

A Study on consumer behavior towards the purchase of Sports Apparel

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Abstract: The study emphasizes mainly on sports apparel as it is one of the vital segments in sports industry whose global consumption has increased enormously. It is necessary for us to understand the consumer preferences towards branded sports apparel and to study the factors influencing consumer preference. So, the study is carried out focusing on these two main objectives. The data collection was carried out using a structured questionnaire which received 216 responses. The questionnaire included 15 dimensions of the sports apparel and were ranked on five-point Likert scale by the respondents. The statistical techniques implemented in the study are Factor analysis and Cluster Analysis. The analyses indicated that the dimensions could be divided into 3 major components namely Fashion consciousness, Brand and Quality consciousness and lastly the Money consciousness. The findings reveal the buying patterns of the sports consumers which will in turn help the marketers and retailers in framing the marketing strategies as well as the marketing mix that will attract and persuade the consumers to buy their respective brands of sports apparel.

Keywords: sports apparel, consumer preference, buying patterns, brand, consumer behaviour.

1. Introduction

Rising health consciousness and changing fashion trends are expected to drive the global sports apparel market over the forecast period. Changing lifestyles and consumer tastes have resulted in people opting for durable and comfortable apparel. This shift in trend is presumed to strengthen the global sports apparel market. Innovative marketing activities tied with creative advertising and brand positioning is scheduled to go long way in developing the overall market over the years. The study focuses on the factors that influence the consumers to buy the brands of sports apparel.

Increased functionality of sports apparel and superior properties are presumed to strengthen the global market growth. Increased participation in sports due to global media coverage of important sports events is expected to further aid the market. Growing women involvement in sports is expected to result in elevated women sports apparel demand in the near future. Rising disposable income levels, especially in the emerging economies and growing health awareness is projected to positively influence the overall sports apparel market.

Research on developing newer fabrics with superior properties coupled with apparels with increased functionality promise vast opportunities to the industry participants. Though the sports apparel market for the aging population as well as women is currently small, but promises ample opportunities for the industry participants to capture this previously untapped market. Therefore, the study understands the sports apparel industry in Bangalore and the industries in Bangalore can initiate the marketing strategy and understand the market with different approach.

1.1. Objectives of the study

- To understand the sports apparel industry in Bangalore.
- To study the factors those are driving the consumers towards sports apparel.
- To understand the trends in sports apparel industry.

2. Review of literature

[1] Conducted a study which focused on the brand preference of consumers towards sports apparel. When many branded sports apparel were increasingly used by men as when many international brands entered India. With the result many unbranded sports apparel companies faced severe competition. The study reveals that the branded sports apparel are preferred by most of the consumers of the age group of 18-25 and income level of more than 30000.

[2]expressed an overview of the sport industry development in India, highlighting the opportunities and constraints for sports development. The sport as an industry contributes to about one to five per cent to the GDPs of various countries. This paper analyses the sports industry development in India against this backdrop. The Government of India has been taking various steps and initiatives to promote good governance practices in the management of sports at the national level in pursuance of successive National Sports Policies.

[3] conducted a research that aims to study whether a consumer is susceptible to social influence in the purchase of sports apparel. In particular, the study aims to establish if there is any difference between consumers of different genders and levels of sports involvement. This study showed that social influence can affect consumers' decision in sports-related products in the form of informational and utilitarian influence.

[4] states that the buying decision of Physical Education and Sports School students is expected to be positively affected if they are given a seminar about raw material properties. The results of study show that the university students behave consciously when buying new garments.

[5] study offers and validates a comprehensive approach to explain factors influencing the attitude of respondents towards various characteristics of branded sports shoes. The study reveals that consumers prefer a sports shoe that is comfortable. A sports shoe that provides ease and comfort is more desirable among consumers.

[6] studied the sports and physical activities that contribute to the mental and physical fitness. This in turn has created an impetus for the sports goods industries and international brands like Nike, Adidas, Reebok and Puma. Study revealed that as exchange policy, experiential zones, sweepstakes or contests had a greater influence on people in terms of buying decisions in an organized sport wear retail.

[7] states that it is important to understand consumer behaviour with respect to factors such as comfort, quality, technical attributes and methods of product promotion. Both Baby boomers and generation Y are powerful consumer groups and this paper's results can be used as a base for further research into required product design and performance attributes as well as their purchase behaviour with regards to sportswear.

[8] studied the factors of brand preference and found that factors such as age, gender, sale, purpose of use, product features, place of purchase play an important role. At the same time it is important to focus more on building brand loyalty amongst their existing customers, due to this the customers may not switch their brands. Therefore under the gender category, the companies should focus more on providing different product categories, so that the customer can be more brand loyal. Also, a study came up with the findings that customers preferred stylish clothes, durable colour and comfortable fabric while buying sportswear. The results from the study revealed that overall picture of opinions was in high level when considered in details, such as advertising through television station, information by salesperson, and advertising through printing media stated by

[9] and [10] studied the decision-making styles of college students for sports apparel. Eight-hundred and twenty-two subjects composed of 376 male and 446 female college students enrolled at three public universities. The results indicated that male and female college-aged consumers had different decision-making styles in relation to fashion, impulse, and brand consciousness.

2.1. Research Methodology

The responses were collected through a survey method. In this study, the research instrument used is the Questionnaire. The method adopted is Simple Random sampling. The sample size is 216. All the questions used in the research are close ended where the respondent has to rank their opinion on the Likert scale. Statistical tools used for data analysis were principal component analysis and cluster analysis.

3. Data Analysis and Discussion

3.1. Principal Component Analysis

Principal component analysis is a statistical technique that is used to analyse the interrelationships among a large number of variables and to explain these variables in terms of a smaller number of variables, called principal components, with a minimum loss of information.

3.1.1 The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity for the overall data set

Kaiser-Meyer-Olkin measure of sampling Adequacy is a statistic that indicates the proportion of variance in your variables that might be caused by underlying factor. High values (close to 1.0) generally indicate that the factor analysis may be useful with your data. If the value is less than 0.50, the results of the factor analysis probably won't be very useful.

Bartlett's test of sphericity tests the hypothesis that the correlation matrix is an identity matrix, which would indicate that your variables are unrelated and therefore unsuitable for the structure detection. Small values (less than 0.05) of the significance level indicate that a factor analysis may be useful with your data.

Table 1: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.841
Bartlett's Test of Sphericity	Approx. Chi-Square	2125.116
	df	105
	Sig.	.000

So, from the above table we can see that the KMO measure is 0.841 which is good and the value indicates that the given data is suitable for factor analysis. The Bartlett's test of sphericity indicates that the factor analysis is reliable and sustainable for the structure detection.

3.1.2 Total Variance Explained

A principal components analysis will produce as many components as there are variables. There are 15 variables in this analysis.

If you were to retain all components in your analysis you will be able to account for all the variance in your variables. However, this is not the purpose of principal components analysis; it is to explain as much of the variance as possible using as few components as possible. The first component will explain the greatest amount of total variance, with each subsequent component accounting for relatively less of the total variance. Generally speaking, only the first few components will need to be retained for interpretation and these components will account for the majority of the total variance. The amount of variance each component accounts for plus its contribution towards total variance is presented in the Total Variance Explained table under the "Initial Eigenvalues" columns, as shown below:

Table 2: Total Variance Explained

Component	Total Variance Explained								
	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	4.589	30.591	30.591	4.589	30.591	30.591	4.074	27.158	27.158
2	3.929	26.196	56.786	3.929	26.196	56.786	3.287	21.913	49.071
3	2.084	13.895	70.681	2.084	13.895	70.681	3.242	21.610	70.681
4	.941	6.275	76.956						
5	.604	4.025	80.981						
6	.546	3.640	84.621						
7	.423	2.817	87.438						
8	.326	2.174	89.612						
9	.287	1.916	91.528						
10	.259	1.725	93.254						
11	.243	1.621	94.875						
12	.211	1.410	96.285						
13	.202	1.349	97.634						
14	.197	1.313	98.948						
15	.158	1.052	100.000						

Extraction Method: Principal Component Analysis.

The leftmost section of this table shows the variance explained by the initial solution. Only three factors in the initial solution have eigenvalues greater than 1. Together, they account for almost 71% of the variability in the original variables.

3.1.3 Scree plot:

The scree plot (Cattell, 1966) is presented in the output as a line graph entitled Scree Plot, as shown below:

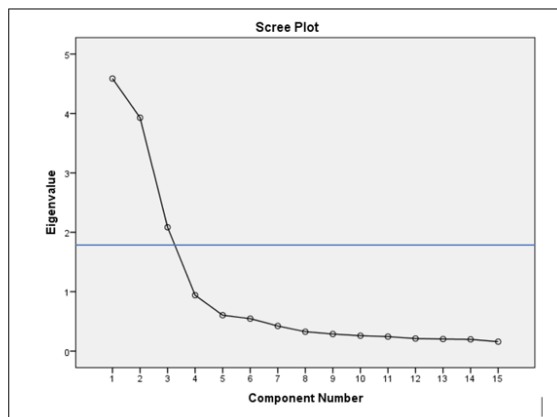


Figure 1: Scree Plot

A scree plot is a plot of the total variance explained by each component (its "eigenvalue") against its respective component. As there are as many components as there are variables, there are 15 components in the scree plot as shown in the "fig.1". The components to retain are those before the (last) inflection point of the graph (see above). The inflection point is meant to represent the point where the graph begins to level out and subsequent components add little to the total variance.

In this study, visual inspection of the scree plot would lead to the retention of three components. You should already be noticing that the number of components suggested to retain using the different criteria are not always the same. This is one of the reasons why you have to make a subjective decision on how many components to retain.

Table 3: Rotated Component Matrix

	Component		
	1	2	3
EXPENSIVE_BRANDS	.910		
WELL_KNOWN	.902		
LOYAL_BRAND	.900		
HIGHEST_QUALITY	.888		
HIGH_PRICE_QUALITY	.881		
SPLTY_STORE		.888	
ATTRACTIVE_FASHIONABLE		.817	
TREND_FOLLOWER		.809	
SPL Effort		.735	
ADVERTI_SPORTS		.702	
SAVE_MONEY			.911
IRRESPECTIVE_COST			.780
BEST_SELLING			.746
SALE_PRICE			.746
LATEST_OUTIFITS			.727

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 4 iterations.

The rotated component matrix helps us to determine what the components represent. The first 5 components represents the attribute "Brand and Quality conscious", the second 5 components represents the attribute "Fashion conscious" and the last 5 components represents the attribute "price conscious" of sports apparel.

So, the first component describes the respondents who prefer to purchase the sports apparel by considering the factors of Brand and quality of the sports apparel, the second component describes the respondents who put effort to purchase sports apparel and who seek fashion, and the third component tells us about the respondents who look for the cost before purchasing sports apparel. Therefore, the rotated component matrix clearly shows that the three major factors for the purchase of sports apparel are

- Brand and Quality conscious
- Fashion conscious
- Price conscious

So, the Principal component analysis reveals the three major attributes of the consumer behavior.

3.2 Cluster Analysis

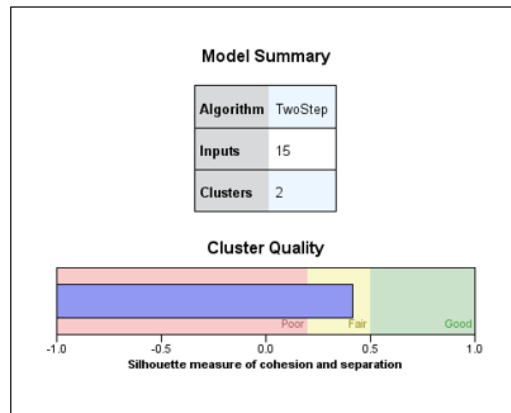


Figure 2: Cluster Analysis Model Summary

We have used a twostep method of cluster analysis. The Twostep Cluster Analysis procedure is an exploratory tool designed to reveal natural groupings (or clusters) within a data set that would otherwise not be apparent. The algorithm employed by this procedure has several desirable features that differentiate it from traditional clustering techniques:

- The ability to create clusters based on both categorical and continuous variables.
- Automatic selection of the number of clusters.
- The ability to analyse large data files efficiently.

As you can understand in the “fig.2”, the two step cluster algorithm reveals two group of clusters. We have used 15 attributes as an input and with the help of Silhouette measure of cohesion and separation we can conclude that the formation of two clusters were fair enough to consider the output for our research.

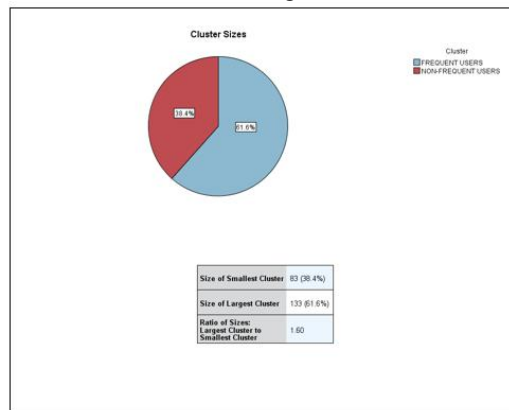


Figure 3: Pie Chart of Clusters

In order to find the Different clusters in our data set, we have used a total respondents of 216 out of which 133 respondents belongs to cluster one, 83 respondents belongs to cluster two as shown in the figure. We have the large cluster containing 133 respondents in Blue and the small cluster containing 83 respondents in Red.



Figure 4: Showing two Clusters

Cluster 1

This group consist of more frequent buyers and it has the largest sample. We can interpret that the consumers lying in this group may indulge in fitness or sports activities which leads to buying more of sports apparel for their regular fitness driven activities. These consumers have been using sports apparel for a long time and tend to have specific brand in their mind and are loyal towards it. They give priority to the high quality brands of sports apparel and willing to pay high price for the same.

Cluster 2

These group of consumers may not be involved in regular fitness activities and they do not have much awareness about the sports apparel brands. They do not expect any kind of a specific requirement from the sports apparel and likely to settle for any brand which meets their purpose. So, they don't have any specific brands for which they are loyal to and they do not have any kind expectation from the market.

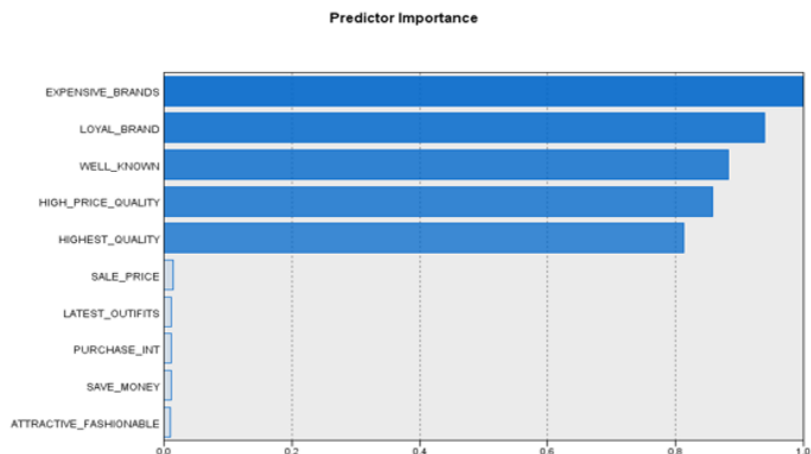


Figure 5: Predictor Importance

From the above “Fig.5” we can see that the expensive brands, loyal brands, well known, high quality and the respondents who think higher the price the better the quality are the main predictor indicators in forming 2 clusters.

3.3 Decision Tree

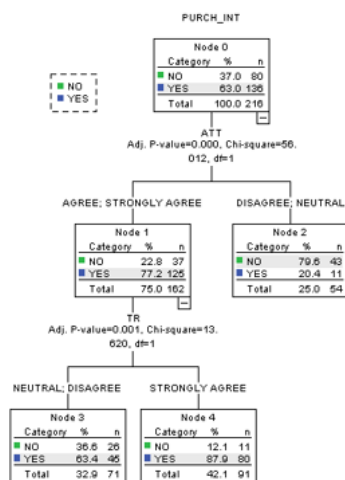


Figure 6: Decision tree

The decision tree starts with the root node, which simply shows the distribution of the outcome field, which we can see the chart as Purchase intention of sports apparel.

The Yes indicates people who purchase sports apparel and No indicates the people who do not purchase sports apparel.

The data is then split based on statistical significance by the predictor with the strongest relationship with the target field, attractive and fashionable in this case. We can see that there are two “buckets” (nodes) that the attractive and fashionable attribute has been split into, one shows Agree and Strongly Agree which comprises of 162 consumers, the other shows Disagree and Neutral which indicates the population of 54 people who do not agree that attractive and fashionable attribute does not affect the purchase of the sports apparel.

Further, the Agree and Strongly Agree node is split into two nodes which indicates that the people who purchase sports apparel by considering attractive and fashionable attribute are the people who follow trend. Under trend followers node, there are two “buckets” where the attribute has split into, one Neutral and Disagree which indicates people who disagree that the trend followers attribute affects the purchase intention of the

people and the other shows Strongly Agree which indicates that the people agree that the trend followers attribute affects the purchase intention.

Table 4: Classification Table

Observed	Predicted		
	NO	YES	Percent Correct
NO	43	37	53.8%
YES	11	125	91.9%
Overall Percentage	25.0%	75.0%	77.8%

Growing Method: CHAID
Dependent Variable: PURCH_INT

The classification table helps us to check the accuracy of the decision tree by comparing the observed values and the predicted values. The method used for predicting the values is called “CHAID” which stands for Chi-square interaction detection. The above table shows the observed values, predicted values and the accuracy percentage. The decision tree has predicted the number of respondents who purchase Sports apparel as ‘Yes’ and number of respondents who do not purchase as ‘No’.

We can read the classification table in both ways i.e. horizontally and vertically. I have interpreted the above table horizontally in this study.

Total out of entire sample:

25.0% is classified as No. ((43+11) /216)

75.0% is classified as Yes. ((37+125) /216)

✓ The accuracy of predicting No is 53.8%. (43/ (43+37))

✓ The accuracy of predicting Yes is 91.9%. (125/ (125+11))

✓ Overall accuracy predicted by the model is 75.9% which is good. ((43+125) /216)

There are 80 (43+37) items classified into class No:

- 43 of these items are correctly classified into class No.
- 37 of these items are wrongly classified into class Yes.

There are 136 (11+125) items classified into class Yes:

- 11 of these items are wrongly classified into class No.
- 125 of these items are correctly classified into class Yes.

4. Conclusion:

The objective of the study was to identify the main attribute which has major implication on the purchase of sports apparel and it was clearly identified in this study. With the help of Principal Component Analysis we were able to derive the underlying three major components namely Brand and Quality, Fashion and Price consciousness. The main factor being the Brand and Quality is given more preference by the consumers.

The cluster analysis was able to classify the sample into two groups, one being the group of frequent users and other being the non-frequent consumers. We were able to interpret that the frequent users are well aware of the sports apparel brands and tend to give importance for the high quality products in spite of their high price and stay loyal towards the brand which meets their special requirements. The non-frequent consumers do not have much knowledge about the sports apparel brands but may be the future sports apparel consumers.

The decision tree was able to identify that the purchase intention of the people is majorly dependent on the attractive and fashionable attribute and Trend followers attribute. So, the people who purchase sports apparel mostly consider to be attractive and fashionable and these are the same people who follow trend.

So, we can say that the retailers or marketers need to build different marketing strategies focused on different consumer groups based on their attitude towards sports apparel. The frequent users do not have to be more pestered with any promotional strategies as they are well aware of what they want and are more brand loyal and difficult to switch brands. Non-frequent consumers are need to be focused on as they easily switch brands which meet their basic requirements.

4.1 Limitations

This study has been done in Bangalore only and the attitudes of the people towards branded sports apparels in different cities are ignored. The sample size for this study is restricted to 216. This study is only limited to the brand analysis of the companies and ignored the emotional factors which affects the consumer to buy a branded sports apparel.

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