

## **A Study on Consumer Satisfaction towards Okinawa E-Bike with Special Reference to Kolhapur City**

**Dr. Paheli Nigam**

Assistant Professor, Balaji Institute of International Business, Sri Balaji University, Pune  
Paheli.8@gmail.com

**Dr. Neetu Kumari**

Assistant Professor, Balaji Institute of International Business, Sri Balaji University, Pune  
Nitu.kumkum@gmail.com

**Mr. Amol Shivaji Patil**

Student, Balaji Institute of International Business, Sri Balaji University, Pune  
aspatil.30@gmail.com

**Prof. Ashwini Kumar**

Assistant Professor, Department of Fashion Design, National Institute of Fashion Technology  
ashwin.ards0@gmail.com

**Prof. Vinita Tiwari**

Assistant Professor, Balaji Institute of International Business, Sri Balaji University, Pune  
vinnu\_mishra@yahoo.com

### **ABSTRACT**

India is the second most prominent maker and formation of E-bikes on the world. The core of vehicle industry that was reevaluated with the welcome of eco-obliging improvement is good to go to see sunrise of new time in bike industry. The primary purpose of this study is to identify the relationship between the factors and customer satisfaction. Factors considered for research are Price, Suspension, Charging Time, Built Quality, Warranty, Maintenance Cost, Security Alerts, Brand Name, Mileage, Motor Power. Descriptive research design has been used and convenience sampling method used for the collecting the data. Structured questionnaire used for the collecting primary data. Regression Analysis was being performed on the data collected to find out the factors that was studied affecting the satisfaction of the Okinawa E-bike customers. Finding of the study Expressions E-bikes, climate satisfying, moderate

### **INTRODUCTION**

The passenger vehicle sector is addressing the need for next generation transportation which is technically innovated, safer, friendly to the environment and flexible to the users. An electric vehicle (EV), also known as a battery operated vehicle (BOV) or electric bike comes in different configurations. Electric bike (e-bike) is considered a more environmentally friendly mode of transport compared to the vehicles that consume fossil fuels. It is an ecological and urban means of transport and its source of energy is a battery. The main advantages of an electric bicycle are both economic and environmental. Among the economic advantages we can find the total cost per

kilometre travelled by an electric bicycle (including the energy, purchasing and maintenance), is less than 0.7 cents, compared to \$0.031/km for a gasoline scooter, or \$0.62/km travelled by car. Main reason to identify the need of finding and modifying E-Bike is to overcome the issue of the pollution because of vehicles in metro towns & urban zones is swelling uninterruptedly. Considering the all class of society it is not reasonable for all to purchase (scooters, mopeds or motorcycles). So, combining both issues, environmental progress supporting and economical affordable alternative would be the best solution. The electric bike is a new form of private transport has led to a new approach to mobility, especially in cities both for countries with large populations and for countries that are concerned about the environment. The batteries of the electric bike can be recharged by connecting them to a plug. In addition, a typical electric bike needs 6–8 h to charge the battery and has a range of travel of 35 to 50 km at a speed of about 35 km/h (depending on rider weight). Therefore, we can say E-bikers offer low cost, energy efficient, emission free transportation which also has physical and health benefit. Okinawa Autotech Pvt. Ltd. is a 100 percent Indian electric bike producing organization that was laid out in 2015, settled in Gurgaon with an assembling plant in Bhiwadi, Rajasthan. The organization's central goal is to foster electric bike items that can drive the present towards a feasible future. The organization attempts to be eco-accommodating, maintainable, socially mindful while lessening the carbon-dioxide engrave in the world. Okinawa positions among India's top-selling electric bike producers and has framed plans to build restriction to 100% toward FY2022's end. As of now, the organization has accomplished 92% confinement. The global electric vehicle (EV) market is developing at a rapid pace. According to EV volumes, overall electric vehicle reached a global share of 8.3% (including battery electric vehicles [BEVs] and Plug-in hybrid electric vehicles [PHEVs]) in 2021 from 4.2% in 2020 with 6.75 million vehicles on the road. This is an increase of 108% as of 2020. EVs are gaining attention across the globe as they help reduce emissions and depletion of natural resources. The Indian EV market is also evolving fast as close to 0.32 million vehicles were sold in 2021, up 168% YoY. Ongoing electric vehicle adoption in India is based on the Paris agreement to reduce carbon emissions, to improve the air quality in urban areas and reduce oil imports. Over the last three years, 0.52 million EVs were registered in India, according to the Ministry of Heavy Industries. EVs recorded robust growth in 2021, supported by the implementation of favourable policies and programmes by the government.

## REVIEW OF LITERATURE

The literature reveals that worldwide CO<sub>2</sub> emissions from the combustion of various fossil fuels such as coal, oil, and natural gas were expected to exceed 40 billion metric tons by 2030 (Energy Information Administration (EIA) of the US Government. Speed, mileage and price are the top three attributes the consumers prefer while opting for an electric bike (Prof. Mohammed Khaja Qutubuddin<sup>1</sup>, Dr. P.Sai Rani<sup>2</sup>, 2022), The key advantages of the designed E-Bike are its low cost and light weight (K. Ramash Kumar,<sup>1</sup> T. S. Anandhi,<sup>2</sup> B. Vijayakrishna,<sup>3</sup> Monalisa Mohanty,<sup>4</sup> M. Siva Ramkumar,<sup>5</sup> H. A. Shivappa,<sup>6</sup> Belachew Zegale Tizazu,<sup>7</sup> B. Kirubakaran,<sup>1</sup> and E. Thinapakar,<sup>2021</sup>), Electric vehicles are one of the important solutions for major problems like air pollution, global warming and increased use of fuels (Tejal Deshpande<sup>1</sup>, Yogita Labde<sup>2</sup>, Nevil Rego<sup>3</sup>, Bhavesh Yadav<sup>4</sup>, Mohammad Umer Baig, Dec 2021), E-bike is cheaper, simpler in construction & can be widely used for short distance travelling, very much suitable for young, aged, handicap people and caters the need of economically poor class of society (Mohammed Iqbal Khatib<sup>1</sup>, Shahin Shaikh<sup>2</sup>, Mohd Sohaib Qayyumi<sup>3</sup>, Shaik Farhan<sup>4</sup>, Anwaar Ul

Hassan,2020),Customers are satisfied with the quality,price and performance of the Ampere e-bikes as well as users feel that price of the e-bikers are neutral(Dr. D. Sivasakthi & Geethanjali.P ,Nov 2020), awareness level is not strong for electric two-wheeler and customer perception regarding electric two-wheelers is not positive(Sarthak Das,june2020), The respondents are aware of global climate conditions and are ready to change their preference from conventional to eco-friendly vehicles. Cost is an important factor while considering the purchase of EV and Respondents are willing to consider EVs as their future purchase option (Mr. Omkar Tupe, Prof. Shweta Kishore, Dr. Arloph Johnvieira,2020), there is a positive attitude towards the electric bikes shared services. Issues related to perceived benefits and environment were seen in prominence for the use of electric bikes shared services(Gourav Kumar Yadav,2020), lack of awareness, regulatory authority, quality issues are some of the biggest challenges in front of the industry(DR. JEGANATHAN GOMATHI SANKAR1 , MR. HEMANTH KUMAR. G ,2020),Electric vehicle is an important solution to get rid of problem like air pollution and global warming and alternative to conventional fuel driven bike. An electric bike can be considered a good alternative for traveling within small and medium distances (Kumar Vivek1 Sandeep S Nimbalkar,2020), E-bike comprises the features like high mobility efficiency, compact, electrically powered, comfortable riding experience, light weight vehicle. E-bike is the most versatile current and future vehicle considering its advantagesMr.

Pramod R. Wadate<sup>1</sup> Pratik S Deshmukh, Vikas V Kadam, Chandrakant T Kadam ,Mangesh Navgire,2019).The most vital feature of the electric bike is that it does not consume fossil fuels thereby saving crores of foreign currencies and it is pollution free, eco – friendly and noiseless in operation, (Kunjan Shinde 2018), With the increasing expense of fuel at International level, expanding levels of contamination and clog in transport framework particularly in urban regions, higher running and support cost of vehicle, the electrically charged bicycles or bikes have brilliant future in region of individual transportation. (Ms.D.Radhasri & M.Gokulkrishnan,2018).E-bikes are more suitable for city as it can reduce the emission of harmful gases and thereby it can reduce the atmospheric pollution as well as due to frequent increase in the fuel prices, the electrically charged vehicles seem to be the cheapest one compared to the traditional vehicles(S Selvi,2017), it is essential for the creation endeavors to do the exploration and the fulfillment assessment of battery electric vehicle items, work on straightforwardly in the plan and creation processes, enhance the item life cycle, and get a superior market status. (Jun Ma ,Tianjiao Li&Zaiyan Gong,2017),A.K.Subramani,E.Elavarasan&A.David Raj(2017)found in their paper Consumer loyalty Towards Yamaha Bicycle FZ, Ambattur, Chennai that it is presumed that the segment factors, for example, age gathering, orientation and occupation are lessly affecting the elements of consumer loyalty's. The examination result additionally shows that the vast majority of the clients are fulfilled towards Yamaha FZ motorcycles concerning the picked factors.More rechargeable stations, more models with carrying capacity and subsidy from the government make them to go in for e-bikes in future(AlameluR,Chandrasekaran Sivasundaram Anushan2015).

### **Problem Statement**

Understanding of customer satisfaction is always an electrifying topic for the researchers and acceptance of product is well defined by their satisfaction.It also help the manufacturers in further designing the product to acquire more market share.There are various research has been published by the researchers on e bikes.But most of the studies focus on understanding the customer

preferences, choices and purchasing behaviours of E-bikes. The aim of this research paper is to identify the factors that influence the customer satisfaction of the e-bike in Kolhapur city.

### OBJECTIVES

- To study the factors affecting customer satisfaction towards Okinawa E-bikes.
- To understand relationship between Price, Suspension, Charging Time, Built Quality, Warranty, Maintenance Cost, Security Alerts, Brand Name, Mileage, Motor Power, and customer satisfaction towards Okinawa E-bikes.

### HYPOTHESIS

H0- There is no significant relationship between factors and customer satisfaction towards Okinawa E-bikes.

### RESEARCH METHODOLOGY

The exploration study is demonstrative and scientific in nature. Both primary and secondary information was gathered. Primary data was gathered by drifting organized poll through google structure among the customers of Okinawa from Kolhapur city. The Secondary information was gathered from books, articles in diaries and sites. The populace for the review was 140 individuals. Convenience sampling Technique was utilized for Information assortment. The survey was dependent upon altering. Deficient polls were altered through office as well as field altering. SPSS was used for data analysis and different statistical tool such as co-relation been used.

### DATA ANALYSIS

Diagram:1.1

2] Age Group  
140 responses

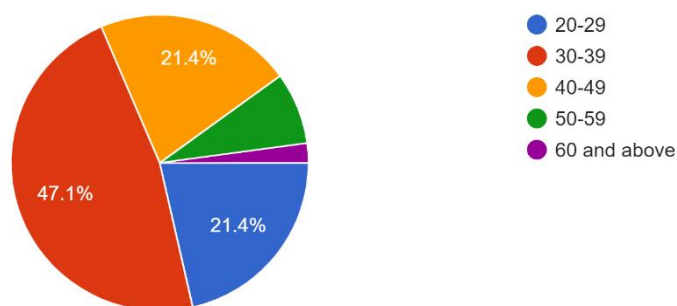


Diagram:1.2

3] Gender  
140 responses

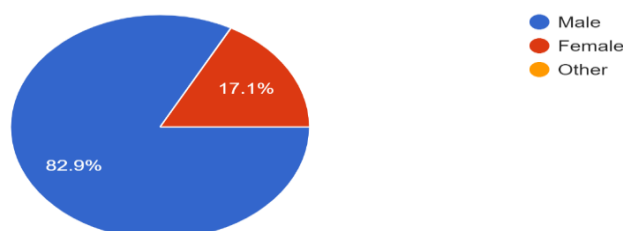


Diagram 1.3

4] Monthly Income  
140 responses

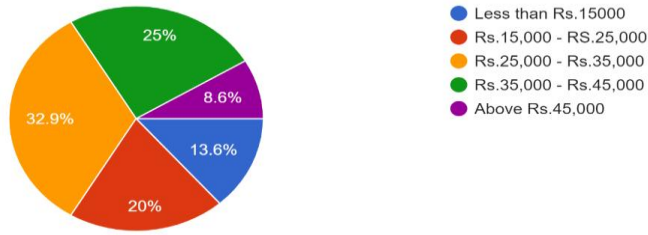


Diagram 1.4

5] Occupation  
140 responses

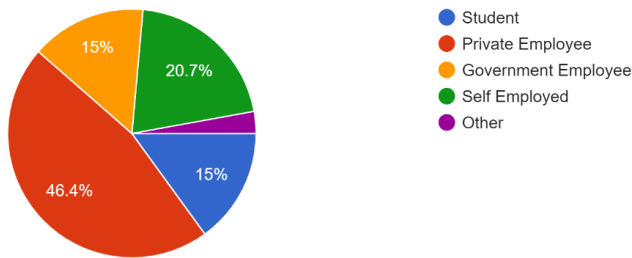


Diagram:1.5

6] Which model of Okinawa E-bike do you own?  
140 responses

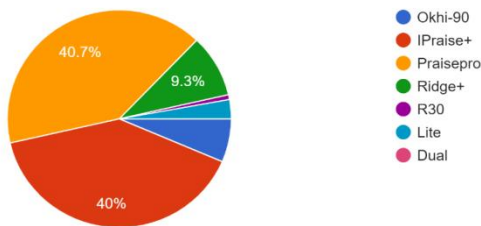
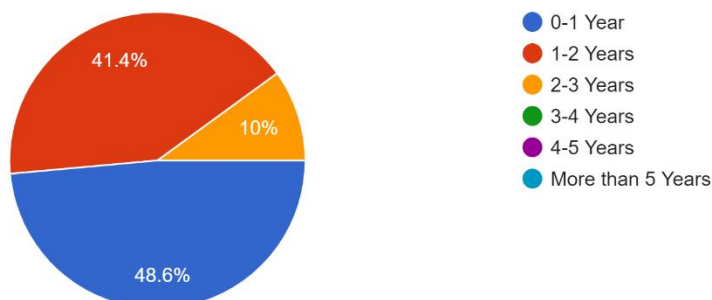


Diagram 1.6

7] How long have you been using Okinawa E-bike?  
140 responses



- Regression Analysis was being performed on the data collected to find out the factors that was studied affecting the satisfaction of the Okinawa E-bike customers.
- The independent variable were the different factors that were considered for the data collection and the dependent variable was the recommendation for the store. The studied variables were coded from 1 to 5 and the regression analysis was performed.

Table 2.1

Regression Statistics	
Multiple R	0.43
R Square	0.18
Adjusted R Square	0.111392158
Standard Error	0.502784283
Observations	140

Table 2.2

ANOVA					
	df	SS	MS	F	Significance F
Regression	11	7.185	0.653	2.584042	0.005371966
Residual	128	32.36	0.253		
Total	139	39.54			

Table 2.3

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%	
Intercept	2.1555	0.6321	3.4100	0.0009	0.9048	3.4063	0.9048	3.4063	
Price	0.1797	0.1006	1.7854	0.0766	-0.0195	0.3788	-0.0195	0.3788	
Suspension	0.1256	0.0643	1.9531	0.0530	-0.0016	0.2528	-0.0016	0.2528	
Charging Time	0.0703	0.1086	0.6473	0.5186	-0.1447	0.2853	-0.1447	0.2853	
Built Quality	0.1111	0.1099	1.0110	0.3139	-0.1063	0.3285	-0.1063	0.3285	
Warranty Maintenance	-0.0929	0.0878	-	1.0575	0.2923	-0.2666	0.0809	-0.2666	0.0809
Cost Security	0.0978	0.1055	0.9266	0.3559	-0.1110	0.3066	-0.1110	0.3066	
Alerts	0.0328	0.0931	0.3527	0.7249	-0.1515	0.2172	-0.1515	0.2172	
Brand Name	0.0330	0.1030	0.3200	0.7495	-0.1709	0.2368	-0.1709	0.2368	
Mileage	0.1130	0.0877	1.2876	0.2002	-0.0606	0.2865	-0.0606	0.2865	

Motor Power	-0.0149	0.0810	0.1843	0.8541	-0.1752	0.1454	-0.1752	0.1454
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Customer satisfaction index=

Total satisfied customer/ total number of customers %=136/140%=97 % respondents are satisfied with the E-bike.

## FINDINGS

From the study it is clearly visible

- Praisepro and IPraise+ are the most purchased E-bike models of Okinawa. (Diagram 1.5)
- R30 and Lite model are least preferred models of Okinawa. (Diagram 1.5)
- Private employees generally prefer E-bikes as compare to self-employed and government employees. (Diagram 1.4)
- Private employees are highly satisfied with the e –bikes that is 46% ,whereas satisfaction percentage is less among government employees that is 21.
- 30-39 age group peoples mostly prefer e-bikes that is 47% then comes 40-49. (Diagram 1.1).30-39 age group respondents are highly satisfied that is 45 as compare to40-49 that is 20.
- 25-35 k income group people prefer E-bikes that percentage is 32.9%. (Diagram :1.3)
- From Regression co-efficient table (2.3),it indicates that brand Name, alert and motor power are the factors affecting the customer satisfaction for Okinawa E-bikes.
- Customers are highly satisfied with the Okinawa E-bikes as Percentage is 97 out of 140.
- More than 90% respondents are satisfied with the price of the bike, value for money, mileage and Maintenance.
- As Users of e-bike are satisfied with the product so, they likely to recommend e-bikes to your family members and society as percentage is more than 90% ., Respondents said they will recommend Okinawa E-bikes.

## CONCLUSION

The frequency distribution of respondents showed that most of the respondents in the survey are men. Majority of the respondents who are interested to opt for e-bike subscription fall under the age group of 30-39 years and an income level of 25-35 k per month.The study is based on customer satisfaction towards Okinawa E-bikes. It finishes up the factors affect the customer satisfaction are the brand name, alert and the motor power.More than 90% respondents are satisfied with the price of the bike, value for money, mileage and Maintenance. Most of the respondents are propelled by work gatherings to purchase the Okinawa E-bike and furthermore clients feel the cost of Okinawa E-bikes is Neutral.

## SUGGESTIONS

From the study we found that brand name and motor power are the concerns to choose an electric bike over a normal bike, so the company shall think about partnering with other companies to setup fast charging stations at different geographic areas. Government employees are found to be less interested to use electric bikes. Hence, eternal green can think about providing additional discount

offers to attract this segment. Greater notice is required for the models like Okhi-90, R30 and Lite as numerous individuals are not preferring these bikes. Okinawa should start advertising about their E-bikes on mainstream media to expand their reach and customer base.

## LIMITATIONS

Location of the study is limited to Kolhapur only so, if location will change the result will also change. And time constraints are also the one of limitation.

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