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Sustainable choices: The relationship between consumers' environmental attitude and green purchasing behaviour in northern India

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Abstract

This study examines the influence of various psychological and social factors on consumer environmental attitude and their subsequent impact on green purchasing behaviour. With growing global concerns about environmental sustainability, understanding consumer behaviour towards green products is crucial for businesses and policymakers alike. The independent variables under investigation include environmental knowledge, environmental awareness, environmental consciousness, environmental concern, interpersonal influence, and altruism. The study hypothesizes that these factors significantly shape consumer environmental attitudes, which in turn, drive green purchasing behaviour. Data collected through survey and analyzed using structural equation modeling revealed that higher levels of environmental concern as well as strong interpersonal influences and altruism, are positively correlated with proactive environmental attitudes. These attitudes subsequently enhance the likelihood of engaging in green purchasing behaviour. The findings underscore the importance of educational and social strategies in promoting sustainable consumption practices. The implications of these findings provide valuable insights for marketers aiming to promote sustainable products effectively and for policymakers developing strategies to encourage environmentally responsible consumer choices in the region.

Keywords: Green purchasing behaviour, consumer environmental attitude, environmental concern

Introduction

Most of the Indian states have banned the use of plastic bags due to environmental degradation and shopping malls are charging extra money for plastic bags. Thus, environmentally sustainable or "green" purchasing decisions in everyday buyer behavior will have a great impact if they can substitute high-impact products with the eco-friendly products. Various Indian companies adopted green practices for the environmental protection and sustainability. Tata launched green ranged air conditioners and MRF launched eco-friendly tyres. Initiatives like Dell India changing their packaging materials of laptops by eco-friendly materials, McDonald using biodegradable paper for packaging of food in their stores in India. These initiatives have influenced the change of attitude of the consumer toward environment and their buying behavior. The green movement has expanded rapidly in the developed countries, but with the time an increased receptiveness is seen among the consumers about going green in developing nations such as India.

Thus, after seeing the importance of going green among consumers in India, their environmental attitude and green purchasing behavior is considered for this study.

Review of literature

Green Purchasing Behavior (GPB)

Green purchase behavior refers to the purchase of environmentally friendly products or sustainable products those are 'recyclable and 'beneficial' to the environment and avoiding such products which harm the environment and society (Chan, 2001; Mostafa, 2007) [5, 34]. (Tilikidou *et al.* 2002) [19] developed and used the items to measure and to analyze the environmental behavior of consumers namely Pro environmental consumer behavior, Environmental knowledge/Eco literacy, Altruism,

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Environmental awareness, Environmental concern and attitude, Environmental beliefs, Environmental information.

Consumers' Environmental Attitude (CEA)

The phenomenon of attitude has been always emphasized as one of the significant antecedent of behavioral intention, and actual behavior in the studies of green consumer psychology. Fishbein and Ajzen (1975) [15] defined the term attitude as "a learned predisposition to respond in a consistently favorable or unfavorable manner with respect to a given object".

Substantial literature has observed that environmental attitude significantly affects the green purchasing behavior of individuals (Laroche *et al.*, 2001; Lee, 2011; Akehurst *et al.*, 2012; Zhao *et al.*, 2014). Zelezny *et al.* (2000) [27, 30, 1, 14, 46] asserted that environmental attitudes are the perceptions of individuals considering themselves to be part of the environment. Several scholars confirmed the applicability of this phenomenon with purchase intention and purchase behavior for general green products widely (Chan, 2001; Lee, 2008; Chen and Chai, 2010; Lai and Cheng, 2016; Yadav and Pathak, 2016) [5, 31, 8, 26, 45]. In addition, such essential relationships were also validated recently in Indian context (Paul *et al.*, 2016; Yadav and Pathak, 2016) [37, 45]. Hence, environmental attitude can be a relevant factor in explaining the green purchasing behavior.

Environmental Knowledge (EK)

D'Souza *et al.* (2007) [10, 11] defined environmental knowledge as the subjective knowledge of consumers about the impact of a particular product's usage on the environment. Scholars observed that environmental knowledge is a subjective measure based on consumers' own beliefs or self-judgment of how their cognitive awareness of green-related information, directly and indirectly, affect to general eco-system and society by green product consumption (Chan, 2001; Kumar *et al.*, 2017; Jaiswal and Kant, 2018) [5, 25, 20]. Past studies have found significant relationship between environmental knowledge and green behavior (Chan, 2001; Mostafa, 2009; Suki, 2013) [5, 33, 43]. It has been found to be related to environmental attitude and overall environmental behavior (Laroche *et al.*, 1996) [28].

Environmental Awareness (EA)

Dunlap and Jones (2002) [14] defined environmental awareness as people who are aware of the environmental problems and attempts to solve it. Arcury, (1990) [3] says positive attitudes happened when the knowledge regarding environmental issues increases. A good knowledge about environmental issues makes individuals to be more responsible and concerned towards the environment (Schahn & Holzer, 1990) [42]. In addition, individuals will make green choices when they are concerned and aware about environment.

Environmental Consciousness (EC)

Nowadays, consumers are more concerned about the environment and how their consumption can affect the same. A mental behavior that reflects an individual's recognition of environmental issues may be defined as environmental consciousness (Zheng, 2010) [48]. Huang *et al.* (2014) [18] validated their research hypothesis that environmental consciousness positively influences green

consumer behavior. Kumar *et al.* (2020) [24] observed that young consumers are willing to pay a higher price if they understand the environmental benefit. Thus, the same thoughts or repetitive attitudes toward the effect of consumption on the environment and nature as a whole that affect an individual's resulting behavior may be termed as environmental consciousness (Huang *et al.*, 2014) [18].

Environmental Concern (ECN)

Fundamental to environmental research is an individual's concern for the environment (Hines *et al.*, 1987). In general environmental concern holds the individuals' consciousness towards the environmental problems and their readiness to solve the problem (Kim and Choi, 2005; Prakash and Pathak, 2017) [25]. Moreover, it implies the sense of responsibility to protect the environment, incorporated with emotional appeal at the individuals' level which is reflected in their involvement towards the environmental protection (Lee, 2008; Dagher and Itani, 2014; Prakash and Pathak, 2017) [31, 12, 39]. Scholars identified that environmental concern has a direct and significant impact on attitude towards green products (Mostafa, 2007) [34].

Interpersonal Influence (INTERP. INFLU.)

Generally, for a particular effect, interpersonal influence consists of acting to convince or persuade others. Consumers get to know about environmental friendly products through family and friends (Cheah & Phau, 2011; Lim *et al.*, 2014) [7, 32]. Evidence also exists that consumers' attitude towards pro-environmental green products is influenced by social groups and norms (Chan & Lau, 2001; Lee, 2009) [5, 29].

Altruism (ALT)

Altruism can be defined as the condition under which the consumer acts on another's behalf without expecting any type of benefit out of it. Altruism as a significant predictor of environmental preservation was studied by researchers in the context of various environmental attributes (Cleveland *et al.*, 2005; Nath *et al.*, 2014; Yadav & Pathak, 2016) [9, 35, 45]. People high on altruism are more likely to possess a positive environmental attitude. The study by Yadav and Pathak (2016) [45] highlighted the importance of altruistic values in shaping purchasing intentions.

Research methodology

Research Gap

The above literature review is being analyzed and it can be said that the research done by many researchers is limited in developing countries like India. Many researchers have studied the variables such as environmental knowledge, environmental awareness, environmental consciousness, environmental beliefs, environmental concern, interpersonal influence and altruism separately with consumers' environmental attitude and green purchasing behavior. But this study will include them simultaneously. Moreover, most of the research is done in the southern regions of India and limited research has been done in northern areas. Therefore, the northern regions will be the focus of the study. Lastly, limited research have found the role of demographic variables between the relationship of consumers' environmental attitude and green purchasing behavior, especially in Indian context.

Need and Significance of the Study

This research study is significant in many ways:

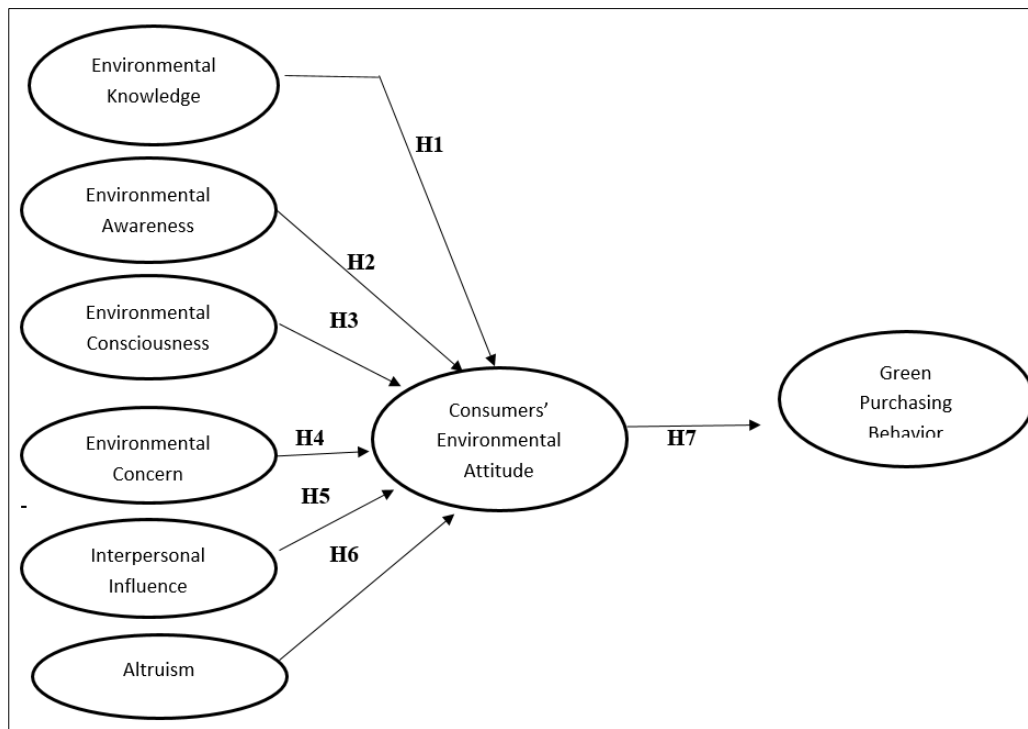
- The study is significant to the consumers in understanding their own green purchasing behavior.
- The study will be a great contributor to the environment in a way that green products are gaining popularity among consumers and they enhance their health.
- The study will give an idea to the marketers that which segment of consumers to mainly focus on.
- It is expected to contribute to the literature of green products, environmental knowledge, environmental awareness, environmental consciousness, environmental beliefs, environmental concern, interpersonal influence, altruism, consumers' environmental attitude and green purchasing behavior.

Research Objectives

This study is being conducted to achieve the following objectives:

- To study the impact of factors such as - environmental knowledge, environmental awareness, environmental consciousness, environmental beliefs, environmental concern, interpersonal influence and altruism on consumers' environmental attitude.
- To study the impact of consumers' environmental attitude on green purchasing behavior.
- To offer various suitable suggestions to enhance the usage of environment friendly products.

Conceptual Framework



Research Hypothesis

Keeping in mind the objectives of this study, the following hypothesis are formulated:

H₁: There is a significant impact of environmental knowledge on consumers' environmental attitude.

H₂: There is a significant impact of environmental awareness on consumers' environmental attitude.

H₃: There is a significant impact of environmental consciousness on consumers' environmental attitude.

H₄: There is a significant impact of environmental concern on consumers' environmental attitude.

H₅: There is a significant impact of interpersonal influence on consumers' environmental attitude.

H₆: There is a significant impact of altruism on consumers' environmental attitude.

H₇: Consumers' environmental attitude have a significant impact on green purchasing behavior.

Research Design

Research design refers to the framework of market research methods and techniques that are chosen by a researcher. The design that is chosen by the researchers allows them to utilize the methods that are suitable for the study and to set

up their studies successfully in the future as well. The present study is designed to investigate the consumers' attitude towards green marketing and its impact on green purchasing behavior. In order to study this, following research design is followed, which explains the details of research type, data collection methods, sampling plan, and analytical tools in this study.

1. Type of Research

This research study will adopt descriptive research design. Descriptive research uses a set of scientific methods and procedures to collect raw data and create data structures that describe the existing characteristics of a defined target population. The raw data will be collected from respondents using quantitative research method i.e., questionnaires.

2. Data Collection Methods

The task of data collection begins after the research problem is defined and the research design is chalked out. Both secondary and primary data was compiled and analyzed with a view to examining the research objectives. The first phase (secondary data) of the study was an extensive search for relevant scholars' articles, journals, books and internet to

set the boundary of the subject area. The primary data was collected from respondents by using a standardized questionnaire circulated through google forms for this study. The study areas were Chandigarh, Himachal Pradesh, Haryana, Punjab and Delhi. Sampling method used for this purpose was convenience sampling.

3. Data Analytical Tools

The descriptive statistical tools were used to describe or summarize the information about the population or sample. This was done by calculating frequencies, percentages, mean scores, and standard deviation. To test the validity and reliability of constructs, confirmatory factor analysis (CFA) was performed using SMART-PLS 3. Structural Equation Modeling (SEM) using SMART-PLS 3 was used to test the proposed model and analyze the impact of independent variables on dependent variables.

Measurement Scales

A review of previous studies provided the basis for the selection of the measures used in the current article. All constructs were measured with multiple-item five-point Likert scales anchored from 1 (strongly disagree) to 5 (strongly agree). A 33 item scale was used to measure the

measurement and structural model. These items were adapted from the following authors:

Table 1: Adaption of scales

Variables	Author	Item Scale
Green Purchasing Behavior	S. M. Fatah Uddin & Mohd. Naved Khan (2018) ^[41]	3-item scale
Consumers' Environmental Attitude	SM Fatah Uddin & Mohd. Naved Khan (2018) ^[41]	3-item scale
Environmental Knowledge	SM Fatah Uddin & Mohd. Naved Khan (2018) ^[41]	3-item scale
Environmental Awareness	Lee (2010) ^[21]	5-item scale
Environmental Consciousness	Ferreira A.G. & Fernandes M. E. (2022)	7-item scale
Environmental Concern	Yadav & Pathak (2016) ^[45]	5-item scale
Interpersonal Influence	SM Fatah Uddin & Mohd. Naved Khan (2018) ^[41]	4-item scale
Altruism	SM Fatah Uddin & Mohd. Naved Khan (2018) ^[41]	3-item scale

Results

Demographic Characteristics of the Sample

The following tables (Table 2, 3, 4) shows the demographic characteristics of 100 respondents selected for this study.

Table 2: Gender

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Female	38	38.0	38.0	38.0
	Male	62	62.0	62.0	100.0
	Total	100	100.0	100.0	

Table 3: Age

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Below 20	3	3.0	3.0	3.0
	21-25	52	52.0	52.0	55.0
	26-30	34	34.0	34.0	89.0
	31-35	9	9.0	9.0	98.0
	35 and above	2	2.0	2.0	100.0
	Total	100	100.0	100.0	

Table 4: Education level

		Frequency	Percent	Valid percent	Cumulative percent
Valid	12 th and below	2	2.0	2.0	2.0
	Graduation	25	25.0	25.0	27.0
	Post-graduation	65	65.0	65.0	92.0
	Others	8	8.0	8.0	100.0
	Total	100	100.0	100.0	

Measurement Model

To test the research hypotheses we used PLS-SEM in Smart PLS 3 v.3.2.7, which is considered an important statistical tool in social sciences and is increasingly applied in marketing and strategic management. PLS-SEM enables to estimate models that include many constructs, indicators, and structural paths, allowing a casual predictive approach. Moreover, PLS SEM does not require distributional assumptions about the data (e.g., normality) and is considered to perform well both with small and large sample sizes. The reflective measurement model was evaluated in terms of internal consistency reliability, convergent validity, and discriminant validity. Internal consistency reliability was assessed using composite reliability (CR) and Cronbach's alpha. CR contemplates the different outer

loadings of the variables and exceeds 0.7. Cronbach's alpha considers the inter correlations of the indicators variables and varies between 0.701 and 0.904. The lowest Cronbach alpha i.e., 0.701 and CR 0.730 of EK construct was because of the reason that it had only 3 indicators within the construct. The values obtained for these two indicators demonstrate a good internal consistency reliability of the measures of our model as they both meet the recommended cut off values of 0.7 as reported in table 5.

To assess convergent validity, we consider Average Variance Extracted (AVE). AVE represents the variation of the indicator that is explained by the latent variable, calculated as the overall mean value of the squared loadings of the underlying indicators. A value of at least 50% is considered acceptable for AVE and 4 of the constructs meet

this recommended threshold, and the others are near 0.5. Two statements (ECN1 and ECN5) had been removed from ECN construct to increase the AVE to greater than 0.5. To achieve this value of 0.5 we needed to eliminate the items

from the concerned constructs and that leads to the item reductions to less than 3 indicators in 2 of the constructs which would not be advisable. So, we did not proceed with the same.

Table 5: Results of reliability and validity analysis

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Altruism	0.707	0.757	0.725	0.476
CEA	0.887	0.888	0.888	0.725
EA	0.753	0.773	0.758	0.472
EC	0.802	0.811	0.749	0.460
ECN	0.760	0.818	0.742	0.514
EK	0.701	0.918	0.730	0.452
GPB	0.880	0.968	0.883	0.735
INTER INFLU	0.904	0.905	0.904	0.701

Discriminant validity analyses whether a variable is distinct from other variables in the model meaning that the latent variable is unique and captures different aspects. To assess discriminant validity, we verified Fornell-Larcker criterion

and the Heterotrait-monotrait (HTMT) ratio of correlations. Table 6 and table 7 shows the Fornell-Larcker criterion and Heterotrait-monotrait (HTMT) ratio respectively.

Table 6: Results of Fornell-Larcker Criterion

	ALT	CEA	EA	EC	ECN	EK	GPB	INTERP. INFLU.
ALT	0.690							
CEA	0.655	0.851						
EA	0.568	0.522	0.625					
EC	0.506	0.422	0.696	0.577				
ECN	0.447	0.674	0.627	0.503	0.717			
EK	0.424	0.234	0.380	0.463	0.220	0.672		
GPB	0.545	0.434	0.531	0.760	0.250	0.370	0.857	
INTERP. INFLU.	-0.236	-0.371	-0.225	-0.044	-0.435	-0.030	0.049	0.837

Table 7: Results of Heterotrait-Monotrait (HTMT) ratio of correlations

	ALTRUISM	CEA	EA	EC	ECN	EK	GPB	INTERP. INFLU.
ALTRUISM								
CEA	0.666							
EA	0.613	0.523						
EC	0.505	0.398	0.662					
ECN	0.485	0.641	0.644	0.506				
EK	0.506	0.260	0.571	0.649	0.266			
GPB	0.602	0.421	0.553	0.824	0.295	0.520		
INTERP. INFLU.	0.252	0.371	0.267	0.195	0.423	0.159	0.115	

Structural model

Having confirmed the reliability and validity of the measures, we assessed the structural model to test the significance of the hypothesized relationships and their relevance. We begin by assessing collinearity issues, the level of the R^2 values, the f^2 effect size and the significance and relevance of the structural model relationships. Table 8 exhibit the results of this analysis.

We confirmed the nonexistence of collinearity problems between variables, since variance inflation factor (VIF) is below 5.00. For each endogenous variable we calculate the coefficient of determination R^2 , which measures the proportion of variance that is explained by the exogenous variables. The overall structural model explains 62% of the variance in consumers' environmental attitude, which is considered relevant in terms of interpretation. We also calculate the effect size f^2 , which represents the variation in the R^2 value due to the omission of an exogenous variable. Size effects of altruism on consumers' environmental attitude are large ($f^2 = 0.345$), on environmental concern are medium ($f^2 = 0.269$) and size effects of consumers' environmental attitude on green purchasing behavior are

also medium ($f^2 = 0.232$). Therefore, the variables in the model are considered relevant.

To assess the significance and relevance of the hypothesized relationships in our model we checked the estimated path coefficients and their significance. Contrary to hypothesized, environmental knowledge, environmental awareness and environmental consciousness has no statistically significant association with consumers' environmental attitude ($\beta_1 = -0.070$, t-value = 0.277, p-value = 0.782), ($\beta_2 = -0.059$, t-value = 0.362, p-value = 0.718), ($\beta_3 = 0.055$, t-value = 1.030, p-value = 0.304), not supporting H1, H2, and H3 respectively. Moreover, environmental concern, interpersonal influence, and altruism relate positively with consumers' environmental attitude ($\beta_4 = 0.456$, t-value = 2.727, p-value = 0.007), ($\beta_5 = 0.430$, t-value = 2.665, p-value = 0.008), ($\beta_6 = 0.469$, t-value = 2.812, p-value = 0.005) supporting H4, H5, and H6 respectively. Finally, the results confirm that consumers' environmental attitude has a positive significant association with green purchasing behavior supporting H7 ($\beta_7 = 0.434$, t-value = 4.904, p-value = 0.000).

Table 8: Results of the structural path model

Hypothesis paths	Path coefficients	T-Value	P-Value	f ²	Supported
H1: EK--}CEA	-0.070	0.277	0.782	0.010	No
H2: EA--}CEA	-0.059	0.362	0.718	0.003	No
H3: EC--}CEA	0.055	1.030	0.304	0.003	No
H4: ECN--}CEA	0.456	2.727	0.007*	0.269	Yes
H5: INTERP. INFLU.--}CEA	0.430	2.665	0.008*	0.250	Yes
H6: ALT--}CEA	0.469	2.812	0.005*	0.345	Yes
H7: CEA--}GPB	0.434	4.904	0.000*	0.232	Yes

Note: two-tailed tests. ***significant at the < 0.05 level.

Conclusion

To conclude from the interpretation, we can say that environmental concern (ECN), interpersonal influence (INTERP. INFLU.), and altruism (ALT) significantly have a positive impact on consumers' environmental attitude. And also consumers' environmental attitude significantly impacts the green purchasing behavior of the consumers.

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