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Study of Consumer Buying Behavior towards Bicycle under EPS and LPS



Abstract: The buying behaviour towards the bicycle is studied by the theoretical knowledge of EPS and LPS. The basics of consumer behaviour are analysed statistically to gather different influential factors. The Sequence of the EBM model is also used to understand the theory for forwarding the study to the statistical model. The historical background of the bicycle and product differentiation is structured to determine the outcome. SPSS is used to study the correlation and the Chi-square of the difference variables. Using the Chi-square test, we conclude that there is a significant relationship between the purchase of bicycles and the income level of customers. Using the Chi-square test, we conclude that there is a substantial relationship between the purchase of bicycles and the Gender of the customers. There is a more significant influence of consumer behaviour on his purchase decision, where out of 10 variables, seven variables are found to be important in relation to the theory.

Keywords: Consumer Buying Behaviour, Bicycle, EBM model, Perception, Satisfaction, Environmental enfluence, EPS, LPS.

I. INTRODUCTION

The evolution of the product category, with the current set of organisations producing it, is unfolding. The different varieties of the product available in the market help to understand consumer behaviour analysis for the products. According to Chatain, O. & Zemsky, P. (2011) [4], The different types of consumers (Segments) and the attractiveness of the segments, application of VALS is studied in this paper. The relationship between consumer behavior and customer value [3], satisfaction, trust and retention is narrated. The benefits received and expected from the products, in light of the consumer's perception of the product (Individual perception, Price perception), are decoded. The consumer's perception of different brands

available in the product category and their learning are influenced. The consumer's learning, memory, and involvement help to shape their motivation for the Product (Need and Goal), which in turn influences their attitude, personality, and behaviour. Personal value is highly attached to changes in behaviour. The individual determinants of consumer behaviour (Personality, self-concept, motivation, involvement, information processing, learning and memory, attitudes) influence the industry. In contrast, environmental elements have an impact on consumer behaviour (Culture, Subculture, Social Class, Social group, Family). Along with that, the health, ecological, economic, and lifestyle factors influence the selection and use of the bicycle in the present day [5]. The consumer decision process for the assigned product or product category is undoubtedly related to the marketing mix analysis of different brands for their target segments (at least two brands). Triggering to the organizational buying behavior for the assigned category. (If applicable) to do several observations, findings, insights, suggestions and conclusions.

II. LITERATURE REVIEW

The green purchase consumer intention is the foremost intension to purchase a product [6], Whereas the perceived benefit is the second influencial factor for the change in the buying behviour [7]. Starting from the need recognition to problem solving, a management model is usually used in the study of consumer behaviour, i.e. Engel-Blackwell-Miniard (EBM) [2]. In this model, the Extensive problem solving (EPS) and Limited Problem Solving (LPS) are used to study the consumer behaviour [1]. The sequence of the model is explained in Figure 1.1.



Figure 1.1: Sequence of EBM Model

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*Correspondence Author(s)

Dr. Jay Prakash Verma*, Assistant Professor, Pune Institute of Business Management, Pune (Maharashtra), India. E-mail: jayprakash.verma@pibm.in, Ocrid id: 0000-0003-4004-5513

Rutik Ravindra Sakharkar, Student, MBA, Pune Institute of BusinessManagement,Pune.(Maharashtra),India.E-mail:rutik.sakharkar.126@gmail.com

© The Authors. Published by Blue Eyes Intelligence Engineering and Sciences Publication (BEIESP). This is an <u>open access</u> article under the CC-BY-NC-ND license <u>http://creativecommons.org/licenses/by-nc-nd/4.0/</u> Under this model, EPS, the consumer goes through numerous outlets and brands up to his satisfaction level, whereas in LPS, the consumer search is of a lower degree in comparison to EPS, but relates to his experience, brand loyalty and depends on prior knowledge and information [9][10]. The product availability and choice decision stimulate the buying behaviour of consumer to select the product [8].

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III. BACKGROUND STUDY

This paper presents the historical background and current scenario of the product to understand the changes in consumer behaviour over time. The body of knowledge expaines (1) Bicycle Timeline, (2) Current set of organizations producing the product category, (3) Different Varieties of the product available, (4) Different types of consumers (Segments) and the attractiveness of the segments, application of VALS for bicycles and (5) Relationship between consumer behavior and customer value, satisfaction, trust and retention.

A. Bicycle Timeline:

- 1. Giovanni Fontana constructs the first human-powered four-wheeled land vehicle in 1418 using a cord fastened to wheels with gears.
- 2. 1790 Count Mede de Sivrac created the Celerifere, a vehicle without a steering wheel, brakes, or pedals but with two similar wheels and a seat. By utilising their legs to begin walking or jogging, the rider advances before sliding along the surface. The rider pushes forward while walking or jogging, then falls off the saddle.
- 3. 1817 Steerable Laufmaschine This device is also known as a speed walker, velocipede, running machine, and Draisine. The wooden steerable laufmaschine, which is the first application of the two-wheel idea, contains a steerable front wheel.
- 4. 1858 Pedals The steerable laufmaschine is given pedals. It's unknown who inserted them first. Either the Frenchman Pierre Michaux, his son Ernest Michaux, or Pierre Llamenti deserve credit for this.
- 5. 1863 Blacksmith Boneshaker In 1863, Ernest Michaux created the bone shaker, which is today known as the first commercially successful velocipede. The Boneshaker is a true "boneshaker" for riding over common cobblestones since it was constructed with rigid materials and right angles.
- 6. James Starley, a British engineer, created the penny farthing, sometimes referred to as the tall wheel, in 1866. In comparison to contemporary bikes, the Penny Farthing appears rather ridiculous and was quite challenging to ride. This challenge diminished the appeal of large wheel riders. The designers understood that the larger the front wheel, the larger the wheels grew as a result of the increased pedal cycle distance. An employee's pay for six months would be spent on these bikes.
- 7. Clément Ader is granted the first patent for rubber wheels in 1868. We also explored rubber tyres with a hollow core since the smoothness of the ride may still be improved.
- 8. Callipers An early design of the calliper was patented in 1876 by English inventors Browett and Harrison.
- Henry J. Lawson designed the first trailing wheel, a chain drive safety wheel, in 1879 while riding a bicycle. Lever operation was used in all of Lawson's older versions.
- 10. In 1885, the Rover Safety Bicycle was invented by John Kemp Starley in England. This is the first design that resembles a typical bike. This design features two identically sized wheels, a low seat, and a sturdy metal chain.

- 11. John Boyd Dunlop receives an Irish patent for pneumatic tyres in 1888. When John's little kid enquired about a solution to make his tricycle go more smoothly on busy cobblestone streets, they were conceived. Dunlop believed he had invented inflated tyres, but Robert Thomson had created them in 1845, unbeknownst to Dunlop.
- 12. 1889 Pedal-Back Brake Daniel-Stover and William Hance patented these brakes, which went on to become well-known as safety brakes. Later, they also end up being included as standard on bicycles.
- 13. In 1896, the introduction of coaster brakes allowed bicycles to move forward without requiring the pedals to be depressed. Furthermore, the cyclist also has the option of pedalling backwards to brake. Even now, certain localities still favour these brakes.
- 14. Duck Brakes, introduced in 1897, employ a rod that is activated by a lever on the steering wheel. The car is stopped by the driver pulling a lever that causes rubber rollers to press on the front tyre.
- 15. 1897 Hosea W. Libbey submits a patent application for his electric centrifugal wheel, which revolves solely in time with the wheel's revolutions. It is a precursor to the contemporary mid-cycle e-bike. Gordon J. Scott filed a patent application for an electric glider in 1898 for a pedal-powered battery regenerator. In this unique design, the pedals operate a generator that drives a tiny motor.
- 16. 1898 saw the invention of the freewheel by Ernst Sachs. The free wheel was first made available to consumers in 1898. This innovation employs a different mechanism than a mountain brake, allowing the user to keep the pedals in place as the bicycle moves forward.
- 17. Thomas M. McDonald submitted a patent application for an electric pole motor in 1938. That might be too soon for the variant with front wheels. According to the patent application, the goal of this bicycle is to make it possible to ride a bike whose pedals are solely powered by electricity.
- 18. 1979 Californian mountain bike. The mountain bike is credited to Joe Breeze as its inventor. Many early designers, including Joe Breeze, Otis Guy, Gary Fisher, and Craig Mitchell, prototyped them. The first reliable descent frames are these.
- 19. Sprockets In 1984, the rear derailleur group received sprockets, increasing the number of speeds from 15 to 18, 21, and 24.
- 20. The 10-tooth rear cluster created by Italian bicycle component company Campagnolo in 2002 allows for 30-speed wheels. Shimano, a global manufacturer, created electronic gears in 2009 that enable quicker gear changes.
- 21. ADAPTRAC Adaptrac developed a device in 2012 that enables riders to adjust their tyre pressure individually while on the road. Riders can keep their grip no matter how the riding conditions vary because of the carbon dioxide cartridge technology.

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22. Lithium Nickel Manganese Cobalt Oxide Batteries, also referred to as NMC batteries, are a more recent type of lithium battery that will gain popularity in ebikes between 2013 and 2014. Compared to earlier generations, the NMC provides higher power in a smaller form factor.

Current Set of Organizations Producing the B. **Product Category:**

Hero Cycles a

- Corporate Office: Ludhiana, Punjab a.
- Founded: 1956 b.
- Business: Cycle Manufacturer c.
- Website: www.herocycles.com d.
- In 1956, Hero Cycles was established in Ludhiana, e. Punjab, and began producing bicycle parts. With a daily production rate of 18390 bicycles, Hero Cycles is currently among the largest bicycle manufacturers in the world. The Hero Motors Company owns Hero Cycles Ltd. In 2016, Hero Cycles exported goods to more than 70 different nations. The business holds ISO 9001 and ISO 14001 certifications. The company distributes motorcycles under the Hero and UT (formerly Urban Trial) labels, in addition to serving as a white-label producer for numerous brands. In 2015, Hero Cycles acquired the Firefox bicycle line
- *b*. Atlas Cycle
- Corporate Office: Sonepat, India a.
- Founded: 1951 b.
- Business: Bicycle producer c.
- Website: www.atlascycles.co.in d.
- In 1951, Atlas Cycle Industries (ACIL), now known as e. Atlas Cycles (Haryana) Ltd, began making bicycle saddles. In 1952, the company built its first bicycle. The business has expanded from its modest beginnings of 120 bicycles a day to become India's second-largest bicycle producer. In Haryana, the company has facilities at Sonepat, Sahibabad, Rasoi, and Gurgaon. The remarkable annual production capacity of bicycles is 3.1 million. The company has grown to be India's top bicycle exporter. New export markets, such as South Africa and Myanmar, were investigated in 1994-1995. The company not only sells exercise equipment abroad but also exports whole bicycles and mopeds. Exports are likely to increase as a result of the ISO -9002 accreditation.
- Avon Cycle С.
- Corporate Office: Ludhiana, Punjab a.
- Founded: 1951 b.
- Business: cycle manufacturing c.
- Website: www.avoncycles.com d.
- e. Avon Cycle Limited is an Indian firm that produces bicycles and E-bikes and is situated in Ludhiana, Punjab. The chairman and managing director of Avon Cycles is Mr. Onkar Singh Pahwa. One of the top bicycle manufacturers in India, Avon Cycles, now makes e-rickshaws and electric scooters. As Avon Exercise Machines Pvt. Ltd., Avon has expanded into the exercise equipment industry.

- f. The company's permitted capital is Rs 100.0 lakhs, and its paid-up capital, which is Rs 89.64 lakhs, is 89.6442 percent of that amount. Currently operating, Avon Cycles Ltd. has been producing machines and equipment for over 70 years. The business creates and sells electric bicycles (e-bikes), bicycles, fitness equipment, and motorcycles. Avon Cycles Ltd caters to customers in India.
- d. Hercules
- Corporate Office: Chennai, Tamil Nadu a.
- Founded: 1949 b.
- Business: Bicycle & Firearms c.
- Website: www.bsahercules.com d.
- The Birmingham Small Arms Company is a market e. leader in the production of bicycles, weapons, and steel casting. The business was founded in 1861, and it began operating in India in 1949. TI Cycles and the Murugappa Group are in charge of managing and distributing the cycle business in India. The BSA and Hercules brands are among the leading bicycle manufacturers in the area. Hercules is renowned for producing sturdy, secure bicycles. You must have access to a wide range of top-notch bicycles. You can find some unique models at Hercules Cycles if you're seeking a bike for daily usage.
- However, Hercules offers a broader range of bicycles f. than those for conventional use. Hercules is a brand you should immediately consider if you're seeking sport and performance bikes. They have a selection of the most fundamental sports motorcycles.
 - La-sovereign

e

- a. Corporate Office: Ludhiana, Punjab
- Founded: 1970 1980 Approx. b.
- Business: Bicycle manufacturing c.
- d. Website: www.la-sovereign.com
- It is a business with its primary offices in Thailand and e. connections to an Indian business. Sovereign Company, headquartered in Ludhiana, is the Indian equivalent. For forty years, this business has been producing and selling bicycles. For young children and the younger generation, Sovereign offers a range of bike models. The talk of the town is about their children's bikes, BMX bikes, and MTB bikes. The La Sovereign City Bicycle is their favoured model. For individuals who prefer to commute to the city by bicycle, this singlespeed type is ideal.
- The strong steel frame of the Los Angeles Sovereign f. city Bicycle is one of its most significant features. This bike's lack of traditional V or calliper brakes is one of its most novel features. One of the unique features of this model is the presence of disc brakes.
 - BSA Ladybird
- Corporate Office: (Hercules) a.
- Founded: 1949 b.

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- Business: Bikes & cycles c.
- d. website: http://bsaladybird.in.

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f.

j.

- The bikes from this brand are built explicitly in India e. for women. They are chic and sophisticated, and they are made so that women can ride bikes in complete comfort. The chic BSA Ladybird bikes provide women with the chance to express their style.
- f. There are numerous stylish models available. The BSA Ladybird Beetle Breeze, which is designed for girls ages eight to eleven, is one of the most fashionable types. Young women may easily manage the lightweight steel frame of this model. The bike has brake callipers, and the saddle is thickly padded. The front of the chaincase features a basket, and the rim is adorned exquisitely.
- Firefox g.
- Corporate Offices: Uttar Pradesh and Waterloo, USA a.
- Founded: 2005 b.
- Business: On and off-road Cycle c.
- Website: www.firefoxbikes.com d.
- The product lineup for Firefox comprises kids', e. mountain, road, BMX, and all-train bikes. It began operating in India in 2005, became the top brand in the world for bicycle production, and partnered with Trek Bicycle Corporation of the USA in 2006.
- f. This company first entered the Indian market in 2005, and it is now regarded as one of the top fashion companies in the country. This brand is listed among the largest bike suppliers in Asia. Firefox is renowned for its high-end bikes. These bikes are available in most shops in India. All age groups, men and women, need motorcycles. Models that work best in cities are what you need. They even offer models that may be altered to meet specific user requirements.
- h. Montra
- Corporate Office: Chennai, Tamil Nadu a.
- Founded: 1949 b.
- Business: Bicycle c.
- d. Website: www.tiindia.com
- A division of India's TI Cycles (Tube Investment), e. which was founded in 1949, is Monta Cycles. Numerous cycle brands, including Hercules, Philips, and BSA, are also produced by TI Cycles. One of the most well-known bicycle brands in India is Montra, which offers a variety of models, including Blues, Country Titanium, Jazz A, and Techno. One of the top companies in the Asian nation, this one is renowned for its fantastic assortment of hybrid bikes. The entire thing is one of the TI bicycles from an Asian country. They require the most suitable models for the city. Even mountain bikes are available. The RTB versions from Montra are made explicitly for roads and mountains.
- Mach Citv i.
- Corporate Office: Chennai, India a.
- Founded: 1898 b.
- Business: Bicycle, BMX c.
- Website: www.machcity.com d.
- In 2015, Mach Town bicycles were introduced to the e. Indian market. These bikes' simple designs enable people to resume their exercise routines easily. The urban population is the bike's target market.

- Mach Town sells hybrid bikes in addition to city bikes. The Bike W Single Speed is one of the most well-liked versions. The frame is made with lightweight steel. The tyres on this model are made of strong nylon. In general, this is a need for cities with frequently hazardous driving conditions.
 - Road Master
- Corporate Office: Illinois, USA a.
- Founded:1936 b.
- Business: Bikes & cycles c.
- Website: https://www.indianmotorcycle.in/roadmaster/ d.
- One of the most dependable brands in Asia that offers e a warranty on its bikes is Road Master, which is renowned for its affordable bikes. Simple alternatives for bikes from this manufacturer include a nice look, strength, and brakes on the majority of types. This top Indian bike brand offers more than sixty different bike models. They have bicycle models for people of all ages and are renowned for their sports bikes. The company has 156 locations across India, making it a widely recognised presence. It is one of the nation's top-performing and fastest-growing bike brands.

C. Different Varieties of the product available:

a. Road Bike

Bicycle for professional cyclists, Speed achievable is 20 -30 km/h

Price from ₹30000 to beyond ₹1 laks

Aerodynamic, bend-down handlebars and tires are thin for a low fraction. Hybrid Bike

A bicycle for regular use. Lar commuting, also called a city bike. Heavy frame material, thick tires, and low speed compared to a road bike.

Price from ₹10000 to ₹30000

b. Mountain Bike (MTB)

Dual suspension, 21-speed gear, Starts from ₹20000

Single gear cycle С.

Beginner's cycle, with basic features and no extras. Price from ₹3000

d. Fat Bike

Extra-wide tires, a heavy frame, and the best cycle for heavier individuals. Price from ₹10000

Touring Bikes е.

For long-distance bikes, Carriers for luggage carry heavy loads.

Price from ₹25000 onwards.

f. BMX

For performing stunts, parkour, with no breaks, and on a flat handlebar.

Price ₹4000 onwards

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Electric Bike g.

Equipped with a battery and an electric motor to push the bicycle along with a paddle, Price ₹10000 onwards Cruiser Bike Wide tire, front basket for luggage,

Price ₹ 4000 onwards

h. Cyclocross Bikes

Racing purpose bike and better traction tires. Price ₹20000 onwards

D. **Consumer Perception and Satisfaction**

Individual Perception: a.

An individual's perception is entirely dependent on the purpose for which they are making this purchase and what they expect in terms of satisfaction regarding security, comfort, and the ultimate goal of their purchase. According to our research and the survey's findings, we discovered that for some individuals, a bicycle is a highly valued purchase. In contrast, for others, it serves as a secondary mode of transportation used for daily purposes. This perception is driving a shift in purchasing decisions among individuals with varying budgets, making the bicycle a necessity for some and a luxury for others.

b. Price Perception:

The price perception influences the individual's perception because their budget may not be sufficient to meet their requirements. Most of them are eager to buy a bicycle under ₹ 10000, which comes with either a cruiser or single-gear option, but their desire is for an MTB or hybrid bicycle. The next category of budget is between ₹10,000 and ₹30,000, which allows for good-quality bikes within that range, and they adjust their budget according to their specific requirements.

Product and Service Quality Perception: С.

Customers are willing to pay for the best service over the cost of the product; hence, they are pleased with their local retail shop for providing high-quality service at a minimal maintenance cost.

d. Consumer Perception of Different Brands Available in the Product Category and Consumer Learning

According to the survey, we observed that Hero cycles, Hercules cycles, Firefox cycles, and Atlas cycles have established a presence in customers' minds through minimal advertising, high-quality products, and the best prices, all at the lowest maintenance costs.

This helps customers choose the products offered by other companies.

Consumer Learning, Memory and Involvement е.

To observe customers' learning, memory, and involvement with bicycles, we collected data related to their awareness and perception of the importance of bicycles. We learn that 64.4% of customers are highly aware of bicycles, and their awareness is created through self-interest in learning about bicycles, as well as through advertisements. And those who drive bicycles for daily usage consider it of high importance. For purchasing a new bicycle, they plan over a few months or a year, which drives customer involvement.

f. Consumer Motivation for the Product (Need and Goal)

The primary motivational factor for buying a bicycle is defined by the purpose of the purchase, which we observe is for utility and daily usage, as these are the significant factors influencing their decision to purchase.

IV. METHODS AND DATA ANALYSIS

The relationship between consumer behaviour and customer value, satisfaction, trust, and retention is analysed using statistical data analysis methods.

A. Relationship Between Consumer behavior and **Customer Value:**

Customer value is the term used for the calculation of the value perceived over the cost you have paid to purchase the product. For the study related to our product, the bicycle, we asked 225 customers about their budget for a bike and what their expectations are from their purchase. The output is stated in Table 4.1

Sr. no.	At what Budget will you buy a Bicycle?	Responses	Percentages
1	Less than ₹ 10000	110	48.9%
2	₹ 10001 - ₹ 30000	95	42.2%
3	₹ 30001 - ₹ 50000	10	4.4%
4	₹ 50001 - ₹ 100000	5	2.2%
5	₹ 100001 and above	5	2.2%

Sr. No.	What is your Expectation from Your Bicycle?	Responses	Percentage	
1	Comfort	130	57.8%	
2	Easy to use	125	55.6%	
3	Featured (Head Lights,	150	66.7%	
	Reflectors, Water bottle			
	Holder, Carrier Utility)			
4	Convertible Electric	35	15.6%	
5	Other	50	22.2%	
	Tabla 4	1		1

Table 4.1

The results are presented in Table 4.1, which indicates that approximately 48.9% of customers have a budget of less than ₹10,000, and 42.2% of customers are looking for a bicycle within the ₹10,001 to ₹30,000 budget range. Their expectations for the product were that it must be loaded with all the best features, such as headlights, reflectors, a Water bottle holder, Gear and Brake composition, and other features that are now considered value-added services. This was followed by the vital aspect of adding value: comfort and ease of use. This is the customer's value proposition in their mind for bicycles.

B. Relationship Between Consumer Behavior and **Satisfaction with Product:**

To know the satisfactory parameters of a bicycle for customer, we ask them for which purpose they use the Bicycle and what their satisfaction is with their bicycle in Table 4.2



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Sr. no.	What is the Purpose of buying a Bicycle?	Response	Percentage
1	Go to Work	15	7.6%
2	Go to School	35	15.7%
3	Daily Usage	60	26.7%
4	Utility Purpose	65	28.9%
5	Professional Cycling	10	4.4%
6	Sports / Racing	30	13.3%
7	Mountains / Dirt Bicycling	10	4.4%

Sr. no.	What is your Level of Satisfaction with your Bicycle?	Response				
		Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
1	Comfort	100	95	25	5	0
2	Maintanence	70	95	40	0	0
3	Strength	75	95	25	0	0
4	Features	50	125	30	10	0
5	Gear, Break, Bearing Composition	65	100	40	5	5

Table 4.2

Most of the responses we receive from both rural and urban markets indicate that around 28.9% of customers use bicycles for utility purposes, such as making money from them or doing daily chores, including transportation and value creation activities. This is followed by daily usage purposes, which are satisfied by cycling. We get to be in touch with the group of professional cyclists who go on a ride in the mountains. Some of them are dirt bikers or used to be in that kind of sport, and a significant attribute of satisfaction we get is high comfort, satisfactory maintenance, satisfactory strength of the cycle, adequate features, and satisfactory gear. Break composition is also an essential Attribute for studying satisfaction.

C. **Relationship Between Consumer Behaviour and Trust and Retention:**

We ask customers about their thoughts on why they use their cycle, and the primary reason, after satisfaction with the product, is trust in their preexisting relationship built with a highly valued product. For comparison, we ask them which brand they prefer over time. The majority are associated with the same type of companies, such as Hero (22.2%), Hercules (20%), Firefox (17.8%), Atlas (15.6%), and many more brands, depending on their preferences, years of usage, and trust in these brands. Another question we ask them from where they will purchase if want to buy new Bicycle then majority of them respond over the Local Retail shop at 57.8% which shows that for the service satisfaction from their local Cycle shop makes them feel Trusted with High value purchase and 22.2% for mall, and ty consumer de

who doesn't have develop relationship with local shops or might be looking for varieties and discounts, explained in Table 4.3.

Sr. no.	Which Brand do you prefer?	Response	Percentage
1	Hero	50	22.2%
2	Avon	15	6.7%
3	Atlas	35	15.6%
4	Trek Bicycles	15	6.7%
5	Hercules	45	20%
6	BSA	5	2.2%
7	Firefox	40	17.7%
8	Other	20	8.8%

Sr. no.	Which	Source	of	Purchase	do	Response	Percentage
	vou pre	efer?					

	Jou preter.		
1	Local Retail Bicycle Outlet	130	57.8%
2	Mall Outlets	50	22.2%
3	Decathlon	30	13.3%
4	E-commers	10	4.4%
5	Other	5	2.2%
	Table 4 3		

l'able 4.3

D. Benefits Received and Expected from the **Products:**

Sr. No.	What are your Expectation from	Responses	Percentage
	Your Bicycle?		
1	Comfort	130	57.8%
2	Easy to use	125	55.6%
3	Featured (Head Lights, Reflectors, Water bottle Holder, Carrier	150	66.7%
	Utility)		
4	Convertible Electric	35	15.6%
5	Other	50	22.20%

ecathlonfor	13.3% f	or the	Urban	and	Metro	ci
Sr. no.	What is yo satisfactio	our Leve n with y	el of our			

5

Response

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	Bicycle?					
		Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied
1	Comfort	100	95	25	5	0
2	Maintanence	70	95	40	0	0
3	Strength	75	95	25	0	0
4	Features	50	125	30	10	0
5	Gear, Break, Bearing	65	100	40	5	5
	Composition					

Table 4.4





Comfort:

- a. Expectation: Every other individual has an expectation of comfort from their cycle.
- Received: Most individuals are delighted with their b. product due to the comfort and ease of use of the model

Maintenance:

- Expectation: Every other individual expects low a. maintenance costs from their cycle.
- Received: Most individuals are satisfied with their b. product due to its low maintenance cost.

Feature's:

- a. Expectation: Every other individual expects a highly featured bicycle.
- b. Received: Most individuals are satisfied with their product, and very few people somewhat disagree with the statement.

Composition (Gear, Break, Bearings):

- a. Expectation: Every other individual has an expectation of the Type of Composition and electric Convertibility from their cycle.
- b. Received: Most individuals are satisfied with their product, but some are in a dilemma due to differences between compositions and other services and convertibility.

Other aspects to consider are:

- 1. Transportation:
- a. Benefit: Bicycles offer a convenient means of transportation, enabling customers to travel efficiently and independently.
- b. Expectations: Customers expect bicycles to offer a reliable mode of transportation, enabling them to reach their destinations conveniently and costeffectively.
- 2. Health and Fitness:
- a. Benefit: Bicycles promote physical activity and exercise, contributing to improved health and fitness levels.
- b. Expectations: Customers expect bicycles to be designed for comfort, featuring ergonomic components, adjustable settings, and suitable gear ratios that facilitate a comfortable and effective workout.
- 3. Environmental Sustainability:
- Benefit: Bicycles are eco-friendly and emit no a. greenhouse gases during use, contributing to reduced carbon emissions and a cleaner environment.
- b. Expectations: Customers expect bicycles to be marketed as environmentally friendly products, manufactured using sustainable materials, and to have a minimal environmental impact throughout their lifecycle.
- 4. Cost Savings:
- Benefit: Bicycles offer an economical mode of a. transportation, reducing the need for fuel and minimizing expenses associated with vehicle maintenance.
- b. Expectations: Customers expect bicycles to provide cost-effective transportation options that require

minimal maintenance, offering long-term durability and reliability.

- 5. Convenience and Flexibility:
- Benefit: Bicycles allow customers to navigate a. through traffic, access narrow paths, and find parking easily, especially in urban areas with limited space.

According to Table 4.4.

Consumer Perception about the Product: E.

Sr. no.	What is the purpose of buying a	Response	Percentage
	Bicycle?		

1	Go to Work	15	7.6%
2	Go to School	35	15.7%
3	Daily Usage	60	26.7%
4	Utility Purpose	65	28.9%
5	Professional Cycling	10	4.4%
6	Sports / Racing	30	13.3%
7	Mountains / Dirt Bicycling	10	4.4%

Sr.	What is Important for	Responses	Percentage
no.	Decision Making and		
	Preference for Bicycle		
	Purchase		
1	Brand	100	44.4 %
2	Strength	120	53.3%
3	Height	80	35.6%
4	Budget	115	51.1%
5	Speed	90	40%
6	Features	90	40%
7	Gears, Bearings and Brakes	125	55.6%
	Composition		
8	Material of the frame	75	33.3%
9	Tyre size and specification	100	44.4%
10	Frame Structure	55	24.4%
11	Maintenance	85	37.8%
12	Handle & Seat option	95	42.2%
13	other	30	13.3%

Table 4.5

Perception towards any product is set after what purpose you are going to achieve with the product and what you are looking for in that product. Most of the customer are going to perceive their daily jobs with the help of their bicycle and very few are for professional purpose, hence their primary perception towards the product that its composition of breaks gear and related stuff made essential criteria for creating perception and then followed with strength of bicycle and which brand they follow creates a perception of customer towards bicycle, explained in Table 4.5.

Environmental F. Influences on Consumer behavior (Culture, Subculture, Social Class, Social Group, Family and Income), Table 4.6

Environmental influences, such as family class, referral groups, and the region in which they live, are among the significant factors influencing the purchase decision. For that, we conduct a chi-square test on the assumption of

1. Income * Brand

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 H_0 = Income has no significant impact on the Purchase of different brands.



Study of Consumer Buying Behavior towards Bicycle under EPS and LPS

 H_1 = Income has a significant impact on the Purchase of different brands.

Chi-Square Tests Table 4.6

	Value	df	Asymp. Sig. (2-	Monte Car			
			sided)	Sig.	99% Confidence Interval		
					Lower Bound	Upper Bound	
Pearson Chi-Square	43.256ª	21	.003	.005 ^b	.003	.006	
Likelihood Ratio	39.845	21	.008	.002 ^b	.001	.003	
Fisher's Exact Test	33.720			.001 ^b	.000	.002	
N of Valid Cases	225						
a. 31 cells (96.9%) have ex	xpected count les	s than 5. The	minimum expected count	is .07.			
b Based on 10000 cample	d tables with sta	ting cood 100	03510611				

b. Based on 10000 sampled tables with starting seed 1993510611.

Interpretation:

Chi-square value is found as 43.256, and the p-value is less than the 5% level of significance.

i.e., 0.005< 0.05

From the above Chi-square test, we conclude that there is a significant relationship between the purchase of bicycles and the income level of customers.

2. Region * Brand

 $H_0 =$ Region has no significant impact on the Purchase of different brands.

 H_1 = Region has a significant impact on the Purchase of different brands.

Findings:

Chi-Square Tests

	Value	df	Asymp. Sig.	Monte	Carlo Sig. (2-s	sided)	Monte Carlo Sig. (1-sided)		
			(2-sided)	Sig.	99% Confid	lence Interval	Sig.	99% Interval	Confidence
					Lower	Upper		Lower	Upper
					Bound	Bound		Bound	Bound
Pearson Chi-Square	24.953 ª	14	.035	<mark>.019^ь</mark>	.016	.023			
Likelihood Ratio	26.285	14	.024	.051 ^b	.045	.056			
Fisher's Exact Test	21.211			.027 ^b	.022	.031			
Linear-by-Linear Association	2.687°	1	.101	.109 ^b	.100	.117	.054 b	.048	.060
N of Valid Cases	225								

a. 24 cells (100.0%) have expected count less than 5. The minimum expected count is .24.

Table 4.7

G. **TArget Segmentation of AVON:**

- Value-seekers: Avon Bicycles may offer budgetfriendly models that target price-sensitive consumers who prioritise affordability and basic functionality. Single Speed, Silver. ₹4,493, Single Speed, Blue. ₹4,799.
- Mid-range consumers: The brand can offer a range of bicycles at moderate prices, catering to consumers who seek a balance between quality, features, and affordability. Element Single Speed Disc & V-Brake 11.90 K and onwards
- Premium segment: Avon Bicycles may introduce highend models with advanced features, materials, and

design, targeting consumers who are willing to pay a premium for top-of-the-line bicycles. Solo Double Disc (21 SPD) 17.51 K and onwards, Avon Clique Geared Bicycle ₹ 18,184 and onwards

The probable variables are grounded to analysise the data. R1-Budget, R2-Level of Awareness, R3-Awareness Source, R4-Purchase Planning, R5- Bicycle Import, R6-Brand Preference, R7-Purchase Channel, R-8-Comfort Satisfaction P1-Age, P2-Region, P3-Budget, P4-Level of Awareness, P5-Awareness Source, P6-Purchase Planning, P7- Bicycle Importance, P8-Brand Preference, P9-Purchase Channel, P10-Comfort Satisfaction

Correlations										
Pearson Correlation Sig.(2-tailed)	Age R1	Region R2	Budget R3	Level of awareness R4	Awarene ss source R5	Purchase planning R6	Bicycle importa nce R7	Brand preferen ce R8	Purchase channel R9	Comfort satisfactio n R10
Age P1	1	0.117	0.15	-0.259	-0.132	0.154	0.201	-0.02	0.293	-0.14
		0.444	0.324	0.086	0.386	0.313	0.186	<mark>0.895</mark>	0.051	0.359
Region P2	0.117	1	.301*	0.014	-0.156	-0.227	-0.052	0.247	0.207	0.017
	0.444		0.044	0.926	0.305	0.134	0.733	0.102	0.172	0.911

32

Table 4.8 Analysis: 1. Correlation Test of Variables





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Budget P3	0.15	.301*	1	-0.153	-0.011	-0.178	0.056	0.074	0.262	0.164
	0.324	0.044		0.314	<mark>0.944</mark>	0.241	<mark>0.713</mark>	0.631	0.082	0.281
Level of	-0.259	0.014	-0.153	1	-0.009	0.035	.504**	-0.115	0.132	0.193
awareness P4	0.086	<mark>0.926</mark>	0.314		<mark>0.951</mark>	<mark>0.819</mark>	0	0.453	0.386	0.203
Awareness	-0.132	-0.156	-0.011	-0.009	1	-0.009	-0.067	0.236	-0.201	-0.095
source P5	0.386	0.305	0.944	<mark>0.951</mark>		<mark>0.952</mark>	0.663	0.118	0.185	0.536
Purchase	0.154	-0.227	-0.178	0.035	-0.009	1	0.193	-0.101	-0.132	-0.131
planning P6	0.313	0.134	0.241	<mark>0.819</mark>	<mark>0.952</mark>		0.203	0.51	0.386	0.392
Bicycle	0.201	-0.052	0.056	.504**	-0.067	0.193	1	-0.016	0.223	0.019
importance P7	0.186	<mark>0.733</mark>	<mark>0.713</mark>	0	0.663	0.203		<mark>0.917</mark>	0.14	0.901
Brand preference	-0.02	0.247	0.074	-0.115	0.236	-0.101	-0.016	1	-0.065	0.078
P8	<mark>0.895</mark>	0.102	0.631	0.453	0.118	0.51	<mark>0.917</mark>		<mark>0.674</mark>	0.609
Purchase	0.293	0.207	0.262	0.132	-0.201	-0.132	0.223	-0.065	1	0.22
channels P9	0.051	0.172	0.082	0.386	0.185	0.386	0.14	<mark>0.674</mark>		0.147
Comfort	-0.14	0.017	0.164	0.193	-0.095	-0.131	0.019	0.078	0.22	1
satisfaction P10	0.359	0.911	0.281	0.203	0.536	0.392	0.901	0.609	0.147	

According to the research we conducted on the Consumer behavior analysis towards Bicycle purchase thus observed that there is relation between one factor on another factor hence therefore conducted the correlation test found some variables which are strongly related to the purchase pattern or the association of the one variable with the other variable and results are found to be very relevant. The result, which is more than 0.910, is more significant and has a greater influence on consumer behaviour in their purchase decision.

H. **Correlation Variables:**

- 1. Age and Preference of Brands (r =0.895).
- 2. Region and importance of Bicycle (r =0.733).
- 3. Region and Level of Awareness (r = 0.926).
- Budget and Importance of Bicycle (r =0.713). 4.
- 5. Budget and Source of Awareness (r =0.944).
- Level of awareness and source of awareness (r = 0.951). 6.
- Chi Squara Tasta Tabla 4.0

- Level and source of awareness and planning for the 7. purchase of a bicycle (r = 0.951, r = 0.819).
- Purchase channel and Preference of brands (r =0.674). 8.
- 9. Brand preference, importance, and purpose of Bicycle, (r=0.917, r=0.674).

10. Comfort and the Bicycle importance to you, (r=0.901). Out of which, the results of 1, 3, 5, 6, 7, 9 and 10 are more significant.

Analysis: 2. Chi-square Test for Gender and Preference of Brands (Table 4.2)

Gender * Brand

 H_0 = Gender has no significant impact on the Purchase of different brands.

 H_1 = Gender has a significant impact on the Purchase of different brands.

	Value	d	Asymp. Sig. (2- sided)	Monte C	Carlo Sig. (2-si	ded)	Monte Carlo Sig. (1-sided)			
		f		Sig.	99% Confidence Interval		Sig.	99% Confidence Interval		
				-	Lower Bound	Upper Bound	_	Lower Bound	Upper Bound	
Pearson Chi-Square	13.460ª	7	.062	<mark>.045⁵</mark>	.039	.050				
Likelihood Ratio	16.190	7	.023	.047 ^b	.042	.053				
Fisher's Exact Test	13.017			.041 ^b	.036	.047				
Linear-by-Linear Association	6.521°	1	.011	.011 ^b	.008	.013	.005 ^b	.003	.007	
N of Valid Cases	225									

b. Based on 10000 sampled tables with starting seed 1993510611.

c. The standardized statistic is -2.554.

Interpretation: Chi-square value is found as 13.460, and p-value is less than the 5% level of significance. i.e., 0.045 <0.05. From the above Chi-square test, we conclude that there is a significant relationship between the purchase of bicycles and the Gender of the customers.

V. **FINDINGS**

The research is conducted among 225 customers from various professions and income levels, who have diverse needs for the product and varying levels of satisfaction. The customer, who accounts for 75.6% of the sample size, falls within the 21 to 25-year age category. 44.4% are female and 55.6% are male. The majority of them depend on their guardians for their purchase decisions, with 53.3% of the sample size. Additionally, 33.3% of them earn less than ₹500,000, 46.7% live in urban regions, 24.4% in metro

cities, and 28.9% in rural areas. Furthermore, 77.8% of them are students. 48.9% of customers have a budget of less than ₹10000, 42.2% are in the budget of ₹10001 to ₹50000, and their purpose of buying the bicycle is as follows: 28.9% for utility purposes, 26.7% for Daily usage, and 15.6% for going to college and school. Expectations from their bikes are primarily related to features such as headlights, bottle holders, Brakes, and gear composition, which fall under the categories of comfort and ease of use.

Factors influencing their purchase include brand, Strength of the bicycle, Composition of brakes and gears, tire size, other specifications, and handlebar and seat options. Road Bike, Hybrid (Road + Sports), Touring, BMX, MTB,

Racing, Electric bike, out of them Hybrid significant, all, is followed by road bikes, which

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are a Preferable option among them. After drawing their awareness level and source of awareness, we learn that 64.4% are aware of it, 28.9% are somewhat aware, and the significant factors influencing them are self-passionate (37.8%) and advertisements through the internet (26.7%). Their involvement in purchasing is determined by the purchasing planning duration, which is as follows: 35.6% for more than 1 year, 31.1% for a few months, 22.2% have recently been considering it, and the majority, 11.1%, have been considering it for more than 1 year. And their importance to bicycles is 66.6%. Hero, Avon, Atlas, Trek Bicycles, Hercules, BSA, and Firefox are the major bicycle brands for consideration, and their channels for purchase are as follows: 57.8% from local cycle retail shops, 22.2% from malls, and the remaining 20% from Decathlon and ecommerce sources. Consumers are now focusing on purchasing bicycles as a style icon or as a means of pursuing cycling for health-related exercise. The distribution channels of the cycle are pretty similar to those of the FMCG sector; however, modern trade is influencing customer reach and causing price variations.

VI. SUGGESTIONS AND CONCLUSION

- 1. **Offer a Range of Products:** Consumers have diverse preferences when it comes to cycles, so businesses should consider offering a range of products that cater to different needs and preferences. This may include various styles, designs, and price points.
- 2. Focus on Sustainability: Consumers are increasingly concerned about the environment, so businesses should emphasise the sustainability of their operations and highlight any eco-friendly features they offer.
- 3. **Emphasize Convenience:** Convenience is a key factor in consumer decision-making, so businesses should ensure that their cycles are easy to use and require minimal maintenance. They may also consider offering services such as bike maintenance or repair.
- 4. **Build Brand Loyalty:** Brands that offer high-quality, durable cycles and exceptional customer service are more likely to build brand loyalty among consumers. The ultimate achievement would be positive word of mouth and repeat purchases of product-related services.
- 5. Prioritise Design and Aesthetics: Consumers are increasingly seeking cycles that offer style and aesthetics, so businesses should prioritise the design and appearance of their products. This may include incorporating unique features or collaborating with designers to create exclusive products.
- 6. **Engage with Cycling Communities:** Businesses should consider engaging with local cycling communities and sponsoring events or initiatives that promote cycling. This can help build brand awareness and loyalty among cycling enthusiasts.

Businesses should focus on offering a range of products that cater to diverse consumer needs and preferences, while also emphasizing sustainability, convenience, and design. Brand loyalty is also a key factor, as consumers tend to be loyal to brands that offer high-quality, durable cycles and exceptional customer service. Engaging with local cycling communities and sponsoring events can also help build brand awareness and loyalty among cycling enthusiasts. Consumer behaviour towards cycles is influenced by a variety of factors, including practical considerations such as cost-effectiveness and convenience, as well as personal preferences and societal trends, such as sustainability and health consciousness. Increasingly, consumers are opting for cycles as a mode of transportation and exercise, leading to a surge in demand for high-quality and stylish bikes. Overall, the cycling market presents significant opportunities for businesses that can effectively navigate the complex and evolving landscape of consumer behavior towards cycles.

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AUTHORS PROFILE



Dr. Jay Prakash Verma, Assistant Professor, PIBM, Pune. Dr. Jay Prakash Verma has over 17 years of rich experience in both industry and Academia. He was awarded a Ph.D. in 2011. He completed his PGDM (Equivalent to an MBA) from the Institute of Productivity and Management in Meerut, an M.Com from Mahatma Gandhi University, and a B.Com (H)

from Ranchi University, Ranchi. He qualified for the UGC-NET Exam in December 2013, conducted by the University Grants Commission. Dr. Verma has done extensive research in the field of Consumer Behaviour and Marketing Management. His areas of interest include Sales and Distribution Management, Consumer Behaviour, Service Marketing, Brand Management, and Rural Marketing, among others. Dr. Verma has recently authored a book on Service Marketing and is getting an encouraging

response. Dr. Verma has also published several articles in reputable international and national journals.

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Rutik Ravindra Sakharkar, a Student of the Pune Institute of Business Management, Pune, an MBA in Marketing student with a foundation in Pharmaceutical Science, is passionate about leveraging knowledge of consumer behaviour. Skilled in analysing consumer behaviour, adept at understanding market dynamics, analysing trends, and planning marketing strategies.

Committed to continuous learning and professional growth, seeking opportunities to contribute innovative solutions to the evolving landscape of marketing in various sectors of consumer contacts. Being a proactive team player with strong communication and interpersonal skills, capable of translating complex data into actionable insights, with a focus on identifying trends, preferences and purchasing patterns to drive target market campaign.

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