly. It was also found that there was no relationship between brand positioning of Tata Nexon Ev and income of the consumers. So, SPSS techniques like factor analysis, Chi-square test were used to analyse the data & find the result and conclusion.

Key Words: *Consumer perception, Tata Nexon Ev, Eco friendly, Features, Safety, Comfort, Technology, Style, Design, Income, Brand positioning.*

INTRODUCTION

The Tata group includes Tata Motors, which was founded in 1945. It first appeared in the section in 1954. The Tata Nexon is the Ev vehicle introduced by the Tata motors, Indian auto motive company. It represents Tata's commitment to sustainable mobility and their entry into the electric vehicle market. The Nexon EV is based on the popular Nexon compact SUV, but it features an all-electric powertrain, offering a clean and efficient mode of transportation.

The Tata Nexon EV is a small, all-electric SUV made by the Indian automaker Tata Motors. Early in 2020, it was unveiled as a variation of the well-known Tata Nexon, and since then, the electric vehicle (EV) market has paid close attention to it. The Nexon EV blends an SUV's convenience and adaptability

with an electric drivetrain's environmental advantages. It is based on the "Zip Tron" technology from Tata Motors, which aims to provide effective and environmentally friendly electric mobility solutions.

The Tata Nexon EV maintains the normal Nexon's aggressive and sporty appearance while making a few minor aesthetic changes to indicate that it is an electric vehicle. It has a contemporary, aerodynamic exterior with characteristic features including the slender LED headlights and taillights, as well as sharp lines. The Nexon EV's engine is an electric motor that is fed power by a large lithium-ion battery pack. The electric drivetrain offers a vibrant driving experience with immediate torque and smooth acceleration. It is appropriate for both shorter daily commutes and longer trips thanks to its stated range of more than 300 kilometres (186 miles) on a single charge.

To assist the Nexon EV, Tata Motors has also concentrated on building a strong charging infrastructure. Users may conveniently charge their vehicles at home, work, or public charging stations because the vehicle offers both fast charging and standard charging choices. The Tata Nexon EV intends to meet the rising demand for electric vehicles in the Indian and international markets with its affordable price, remarkable range, and usability. It exemplifies Tata Motors' dedication to environmentally friendly mobility and aids in the shift to a greener future.

LITERATURE REVIEW

1) Different methodologies are used to analyse consumer behaviour in the market for electric cars. Regarding consumer features, ideas, context, and procedures, it provides advice for upcoming researchers. We identified five key areas of discussion and theoretical bases for purchasing electric cars based on the review we conducted. Other findings included major research centres globally and five important issues of discussion. Promotion, knowledge development, and exchange in this sector are crucial given the situation and the pressing need to advance future mobility due to climate change. We hope that by contributing, we may revive the discussion on this issue and help shape further investigation in this difficult area. (Secinaro, November 2022)

2) The main focus of this essay has been on considering the risks involved in the creation of knowledge about electric vehicles, as well as how concepts of EV consumers are not neutral, but rather give specific social actors and power relationships a distinct identity, designating them as necessary targets for specific kinds of interventions or as agents of change themselves. Although not all-inclusive, the three cases mentioned above show how this might appear in a variety of ways in social scientific literature. Approaching the EV user as a potential buyer is reliant on a limited range of behaviours and connections that cast EVs as subpar substitutes for ICVs. (Hui, 2017).

3) This paper mainly focusses on the costing factor of the Evs cars in India. High costing of Ev cars are diverting the consumers to buy the Ev cars. Different governments are trying to provide the subsidy to promote the Ev cars and generate the awareness. There are different reasons responsible for costing of the Evs one of the main reasons is importing of the batteries. Another main challenge faced by Ev market growth is the charging and the infrastructure. The imported battery problem will be solved due to discovery of lithium reserve in Bangalore. The higher range models are demanded by the consumer with larger battery capacity for longer driving. (Satyendra Pratap Singh, 2021)

4) With the increase in the price hike of fossil fuel there is need of transformation of energy in vehicles of India. So, boost the Ev market and its production different initiatives are taken by the manufacturing companies as well as the government. The government and different companies have joined hands to develop the good infrastructure for Ev vehicles. Change in global climatic conditions and environmental awareness has changed the perception of the people towards buying the cars. People are willing to buy the Ev cars for future option. So high price cost, low infrastructure, time required to charge are main reasons for creating limitation of consumer perception towards the Ev cars. (Kishore, CONSUMER PERCEPTION OF ELECTRIC VEHICLES IN INDIA, 2021)

5) This paper focuses on examining the various co-benefits of electric vehicles (EVs), including the reduction of CO2 emissions, enhanced energy security, and improved air quality. However, it is important to acknowledge that alongside these co-benefits, EVs may also entail co-costs and risks, such as the high demand for batteries on a large scale. The purpose of this paper is to investigate the perception and significance of EVs among consumers in terms of promoting environmental sustainability. (Ashok, 2019)

6) To facilitate India's transition towards e-mobility and the transformation of its automobile industry, it is crucial to address the knowledge gap concerning potential barriers to electric vehicle (EV) adoption. Given the limited existing research in this field specific to India, it becomes necessary to identify and categorize these barriers into distinct groups. This project aims to identify the factors that influence consumers' intention to adopt electric vehicles in India. Six factors were identified and named as financial factors, vehicle performance factors, lack of charging infrastructure, environmental concern, societal influence, and awareness of electric vehicles. (V S. C., 2022)

Objectives

1. To analyse and known different attributes for likeability and understand the perception towards Tata Nexon EV in the electric vehicle market.
2. To study the association between income and brand positioning of Tata Nexon Ev.

Hypothesis

Null Hypothesis: There is no significant association between income and brand positioning of Tata Nexon Ev

Alternative Hypothesis: There is significant association between income and brand positioning of Tata Nexon Ev.

RESEARCH METHODOLOGY

Research Design

Research Design or Research methodology is blueprint or structure of data collection, data measurement and data analysis which is of different types.

To investigate our objectives of study on consumer perception about the Brand Tata Nexon an Electric Car and factors for likability of the Tata Nexon electric car we have used Conclusive-Descriptive research design where the researcher seeks to answer specific research questions or objectives by collecting and

analyzing data from a sample or the entire population. We referred the literature papers for finding out the different variables about the consumer buying perception to buy EV cars or Tata Nexon Ev.

Data Collection

Primary Data

Primary data means collection of data from the respondents through interviews, surveys, observations & focus group.

For primary data collection questionnaires were prepared through google form and data was collected from the respondent.

Secondary Data

Secondary data refers to data that has been collected by someone else or for a purpose other than the current research study.

Secondary data was collected from project papers, research papers, database.

Sampling Design

Sampling design refers to the process of selecting a subset of individuals or units from a larger population for inclusion in a research study. It involves determining the method of sampling, the size of the sample, and the criteria for selecting participants.

The sampling design method in this research used was convenience sampling as it is non-probability sampling method. As it easy and time-consuming method for the collect the data.

Population

Population refers to group of people or objective that form the subject of study in particular study.

In this research, population are those who want to buy and who has already the EV car.

Sample Size

The total sample size for this research project was 32 respondents.

Data Analysis tools

- 1) Factor Analysis
- 2) Chi-Square Test

1) Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.524
	Approx. Chi-Square	152.199
Bartlett's Test of Sphericity	Df	45
	Sig.	.000

1. Kaiser-Meyer-Olkin test measures the sampling adequacy must be more than 0.5 for desirable. In the above table KMO value is .524 which is more than 0.5.(0.524>0.5).

Hence sample size is adequate for Factor Analysis.

2. Bartlett's Test of sphericity measures the level of significance of correlation of variables. It must be <0.05

In the above table value is .000 which is less than 0.05 (0.00<0.05).

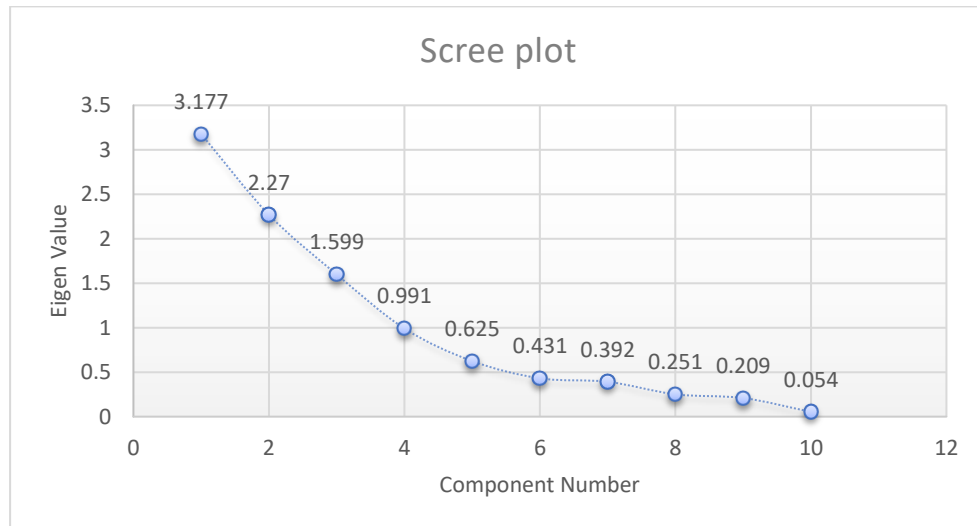
Hence there is significance of correlation between the variables.

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.177	31.772	31.772	3.177	31.772	31.772	2.787	27.870	27.870
2	2.270	22.701	54.473	2.270	22.701	54.473	2.231	22.309	50.179
3	1.599	15.992	70.465	1.599	15.992	70.465	2.029	20.286	70.465
4	.991	9.907	80.372						
5	.625	6.252	86.624						
6	.431	4.312	90.936						
7	.392	3.916	94.852						
8	.251	2.515	97.367						
9	.209	2.090	99.457						
10	.054	.543	100.000						
Extraction Method: Principal Component Analysis.									

The eigen value represents the total variance explained by each factor. The eigen value should be always <1.

The Eigen value of component 1,2, and 3 is greater than 1, So only these three components are desirable to create a Factor.

The total cumulative Significance percentage of these three components is 70.465%.



In the Scree Plot the Eigen value is plotted against the component number. It gives us graphical view of Eigen value of each component.

The Component 1 has 3.1775 Eigen value, Component 2 has 2.27 Eigen value, and Component 3 has 1.599 Eigen value.

Component 1-Features

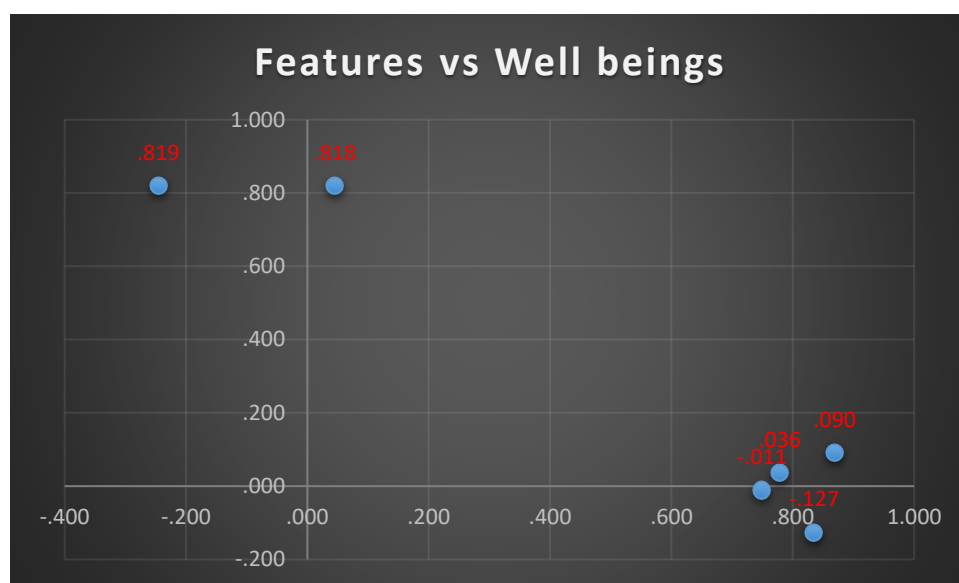
Component 2-Well-Beings

Component 3 – Extra Benefits

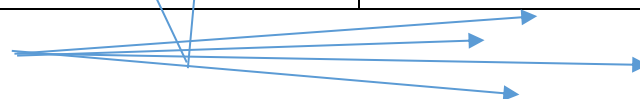
Rotated Component Matrix			
	Component		
	1	2	3
Sustainability /Eco friendliness	.286	.670	.270
Range Charging/ Infrastructure	-.072	-.261	.824
Maintenance Cost	-.098	.527	-.486
Technology Innovation	.749	-.011	.482
Powerful	.869	.090	-.145
Performance Efficiency	.779	.036	.490
Design/Futuristic Appear	.835	-.127	-.108
Comfortable	-.245	.819	-.027
Safety	.046	.818	-.105
Value Proposition	.093	.266	.724

Components Mapping

	Component	
	Features	Well beings
Technology Innovation	.749	-.011
Powerful	.869	.090
Performance Efficiency	.779	.036
Design/Futuristic Appear	.835	-.127
Comfortable	-.245	.819
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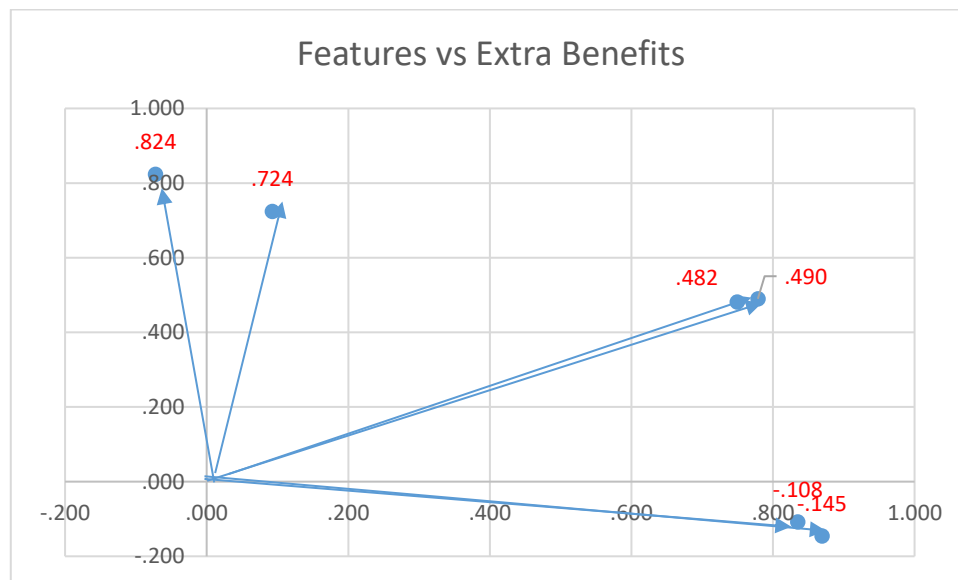


	Components	
	Well Beings	Extra Benefits
Range Charging Infrastructure	-.261	.824
Comfortable	.819	-.027
Safety	.818	-.105
Cost/Value Proposition	.266	.724





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Interpretation

From the factor analysis interpretation, we may conclude that the different attributes for the buying of Tata Nexon Ev such as Sustainability, Technology innovation, Infrastructure, Maintenance cost, Powerful, Performance efficiency, Design, Safety, Value proposition can be reduced to 3 components-based value which must be greater than 3. The 3 components can be named as features, wellbeing and extra benefits.

The perception map drawn from the factor score for different factors plots for the Specific attribute for perception towards Tata Nexon EV.

2) Chi Square Test

Hypothesis

Null Hypothesis: There is no significant association between income and brand positioning of Tata Nexon Ev.

Alternative Hypothesis: There is significant association between income and brand positioning of Tata Nexon Ev.

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Income * Brand positioning	32	71.1%	13	28.9%	45	100.0%

Income * Brand Positioning Crosstabulation						
Count						
	Brand Positioning					Total
	Sustainability	Technology	Performance Efficiency	Designing	Safety	
Income	<500000	1	1	0	0	2
	500000-750000	0	2	2	2	8
	751000-1000000	2	3	3	2	11
	1000001-1250000	0	4	2	2	9
	1250001-1500000	0	0	2	0	2
Total	3	10	9	6	4	32

Chi-Square Tests									
	Value	df	Asymp. Sig. (2-sided)	Monte Carlo Sig. (2-sided)			Monte Carlo Sig. (1-sided)		
				Sig.	95% Confidence Interval		Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound		Lower Bound	Upper Bound
Pearson Chi-Square	14.690 ^a	16	.547	.613 ^b	.603	.622			
Likelihood Ratio	15.129	16	.515	.756 ^b	.748	.765			
Fisher's Exact Test	12.037			.844 ^b	.837	.851			
Linear-by-Linear Association	.091 ^c	1	.763	.778 ^b	.770	.786	.415 ^b	.406	.425
N of Valid Cases	32								

a. 25 cells (100.0%) have expected count less than 5. The minimum expected count is .19.

b. Based on 10000 sampled tables with starting seed 2000000.

c. The standardized statistic is .302.

Interpretation

1. According to Pearson Chi-Square p value is 0.547 and level of significance is 0.05.so p value > level of significance i.e., $0.547 > 0.05$, then null hypothesis is accepted and alternate hypothesis is rejected with 5% level of significance.

2. So, there is no association between Income and brand positioning of Tata Nexon Ev.

Findings

1. Technologically advanced
2. Eco friendly
3. Reducing carbon footprint which is selling point for environmentally conscious citizen
4. Comfortable & safe

Limitations

- Time frame work was not enough to conduct the survey so we collected the data of only 32 respondents.
- Convenience Sampling provides little-bit homogeneous results.

Suggestions

In this research we found that today's society is looking for sustainable development and pollution free environment therefore they have created innovated electric car named as nexon it is a SUV car.

It is suggested to have Tata Nexon EV is an SUV that offers the perfect combination of performance and style. With its bold and stylish design, it stands out from the crowd and is the perfect choice for those who want to make a statement. The powerful and efficient engine allows for confident driving on any terrain, while the spacious and comfortable interior makes for a pleasant ride for both drivers and passengers alike. Tata Nexon EV is the go-to choose for those who demand the best from their ride.

CONCLUSION

Tata Nexon is emerging brand which have introduced EV models into the Indian market. To foster the growth of EVs, collaboration between the government and manufacturers is crucial to develop the necessary infrastructure and cultivate a favourable environment. The respondents exhibit an awareness of global climate conditions and express a willingness to shift from conventional to eco-friendly vehicles.

It is found that the large number of respondents were preferring Tata Nexon due to its features, mileage, extra benefits, safety, comfort, price, good design, and quality service. There was no association between Income and brand positioning of Tata Nexon Ev.

Cost plays a pivotal role in their decision-making process when contemplating the purchase of an EV. Should suitable infrastructure be available, respondents are inclined to consider EVs as a viable option for future purchases. However, barriers such as the initial purchase cost, limited charging stations, and extended charging times serve as impediments to bolstering consumer confidence.

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