

# A Statistical Study of Relationship between Concernment for Environment Protection and Socio-demographic Variables

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**Abstract:** India is the second largest populated country in the world and every seventh individual of the world lives in India. Approx.16% of the world's population resides in India but India has only 2.4% land area of the earth. Now a day humans are consuming natural resources in an unsustainable way. The much needed impetus to industrial development has resulted in huge residuals, having undesirable effects on the environment — air, water and land, disproportional to their contribution to overall economic growth.

Globally, people have been more aware of environmental issues in last couple of years. Many consumers now express concern for environmental degradation. This paper studied the awareness and usage of Green Product. In order to achieve the objectives of the study, primary and secondary data have been collected and an in-depth literature review and empirical research were undertaken. A self-administered questionnaire was filled by respondents both male and female. Through the data analysis and interpretation, it was found that College students have not much but acceptable awareness and knowledge about environmental issues and also shown concern for environment protection. Although Green purchasing was also found influencing people but seriousness was not shown. People are not much satisfied with green product.

**Keywords:** Green Product, Environmental Consciousness, Green Marketing

## Introduction

*“The only way forward, if we are going to improve the quality of the environment, is to get everybody involved” – Richard Rogers*

The way natural resources have been consumed in unsustainable manner for last couple of years, somewhere it is the leading cause behind the today's bad environmental situation and which is on the verge of getting even worse. Much more impetus for industrial development has resulted in huge residuals, having undesirable effects on the environment and even air, water and land, disproportional to their contribution to overall economic growth. The expeditious increase in

population and industrial development has guided to severe environmental degradation that emaciates the environmental resources. India has not been untouched to this worldwide phenomenon, rather this has been more prominent in India because of the substantial increase in its population, as compared to other developing economies.

The harsh change in the ecosystem poses a very big threat to the survival of any species including human beings. The responsibility of Environmental Protection is not limited to the Government only but every citizen should also take it as their primary duty to cope up with this global environmental crisis e.g. also the biggest

challenge to development. Any type of damage to the ecosystem will take some time to get noticed but the rectification of the same issue would take much more time, years, decades, centuries. Any tiny damage to the environment at any level might be the cause behind Global damage.

A recently released report by the Mahindra Group (2019) based on Pan-India survey revealed that approx. 80 % Indians are aware of the impact of their activities and actions on nature and climate change, while 4 out of 5 people thought and shown 'interest' in making changes their lifestyle such as using public transport or electric vehicles, carpooling, and 70% people are aware of environmental issue of water conservation. But such knowledge and awareness of environment are not matching with actual behavior pattern. Although purchasing green products has increased in the past few years.

In the past few decades, the green movement has been evolving at a rapid pace in the world. With regard to this consumers are taking responsibility and doing the right things for their environment. Consumer awareness and consciousness continue to drive change in the marketplace, notably through the introduction of more eco-friendly products. This is the era of business if all businesses take responsibility for environmental protection and come forward with 'go green' attitude then it will be a big step towards sustainable development. Many companies are adopting green marketing strategies in order to get a competitive advantage over others. Hence, it becomes very important to study Green marketing and the perception of consumer towards green marketing.

### **Need for the Study**

The study will help us to determine the relationship consumer their awareness and the capability to consume. How will things affect the consumer to use more eco-friendly products and what are the barriers in it that may prevent them from using eco-friendly products. Through this research, environmental awareness and

seriousness for environment and purchasing behavior of youth has been studied.

### **Literature Review**

Green marketing term was first discussed in a seminar on "Ecological Marketing" organized by American Marketing Association (AMA) in 1975 and took its place in the literature and through the years many research related to green marketing are being done. Some of them related to issue are reviewed. Mahaeshwari, A. and Malhotra, G. (2011) has done study on youth to study factors affecting their behavior towards environment..Shahnawaj (1990) focused on environmental awareness and environmental attitude of secondary and higher secondary school teachers and students. Astalin, P. kumar (2011) also studied environmental awareness among higher secondary students and some educational factors affecting. Environmental awareness has been studied with respect to scientific attitude among higher secondary students of Varanasi city (Bharti Anita, 2002). Singh (2005) studied the scientific phenomenon between holistic education and environmental awareness.

Consumers show concern about the environment and pro-environmental behaviour such as avoiding plastic bags, recycling and energy saving are called Environmental conscious consumers (Schlegelmilch et al., 1996). Environmental consciousness is a multidimensional construct which represents mental stage of an individual. (Sharma and Bansal, 2013). H'Mida (2009) advocated that internal factors such as demographic, psychological and economical variables and external factors such as family, media and culture influence the environmental consciousness of an individual. Mina Okada and Mais (2010) studied that young consumers are much aware of environmental issues, more environmental conscious and willing to spend more for Eco-friendly products. Environmental consciousness is a three dimensional construct which includes cognitive, attitudinal and behavioural components (Schlegelmilch et al., 1996). Purchasing green

products is linked with Consumers environmental knowledge. As the knowledge increase purchasing of green products likely to get increased.(Yadav and Pathak, 2016; Vicente-Molina et al., Mostafa, 2013; Peattie, 2010).

### Objectives of the study

1. To measure the seriousness for environmental protection among college students.
2. To examine the level of awareness regarding green product.
3. To study of relationship between concernment for environment protection and socio-demographic variables.

### Research Method

The study is based on primary data collected from 522 respondents of Indore, Bhopal, Jabalpur and Harda Districts of Madhya Pradesh by means of a structured questionnaire. Non probability convenience sampling technique was adopted to collect the data. Initially the sample size of 550 was considered for the study. All the questionnaires were distributed to the respondents for their

responses but 28 questionnaires were found incomplete and incorrect for this reason they were rejected. Accordingly, sample size of 522 was considered to conduct the study. The data was analyzed using SPSS 21 (statistical package for social sciences). The statistical tools percentage analysis, Cross tabulation, Mean, standard deviation, ANOVA, were used in the study.

### Hypothesis formulation

A hypothesis formulated to test the differences between Concern for environmental protection and demographic variables is -

H1: "Concern for environmental protection doesn't differ across demographic variables"

### Data Analysis and Interpretation

#### Respondents' Demographic Profile

In order to analyze the basic demographic profile of the respondents surveyed, percentage and frequency description of distribution of responses are taken into consideration. The data of the respondents required for the research work have been shown in the Table 1.

**Table – 1: Demographic description of the respondents**

S.N.	Demographics	Category	Number	Percentage (%)
1	Gender	Female	198	37.9
		Male	324	62.1
2	Age	18 – 25 Years	131	25.1
		26 – 40 Years	170	32.6
		41 – 60 Years	159	30.5
		60 + years	62	11.9
3	Qualification	High School or Below	53	10.2
		Higher Secondary	74	14.2
		Graduate	143	27.4
		Post Graduate	146	28.0
		Others (CA, Ph.D. etc.)	106	20.3
4	Monthly Income	Below 25,000	166	31.8
		25,001 – 50,000	182	34.9
		50,001 – 1,00,000	69	13.2
		1,00,001 – 1,50,000	61	11.7
		Above 1,50,000	44	8.4
5	Marital Status	Single	215	41.2
		Married	307	58.8

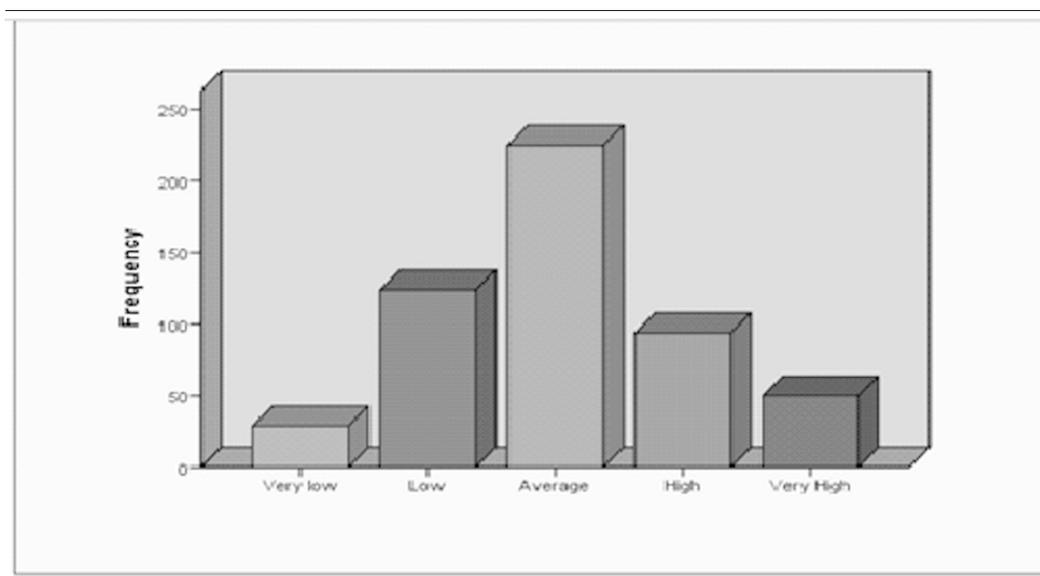
**Table - 2: Analysis of Awareness Level Regarding Environmental Issues**

Level of awareness	Frequency	Percent	Cumulative Percent
Very low	33	6.3	6.3
Low	123	23.6	29.9
Average	222	42.5	72.4
High	94	18.0	90.4
Very High	50	9.6	100.0
Total	522	100.0	

Table 2 shows the awareness of respondents regarding environmental issues. The result depicts that most of the respondents (42.5%) of the total were having average knowledge about environmental issues. Approx. 30% of respondents were showing low or very low

awareness about environmental issues. It clearly informs that 70% of respondents were having average, high or very high knowledge about environmental issues. Over all, it can be said that respondents were not having exhaustive knowledge about environmental issues. (Figure 6.2)

**Figure 2: Awareness regarding environmental issues**



### **Analysis of general awareness regarding Green Products**

The green product is a new and emerging concept, and it differs from mainstream products to certain extent. To know how well customers are aware about this contemporary concept the awareness of green products of the respondents' was measured. In this regard, the question "How would you describe your level

of awareness about Green Products" was asked to the respondents to express their level of awareness. The question was framed with the help of Likert scale of 1 to 5 where option 1 denoted 'very low', option 2 denoted 'low', option 3 denoted 'average', option 4 denoted 'high' and option 5 denoted 'very high'. The respondents were asked to choose any one option. Responses of respondents have been briefed in the Table given 1.

**Table 3: Level of general awareness regarding Green products**

Level of Awareness	Frequency	Percent	Cumulative Percent
Very low	31	5.9	5.9
Low	119	22.8	28.7
Average	210	40.2	69.0
High	147	28.2	97.1
Very High	15	2.9	100.0
<b>Total</b>	<b>522</b>	<b>100.0</b>	

The table reveals that only 40.2% of the respondents expressed 'average' level of general awareness, whereas 28.2% of the total respondents expressed 'high' level of awareness about green products. Out of 522 respondents only 119 i.e. 22.8% expressed 'low' level of awareness. Very few of the respondents (i.e. 2.9%) expressed 'very high' level of awareness about green products, whereas 5.9% of respondents expressed 'very low' level of general awareness about green products.

The mean score for general awareness was 2.9923 and the standard deviation calculated .92934 which indicates that the level of general awareness about green products is less than average. Hence, from the findings, it can be said

that on an average people of Madhya Pradesh did not have good knowledge about green products.

**Analysis of Concern for Environmental Protection**

First of all, "Concern for Environmental protection", was measured through asking the question "According to your opinion, how would you rate the concern of environmental protection in current scenario?" with 3 options where option 1 was 'Very serious, and should be on priority', option 2 was 'Somewhat serious, but other issues are more important', and option 3 was 'can't Say'. Responses regarding the same have been compiled in table 6.4.

**Table 4: The concern for Environmental Protection**

Sl. No.	Concern for environmental protection	Frequency	Percent	Valid Percent	Cumulative Percent
1	Very serious, and should be on priority	362	69.3	69.3	69.3
2	Somewhat serious, but other issues are more important	101	19.3	19.3	88.7
3	Can't Say	59	11.3	11.3	100.0
	<b>Total</b>	<b>522</b>	<b>100.0</b>	<b>100.0</b>	
	Mean Score: 1.4195				
	Std. Deviation: .68592				

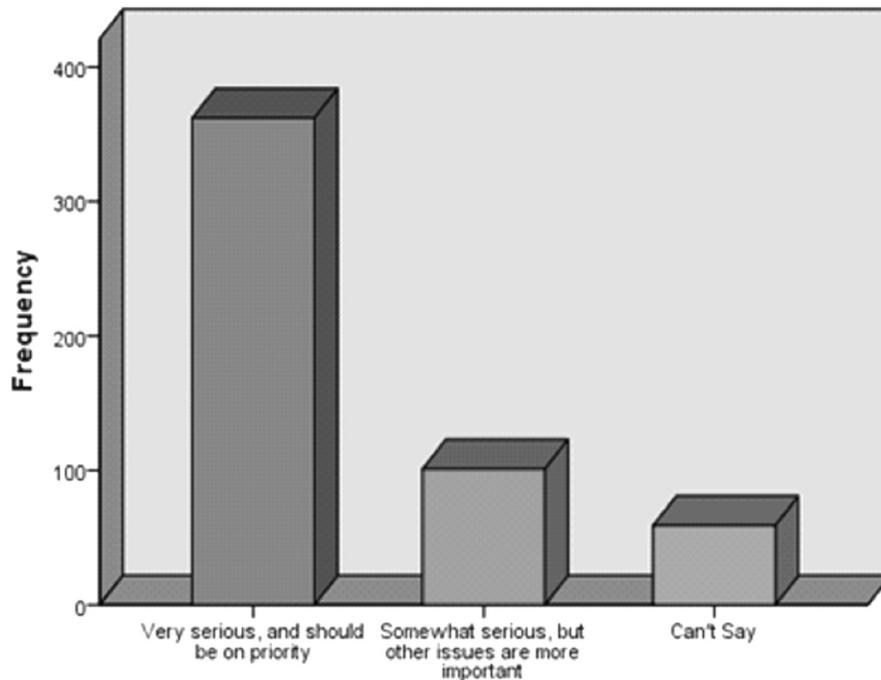
As it can be seen from Table 6 that out of total 522 respondents, majority i.e. 69.3% of the respondents marked very serious concern for environmental protection, and they thought that

it should be on priority whereas 19.3% of the respondents thought that it is somewhat serious, but other issues are more important. Only 11.3% respondents were not saying anything on this

matter that might be due to lack of knowledge. The mean score is 1.4195 and standard deviation is .68592, which further indicates that majority

people are serious for environmental protection in current scenario (figure 6.4).

**Figure 2 : Concern for environmental protection**



### **Concern for environmental protection across Demographic Variables**

The study is endeavored to check the difference between respondents' concern for environmental protection, if any, exists across the demographic variables. In order to examine the relationship, concern for environmental protection was considered as dependent variable and demographic variables were considered as independent variables. The demographic variables – gender, age,

educational qualification, monthly income, and marital status were considered appropriate for this purpose. The difference in respondents' concern for environmental protection across the demographic variables was investigated using ANOVA (Analysis of variance). The summary of the ANOVA employed across demographic variables is shown in Table 5.

**Table 5: ANOVA of concern for Environmental protection across Demographic Variables**

Demographic Variables	Variations	Sum of Squares	df	Mean Square	F	Sig.
Gender	Between Groups	.364	1	.364	.935	.334
	Within Groups	202.427	520	.389		
	Total	202.791	521			
Age	Between Groups	.263	3	.088	.224	.880
	Within Groups	202.528	518	.391		
	Total	202.791	521			
Educational Qualification	Between Groups	9.781	4	2.445	1.372	.070
	Within Groups	235.340	517	.455		
	Total	245.121	521			
Monthly Income	Between Groups	1.872	4	.468	1.204	.308
	Within Groups	200.919	517	.389		
	Total	202.791	521			
Marital Status	Between Groups	.000	1	.000	.000	.999
	Within Groups	245.121	520	.471		
	Total	245.121	521			

From the results, it is clear that no significant difference in the concern for environmental protection is found for any demographic variable; therefore, no Post-Hoc test was used for further explanation. A hypothesis formulated to test the differences in concern for environmental protection among the respondents of Madhya Pradesh is -

**H1: “Concern for environmental protection doesn’t differ across demographic variables”**

H1a: “Concern for environmental protection doesn’t differ between males and females”

H1b: “Concern for environmental protection doesn’t differ across the various age groups”

H1c: “Concern for environmental protection doesn’t differ with the level of education”

H1d: “Concern for environmental protection doesn’t differ across the income groups”

H1e: “Concern for environmental protection doesn’t differ according to the marital status”

**The relationship between concern for environmental protection and Gender:**

The responses of respondents about concern for environmental protection were compared between male and female using ANOVA. According to the table 5, F value is .935 and p-value is .334 ( $p > .05$ ). The results suggest that there is no significant difference in concern for environmental protection between male and female. Hence, the hypothesis H1a is accepted.

**Relationship between concern for environmental protection and Age**

The responses of respondents about concern for environmental protection were compared across the different four age groups: 18-25 years, 26-40 years, 41- 60 years, 60 years & above by using ANOVA test. According to the table 5, F value is .224 and p-value is .880 ( $p > .05$ ). The results of ANOVA test suggest that there is no significant difference in concern for environmental protection across different

age group. Hence, the hypothesis H1b is accepted.

**Relationship between concern for environmental protection and educational qualification**

The responses of respondents about concern for environmental protection were compared across the groups of respondents having different level of education qualification using ANOVA. According to the table 5, F value is 1.372 and p-value is .07 (p>.05). The results of ANOVA suggest that there is no significant difference in concern for environmental protection across the groups of respondents having any level of education qualification. Hence, the hypothesis for the same H1c is accepted.

**Relationship between concern for environmental protection and Monthly Income**

The responses of respondents about concern for environmental protection are compared across the different income group using ANOVA. According to the table 5, F value is 1.204 and p-value is .308 (p>.05). The results of ANOVA suggest that there is also no significant difference in concern for environmental protection across the income group. Hence, the hypothesis H1d is accepted.

**Relationship between concern for environmental protection and marital status:**

The responses of respondents about concern for environmental protection were compared between married and unmarried respondents using ANOVA. According to the table 5, F value is .000 and p-value is .999 (p>.05). The results of ANOVA suggest that there is no significant difference in concern for environmental protection between married and unmarried respondents. Hence, the hypothesis H1e is accepted.

This can very safely be said that overall the Hypothesis H1: "Concern for environmental protection doesn't differ across demographic variables" is accepted because all sub-hypotheses have been accepted on the basis of results obtained from ANOVA test. It means that concern for environmental protection does not change across demographic variables.

**Analysis of Motives behind use or purchase of Green Products**

The motives behind purchase and use of green products were identified through a ranking analysis. Four motives were carefully chosen on the basis of prior studies viz. first is 'concern for health', second is 'concern for status', third is 'concern for environment' and fourth is 'to use better quality products'. Direct question was asked to the respondents about their motives for choosing green products over non-green products and asked to rank the motives from 1 to 4 as per the importance. For the purpose of analyzing the data, rank for each motive is calculated on the basis of mean. The table 6 shows the rank.

**Table 6: Ranking analysis of motives behind use or purchase of Green Products**

S.N.	MOTIVES	MEAN	RANK
1	For Health	1.245	1
2	For saving Environment	1.995	2
3	For quality product	2.52	3
4	For showing status	4.2	5
5	For saving time and money	3.33	4

Most of respondents' motive for purchasing or using green products was health because the mean score of ranks for health is 1.245. Second rank as per mean score is environment saving. Respondents gave second importance to the environment saving after health as reason behind choosing the green products. After environment respondents considered quality product as third motive behind choosing the green products whereas saving time and money got importance on 4<sup>th</sup> position in ranking as motive behind using the green products and last rank given to "for showing status". It is very clear that people are very conscious for their health and environment protection.

### **Major Findings of the Study**

On the basis of analysis and interpretation, following are the major finding

- Most of students were found serious for the environmental protection.
- 35.5 % students are not much aware about the environmental issues like Global Warming, Pollution (water, air, soil etc.), Deforestation, Ozone depletion, Climate Change, acid rain, etc.
- Most of students consider that pollution is the biggest environmental problem.
- Majority students consider that environmental protection is their responsibility.
- Awareness of Green product found to be average among students.
- Purchasing and using green product are yet low
- Seriousness for environment and green product purchasing are not related. Youngsters shown seriousness not found in their Green Product purchasing.

### **Suggestions**

- Youngsters expressed their concern for environmental protection which indicates that if manufacturer create the trust among consumers for their ecofriendly products then consumers will prefer green products only.

- It is recommended that government, companies, NGOs, and concerned authorities should take initiative to make people aware about environmental issues.
- It is found that respondents were not thoroughly aware about green products. Though, most of the people were having average knowledge about ecofriendly products. This study also suggests that specific promotional strategies should be designed, developed and implemented considering age, income, and education qualification of consumers.
- This study suggests that Government should come forward to solve such problems by giving relaxation in tax or provide subsidy on green products so that consumers can buy green products.
- Government can play an important role in successful execution of green marketing. People are not satisfied with the efforts of government, Hence governments should come forward with active involvement and need to execute the laws related to this.

### **Scope for the Future Research**

- This study is limited to the Madhya Pradesh and college student only but any interested researcher may study on the population of other states or country and different age group people.
- This study is not specific to any particular category of green products, so further studies can be focused on particular category like automobile, FMCG, tourism, etc.
- Future studies can be done by using different sampling method so that more insightful conclusions regarding problems of green marketing could be drawn.

### **Conclusion**

Most important thing came out from findings of this research work were that people are showing

their concern for environmental issues and protection which drive's the market in a new direction and force to offer such products which have least detrimental effect on environment. Green marketing has become necessary to adopt by manufacturers these days and even many companies have started implementing the green marketing practices to gaining competitive advantage over others. Even many companies have realized that it will become very difficult to survive without adapting green marketing strategy in this competitive era. However, most of the consumers are using green products directly or indirectly but still the acceptance of green products is a big challenge for manufacture and government. Apart from awareness, various reasons are found for dissatisfaction and non-usage of green products i.e. product quality, price and availability of green product.

Today, Indian economy is progressing at rapid rate but on the other side environmental issues like pollution, deforestation, shrinkage of natural resources etc. have become a big problems. In this era of business, green marketing can play an important role in sustainable development. So through sustainable development, which covers three dimensions – Environment, Society and Economy, India can be a green prosperous nation in future.

## References

H'Mida, S. (2009) 'Factors contributing in the formation of consumers' environmental consciousness and shaping green purchasing decisions', *Computers & Industrial Engineering* 2009, CIE 2009: International Conference, IEEE, pp.957–962.

Joshi, Y. and Rahman, Z. (2016) 'Predictors of young consumer's green purchase behaviour', *Management of Environmental Quality: An International Journal*, Vol. 27, No. 4, pp.452–472.

Kaiser, F.G., Wölfing, S. and Fuhrer, U. (1999) 'Environmental attitude and ecological

behaviour', *Journal of Environmental Psychology*, Vol. 19, No. 1, pp.1–19.

Kanchanapibul, M., Lacka, E., Wang, X. and Chan, H.K. (2014) 'An empirical investigation of green purchase behaviour among the young generation', *Journal of Cleaner Production*, Vol. 66, pp.528–536.

Kang, G.D. and James, J. (2007) 'Revisiting the concept of a societal orientation: conceptualization and delineation', *Journal of Business Ethics*, Vol. 73, No. 3, pp.301–318.

Khare, A (2015) 'Antecedents to green buying behaviour: a study on consumers in an emerging economy', *Marketing Intelligence & Planning*, Vol. 33, No. 3, pp.309–329.

Laroche, M., Bergeron, J. and Barbaro-Forleo, G. (2001) 'Targeting consumers who are willing to pay more for environmentally friendly products', *Journal of Consumer Marketing*, Vol. 18, No. 6, pp.503–520.

Lee, K. (2009) 'Gender differences in Hong Kong adolescent consumers' green purchasing behaviour', *Journal of Consumer Marketing*, Vol. 26, No. 2, pp.87–96.

Liobikienė, G. et al. (2016) 'Theory of planned behaviour approach to understand the green purchasing behaviour in the EU: a cross-cultural study', *Ecological Economics*, Vol. 125, pp.38–46.

Maichum, K., Parichatnon, S. and Peng, K.C. (2017) 'Factors affecting on purchase intention towards green products: a case study of young consumers in Thailand', *International Journal of Social Science and Humanity*, Vol. 7, No. 5.

Milfont, T.L. and Duckitt, J. (2010) 'The environmental attitudes inventory: a valid and reliable measure to assess the structure of environmental attitudes', *Journal of Environmental Psychology*, Vol. 30, No. 1, pp.80–94.

Mina Okada, E. and Mais, E.L. (2010) 'Framing the 'Green' alternative for environmentally conscious consumers', *Sustainability Accounting, Management and Policy Journal*, Vol. 1, No. 2, pp.222–234.

- Mishra, P. and Sharma, P. (2014) 'Green marketing: challenges and opportunities for business', *BVIMR Management Edge*, Vol. 7, No. 1, pp.78–86.
- Mostafa, M.M. (2007) 'A hierarchical analysis of the green consciousness of the Egyptian consumer', *Psychology & Marketing*, Vol. 24, No. 5, pp.445–473.
- Mostafa, M.M. (2009) 'Shades of green: a psychographic segmentation of the green consumer in Kuwait using self-organizing maps', *Expert Systems with Applications*, Vol. 36, No. 8, pp.11030–11038.
- Peattie, K. (2010) 'Green consumption: behavior and norms', *Annual Review of Environment and Resources*, Vol. 35, pp.195–228.
- Schlegelmilch, B.B., Bohlen, G.M. and Diamantopoulos, A. (1996) 'The link between green purchasing decisions and measures of environmental consciousness', *European Journal of Marketing*, Vol. 30, No. 5, pp.35–55.
- Scott, D. and Willits, F.K. (1994) 'Environmental attitudes and behaviour: a Pennsylvania survey', *Environment and Behaviour*, Vol. 26, No. 2, pp.239–260.
- Sharma, K. and Bansal, M. (2013) 'Environmental consciousness, its antecedents and behavioural outcomes', *Journal of Indian Business Research*, Vol. 5, No. 3, pp.198–214.
- Singh, P. (2014) 'India ranks among the world's worst for its polluted air: WHO', *Times of India*, 9 May. Available online at: <https://timesofindia.indiatimes.com/home/environment/pollution/India-ranks-among-the-worlds-worst-for-its-polluted-air-WHO/articleshow/34890249.cms?>
- Vicente-Molina, M.A., Fernández-Sáinz, A. and Izagirre-Olaizola, J. (2013) 'Environmental knowledge and other variables affecting pro-environmental behaviour: comparison of university students from emerging and advanced countries', *Journal of Cleaner Production*, Vol. 61, pp.130–138.
- Yadav, R. and Pathak, G.S. (2016) 'Young consumers' intention towards buying green products in a developing nation: extending the theory of planned behaviour', *Journal of Cleaner Production*, Vol. 135, pp.732–739.
- Zelezny, L.C. and Schultz, P.W. (2000) 'Psychology of promoting environmentalism: promoting environmentalism', *Journal of Social Issues*, Vol. 56, No. 3, pp.365–371.