



A STUDY ON PRO-ENVIRONMENTAL BEHAVIOUR OF THE CONSUMERS TOWARDS GREEN PRODUCTS

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Abstract

The concern for environment has become an important issue that influences the production, distribution and disposal of many commercial products. Organizations are Perceive Environmental marketing as an Opportunity to achieve its objectives. Firms have realized that consumers prefer products that do not harm the natural environment as also the human health. It is evident from ANOVA and t-test that there is no significant variance between Sex, Educational Qualification, and Duration of using Green products is found not significant and the null hypothesis is accepted.

INTRODUCTON

Organizations are Perceive Environmental marketing as an Opportunity to achieve its objectives. Firms have realized that consumers prefer products that do not harm the natural environment as also the human health. Firms marketing such green products are preferred over the others not doing so and thus develop a competitive advantage, simultaneously meeting their business objectives. Organizations believe they have a moral obligation to be more socially responsible. This is in keeping with the philosophy of CSR which has been successfully adopted by many business houses to improve their corporate image.

STATEMENT OF THE PROBLEM

The concern for environment has become an important issue that influences the production, distribution and disposal of many commercial products. As the people realize that consumption activities lead to environmental problems, consumers are translating their environmental concern into activity choosing or avoiding products based on their impact on the natural environment (Coddington, 1993; McDougall, 1993; The Roper Organization, 1990). So the study attempts to examine the pro-environmental behaviour of the respondents towards green product.

OBJECTIVES

1. To study the socio-economic profile of the respondents.
2. To study the Pro-Environmental behaviour of the respondents towards green products.

METHODOLOGY OF THE STUDY

- **Period of the study**
The study conducted for a period of December 2014 - May 2015.
- **Sources of data**
To accomplish the objectives of the study, the researchers have depended on both primary data and secondary data.
- **Primary data**
The study is based on primary data that were collected through a questionnaire.
- **Secondary data**
It was taken from published journals, magazines and from internet.
- **Sample technique**
The research was carried out in and around Coimbatore city. Convenient sample method was used to select the sample.
- **Sample size**
Sample size considered for the study was 500 respondents.
- **Tools used for analysis**
The following tools are used for the study
 - ANOVA
 - T-Test
 - Mean
 - Range

REVIEW OF LITERATURE

Ishaswini and Saroj Kumar Datta (2011) in their study on "Pro-environmental Concern Influencing Green Buying: A Study on Indian Consumers" analysed the consumer preference and willingness to pay for eco-friendly product and consumers pro environmental concern, knowledge of environment issues and awareness of eco-friendly product which affect

the green purchase behaviour. For this study data was collected from a highly educated sample of 200 respondents using a structured questionnaire. The study resulted that consumers with high environmental concern pay high price for the products. The study also found that green buying behavior depends on awareness and environmental concern towards green products. The study used Pearson's correlation and found that pro environmental concern of the customers significantly had an impact on the ecological buying behavior.

Trivedi et al. (2011) in their study on "Pro-environmental Behavior on Consumers: A Taxonomy and its Implications for the Green Marketer" examined the pro-environmental behavior in India. The study used factor analysis highlighted that energy conservist which shows energy saving, energy economists which show the economic consideration and environmental activates which leads to pro-environmental activity to save environment. The study suggested the marketers to go for economic motivation on green consumers to make their business strong in the Indian context.

Rinal Shah and Preeti Pillai (2012) in their paper "Consumer's Environmental Concern and its Influence on their Purchase Intention: SEM Approach" tried to assess the purchasing intention of the consumer by highlighting five factor viz., recyclable products, not-used-on animal products, energy conservation, organically grown and ozone-friendly. Based on the factors objectives were framed to analyse the factors responsible in understanding the environmental concern and to measure the purchase intention in relation with environmental concern. The study used structural equation model and found that recycle product had strong impact towards environmental concern and their purchasing intention. The rest four factors have no impact on the objectives.

DEMOGRAPHICS AND RESPONDENTS PRO-ENVIRONMENTAL CONCERN TOWARDS GREEN PRODUCTS.

To study the consumer's Pro-environmental concern towards green products in relation with personal factors their opinion were quantified. The following opinion factors were considered. The cross tabulation explains the values between each variable and the hypothesis were done to find the relationships among the demographic variables and Pro-environmental concern towards Green Products.

1. I care about the environment
2. I buy products made from reusable resources
3. I buy product that don't cause pollution
4. I don't purchase product that are hazardous to the environment
5. I have purchased light bulbs that were more expensive but saved energy
6. I use paper bags instead of plastic bags
7. I have spread awareness among family and friends about environmental degradation
8. Present environment issues have concerned me to a great extent
9. I alone can't change the world when it comes to protection of the environment
10. I am loyal to those companies that are focused on offering environmental-friendly products
11. Being environmentally aware enables me to have a sense of accomplishments (self-respect, self-fulfillment and independence)
12. I am willing to pay higher price for environmental-friendly products

For the purpose of analysis five point scaling technique was used to convert the qualitative information (Pro-environmental concern of the customer) into quantitative one. For the Pro-environmental concern the score assigned are as follows:

Strongly Agree - score 5, Agree - score 4, Neutral - score 3, Disagree - score 2, strongly Disagree - score 1

The sample respondents were divided into three groups in accordance with their perception on the pro-environmental concern towards green products. The scores obtained by the respondents with regard to their perception is classified into High, Moderate and Low. The mean score analysis explains the range, however, the high level of pro-environmental concern was ranging between 32.51 to 36.0, while the moderate level of pro-environmental concern ranges from 25.64 to 32.51 and the Low level of awareness towards green products ranged between 21.0 and 25.63. This has been explained in the table below:

Table - 1: Perception of Respondents towards Pro-Environmental Concern on Green Products

Pro-Environmental Concern	No. of Respondents	Percentage
Low (21.0 to 25.63)	94	18.8
Moderate (25.64 to 32.51)	294	58.8
High (32.51 to 36)	112	22.4
Total	500	100.0

Source: Primary Data

Table 1 reveals that out of five hundred sample respondents, ninety four respondents (18.8 per cent) perceived the level of pro-environmental concern towards green products as 'low'; two hundred and ninety four respondents (58.8 per cent) perceived the level of pro-environmental concern towards green products as 'moderate'; and the remaining Hundred and Twelve respondents (22.4 per cent) perceived the level of pro-environmental concern towards green products as 'high'.

The following selected demographic variables were compared with consumer pro-environmental concern towards green products.

Hypothesis

H₀: There is no significant difference between selected demographic variables of the respondents and their pro-environmental concern towards green products.

a) Age and Respondents Pro-Environmental Concern towards Green Products

Table - 2: Age and Respondents Pro-Environmental Concern towards Green Products

Age	No. of Resp.	Average	Range		Opinion on Respondents Pro-Environmental Concern about Green Products		
			Min.	Max.	High	Moderate	Low
Below 20 years	65(12.8)	28.62	22.20	33.00	6(9.2)	49(75.4)	10(15.4)
21 years to 30 Years	178(35.0)	28.55	21.00	36.00	38(21.3)	89(50.0)	51(28.7)
31 years to 40 Years	97(19.3)	28.95	21.60	36.00	16(16.5)	61(62.9)	20(20.6)
Above 40 Years	160(32.9)	29.91	21.00	36.00	52(32.5)	95(59.4)	13(8.1)
Total	500	29.07	21.00	36.00	112	294	94

Source: Primary Data

Note: Figures in parenthesis represents percentage

Further it is understood from the Table 2 that the respondents in the age group of between 21 years to 30 years was found to have maximum (28.7 per cent) low pro-environmental concern towards green products, whereas the majority (32.5 per cent) of the respondents belong to the age above 40 years had high pro-environmental concern towards green products.

Table - 3 : Analysis of variance among Age and Respondents Pro-Environmental Concern towards Green Products (ANOVA)

Demographics		Sum of Squares	df	Mean Square	F	P value
Age	Between Groups	174.727	3	58.242	5.018	.002**
	Within Groups	5757.298	496	11.607		
	Total	5932.025	499			

Source : Primary Data

** indicates 1 per cent level of Significance

It is clear from the above table that the calculated F value is more than the P value and the result is significant at 1 per cent level. Hence, the hypothesis "age of the respondents and pro-environmental concern towards green products" are associated and holds good. From the analysis, it is concluded that there is significant relationship between the two variables and the null hypothesis is rejected.

b) Sex and Respondents Pro-Environmental Concern towards Green Products

Table - 4: Sex and Respondents Pro-Environmental Concern towards Green Products

Sex	No. of Resp.	Average	Range		Opinion on Respondents		
			Min.	Max.	High	Moderate	Low
Male	182	29.14	21.00	34.80	42	113	27
Female	318	29.03	21.00	36.00	70	181	67
Total	500	29.07	21.00	36.00	112	294	94

Source: Primary Data

Note: Figures in parenthesis represents percentage

Further it is understood from the Table 4 that maximum (21.1 per cent) of the respondents who were female were found to have low pro-environmental concern towards green products and the respondents who were male had high (23.1 per cent) pro-environmental concern towards green products.

Table - 5 : Relationship between Sex and Respondents Pro-Environmental Concern towards Green Products (t-Test)

Sex	N	Mean	SD.	Df.	't'	P value
Male	182	29.13	3.389	498	0.319 ^{NS}	0.750*
Female	318	29.03	3.485			

Source: Primary Data

* indicates 5 per cent level of significance

It is clear from the table 5 that the calculated t value is less than the P value and the result is not significant at 5 per cent level. Hence, the hypothesis "sex of the respondents and pro-environmental concern towards green products" are not associated. From the analysis, it is concluded that there is no significant relationship between the two variables and the null hypothesis is accepted.

c) **Educational Qualification and Respondents Pro-Environmental Concern towards Green Products**

Table - 6 : Educational Qualification and Respondents Pro-Environmental Concern towards Green Products

Educational Qualification	No. of Resp.	Average	Range		Opinion on Respondents Pro-Environmental Concern about Green Products		
			Min.	Max.	High	Moderate	Low
Upto School Level	82(16.3)	28.91	21.00	36.00	17(20.7)	48(58.5)	17(20.7)
Diploma / Degree	247(49.6)	29.18	21.00	36.00	55(22.3)	151(61.1)	41(16.6)
Post Graduation	97(19.2)	28.80	21.00	36.00	18(18.6)	60(61.9)	19(19.6)
Professional	74(14.9)	29.23	21.60	36.00	22(29.7)	35(47.3)	17(23.0)
Total	500	29.07	21.00	36.00	112	294	94

Source: Primary Data

Note: Figures in parenthesis represents percentage

Further it is understood from the Table 6 that majority (23 per cent) of the respondents who were professionals were found to have low pro-environmental concern towards green products and the respondents in the same category also had high (29.7 per cent) pro-environmental concern towards green products.

Table - 7 : Analysis of variance among Educational Qualification and Respondents Pro-Environmental Concern towards Green Products (ANOVA)

Demographics		Sum of Squares	df	Mean Square	F	P value
Educational Qualification	Between Groups	14.263	3	4.754	.398	.754*
	Within Groups	5917.762	496	11.931		
	Total	5932.025	499			

Source: Primary Data.

* indicates 5 per cent level of significance

It is clear from the above table that the calculated F value is less than the P value at 5 per cent level of significance. Hence, the hypothesis "educational qualification of the respondents and pro-environmental concern towards green products" are not associated. From the analysis, it is concluded that there is no significant relationship between the two variables and the null hypothesis is accepted.

d) Occupation and Respondents Pro-Environmental Concern towards Green Products

Table - 8 : Occupation and Respondents Pro-Environmental Concern towards Green Products

Occupation	No. of Resp.	Average	Range		Opinion on Respondents Pro-Environmental Concern about Green Products		
			Min.	Max.	High	Moderate	Low
Employee	162(32.2)	28.86	21.00	36.00	38(23.5)	90(55.6)	34(21.0)
Self Employed	51(10.6)	30.21	24.00	33.60	18(35.3)	30(58.8)	3(5.9)
Professional	88(17.2)	28.42	21.00	33.00	16(18.2)	47(53.4)	25(28.4)
Agriculturalist	75(15.3)	29.61	21.60	36.00	19(25.3)	47(62.7)	9(12.0)
Others (Students, Unemployed, etc.)	124(24.8)	29.02	21.60	36.00	21(16.9)	80(64.5)	23(18.5)
Total	500	29.07	21.00	36.00	112	294	94

Source: Primary Data

Note: Figures in parenthesis represents percentage

Further it is understood from the Table 8 that maximum (28.4 per cent) of the respondents who are professionally employed were found to have low pro-environmental concern towards green products and the respondents who were self employed had high (35.3 per cent) pro-environmental concern towards green products.

Table - 9 : Analysis of variance among Occupational Status and Respondents Pro-Environmental Concern towards Green Products (ANOVA)

Demographics		Sum of Squares	df	Mean Square	F	P value
Occupational Status	Between Groups	133.114	4	33.279	2.841	.024*
	Within Groups	5798.911	495	11.715		
	Total	5932.025	499			

Source: Primary Data

* indicates 5 per cent level of significance

It is clear from the table 9 that the calculated F value is more than the P value and the result is significant at 5 per cent level. Hence, the hypothesis "occupational status of the respondents and pro-environmental concern towards green products" are associated and holds good. From the analysis, it is concluded that there is significant relationship between the two variables and the null hypothesis is rejected.

e) Family Monthly Income and Respondents Pro-Environmental Concern towards Green Products

Table -10 : Family Monthly Income and Respondents Pro-Environmental Concern towards Green Products

Monthly Income	No. of Resp.	Average	Range		Opinion on Respondents		
			Min.	Max.	High	Moderate	Low
Below ₹.20000	113(22.1)	28.47	21.60	36.00	19(16.8)	70(61.9)	24(21.2)
₹.20001 to ₹.40000	226(45.7)	29.39	21.00	36.00	56(24.8)	136(60.2)	34(15.0)
₹.40001 to ₹.60000	86(17.0)	28.74	21.60	34.80	21(24.4)	40(46.5)	25(29.1)
Above ₹.60000	75(15.2)	29.41	21.00	36.00	16(21.3)	48(64.0)	11(14.7)
Total	500	29.07	21.00	36.00	112	294	94

Source: Primary Data

Note: Figures in parenthesis represents percentage

Further, it is clear from the Table 10 that maximum (29.1 per cent) of the respondents having a monthly income between ₹.40001 to ₹.60000 were found to have low pro-environmental concern towards green products and the respondents having

Monthly income between ₹.20001 to ₹.40000 had high (24.8 per cent) pro-environmental concern towards green products.

Table - 11: Analysis of variance among Family Monthly Income and Respondents Pro-Environmental Concern towards Green Products (ANOVA)

Demographics		Sum of Squares	df	Mean Square	F	P value
Family Monthly Income	Between Groups	81.662	3	27.221	2.308	.076***
	Within Groups	5850.363	496	11.795		
	Total	5932.025	499			

Source: Primary Data

*** indicates 10 per cent level of significance

It is clear from the above table that the calculated F value is more than the P value and the result is significant at 10 per cent level. Hence, the hypothesis “family monthly income of the respondents and pro-environmental concern towards green products” are associated and holds good. From the analysis, it is concluded that there is significant relationship between the two variables and the null hypothesis is rejected.

f) Type of Family and Respondents Pro-Environmental Concern towards Green Products
Table - 12: Type of Family and Respondents Pro-Environmental Concern towards Green Products

Type of Family	No. of Resp.	Average	Range		Opinion on Respondents		
			Min.	Max.	High	Moderate	Low
Joint	158(32.2)	29.62	21.60	34.20	50(31.6)	80(50.6)	28(17.7)
Nuclear	342(67.8)	28.82	21.00	36.00	62(18.1)	214(62.6)	66(19.3)
Total	500	29.07	21.00	36.00	112	294	94

Source: Primary Data

Note: Figures in parenthesis represents percentage

Further it is understood from the Table 12 that maximum (19.3 per cent) of the respondents living in nuclear family was found to have low perception on pro-environmental concern towards green products whereas, the respondents belong to the joint type of family had high (31.6 per cent) pro-environmental concern towards green products.

Table - 13 : Relationship between Type of Family and Respondents Pro-Environmental Concern towards Green Products (t-Test)

Type of Family	N	Mean	SD.	DF	't'	P value
Joint	158	29.62	3.31	498	2.432**	.015
Nuclear	342	28.82	3.48			

Source: Primary Data

** indicates 1 per cent level of significance

From the table 13 that the calculated t value is more than the P value and the result is significant at 1 per cent level. Hence, the hypothesis “type of family of the respondents and pro-environmental concern towards green products” are associated and holds good. From the analysis, it is concluded that there is significant relationship between the two variables and the null hypothesis is rejected.

g) Size of the Family and Consumers Pro-Environmental Concern towards Green Products
Table - 14: Size of the Family and Respondents Pro-Environmental Concern towards Green Products

Family Size	No. of Resp.	Average	Range		Opinion on Consumers Pro-Environmental Concern about Green Products		
			Min.	Max.	High	Moderate	Low
Small (2 to 3)Members	150(29.1)	28.21	21.60	36.00	24(16.0)	89(59.3)	37(24.7)
Medium (3 to 5	291(58.4)	29.19	21.00	36.00	63(21.6)	183(62.9)	45(15.5)
Large (More than 5)	59(12.4)	30.65	22.20	36.00	25(42.4)	22(37.3)	12(20.3)
Total	500	29.07	21.00	36.00	112	294	94

Source: Primary Data

Note: Figures in parenthesis represents percentage

It is evident from the Table 14 that majority (24.7 per cent) of the respondents whose size of the family is small (2 to 3 members) was found to have low concern towards pro-environment and green products, whereas the respondents living in large size (more than 5 members) family had high (42.4 per cent) concern towards pro-environment and green products.

Table - 15 : Analysis of variance among Family Size and Respondents Pro-Environmental Concern towards Green Products (ANOVA)

Demographics		Sum of Squares	df	Mean Square	F	P value
Family size	Between Groups	262.331	2	131.165	11.498	.000**
	Within Groups	5669.695	497	11.408		
	Total	5932.025	499			

Source: Primary Data

** indicates 1 per cent level of significance

It is clear from the above table that the calculated F value is more than the P value and the result is significant at 1 per cent level. Hence, the hypothesis “family size of the respondents and pro-environmental concern towards green products” are associated and holds good. From the analysis, it is concluded that there is significant relationship between the two variables and the null hypothesis is rejected.

h) Area of Residence and Respondents Pro-Environmental Concern towards Green Products

Table - 16: Area of Residence and Respondents Pro-Environmental Concern towards Green Products

Area of Residence	No. of Resp.	Average	Range		Opinion on Respondents Pro-Environmental Concern about Green Products		
			Min.	Max.	High	Moderate	Low
Urban	291(58.5)	29.21	21.60	36.00	75(25.8)	164(56.4)	52(17.9)
Semi-Urban	109(21.2)	28.23	21.00	33.60	9(8.3)	74(67.9)	26(23.9)
Rural	100(20.4)	29.60	21.00	36.00	28(28.0)	56(56.0)	16(16.0)
Total	500	29.07	21.00	36.00	112	294	94

Source: Primary Data

Note: Figures in parenthesis represents percentage

It is understood from the Table 16 that maximum (23.9 per cent) of the respondents hailing from semi-urban areas were found to have low concern towards green products whereas, respondents living in rural areas had high (28 per cent) pro-environmental concern towards green products.

Table -17 : Analysis of variance among Residential Area and Respondents Pro-Environmental Concern towards Green Products (ANOVA)

Demographics		Sum of Squares	df	Mean Square	F	P value
Residential Area	Between Groups	110.639	2	55.320	4.723	.009**
	Within Groups	5821.386	497	11.713		
	Total	5932.025	499			

Source: Primary Data

** indicates 1 per cent level of significance

It is clear from the above table that the calculated F value is more than the P value and the result is significant at 1 per cent level. Hence, the hypothesis “residential area of the respondents and pro-environmental concern towards green products” are associated and holds good. From the analysis, it is concluded that there is significant relationship between the two variables and the null hypothesis is rejected.

i) Monthly Family Expenses and Respondents Pro-Environmental Concern towards Green Products

Monthly Family Expenses	No. of Resp.	Average	Range		Opinion on Respondents Pro-Environmental Concern about Green Products		
			Min.	Max.	High	Moderate	Low
Below ₹.5000	89(17.7)	28.95	21.60	36.00	24(27.0)	41(46.1)	24(27.0)
₹.5001 to ₹.10000	222(44.7)	29.29	21.60	36.00	48(21.6)	138(62.2)	36(16.2)
Above ₹.10000	189(37.5)	28.87	21.00	36.00	40(21.2)	115(60.8)	34(18.0)
Total	500	29.07	21.00	36.00	112	294	94

Source: Primary Data

Note: Figures in parenthesis represents percentage

It is understood from the Table 18 that majority (27 per cent) of the respondents with monthly expenses below ₹.5000 were having low pro-environment concern towards green products and the respondents who were also spending low i.e. below ₹.5000 were found to have high (27 per cent) concern on pro-environment towards green products.

Table -19: Analysis of variance among Family Monthly Expenses and Respondents Pro-Environmental Concern towards Green Products (ANOVA)

Demographics		Sum of Squares	df	Mean Square	F	P value
Family Monthly Expenses	Between Groups	19.317	2	9.658	.812	.445*
	Within Groups	5912.709	497	11.897		
	Total	5932.025	499			

Source: Primary Data

* indicates 5 per cent level of significance

It is clear from the above table that the calculated F value is more than the P value and the result is significant at 5 per cent level. Hence, the hypothesis “family monthly expenses of the respondents and pro-environmental concern towards green products” are associated and holds good. From the analysis, it is concluded that there is significant relationship between the two variables and the null hypothesis is rejected.

SUGGESTION

- It is suggested that the consumers may develop the attitude to pay premium value for green products and they may use the green products which are renewable and recyclable.
- The pro-environmental behaviour shall be promoted by the government, NGOs, manufacturers of green products and volunteers working towards environmental concerns.

CONCLUSION

In India, environmental protection is the major matter of concern for both the public and government. The results of the study revealed that there is significant relationship between the perceptions towards pro-environmental concern with that of the selected demographic variables. The government, NGO and different business people should take more imitative to promote the environmental behaviour among the public which leads to peaceful and green environment.

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