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GREEN PRODUCTS PURCHASE BEHAVIOUR- AN IMPACT STUDY

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ABSTRACT

There has been a rapid climb in the economy with the increase in the consumption across the world. This over-consumption has resulted in the deterioration of the environment. The consequences of this environmental degradation has resulted in pollution, global warming etc which has become a cause of public concern which in turn lead to the green movement for the preservation of the environment. The purpose of this paper was to understand the variables affecting the consumer purchase behaviour of green products.

1. INTRODUCTION

Green purchasing is most often measured as green purchase intention and behaviour. Green purchase intention refers to consumers' willingness to purchase green products. Intentions capture the motivational factors that influence green purchase behaviour of consumers (Ramayah, Lee, and Mohamad, 2010). Green purchase behaviour represents a complex form of ethical decision-making behaviour and is considered a type of socially responsible behaviour. As a socially responsible consumer, the green consumer "takes into account the public consequences of his or her private consumption and attempts to use his or her purchasing power to bring about social change" (Moisander, 2007). A description of the methodology and approach of the study follows. The section after that comprises findings and discussion. Finally, implications and conclusions are provided.

2. RESEARCH PROBLEM

Every company has its own favorite 4p's marketing mix. Green marketing mix differs from traditional marketing. All the 4Ps are based on the consumer awareness about green products. Thus, to achieve the end of survival and succeeding in the marketplace tracing the changing interest and behaviour of consumers in inevitable. This demanded the study on consumer purchase behaviour of the green product. In the contest of the above the present study entitled 'Green product purchase behaviour' is undertaken.

3. OBJECTIVES OF THE STUDY

The research objectives have been developed accordingly are as follows:

1. To examine the consumer awareness about green product.
2. To study the buying behavior of the respondents towards green products.
3. To analysis the consumers purchase decision of green product.

4. DATA ANALYSIS AND RESULTS

A descriptive research was undertaken to meet the objectives of this study with the collection of both secondary and primary data. The primary data was collected from respondents through a questionnaire designed for a sample of 200 respondents. The data collected from the respondents are tabulated and analyzed into logical statements using Correlation Analysis, Reliability Tests, Exploratory Factor Analysis, and Confirmatory Factor Analysis In the contest of the above the present study entitled Consumer Purchase Behaviour towards Green Products is undertaken.

4.1 Demographic Characteristics of the respondents

The demographic profile in terms of gender, age, marital status, education, occupation and income was drawn up and was presented in the following sections.

Table - 1

Demographic Characteristics of the Consumers			
Particulars	**Variable**	**Frequency**	**Percentage**
Gender	Male	88	44.0
	Female	112	56.0
	Total	200	100.0
Age	20-30	28	14.0
	31-40	84	42.0
	41-50	58	29.0
	Above 50	30	15.0
	Total	200	100.0
Marital Status	Married	58	29.0
	Unmarried	142	71.0
	Total	200	100.0
Educational Qualification	No Formal Education	64	32
	School Education	40	20
	Diploma / Degree	72	36
	Professional	24	12
	Total	200	100
Occupational Status	Employee	96	48.0
	Agriculture	6	3.0
	Business	40	20.0
	Professional	58	29.0
	Total	200	100.0
Income	Below ₹.20000	38	19.0
	₹.20001 – ₹.40000	116	58.0
	₹.40001 – ₹.60000	36	18.0
	Above ₹.60000	10	5.0
	Total	200	100.0

4.2. EXPLORATORY FACTOR ANALYSIS:

The Kaiser-Meyer-Oklin (KMO) and Bartlett's Test is used to test suitability of data for factor analysis. KMO value was 0.740 exceeding the recommended value of 0.60 which can be considered as adequate (Kaiser and Rice, 1974) while Bartlett's Test of sphericity reached statistical significance (Approx. chi-square 862.442, df66 and Sig 0.00) which signifies the data is good for conducting factor analysis. The results of the Principal Component Analysis can be viewed in Table 2.

Table - 2: Factors Extraction Results of the Items in Questionnaire

Item No	Component	Eigen Value	% variance
I-Awareness of Environmental Concerns (EC)		3.211	26.757
1.Environmental issues are an emergency issue.	.831		
2.Environmental issues are consumers' responsibility.	.892		
3.I wish to see less packaging waste generated by processed food products.	.878		
4.I am worried about how all of my activities affect the environment	.791		
II-Awareness of Green Product(GP)		Eigen Value	% variance
1.If consumers keep purchasing green products, the production of green products will eventually increase.	.805	2.381	19.844
2.Green product usually comes smaller in portion but higher in prices.	.856		
3.I'm more likely to buy green products that are packaged in an eco-friendly manner and made easy for recycling or composting	.793		
III-Awareness of product Price and Brand Image (PB)		Eigen Value	% variance
1.I would choose environmentally friendly goods and services, campaigns or companies if the price were the same.	.715	2.036	16.966
2.I'm willing to pay more for environmentally friendly products.	.723		
3.If the price of green products is less expensive I'm willing to change my lifestyle by purchasing green products.	.750		
4.I feel more comfortable buying product from a brand that has a green image.	.730		
5.I'm aware that a strong brand image gives me confident towards their green product.	.689		
Total percentage of variance	63.567		

The 12 items were subjected to Principal Component Analysis (PCA) with varimax rotation to test the suitability of data for factor analysis. The items having factor loading less than 0.50 should be eliminated (Hair et al, 1996) but all factor loading each items are above 0.50 suggesting that the data set is appropriate (Stewart, 1981). So, all 12 items are accepted and PCA revealed that these 12 items are grouped into 3 components and are named awareness of environmental concern, awareness of green product and awareness of product price and brand image with Eigen values exceeding 1, explaining 3.211, 2.281 and 2.036 respectively. The total percentage of variance is 63.567. The individual dimensions of the proposed instrument explained total variance exceeding 60 percent, suggesting the appropriateness of the process.

4.3. Green Products Purchase Behaviour of Consumers

From the Principal Component Analysis, three groups were obtained and the statements were analysed and are given below in the following Table - 3

Table – 3 Green Products Purchase Behaviour of Consumers

	N	Minimum	Maximum	Mean	Std. Deviation
Awareness of Environmental Concerns (EC)					
EC1-Environmental issues are an emergency issue.	200	1	5	3.76	1.032
EC2-Environmental issues are consumers' responsibility.	200	1	5	3.67	1.019
EC3- I wish to see less packaging waste generated by processed food products	200	1	5	3.69	1.045
EC4 - I am worried about how all of my activities affect the environment	200	1	5	3.64	1.056
Total mean score			3.69		
Awareness of Green Product(GP)					
GP1-If consumers keep purchasing green products, the production of green products will eventually increase.	200	1	5	3.87	.989
GP2-Green product usually comes smaller in portion but higher in prices.	200	1	5	4.05	.867
GP3-I'm more likely to buy green products that are packaged in an eco-friendly manner and made easy for recycling or composting	200	1	5	3.78	.973
Total mean score			3.90		
Awareness of product Price and Brand Image (PB)					
PB1-I would choose environmentally friendly goods and services, campaigns or companies if the price were the same.	200	2	5	3.87	.837
PB2-I'm willing to pay more for green products.	200	2	5	3.89	.846
PB3-If the price of green products is less expensive I'm willing to change my lifestyle by purchasing green products.	200	1	5	3.75	.878
PB4-I feel more comfortable buying product from a brand that has a green image	200	1	5	3.86	.863
PB5-I'm aware that a strong brand image gives me confident towards their green product.	200	1	5	3.68	.918
Total mean score			4.76		
Consumer Purchasing Decision (PD)					
PD-I choose to buy Green products	200	1	5	4.00	1.021
Valid N (listwise)	200				

From the above table it can be seen that the consumers awareness of product price and brand image is high which is evidenced by the individual and total mean(4.76) scores. And also regarding awareness of environmental concern total mean score is 3.69, awareness of green product total mean score is 3.90, and the mean score reveals that the consumers choice to purchasing green product is high that is 4.00.

4.4. CORRELATION ANALYSIS:

4.4.1. A Pearson's product-moment correlation was run to assess the relationship between Environment Concern and Purchase Decision.

H01: There is no statistically significant relationship between Environment Concern and Purchase Decision.
The result of the analysis is given below:

Table - 4

Correlations			
	Environment Concern	Purchase Decision	
Environment Concern	Pearson Correlation	1	.017
	Sig. (2-tailed)		.808
	N	200	200
Purchase Decision	Pearson Correlation	.017	1
	Sig. (2-tailed)	.808	
	N	200	200

In this study, there is no statistically significant relationship (.017, significant at the 0.01 level) between Environment Concern and Purchase Decision. Therefore, the null hypothesis is accepted.

4.4.2. A Pearson's product-moment correlation was run to assess the relationship between Awareness on Green Products and Purchase Decision.

H02: There is no statistically significant relationship between Awareness on Green Products and Purchase Decision.
The result of the analysis is given below:

Table - 5

Correlations			
	Awareness on Green Products	Purchase Decision	
Awareness on Green Products	Pearson Correlation	1	.172*
	Sig. (2-tailed)		.015
	N	200	200
Purchase Decision	Pearson Correlation	.172*	1
	Sig. (2-tailed)	.015	
	N	200	200
*. Correlation is significant at the 0.05 level (2-tailed).			

In this study, there is a statistically significant relationship (.172, significant at the 0.01 level) between Awareness on Green Products and Purchase Decision, so we can reject the null hypothesis.

4.4.3. A Pearson's product-moment correlation was run to assess the relationship between Awareness on Green Price and Brand Image and Purchase Decision.

Ho3: There is no statistically significant relationship between Awareness on Green Price and Brand Image and Purchase Decision.

The result of the analysis is given below:

Table - 6

Correlations			
	Awareness on Green Price and Image	Purchase Decision	
Awareness on Green Price and Brand Image	Pearson Correlation	1	.242*
	Sig. (2-tailed)		.031
	N	200	200
Purchase Decision	Pearson Correlation	.242*	1
	Sig. (2-tailed)	.031	
	N	200	200
*. Correlation is significant at the 0.05 level (2-tailed).			

In this study, there is a statistically significant relationship (.242, significant at the 0.01 level) between Awareness on Green Price and Brand Image and Purchase Decision, so we can reject the null hypothesis.

4.4.4.CONSUMER AWARENESS AN IMPACT STUDY:

From the above result the significant relationship is found between consumer awareness and purchase decision. Hence in this study an attempt was made to examine the extent of impact of awareness on consumer purchase decision. The following hypothesis were framed and tested.

Hypothesis 1: Consumers' awareness of Environment Concern has no significant effect on Purchase decision

Hypothesis 2: Consumers' awareness of Green Product does not influence their purchasing decision.

Hypothesis 3: The Green Product Price and Brand awareness has no significant on Product purchase decision

4.5. CONFIRMATORY FACTOR ANALYSIS

For this purpose, Confirmatory Factor Analysis (CFA) was performed SPSS Amos software is used to test the overall fitness of the Structural Equation Model (SEM) and to estimate the relationships between the independent variables and the dependent variable so as to accept or reject the hypothesis.

4.5.1.RELIABILITY TESTS

The reliability of 12 items in the questionnaire is tested with Cronbachs' alpha. If Cronbach alpha reliability coefficient is exceeding the suggested level of 0.70 (Nunnally, 1978) The Cronbach's Alpha coefficient values are as follows

Table - 7

	Reliability Statistics	
Items	**Cronbach's Alpha**	**N of Items**
EC1, EC2, EC3, EC4	.873	4
GP1,GP2, GP3	.752	3
PB1,PB2,PB3, PB4,PB5	.772	5

It suggests that the questionnaire is having reliability and can be used for further analysis.

According to Ahire, Golhar and Waller (1996) Confirmatory Factor Analysis (CFA) provides enhanced control for assessing unidimensionality than Exploratory Factor Analysis and is more in line with the overall process of construct validation. Unidimensionality measure the extent to which the items in a scale all measure the same construct (Venkatraman, 1989). In this study, CFA model is run through SPSS AMOS 20 software. CFA was conducted for each of the three constructs to determine whether the 12 indicators measured the construct they were assigned to adequately.

4.5.2.MODEL FIT

Based on Structure Equation Model using SPSS Amos 18 it is found that Chi-square(CMIN) = 68.424, Degree of freedom(DF) = 61 and probability level is about 0.240 which is evidence against the null hypothesis is not significant at the 0.05 level. CMIN/DF is called as the minimum discrepancy which is 1.122 Wheaton et al (1977) suggested that if the minimum discrepancy is less than 5 the model is reasonable fit. The values found in this study for each parameter to test model fit are given in the following Table -8

Table 8: Parameter value for model fit measures

Name of the Parameter	Value
Goodness of Fit Index (GFI)	0.950
Adjusted Goodness of Fit Index (AGFI)	0.925
Normed Fit Index (NFI)	0.924
Comparative Fit Index (CFI)	0.991
Tucker-Lewis Index(TLI)	0.988
Incremental Fit Index(IFI)	0.991
Relative Fit Index(RFI)	0.902
Root Mean Square Error of Approximation (RMSEA)	0.025

Based on various studies conducted by Bentler and Bonett (1980),

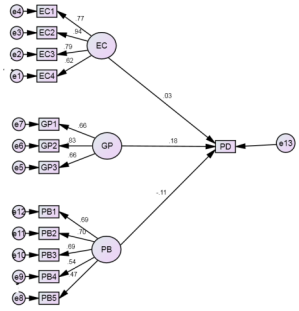
Jöreskog, and Sörbom (1974), Bollen's(1989) and Bentler (1980) it was suggested that if the Index value is greater than 0.9 and if RMSEA values are less than 0.05 it indicates model is fit and accepted.

4.5.3.STRUCTURE EQUATION MODEL

The data has no missing values. The model is over-identified, a preferable situation for SEM. According to the unvariate and multivariate normality tests the data is not normally distributed. After the data was normalized, the Maximum likelihood (ML) estimation method is used. ML attempts to maximize the likelihood that obtained values of the criterion variable will be correctly predicted.

Structure Equation Model - The path diagram with standardized parameters estimate.

The Structural Equation Model diagram is given in the following Figure - 1



SPSS Amos Graphics has specified path-diagram in above and specifies the relationship between the observered variables and unobserved variable. The portion of the model that specifies how the unobserved variables are related to each other is called structural model. In this present structural model Purchase decision (PD) is the dependent variable and the three variables Awareness Environment concern (EC), Awareness of Green product (GP) and Awareness of Price & Brand (PB) are independent variable. The Regression weights estimates provides the relative importance. The estimates with the largest value represent the most important dimension in terms of its influence on Green product purchase decision. The findings of the regression weights estimates are summarized in table 9.

Table 9: Standardized Regression weights Estimations

Factor	Direction	Factor	Estimate
PD	←	EC	0.033
PD	←	GP	0.181
PD	←	PB	-0.113

P –value shows the significance of the estimation. If the P-value is less than 0.05 then there is a significant effect of the independent variable on dependent variable.

Table - 10

			S.E.	C.R.	P
PD	<---	EC	.092	.451	.652
PD	<---	GP	.103	2.258	.024
PD	<---	PB	.155	-1.385	.166

From the above results, it can be final that, the consumer awareness of Environment concern has no significant effect on Purchase decision and Standardized regression weight of 0.033. So, the hypothesis Ho1 is accepted. Thus, Consumers' environmental concern does not influence their purchasing decision.

The awareness of Green product has a significant effect on Green Product Purchase decision with standardized regression weight of 0.181. So, the hypothesis Ho2 is not accepted. Thus, Consumers' awareness of green product does not influence their purchasing decision is rejected.

The Green Product Price and Brand awareness has no significant on Product purchase decision and standardized regression weight of -0.113. So, the hypothesis Ho3 is accepted. Thus, Consumers' awareness of price and brand image does not influence their purchasing decision.

5. FINDINGS:

The analysis is based on the information provided by the respondent through various aspect of consumer purchase behavior of the green product.

Demographic Profile of the respondents

1. The study revealed that 56 percent of the respondents were female and 44 percent of them were male.
2. 42 percent of the respondents belonged to the age group of 31-40, 29 percent of them were in the age group of 41-50, and a small percentage of 15 percent of them were above 50 and 14 percent of them were 20-30.
3. The Majority of 71 percent of the respondents were Unmarried.
4. 36 percent of them were found to be diploma/degree, 32 percent of them had no formal education, 20 percent were school education, 12 percent of them were having professional qualification.
5. A majority of green consumers (48 percent) were employee, 29 percent of them were professionals, 20 percent of them were carrying on business, and 3 percent of them were doing agriculture.
6. 58 percent of them had income ranging between Rs.20,001 – Rs.40000, 19 percent of the respondents of the study had below Rs.20,000 as their monthly income, 18 percent had income between Rs. 40,001 – Rs. 60,000, 5 percent of them had monthly income of above Rs. 60,000.

Factors Extraction Results of the Items in Questionnaire

1. The majority of the component shows that environmental issues are consumers' responsibility (.892) in awareness of environmental concerns.
2. The high score of component shows that green product usually comes smaller in portion but higher in prices (.856) from awareness of green product.
3. In awareness of product price and brand image revealed that if the price of green product is less expensive I'm willing to change my lifestyle by purchasing green product (.750) were majority of the result.

Green Products Purchase Behaviour of Consumers:

Green products purchase behavior of consumer the results revealed that consumer awareness of product price and brand image is high which is evidenced by the individual and total mean(4.76) scores. And also regarding awareness of environmental concern total mean score is 3.69, awareness of green product total mean score is 3.90, and the mean score reveals that the consumers choice to purchasing green product is high that is 4.00.

Correlation Analysis:

1. Consumers' awareness of Environment Concern has no significant effect on Purchase decision.
2. Consumers' awareness of Green Product does influence their purchasing decision.
3. The Green Product Price and Brand awareness has significant on Product purchase decision.

Standardized Regression weights Estimations:

1. The consumer awareness of Environment concern has no significant effect on Purchase decision and Standardized regression weight of 0.033. So, hypothesis Ho1 is accepted. Thus, Consumers' environmental concern does not influence their purchasing decision.
2. The awareness of Green product has a significant effect on Green Product Purchase decision with standardized regression weight of 0.181 So, hypothesis Ho2 is not accepted i.e., Consumers' awareness of green product does not influence their purchasing decision is rejected.

3. The Green Product Price and Brand awareness has no significant on Product purchase decision and standardized regression weight of -0.113. So, hypothesis Ho3 is accepted. Thus, Consumers' awareness of price and brand image does not influence their purchasing decision.
4. It is interesting to know that though there is an association between product price and brand image, it has no significant impact on purchase decision.

6. CONCLUSION:

The study has been undertaken with an objective to explore the consumer purchase behaviour in green products. Green product awareness is an important tool to guide the consumers for purchasing of green products. It was also noted that there are consumers who are prepared to start their buying decisions on purchasing products that do not harm to the environment. The study focused on environmental concern of green product price and images are not influence the purchase decision of green consumers. But the respondents think that green product usually comes smaller in portion and higher in price and they are expecting if the price of green products is less expensive they are willing to change their lifestyle by purchasing green products. In future only those companies and Government will reap the greatest reward that innovates with new products, materials, technologies with reasonable price which are eco-centric that brings combined effort among consumers to seek the value of collective gain over self-interest.

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