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## **Antecedents of green purchase intentions: a review and testing of hypothesis on Indian consumers**

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**Abstract:** The purpose of the current study is to examine the combined effect of identified antecedents of environmentally sustainable purchase behaviour such as, environmental awareness and knowledge, attitudes towards green purchasing, perceived consumer effectiveness and influence of peer groups. The study involves analysis of the 545 responses obtained from the structured survey conducted in the states of Western Uttar-Pradesh and Uttarakhand, India. Multiple regression analysis was used to examine the combined effect of the identified antecedents of green purchase behaviour. The analysis reveals that environmental awareness, perceived consumer effectiveness and peer group influence as highly significant predictors of green purchase intentions. Studies examining green purchase behaviour of Indian consumers are meagre, thus the present study tries to bridge this knowledge gap so that marketing and policy actors can design strategies and marketing programs to increase the adoption of green/environmentally sustainable products in India.

**Keywords:** green consumerism; environmental strategy; perceived consumer effectiveness; PCE; consumer behaviour; sustainability; peer groups; green products.

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## 1 Introduction

A transformation from the industrial era to the green era is need of the hour for achieving the goal of environmental protection (Kilbourne, 2010) and corporations have realised that it is very essential to achieve the target of environmental sustainability in business operations. Moreover, sustainability is now viewed as a competitive advantage (Svensson and Wagner, 2010).

The severity of environmental problems in India is very well highlighted by the data collected by the World Bank (2011). As per World Bank (2011) the percentage of nationally protected areas in India are only 5.3% of its total land area, whereas for the South Asian group it is 6.1%, which represents a cause for concern for the conservation of wildlife habitats in India and calls for more corrective actions on the part of the Government of India. India exceeds its South Asian counterparts in per capita energy (kg equivalent of oil) use, this figure for India stood at 545 (kg oil equivalent), while for South Asian group it was 484. It means India's energy demands are growing mainly because of rapid industrialisation and population growth. A comparison between the quantity of energy obtained from sustainable sources and fossil fuels indicates that 26.3% energy in India is generated using biomass and for the South Asian group this figure stood at 28.5%, which is 2.2% more than India. The per capita electric power consumption in India stood at 566 kWh, while for the South Asian group it was only 503 kWh. Thus, India needs a more sustainable energy policy for improving and curing its environmental problems. CO<sub>2</sub> emission per capita in India was 1.4 metric tons, which

is 0.2 metric tons more than that of the South Asian group. Also, 19% of Indian children under five years of age suffer from acute respiratory problems, which in itself is an environment related health problem.

Apart from these broad statistics on environmental degradation in India, The National Green Tribunal (Govt. of India) has also raised concerns about specific environmental issues such as disposal of electronic waste (Pandey, 2014; Sharma, 2014); mercury pollution and its harmful effects on the environment (Pandey, 2014); while Sajwan (2014) have highlighted the adverse effects of deforestation on the climate, specially stating that long term implications for the river systems of India and also the adverse effects of climate change on agriculture and food production in India. If things continue at this pace, the Indian Agriculture and Research Institute projects that a 1°C increase in temperature would reduce production of wheat by four to five million tons as well the population dynamics of pest and pathogens might also alter due to climate change and climate change might also result in the alteration of various vector species which may lead to spread of vector borne diseases to new areas (Sajwan, 2014).

The above data very well highlight the state of the environment on different parameters in India, as well as the consequences if such environmental issues are not properly addressed. Thus, concrete steps would have to be taken to incorporate the goal of reducing the impact of environmental degradation in the production and consumption processes. Therefore, sustainability needs to be incorporated in the present industrial setup of the nation.

The UN has advocated that the responsibility of environmental protection should be a joint effort of the government, industries and the consumers (Ross and Robinson, 2010). From the early days of the environmental moments, the role of consumers for reducing environmental degradation has been described as the most vital. Fisk (1973, 1974) has professed that consumers should reduce their impact on the environment by using environmental friendly products. Even today, one of the biggest issues that are associated with environmental problems relates to consumption patterns (Pinto et al., 2011). Because of such need of sustainable consumption, the concept of green marketing and green consumerism have been developed and survived for almost three decades, despite some criticism. In the context of the present study, green or environmental marketing has been understood as a process consisting of all activities used to generate and facilitate any exchanges that are intended to satisfy human needs, with minimal damage to the natural environment (Paco et al., 2013).

The consumer is the main focal point of the green marketing activities, so analysing the determinants of consumers' purchase behaviour towards green products would certainly help propel green marketing in future economic scenarios. Choy and Prizzia (2010) argue that consumer behaviour plays an important part in improving environmental quality and other authors such as Das Gandhi et al. (2006) have also highlighted the role of consumers in the greening process along with other variables such as legislation, community and economic benefits. Therefore, it becomes necessary to examine the antecedents of green purchase behaviour of individuals. The rationale behind focusing on the consumer side in green marketing is that, each time a consumer makes a purchase decision, there is a possibility of that purchase to contribute in some way to a more or less pattern of sustainable consumption (Young et al., 2010). In order to understand environmentally responsible consumption, it is necessary to understand the antecedents that create such consumption habits (Pinto et al., 2011). In recent decades, several researchers have tried to identify various antecedents of green or environmentally

conscious consumption and have tried to profile environmentally conscious consumers (Reijonen, 2011). However, Paco et al. (2013) state that it is still very difficult to clearly explain the process of green buying.

An important finding, reported by Khare (2014); Leonidou and Leonidou (2011) is that studies related to green marketing and green consumerism have been conducted in North American or European regions and this percentage has increased steadily over the years. However, Asian regions, particularly China have also caught up in this line of research recently (Khare, 2014), but any substantial study from India was still nowhere found in top publications surveyed. The development and testing of consumer behaviour models in the western developed markets without testing them in other cultural environments is not uncommon (Lee and Green, 1991). However, the underlying concepts of most behavioural theories are deeply rooted in social, cultural values and therefore, it becomes necessary to check their validity across different cultures and markets (Mostafa, 2009).

The objective of the current study is to identify certain factors from the literature and to test whether they influence the intentions to buy green products among Indian consumers. There is very limited information available to marketing actors regarding Indian consumers' perceptions and attitudes about green products. Therefore, it is the need of the hour to start examining possible antecedents of green purchase intentions. From a policy and strategic perspective, it is necessary to know what motivates consumers to seek green products, so that policy and marketing actors can design policies to encourage purchase of green products which in turn will benefit the citizens in the long run. From the point of view of methodological measurements, the study seeks to augment our knowledge about environmentally friendly behaviours, particularly intention to purchase green products of Indian consumers, on whom virtually no systematic research has been conducted.

This paper is structured as follows. Firstly, the conceptual framework section presents a review of the prior art discussing about environmental awareness and knowledge, attitudes towards green purchasing, perceived consumer effectiveness (PCE) and peer groups in relation to the environmentally friendly purchase behaviours. Secondly, the data and methodology section highlights the sampling methods and details of the survey instrument used for the present study. Thirdly, the data analysis section shows the results of the statistical analysis. Next, the results and discussion section discusses the results of the data analysis. After that the conclusion and policy recommendations section highlights the policy implications of the present study. The limitations of the present study are presented in the limitations and future research section.

## **2 Conceptual framework**

The present study considers intention to purchase green products as a dependent variable, instead of actual behaviour. The following are the reasons for considering intentions as a dependent variable in the current study. Chan (2008) illustrates intentions as 'verbal commitment' and it refers to an individual's willingness to act with reference to environmental issues and problems. Follows and Jobber (2000) point out that the low correlation between green attitudes and green behaviours is due to the omission of green intentions. In addition, as per the theory of reasoned action given by Ajzen and Fishbein (1980), a specific behaviour is determined by the intention to perform that behaviour. In a

meta-analysis conducted by Hines et al. (1987), it was reported that green intention and green behaviours are strongly correlated ( $r = 0.49$ ) in a significant way. Also, currently green marketing and green consumerism are concepts which are in a very nascent state in the Indian economy (Nath et al., 2013), so it would be more practical to study the effects of antecedents on green purchase intentions rather than actual purchase behaviour regarding green products.

### *2.1 Environmental awareness and knowledge*

Environmental awareness means the individual consumer's perception of the impact of human activities on the environment (Kollmuss and Agyeman, 2002). Behavioural theories have always suggested a positive relationship between cognition and behaviour (Chan, 2008). In a meta-analysis of studies concerning environmental behaviour Kaiser et al. (1999) report that cognitive factors such as knowledge have a highly significant correlation of 0.299 with environmental behaviour. Cheah and Phau (2011) point out the fact that knowledge about environment plays a vital role in influencing the purchase behaviour as it provides the consumer insights about action strategies and helps to develop attitudes and intentions through the belief system. Andrees and Salinas (2007) also confirm that individuals that engage in green behaviours such as recycling devote a significant amount of their time to learn about the environment. Saphores et al. (2007) also report that environmental knowledge is a key factor that determines the willingness to pay price premiums for green products. Paco and Raposo (2009) argue that knowledge is a factor that influences every step in buying decision process. It is an important factor that determines how consumers evaluate different products and services.

Over the years the studies done by Dispoto (1977), Hoch and Deighton (1989), Schann and Holzer (1990), Gamba and Oskamp (1994), Smith-Sebasto (1995), Nomura and Akai (2004), Saphores et al. (2007), Lee (2010), Cheah and Phau (2011) and Nath et al. (2013) consistently have associated environment knowledge with green behaviours. However, some researchers are in disagreement with the relationship of environmental awareness and knowledge to environmental behaviours (Geller, 1981; Kempton et al., 1995).

A general/abstract knowledge about the environment is termed as awareness while environmental knowledge has been defined as the respondent's perception of being sufficiently knowledgeable and confident in discussing about environmental issues (Lee, 2010). For the sake of measurement reliability and analysis, the present study also makes a distinction between general awareness and knowledge similar to the previous studies conducted by Jain and Kaur (2006). Therefore, as per the outcomes of the above-mentioned studies in the context of the current study it can be hypothesised:

H1 Environmental awareness and knowledge significantly affect green purchase intentions of Indian consumers.

### *2.2 Attitudes towards green purchasing*

Milfont and Duckitt (2004) point out that environmental attitudes are defined as a collection of beliefs, affect and behavioural intentions held by an individual towards environmentally conscious activities. The conventional consumer behaviour wisdom also indicated that attitudes are essential to the study of consumer behaviour. Krarup and

Russel (2005), Barber et al. (2009) and Barber (2010) argue that strong attitudes related to a social issue and particular product category can predict purchase behaviours and further, attitudes are good predictors of a consumers' willingness to purchase. This is highly relevant when there is a strong attitude towards performing environmentally friendly acts such as adopting green products (Barber et al., 2009). The available literature indicates a strong correlation between attitudes towards specific environmental behaviours, products and actual eco-friendly behaviours (Lynne and Rola, 1988; Lockie et al., 2004; Krystallis and Chryssohoidis, 2005; Nath et al., 2013). These findings are in line with the Ajzen's theory of planned behaviour, which states that attitudes towards behaviour are a predictor of behavioural intention of performing that behaviour. The present body of literature also strengthens the relationship between attitudes and behaviours, when attitudes towards performing specific environmentally friendly behaviours like recycling are considered rather attitudes towards the environment in general (Hines et al., 1987; Schwepker and Cornwell, 1991; Barber et al., 2009; Nath et al., 2013). The present study only considers attitudes towards environmental friendly behaviours like adopting green products. Studies probing the effects of attitudes towards environmental behaviours of Indian consumers are also meagre. Thus, keeping in mind the above outcomes it can be hypothesised that:

H2 Attitudes towards green purchasing significantly affect green purchase intentions of Indian consumers.

### *2.3 Perceived consumer effectiveness*

Rowlands et al. (2003) define PCE in relation to green consumer behaviour as, "a measure of the extent to which a person believes that an individual consumer can be effective in pollution abatement". Studies carried out by Antil (1978), Weiner and Doescher (1991), Berger and Corbin (1992), Roberts and Bacon (1997), Majlath (2010) and Awad (2011) report that consumers' attitudes and responses to environmental appeals are a function of their belief that individuals can positively affect the outcomes to such problems. Such attitude or belief shown by consumers' is referred to as PCE. PCE is also defined as an estimate of the extent to which personal consumption activities contribute to the solution of a problem (Allen, 1982; Ellen et al., 1991). Ellen et al. (1991) mentioned that PCE is related to the concept of perceived behavioural control having its roots in the 'theory of planned behaviour' (Ajzen, 1991). Thus, the intentions are affected to the degree to which individuals believe that occurrence or non-occurrence of an event can be affected by their actions. In line of the above argument, Roberts (1996) mentions that PCE is the single strongest predictor of environmentally conscious behaviours. The reason for the above results can be attributed to that fact that individuals who are concerned about the environment will only show a more proactive behaviour if they feel that their actions may be effective in addressing environmental problems (Straughan and Roberts, 1999).

Ellen et al. (1991) stated that PCE is a highly significant predictor of environmental behaviours like recycling, purchasing green products and participating in environmental group activities. Lee and Holden (1999) also report that PCE is a significant predictor of 'high cost' behaviours such as willingness to pay premium price for green products. However, PCE was not found to be a significant predictor of 'low cost' behaviours such as recycling. Ellen et al. (1991) also warned that PCE should not be used to predict

general environmental behaviours; it is only a significant predictor for specific activities. However, there are no studies that have explored the PCE of the Indian consumer and its effects on green purchase behaviour. On the basis of the results reported by the above studies, the following can be hypothesised:

H3 PCE significantly affects the green purchase intentions of Indian consumers.

#### *2.4 Peer groups*

Relationship with peers is more intense and influential in adults (Berndt, 1982). The present body of literature also suggests that consumers learn the symbolic meaning of products and services, and prefer products, brands and stores which their peers recommend in the process of consumer socialisation (McNeal and Ji, 1999). The available literature suggests that peers influence behaviours of one another in the following ways, such as, by acting as reinforcing and pushing agents (Lamb et al., 1980); as modelling agents (Sagotsky and Lepper, 1982); as objects for social comparisons (Shaffer, 1994) and as value setters for a particular idea or behaviour (Shaffer, 1994).

According to Lee (2010) peer groups exert direct and indirect effects on green consumer behaviour. It has been reported that peer influence on green purchase behaviour could be exerted in the following manner by reinforcing directly green consumption or a lifestyle or by kindling a consumer's emotional/passion about the environment, leading in turn to green purchase behaviour. In this regard Lee (2009) has also reported that peer influence was found to be the top predictor of green purchase behaviour in both male and female consumers. The power of peer influence suggests a 'group effect' in environmental behaviours. Thus, it can be concluded that peer groups play an important role in shaping the green consumer behaviours. The issue regarding the role of peer groups in developing and fostering environmental behaviours amongst Indian consumers needs to be examined in detail as literature on this aspect of green consumer behaviour of Indian consumer is not existent. Thus, the following can be hypothesised:

H4 Peer groups significantly affect green purchase intentions of Indian consumers.

### **3 Data and methodology**

A self-administered survey was conducted in ten cities identified each in Western Uttar Pradesh and Uttarakhand, India at busy market places by intercepting the respondents. A total of 545 valid responses were collected during the survey. Considering the low penetration of green products in Indian market, especially the rural areas, sample for the study was taken only from urban areas. This will affect the awareness and knowledge of the respondents. The data collected also shows that most of the respondents were educated (having at least completed school education).

A random sample of individuals over the age of 18 years was taken as such persons are familiar with purchasing products and have autonomy in making purchase decisions. Although, the sample size is fairly decent, the sample did not include enough participants over 50 years of age. Table 1 highlights the demographic characteristics of the sample.

**Table 1** Demographics

<i>Variable</i>	<i>Categories</i>	<i>Frequency (N = 545)</i>	<i>Percentage</i>
Gender	Male	292	54
	Female	253	46
Age (years)	18–30	191	35
	31–40	204	37
	41–50	109	20
	51–60	30	6
	60 years and above	11	2
Education	Intermediate	142	26
	Graduate	175	32
	Post-graduate	163	30
	Doctorate	65	12

### 3.1 *Measurements*

The questionnaire employed in this study was a five page booklet. A pilot study was first done with 30 respondents in Roorkee, India to assess the questionnaire. The questionnaire asked respondents to rate certain statements to assess their environmental awareness and knowledge, concern, attitudes, altruism, the influence of their peer groups and purchase intentions. All these constructs were measured on five-point Likert scale (1 = highly disagree, 5 = strongly agree, 3 = neutral).

Firstly, the respondents' awareness and knowledge were measured through five item scale and knowledge through a six item scale, respectively, adapted from Jain and Kaur (2004). The consumer's attitude towards purchasing green products was measured using three-item scale which is reliable, valid and earlier used by Taylor and Todd (1995), Chan (2001) and Mostafa (2006). Next, three items were employed to measure the consumer's PCE. The items were adapted from scales previously used by Paulhus (1983), McCarty and Shrum (2001) and Mostafa (2006). Next, six items measured the influence of a consumer's social circle on this green purchase behaviour. The six items measured how well the consumer influences and is influenced by his peers for opting a green product adapted from Lee (2008). Lastly, the dependent variable, i.e., consumer's intention to purchase a green product/green purchase intentions were measured using three items adapted from Mostafa (2006), Chan (2001) and Li (1997). Currently green marketing and green consumerism are concepts which are in a very nascent state in the Indian economy (Nath et al., 2013), so it would be more practical to study the effects of antecedents on green purchase intentions rather than actual purchase behaviour regarding green products. In the end, respondents were asked to mention their demographic details such as gender, age, education level.



#### 4 Data analysis

Factor analysis using principal component analysis (Table 2) was done to ensure that the scales have convergent validity, i.e., the items load onto the same factor as indicated in the previous studies from which they are adopted (Mostafa, 2010). With regards to convergent validity, the present study confirms prior research. All the factors obtained have eigen values greater than 1 and the cumulative variance is 56.716% with KMO of 0.789 and significant Barlett's test of sphericity. Since the sample size of the study is 545, factor loading greater than 0.298 were considered significant, which in accordance with the criteria mentioned by Stevens (1992).

From Table 2, it is also evident that all the measurements for the constructs are reliable, as the Cronbach's Alpha value is within the acceptable range of 0.7 to 0.9 (Tavakol and Dennick, 2011).

**Table 2** Factor analysis results

<i>Items</i>	<i>Eigen value</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
Awareness	3.160						
I am aware about environmental problems.		-.102	.544	.217	.114	.131	-.030
I am aware about companies who are accused/being prosecuted for environmental problems in India/abroad.		.206	.599	.194	-.100	-.028	-.143
I am aware that there are certain environmental laws currently enforce in India.		.008	.713	-.123	.168	.089	.095
I am aware about the 3R's of environmental protection i.e., recycle, reuse and reduce.		-.033	.724	-.005	.126	.262	.149
I am aware about eco-friendly products like CFL bulbs, electric/hybrid car, jute/paper bags, etc.		.178	.629	.046	.023	.133	.301
Knowledge	1.807						
I know about the national environmental policy document issued by the Ministry of Environment, Government of India.		.401	-.422	-.120	-.040	.459	-.252
I know about the vehicular emission norms (e.g., Euro III, BS IV) currently enforce in India.		.302	-.050	-.066	-.278	.510	-.008
I know how to select products and services that reduce the amount of waste ending up in landfills.		.340	.375	.052	.056	.380	-.200
I understand the environmental phrases and symbols on products and packages.		.262	.279	.063	.128	.397	-.136
I know that fossil fuels (e. g., diesel, petrol) and plastics produce CO <sub>2</sub> , SO <sub>2</sub> in the atmosphere when burned.		.111	.373	.181	.094	.686	.007
I know that substances containing CFC (chloro floro carbons) are responsible for causing the ozone hole.		.088	.204	.016	.072	.708	.249

**Table 2** Factor analysis results (continued)

<i>Items</i>	<i>Eigen value</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>
Attitudes	2.248						
I (1 = dislike, 5 = like) the idea of purchasing green/eco-friendly products.	.114	.102	.076	.770	.077	.081	
I have an (1 = unfavourable, 5 = favourable) attitudes towards green/eco-friendly version of a product.	.359	-.053	.129	.564	.153	.036	
Green marketing (producing and selling eco-friendly products) is a (1 = bad, 5 = excellent) idea.	.017	-.050	.015	.765	-.033	-.026	
Perceived consumer effectiveness	1.486						
The public cannot do anything to reduce environmental degradation.	-.041	.145	.305	.139	.058	.629	
Efforts at individual level contribute a lot to solving environmental problems.	.100	.276	.147	.237	-.015	.559	
The amount of energy (petrol, electricity) I consume has no impact on the environment.	.046	.011	-.047	.064	.077	.796	
Peer groups	3.794						
I learnt about green products from my friends.	.437	.137	.308	.259	.285	.030	
I learnt about environmental problems from my friends.	.744	.106	.168	.224	.053	.029	
I often discuss about green products with my friends.	.689	-.029	.304	.112	.170	-.105	
I often discuss about environmental problems with my friends.	.770	.102	.055	.120	.027	.047	
I often buy green products with my friends.	.840	.153	.032	.035	-.047	.131	
I often share information regarding green products with my friends.	.735	.058	.385	.008	-.009	-.052	
Green purchase intentions	2.251						
In the future, I will consider buying eco-friendly products and services.	.268	.050	.746	.266	-.032	-.045	
In the future, I will consider switching to other brands for environmental reasons.	.108	.112	.692	.108	.224	.098	
In the future, I plan to switch to green version of a product (for example petrol driven scooter to electric scooter, etc.).	.234	-.018	.740	-.077	-.055	.136	
Reliability (Cronbach's alpha)	.893	.729	.725	.788	.804	.729	

After validating the constructs, descriptive statistics for these constructs were calculated. Table 3 highlights the descriptive statistics of the constructs.

To estimate the joint effect of the identified predictors, multivariate analysis using multiple regression was done. Table 4 highlights the results of regression of green purchase intentions on awareness, knowledge, attitudes, PCE and peer groups.

**Table 3** Descriptive statistics

<i>Construct</i>	<i>Mean (N = 545)</i>	<i>Standard deviation</i>
Awareness	3.7405	.68595
Knowledge	3.6713	.57128
Attitudes	4.4343	.77847
Perceived consumer effectiveness	3.8440	.74064
Peer groups	3.5872	.83039
Green purchase intentions	3.8771	.61584

**Table 4** Results of regression analysis

<i>Predictors</i>	<i>Un-standardised coefficients<sup>a</sup></i>		<i>Standardised coefficients<sup>a</sup></i>	<i>t*</i>	<i>Sig.</i>
	<i>Beta</i>	<i>Std. error</i>	<i>Beta</i>		
(Constant)	1.501	.213	-	7.035	.000
Awareness	.170	.042	.190	4.103	.000
Knowledge	.130	.051	.121	2.532	.012
Attitudes	.080	.033	.101	2.413	.016
PCE	.145	.034	.174	4.287	.000
Peer Groups	.098	.031	.132	3.130	.002

Notes:  $R^2 = .198$ ; adjusted  $R^2 = .190$ ;  $F^*(5,539) = 26.564$ , Sig. of  $F = .000$ . \*Significant at 0.05 level. <sup>a</sup>Dependent variable: green purchase intentions.

## 5 Results

From the regression analysis in Table 4, it is evident that environmental awareness (std. beta = .190, sig. = .000) and knowledge significantly (std. beta = .121, sig. = .012) affect green purchase intentions in a positive way. Lee (2010) points out that environmental awareness and knowledge are highly significant predictors of environmental behaviours because when individuals are aware and knowledgeable about the type of actions that could help preserve the environment; they might develop a sense of internal locus of control by engaging in activities that benefit the environment.

The results of the present study indicate attitudes towards green purchasing also positively affect green purchase intentions (std. beta = .101, sig. = .016). Thus, H2 is also accepted. The available literature suggests that behavioural intentions are best predicted by the attitudes towards performing the behaviour in question (Ajzen, 1991). Since the present study examined specific attitudes towards green purchasing rather than environmental attitudes in general, so the results reported hold good.

The regression model (Table 4) also portrays that PCE is a highly significant predictor of green purchase intentions (std. beta = .174, sig. = .000) and indicating that H3 is also accepted. However, Ellen et al. (1991) report that PCE should not be used to predict general environmental behaviours, it is only a significant predictor for specific activities. Since present study only takes green purchase intentions as an environmentally friendly behaviour, so the results reported in the present study hold good. Allen (1982)

reports that PCE is directly influenced by knowledge. Since the respondents of the present study exhibit awareness and knowledge about environment and green products (Table 3) (mean score = 4.43 and 3.67 respectively). Therefore, a positive relationship between PCE and green purchase intentions is observed in the results. Nath et al. (2013) also report that the PCE is also highly dependent on environmental awareness and knowledge.

Combined with all other predictors the regression model (Table 4) also shows that peer groups significantly affect green purchase intentions in a highly positive way (std. beta = .132,  $p = .002$ ). Therefore, H4 is also accepted. Berndt (1982) reports that relationship with peers is more intense and influential in adults and since the sample of the present study consisted of respondents above from the age of 18 years and onwards, so this argument holds good. Sahay and Sharma (2010) report that when individuals try to establish their independent identities as consumers, they rely on peers to obtain information and opinions. Peer groups also influence information search, acquisition and use of particular brands or class of products.

## 6 Discussion and conclusions

The findings of the present study show that environmental awareness and PCE are the most significant predictors of green purchase intentions of Indian consumers. Environmental awareness and knowledge have come out to be highly significant predictors of green purchase intentions followed by attitudes towards green purchasing. Apart from the structured questionnaire, when certain respondents also provided their input during the survey, these respondents replied that they were aware about environmentally friendly or green products that are available in the market (such as phosphate free detergents, power saving lights, etc.) and also were knowledgeable about certain specific environmental issues such as ozone depletion because of CFC present in aerosol cans, old refrigerators and air conditioners. When these respondents were asked as to why they consider some products such as CFL/LED light bulbs as eco-friendly, they pointed out that CFL/LED light bulbs as compared to the same wattage incandescent bulbs consume less power, thus help in reducing pollution induced by power plants. Cheah and Phau (2011) advocate the fact that awareness and knowledge about environment plays a vital role in influencing purchase behaviour. It provides the consumer insights about action strategies and helps to develop attitudes and intentions through the belief system. Thus, increasing the awareness and knowledge of consumers about environmental issues is most crucial. Nath et al. (2013) also report that favourable environmental attitudes are highly dependent on environmental awareness and knowledge. Therefore, increasing consumer awareness is of prime importance for increasing adoption of green products. The policy actors should be proactive in increasing the environmental awareness of the masses as it would eventually lead to the welfare of the citizens in the long run. The government should initiate special environmental awareness programs which will help in raising awareness about environmental issues among the masses. An example of such a campaign is the National Environmental Awareness Campaign, which was initiated by the Ministry of Environment and Forest, Government of India in the year 1986. The Bureau of Energy Efficiency (BEE), Ministry of Power, Govt. of India is educating consumers about energy efficiency of electrical appliance and the benefits to saving money and the environment

through BEE Star Label through advertisements on radio, television and newspapers. However, apart from just electrical devices other class of consumer products should also be put under such programs which will help consumers gain more knowledge about reducing their environmental footprint through responsible sustainable consumption.

At the same time academia also needs to bring issues related to environmental sustainability in engineering and management curriculum, so that the students who are the future managers can be enlightened about the environmental issues (Jabbour, 2009). Social media can also be used as a tool (Sethuraman, 2011; Sullivan and Xie, 2009) to increase awareness. A wide range of information can be provided to the consumers about environmental sustainability through social media, as this medium enjoys all the characteristics of both print and electronic mediums. Social media can also be used as a tool (Sethuraman, 2011; Sullivan and Xie, 2009). A wide range of information can be provided to the consumers about environmental sustainability through social media, as this medium enjoys all the characteristics of both print and electronic mediums. The respondents of this study also pointed out that they have come to know many things about environmental problems and environmental moments from pages on popular social networking platforms. The many respondents pointed out that they came to know about the 'Earth Hour', which is a worldwide environmental moment through social media websites.

It is equally important for marketers to increase consumer awareness because when awareness will grow, then consumer's willingness to pay for green products will also increase. In this regard, Dahlstrom (2010) has proposed that environmental or green promotions can also be used as a tool to promote 'demarketing' i.e., to encourage consumers to cut down on the use environmentally damaging products

In addition, the OECD (2011) recommends that there is an urgent need to monitor awareness programs in order to gauge their success or failure in promoting sustainable consumption. This will help in the development of programs that are more efficient in bringing about a change in consumer behaviour in everyday life situations.

Since PCE is also a significant predictor of green purchase intentions, this signifies that Indian consumers realise their individual responsibility in environmental conservation efforts. As also reported by Lee (2008) this finding is in conformity with the theory of self-efficacy expectation, which says that people process, evaluate and include many sources of information with respect to their abilities and outcomes of behaviour and then utilise this information to guide their efforts. Marketing appeals should position green products as a tool for the masses to contribute towards environmental conservation. Firms marketing green products should provide regular feedback to the consumers, so that consumer confidence remains high regarding their role in environmental protection moments through the use of green products.

Peer groups could also serve as value-setters for green purchasing and can further act as credible sources of information about green products and environmental friendly practices (Cullen et al., 2001; Tufte et al., 2005). Lee (2010) reported that consumers might become environmentally conscious in order to get social approval and acceptance by their peers. Several respondents pointed out that they have learned about many environmental related things from their peers. One such example, as mentioned by one respondent was that of the BEE Star Label, while others pointed out that they discuss about environmental issues, on ways to cut down on energy use and green products on a regular basis with their peers.

This can have implications for advertising strategies. When promoting green products the marketers should position them as a tool to strengthen social bonds and enjoyment, while at the same time caring for the environment. Awareness campaigns by the Government bodies must also urge consumers to spread the word about environmental movements and green products in their social circle. Thus, we can say that peer might act as an important socialising agent towards development of sustainable consumption patterns and adoption of green products (Lee, 2010).

## 7 Limitations and future research

There are certain limitations of the present study that should be kept in mind while adhering to the findings. These limitations also provide a scope for future investigation regarding green marketing and green consumerism in India. Firstly, the present study takes a general view on green products and green purchasing behaviour, since the need for a generic model to explain green consumerism for Indian consumers is still at large. However, in future product specific studies should be done to uncover the actual motivators to purchase of a particular class of green products such as alternative fuel vehicles, etc., as different classes of products differ in the involvement associated with them and product involvement is an important factor affecting purchasing behaviour (Bartels and Onwezen, 2014). Secondly, the present study is cross-sectional in nature. The dependent variables and their predictors are measured only once, indicating the green purchase intentions at a particular moment in time. Therefore, interpretation of results should be done cautiously, keeping in mind this limitation. Thirdly, the present study only took urban consumers from two states of Northern India under its purview. It is highly recommended that future studies should also take rural consumers under their purview as well as studies should be conducted taking sample from eastern, southern and western states of India.

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