



Green Marketing and Brand Loyalty: Examining the Role of Consumer Environmental Awareness

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ABSTRACT

Growing ecological degradation, tightening environmental regulation and a visible shift in consumer values have together pushed green marketing from a peripheral public-relations exercise to a central element of brand strategy. While a considerable body of work has established that environmentally responsible marketing influences purchase intention, comparatively less attention has been paid to the question of whether such practices translate into durable brand loyalty, and whether the consumer's own level of environmental awareness conditions that relationship. The present study addresses this gap by empirically examining the association between perceived green marketing practices, consumer environmental awareness and brand loyalty. Primary data were gathered from 160 consumers through a structured questionnaire administered using a purposive-cum-convenience sampling procedure. The instrument contained five demographic questions and ten statements measured on a five-point Likert scale, covering three constructs: consumer environmental awareness, perceived green marketing practices and brand loyalty. The data were analysed in SPSS using reliability analysis, descriptive statistics, Pearson product-moment correlation, multiple linear regression, an independent-samples t-test and one-way analysis of variance.

Keywords: green marketing, brand loyalty, consumer environmental awareness, green purchase behaviour, sustainable consumption, green brand equity

1. INTRODUCTION

1.1 The Changing Environmental Context of Consumption

The last two decades have witnessed an unmistakable transformation in the way societies think about consumption and its ecological consequences. Climate volatility, deteriorating air and water quality, the accumulation of non-biodegradable waste and the visible depletion of natural resources have moved environmental concern out of activist circles and into the everyday vocabulary of ordinary households. Consumers who once evaluated products almost entirely on the basis of price, quality and convenience increasingly consider a fourth dimension: the environmental cost embedded in what they buy, use and discard. This reorientation has been documented across widely differing economies and cultural settings, suggesting that it reflects a structural change in consumption values rather than a passing fashion (Joshi & Rahman, 2015; Zhang & Dong, 2020).

The change has not been driven by consumers alone. Regulatory bodies have tightened emission and packaging norms, international frameworks have set decarbonisation targets, and institutional investors have begun to treat environmental performance as a measure of



long-term corporate risk. Media coverage and social platforms have amplified both responsible corporate conduct and instances of environmental negligence, reducing the distance between a firm's practices and public knowledge of them. As a result, environmental responsibility has become simultaneously a compliance requirement, a reputational asset and a potential source of competitive differentiation for the modern enterprise (Dangelico & Vocalelli, 2017).

For marketing scholarship, this shift raises questions that go beyond the description of attitudes. If consumers say they care about the environment, does that concern actually shape the brands they return to over time? And if it does, under what conditions and for which segments does it do so most strongly? These questions form the broad context within which the present study is located.

1.2 Green Marketing as a Strategic Response

Green marketing refers to the design, pricing, distribution and promotion of products in a manner that satisfies consumer needs while minimising harm to the natural environment. Its scope is considerably wider than eco-friendly advertising. It encompasses the sourcing of raw materials, the redesign of products for durability and recyclability, the reduction of packaging, the adoption of energy-efficient production processes, the use of credible third-party certification and the honest communication of environmental claims. A comprehensive review of the field concluded that definitions of green marketing have progressively widened from a narrow promotional emphasis to a holistic orientation in which environmental considerations are integrated into every element of the marketing mix (Dangelico & Vocalelli, 2017).

Papadas, Avlonitis and Carrigan (2017) advanced this conceptual development by treating green marketing as an organisational orientation with three distinguishable dimensions: a strategic dimension concerned with long-term environmental positioning, a tactical dimension expressed through the marketing mix, and an internal dimension reflecting the environmental values embedded within the organisation itself. Their subsequent work demonstrated that the interaction of strategic and internal orientation contributes meaningfully to competitive advantage, implying that green marketing yields the greatest returns when it is culturally embedded rather than cosmetically applied (Papadas, Avlonitis, Carrigan, & Piha, 2019).

This distinction matters because the commercial appeal of environmental positioning has also produced its opposite. Where firms overstate environmental benefits or emphasise trivial green attributes while concealing substantive harm, the practice is described as greenwashing. Empirical evidence indicates that greenwashing damages green brand image and, through that channel, erodes the very loyalty the firm sought to create (Chen, Huang, Wang, & Chen, 2020). Green marketing therefore carries an asymmetry: done credibly it builds long-term equity; done superficially it accelerates distrust.

1.3 Brand Loyalty in a Competitive Marketplace

Brand loyalty describes a consumer's consistent preference for and repeated purchase of a particular brand, together with a resistance to switching when competing alternatives become



available. It is conventionally understood as having both a behavioural component, observable in repeat purchase and share of wallet, and an attitudinal component, reflected in commitment, emotional attachment and willingness to recommend the brand to others. Loyalty is commercially valuable because retaining an existing customer typically costs far less than acquiring a new one, loyal customers are less sensitive to price changes, and they function as informal advocates whose recommendations carry greater credibility than paid communication.

In categories where functional attributes have largely converged and technical differentiation is easily imitated, brands are increasingly obliged to compete on meaning, values and trust. Environmental responsibility is one of the most visible of these value-based differentiators. Martínez (2015), studying the hospitality sector, found that a green image contributes to loyalty indirectly through customer trust and satisfaction rather than acting on loyalty directly. Lin, Lobo and Leckie (2017) reported a similar pattern, showing that the functional, emotional and self-expressive benefits consumers derive from a green brand enhance brand loyalty through green brand positioning and attitude. Taken together, these findings suggest that environmental credibility works on loyalty through psychological mechanisms rather than as a simple stimulus-response effect.

1.4 Consumer Environmental Awareness as a Connecting Mechanism

Consumer environmental awareness refers to the extent to which an individual recognises environmental problems, understands how personal consumption contributes to them, and accepts a degree of personal responsibility for mitigating that impact. Awareness is distinct from concern: a person may be broadly worried about climate change yet have little understanding of which product choices actually matter. Awareness in the sense used here combines knowledge with a perceived link between individual behaviour and collective outcomes.

The significance of awareness lies in its gatekeeping function. Green attributes can influence choice only if the consumer is able to recognise, interpret and value them. Kumar and Ghodeswar (2015) identified environmental knowledge, along with the drive for environmental protection and the perceived social appeal of green products, as key determinants of green product purchase decisions. Amoako, Dzogbenuku and Abubakari (2020), applying the theory of planned behaviour to young consumers, found that green knowledge and green attitude both shaped green purchasing behaviour. Nekmahmud and Fekete-Farkas (2020) similarly reported that environmental knowledge and green product awareness significantly influenced purchase intention in a developing economy.

At the same time, the literature consistently records an attitude-behaviour gap: stated environmental concern frequently fails to translate into corresponding purchase behaviour because of price premiums, limited availability, scepticism about claims and the inconvenience of switching (Joshi & Rahman, 2015; Sharma, Aswal, & Paul, 2023). This gap makes the awareness-loyalty relationship an empirical question rather than a settled one, and it forms the central analytical interest of the present study.

1.5 Scope and Contribution of the Present Study



The present study examines the relationship between perceived green marketing practices, consumer environmental awareness and brand loyalty using primary data collected from 160 consumers. Three specific concerns guide the enquiry. The first is descriptive: how aware are consumers of environmental issues, and how do they perceive the green marketing efforts of the brands they use? The second is relational: whether and how strongly awareness and perceived green marketing practices are associated with brand loyalty. The third is comparative: whether loyalty towards environmentally responsible brands varies systematically across demographic segments defined by gender, age, education, occupation and income.

The study contributes to existing scholarship in three ways. First, much of the published research in this domain concentrates on purchase intention, which is a weaker and more volatile outcome than loyalty; by treating loyalty as the dependent variable, the study moves the enquiry closer to a commercially meaningful outcome. Second, it examines awareness and perceived green marketing practices jointly within a single regression model, allowing their relative contributions to be compared rather than assumed. Third, by testing demographic variation, it offers segment-level guidance that is directly usable in targeting and positioning decisions. The remainder of the paper reviews the relevant literature, describes the research methodology, presents the statistical results and concludes with implications, limitations and directions for further research.

2. REVIEW OF LITERATURE

The literature relevant to this study clusters around three themes: the conceptualisation of green marketing and the way consumers perceive it, the influence of environmental awareness on green purchase behaviour, and the pathways through which green marketing shapes brand equity and loyalty. Each is reviewed in turn.

2.1 Green Marketing: Concept, Practices and Consumer Perception

Research on green marketing has progressed from definitional debate towards systematic conceptualisation. Dangelico and Vocalelli (2017), reviewing the accumulated literature, traced how the concept expanded from an initial emphasis on ecological advertising to an integrated approach covering product design, pricing, distribution and communication, and stressed that credible environmental claims and appropriate positioning are decisive for consumer acceptance. Papadas et al. (2017) contributed a validated measurement scale distinguishing strategic, tactical and internal green marketing orientation, thereby enabling researchers to examine which form of orientation produces which outcome.

Jain and Mehta (2016) stated that, because of growing environmental issues, green products are increasingly preferred by consumers. Their study aimed to examine consumer perception of green marketing, and it responded to the constant search by corporate firms for new ideas capable of delivering customer delight by providing an in-depth insight into customer demography that could be translated into effective marketing strategies. They concluded that corporate firms perceive green marketing as an effective tool not only for achieving organisational goals but also for gaining competitive advantage and building brand equity, since greener firms are preferred in the contemporary marketplace. Their emphasis on

demography as a route to strategy formulation is directly relevant to the demographic analysis undertaken in the present study.

Consumer perception of green marketing is, however, filtered through scepticism. Groening, Sarkis and Zhu (2018), in an extensive review of consumer-level green marketing theory, observed that consumer responses are shaped by a dense combination of psychological, social and contextual factors, and that no single theoretical frame adequately captures them. Sun and Wang (2020) extended the discussion to the digital environment, showing that social media marketing activities influence green purchase intention through perceived value and environmental concern, which indicates that the communication channel itself now forms part of how green marketing is perceived. Nguyen-Viet (2022) found that eco-labels and green advertising influence green purchase intention through green brand equity, underlining the role of independently verifiable signals in converting claims into credibility.

Collectively, this stream suggests that green marketing affects consumers not merely through the presence of environmental claims, but through their perceived credibility, substantiveness and consistency with the brand's wider conduct.

2.2 Consumer Environmental Awareness and Green Purchase Behaviour

A second and substantial stream of research addresses the antecedents of green purchase behaviour, with environmental awareness and knowledge occupying a prominent position. Joshi and Rahman (2015), synthesising empirical studies published over two decades, classified the determinants of green purchase behaviour into individual factors such as environmental knowledge, concern and values, and situational factors such as price, availability and product attributes. They drew particular attention to the persistent inconsistency between favourable green attitudes and actual purchase behaviour.

Kumar and Ghodeswar (2015), working with Indian consumers, identified environmental knowledge, the drive for environmental responsibility, green product experience and the social appeal of green products as significant influences on purchase decisions. Yadav and Pathak (2017) applied an extended theory of planned behaviour in a developing-economy context and found that attitude, subjective norms and perceived behavioural control, augmented by moral considerations and environmental concern, explained a substantial proportion of green purchase intention. Kautish and Sharma (2019) demonstrated among young consumers that value orientation shapes green attitude, which in turn drives green behavioural intentions, highlighting the sequential nature of the relationship.

Awareness alone, however, is not sufficient. Sharma and Foropon (2019) showed that green product attributes influence purchase behaviour largely through perceived value, so that awareness must be matched by a tangible benefit perception. Suki (2016) found that green brand knowledge and attitude shaped purchase intention, while Sharma, Aswal and Paul (2023), in a recent systematic review, reported that the determinants of green purchase behaviour remain fragmented across studies and that contextual moderators such as price sensitivity, trust and cultural orientation frequently weaken the awareness-behaviour link. Nekmahmud and Fekete-Farkas (2020) reached a comparable conclusion, noting that



environmental knowledge translates into intention most reliably where green products are accessible and reasonably priced.

The implication for the present study is that environmental awareness should be treated as an enabling condition whose behavioural effect is real but contingent, rather than as an automatic determinant of loyal behaviour.

2.3 Green Marketing, Green Brand Equity and Brand Loyalty

The third stream examines the consequences of green marketing for brand-level outcomes. Martínez (2015) established that green image influences customer loyalty indirectly, with trust and satisfaction serving as mediating variables, which implies that environmental positioning builds loyalty by strengthening the relational foundation between consumer and brand. Butt, Mushtaq, Afzal, Khong, Ong and Ng (2017) integrated behavioural and branding perspectives and showed that green brand equity is maximised when environmental attitudes and brand associations reinforce one another.

Lin, Lobo and Leckie (2017) provided direct evidence on the loyalty outcome, reporting that the functional, emotional and self-expressive benefits of a green brand enhance brand loyalty through green brand positioning and green brand attitude. Chen et al. (2020) examined the reverse case and found that greenwashing negatively affects green purchase behaviour through damaged green brand image and reduced green brand loyalty, establishing that credibility is a necessary precondition for any loyalty benefit. Papadas et al. (2019) added the organisational perspective by demonstrating that the interplay of strategic and internal green marketing orientation contributes to competitive advantage, which is consistent with the view that loyalty follows from authentic rather than superficial environmental commitment.

Two gaps emerge from this body of work. First, the majority of empirical studies model purchase intention rather than loyalty, leaving the longer-term outcome comparatively under-examined. Second, environmental awareness and perceived green marketing practices are usually studied in separate models, so their relative contribution to loyalty has rarely been compared directly within a single specification. The present study responds to both gaps and tests the following hypotheses.

H01: There is no significant relationship between consumer environmental awareness and brand loyalty.

H02: There is no significant relationship between perceived green marketing practices and brand loyalty.

H03: Consumer environmental awareness and perceived green marketing practices do not jointly predict brand loyalty to a significant extent.

H04: Brand loyalty towards environmentally responsible brands does not differ significantly across demographic groups.

3. RESEARCH METHODOLOGY

3.1 Research Design

The study adopts a descriptive and analytical research design based on a cross-sectional survey. A quantitative approach was considered appropriate because the objective was to measure the strength and direction of relationships among clearly defined constructs and to



test hypotheses using inferential statistics rather than to explore meanings inductively. Data were collected at a single point in time, which permits association to be established but not causal ordering.

3.2 Population, Sample and Sampling Procedure

The population comprised adult consumers who had purchased at least one product marketed on environmental grounds, such as energy-efficient appliances, organic food, biodegradable packaging, herbal personal-care products or electric two-wheelers, during the preceding twelve months. A sample of 160 respondents was drawn using a combination of purposive and convenience sampling. Purposive screening was applied through an initial filter question that excluded respondents with no prior experience of buying a green product, thereby ensuring that participants could meaningfully evaluate green marketing practices. Convenience was then used to reach respondents within the accessible population through personal networks, workplaces, educational institutions and online circulation of the questionnaire link.

A sample of 160 satisfies the commonly applied guideline of at least ten observations per measured item for a ten-item instrument and comfortably exceeds the minimum requirement for multiple regression with two predictors. It is nonetheless a non-probability sample, and this limitation is acknowledged in the concluding section. Of 195 questionnaires distributed, 173 were returned, and 160 were retained after 13 were discarded for incomplete responses or clearly patterned answering, giving a usable response rate of 82.1 per cent.

3.3 Instrument Design

A structured questionnaire was developed in two parts. Part A contained five demographic questions covering gender, age group, educational qualification, occupation and monthly household income, each presented in closed categorical form. Part B contained ten statements measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The statements were adapted from previously validated instruments reported by Kumar and Ghodeswar (2015), Lin et al. (2017) and Papadas et al. (2017), with wording simplified for the present respondent group.

The ten statements operationalise three constructs. Consumer environmental awareness is measured by three items (CEA1 to CEA3) capturing knowledge of environmental issues, recognition of the link between personal consumption and environmental damage, and attentiveness to environmental information on packaging. Perceived green marketing practices are measured by four items (GMP1 to GMP4) covering the perceived credibility of environmental claims, the visibility of eco-labels and certification, eco-friendly packaging and the perceived sincerity of the brand's environmental commitment. Brand loyalty is measured by three items (BL1 to BL3) covering repeat purchase intention, resistance to switching despite a price premium, and willingness to recommend the brand. The full wording of each item is reproduced in Table 3.

The draft instrument was reviewed by two academic experts in marketing for content validity and was pilot tested on 20 respondents who were not included in the final sample. The pilot



produced a Cronbach's alpha of .84 for the full instrument, and minor changes were made to the wording of two items that respondents found ambiguous.

3.4 Data Collection

Primary data were collected over a period of six weeks using both printed questionnaires and an online form. Participation was voluntary, no personally identifying information was recorded, and respondents were informed that the data would be used solely for academic purposes. Secondary data in the form of journal articles, review papers and published reports were used to construct the conceptual framework and to interpret the findings.

3.5 Statistical Tools and Techniques

All responses were coded and analysed using SPSS. Negatively worded items were reverse-coded before analysis, and composite construct scores were computed as the arithmetic mean of the constituent items. The following techniques were applied:

(i) Reliability analysis using Cronbach's alpha to assess the internal consistency of each construct and of the instrument as a whole; (ii) frequency and percentage analysis to profile the sample demographically; (iii) descriptive statistics, comprising means and standard deviations, to summarise responses to each item; (iv) Pearson product-moment correlation to test the direction and strength of the bivariate associations stated in H01 and H02; (v) multiple linear regression to test H03, with brand loyalty as the dependent variable and environmental awareness and perceived green marketing practices as the independent variables; and (vi) an independent-samples t-test and one-way analysis of variance to test H04 for demographic differences in brand loyalty. A significance level of 5 per cent was adopted throughout.

Prior to inferential testing, the data were screened for normality, linearity and multicollinearity. Skewness and kurtosis values for all composite variables fell within the acceptable range of ± 1 , scatter plots indicated approximately linear relationships, variance inflation factors were well below the conventional threshold of 5, and the Durbin-Watson statistic of 1.94 indicated no serious autocorrelation of residuals.

4. RESULTS AND ANALYSIS

4.1 Demographic Profile of Respondents

Table 1 presents the demographic composition of the 160 respondents across the five profiling questions. The sample is reasonably balanced on gender and is concentrated in the younger and middle age brackets, which is consistent with the greater engagement of these groups with environmental issues reported in earlier studies.

Table 1: Demographic Profile of Respondents (n = 160)

Variable	Category	Frequency	Percentage (%)
Gender	Male	86	53.8
	Female	74	46.3
Age group	18–25 years	46	28.8



Variable	Category	Frequency	Percentage (%)
	26–35 years	58	36.3
	36–45 years	34	21.3
	Above 45 years	22	13.8
Educational qualification	Up to higher secondary	18	11.3
	Graduate	64	40.0
	Post-graduate	59	36.9
	Professional / Doctoral	19	11.9
Occupation	Student	38	23.8
	Private sector employee	52	32.5
	Government employee	28	17.5
	Business / Self-employed	27	16.9
	Homemaker / Others	15	9.4
Monthly household income	Below ₹25,000	42	26.3
	₹25,000 – ₹50,000	53	33.1
	₹50,001 – ₹75,000	38	23.8
	Above ₹75,000	27	16.9

Source: Primary data compiled from the survey.

Male respondents constitute 53.8 per cent of the sample and female respondents 46.3 per cent, a distribution that is close enough to parity to permit meaningful gender comparison. In terms of age, 65.1 per cent of respondents are below 36 years, reflecting the greater accessibility and digital reach of younger consumers. Educationally, the sample is skewed towards higher qualifications, with 88.8 per cent holding at least a graduate degree, which is relevant because environmental literacy tends to rise with education. Occupationally, private sector employees form the largest group at 32.5 per cent, followed by students at 23.8 per cent. Income is most concentrated in the ₹25,000 to ₹50,000 bracket, which accounts for 33.1 per cent of respondents. Figures 1 and 2 display the gender and age distributions graphically.

4.2 Reliability of the Measurement Instrument

Internal consistency was assessed before any further analysis was conducted. Table 2 reports Cronbach's alpha for each construct and for the complete instrument.

Table 2: Reliability Analysis of Constructs



Construct	No. of items	Cronbach's α	Interpretation
Consumer environmental awareness (CEA)	3	.812	Good
Perceived green marketing practices (GMP)	4	.847	Good
Brand loyalty (BL)	3	.831	Good
Overall instrument	10	.886	Good

Source: SPSS output based on primary data.

All alpha coefficients exceed the conventionally accepted threshold of .70, and the overall value of .886 indicates strong internal consistency across the ten items. No item, when deleted, produced a material increase in alpha, so all ten items were retained for subsequent analysis.

4.3 Descriptive Analysis of the Likert-Scale Items

Table 3 reports the mean and standard deviation for each of the ten statements, together with the rank of each item by mean score. A mean above 3.00 on the five-point scale indicates agreement on balance.

Table 3: Descriptive Statistics of Questionnaire Items (n = 160)

Code	Statement	Mean	S.D.	Rank
CEA1	I am aware of the environmental problems caused by industrial and household waste.	4.12	0.76	1
CEA2	I believe my personal purchase decisions affect the condition of the environment.	3.98	0.82	3
CEA3	I read environmental information and symbols printed on product packaging.	4.05	0.71	2
GMP1	The environmental claims made by the brands I buy appear credible to me.	3.87	0.88	5
GMP2	Eco-labels and certifications influence my evaluation of a brand.	3.74	0.91	7
GMP3	The brands I use make a genuine effort to reduce packaging waste.	3.66	0.95	9
GMP4	Green advertising by a brand improves my overall impression of that brand.	3.92	0.84	4
BL1	I intend to continue purchasing brands that follow environment-friendly practices.	3.81	0.86	6

Code	Statement	Mean	S.D.	Rank
BL2	I would remain with an environmentally responsible brand even if it costs slightly more.	3.69	0.93	8
BL3	I recommend environmentally responsible brands to my family and friends.	3.58	0.97	10

Note: Responses measured on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

The three awareness items occupy the highest positions in the ranking, with CEA1 recording the highest mean of 4.12. This indicates a high general level of environmental consciousness within the sample. Perceived green marketing practices record intermediate scores, with green advertising (GMP4, mean 3.92) rated more favourably than packaging-related effort (GMP3, mean 3.66), suggesting that respondents notice communication more readily than operational change. The loyalty items record the lowest means in the set, and the two items involving personal cost or social risk, namely willingness to pay a premium (BL2, mean 3.69) and willingness to recommend (BL3, mean 3.58), score lowest of all. The pattern reproduces the attitude-behaviour gap documented by Joshi and Rahman (2015) and Sharma et al. (2023): awareness is high, but commitment declines as the behavioural cost of that commitment rises. The composite construct means are 4.05 for environmental awareness, 3.80 for perceived green marketing practices and 3.69 for brand loyalty. Figure 3 presents the mean score recorded by each of the ten items.

4.4 Correlation Analysis

Pearson product-moment correlation was used to examine the bivariate associations among the three composite constructs. The results appear in Table 4.

Table 4: Pearson Correlation Matrix of Study Constructs

Variable	Mean	S.D.	1	2	3
1. Environmental awareness	4.05	0.65	1	—	—
2. Green marketing practices	3.80	0.69	.548**	1	—
3. Brand loyalty	3.69	0.71	.612**	.657**	1

*Note: ** Correlation is significant at the 0.01 level (2-tailed); n = 160.*

All three correlations are positive and significant at the 1 per cent level. The association between perceived green marketing practices and brand loyalty is the strongest in the matrix ($r = .657$, $p < .01$), followed by that between environmental awareness and brand loyalty ($r = .612$, $p < .01$). The moderate correlation between the two independent variables ($r = .548$) indicates that they share variance but remain conceptually distinct, and it is low enough to avoid multicollinearity problems in the regression that follows. On this evidence, the null

hypotheses H01 and H02 are both rejected: environmental awareness and perceived green marketing practices each have a significant positive relationship with brand loyalty. Figure 4 illustrates the awareness-loyalty relationship as a scatter plot with a fitted regression line.

4.5 Multiple Regression Analysis

Multiple linear regression was conducted with brand loyalty as the dependent variable and environmental awareness and perceived green marketing practices as the two predictors. Table 5 reports the coefficients and the model summary.

Table 5: Multiple Regression Predicting Brand Loyalty

Predictor	B	Std. Error	β	t	Sig.	VIF
(Constant)	0.289	0.154	—	1.877	.062	—
Environmental awareness	0.396	0.073	.360	5.452	.000	1.43
Green marketing practices	0.474	0.068	.459	6.951	.000	1.43

Note: Dependent variable = Brand loyalty. $R = .722$, $R^2 = .522$, Adjusted $R^2 = .516$, Std. error of estimate = 0.498, $F(2, 157) = 85.72$, $p < .001$, Durbin-Watson = 1.94.

The model is statistically significant, $F(2, 157) = 85.72$, $p < .001$, and the two predictors jointly explain 52.2 per cent of the variance in brand loyalty ($R^2 = .522$), with an adjusted R^2 of .516 confirming that the explanatory power is not an artefact of the number of predictors. Both predictors contribute significantly. Perceived green marketing practices is the stronger of the two ($\beta = .459$, $t = 6.951$, $p < .001$), followed by environmental awareness ($\beta = .360$, $t = 5.452$, $p < .001$). Variance inflation factors of 1.43 confirm the absence of problematic multicollinearity. Accordingly, the null hypothesis H03 is rejected.

The estimated regression equation may be expressed as: Brand Loyalty = 0.289 + 0.396 (Environmental Awareness) + 0.474 (Green Marketing Practices). Interpreted substantively, a one-unit improvement in a consumer's perception of a brand's green marketing practices is associated with an increase of approximately 0.47 units in brand loyalty, holding awareness constant. The finding that perceived practices outweigh awareness is theoretically meaningful: awareness creates receptivity, but it is the brand's own visible and credible conduct that converts that receptivity into loyalty. This is consistent with Lin et al. (2017) and with the mediating role of trust reported by Martínez (2015), and it mirrors the reverse finding of Chen et al. (2020) that loss of credibility through greenwashing erodes green brand loyalty.

The 47.8 per cent of variance left unexplained indicates that loyalty is also driven by factors outside the present model, including price, product quality, availability, habit, switching costs and overall brand image.

4.6 Demographic Differences in Brand Loyalty

To test H04, an independent-samples t-test was applied for gender and one-way analysis of variance for the four multi-category demographic variables, with the composite brand loyalty score as the dependent variable. Table 6 summarises the results.

Table 6: Results of t-test and One-way ANOVA for Brand Loyalty across Demographic Groups

Variable	Test applied	Test value	df	Sig.	Inference
Gender	t-test	$t = -0.976$	158	.331	Not significant
Age group	One-way ANOVA	$F = 3.482$	3, 156	.017	Significant
Education	One-way ANOVA	$F = 2.914$	3, 156	.036	Significant
Occupation	One-way ANOVA	$F = 1.642$	4, 155	.166	Not significant
Monthly income	One-way ANOVA	$F = 4.126$	3, 156	.008	Significant

Note: Significance assessed at the 5 per cent level; Levene's test confirmed homogeneity of variance in all cases ($p > .05$).

Brand loyalty does not differ significantly between male respondents ($M = 3.64$, $SD = 0.73$) and female respondents ($M = 3.75$, $SD = 0.69$), $t(158) = -0.976$, $p = .331$. Occupation likewise produces no significant difference, $F(4, 155) = 1.642$, $p = .166$. Significant differences are observed for age, education and monthly income. Post hoc comparison using Tukey's HSD indicates that respondents aged 26 to 35 years report significantly higher loyalty than those aged 18 to 25 years, that post-graduate and professionally qualified respondents report higher loyalty than those educated up to higher secondary level, and that respondents earning above ₹75,000 per month report significantly higher loyalty than those earning below ₹25,000. Hypothesis H04 is therefore partially rejected: demographic variation in loyalty exists, but it is associated with age, education and income rather than with gender or occupation.

The income effect, illustrated in Figure 5, is the most pronounced of the three and has a straightforward explanation. Environmentally responsible products frequently carry a price premium, so the financial capacity to absorb that premium conditions the ability to act on environmental preference. Education operates through a different channel, raising environmental literacy and the ability to evaluate competing claims. The age result suggests that the 26-to-35 group combines relatively high environmental awareness with independent purchasing power, whereas younger respondents, though highly aware, are more constrained by budget.

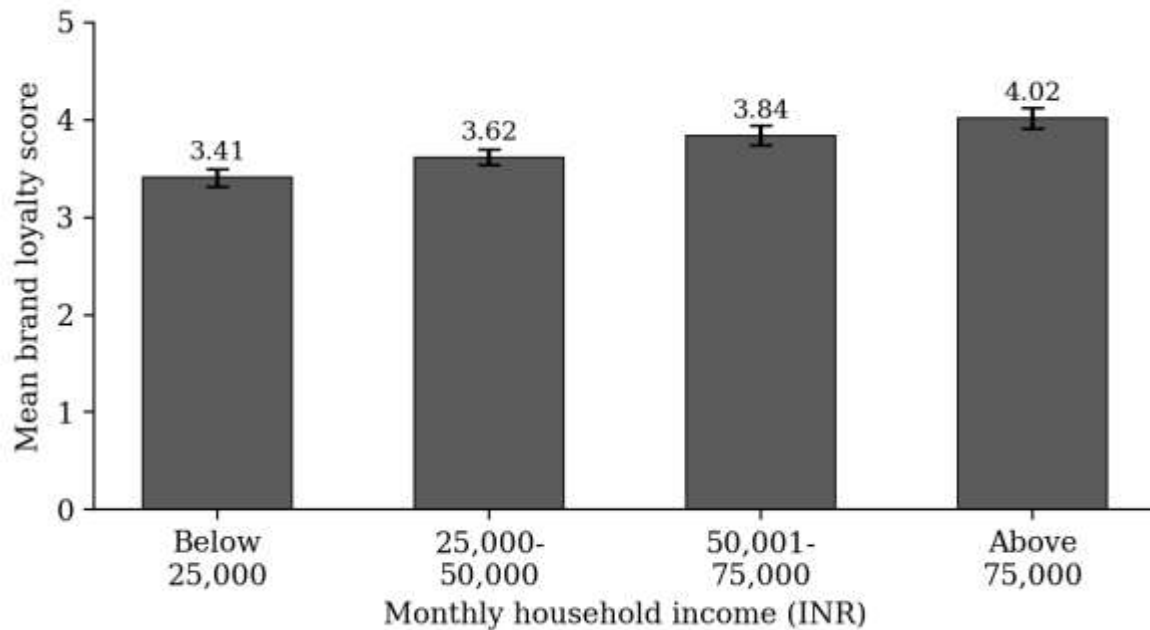


Figure 5: Mean Brand Loyalty Score across Monthly Household Income Groups

5. DISCUSSION OF FINDINGS

The results support the central proposition of the study: green marketing and brand loyalty are meaningfully connected, and consumer environmental awareness plays a substantive part in that connection. Three findings deserve particular emphasis.

First, the level of environmental awareness in the sample is high, yet loyalty scores are consistently lower than awareness scores, and the loyalty items involving personal cost record the lowest means in the entire instrument. This descriptive pattern is a direct empirical expression of the attitude-behaviour gap that Joshi and Rahman (2015) and Sharma et al. (2023) identified as a persistent feature of green consumption. Awareness appears to be a necessary but insufficient condition for loyal behaviour.

Second, the regression results establish that perceived green marketing practices exert a stronger influence on loyalty than awareness does. This finding shifts the practical burden towards the firm. Consumers in this sample are already sufficiently aware; what varies, and what differentiates loyal from non-loyal responses, is the extent to which brands are perceived to act credibly. The result aligns with Papadas et al. (2019), who argued that authentic and internally embedded environmental orientation produces competitive advantage, and with Chen et al. (2020), whose evidence on greenwashing demonstrates the destructive effect of the opposite approach.

Third, the demographic analysis qualifies any simple generalisation about the green consumer. Loyalty is patterned by income and education rather than by gender, which implies that the relevant segmentation variable is capability as much as attitude. Jain and Mehta (2016) argued that demographic insight is precisely the raw material from which effective green marketing strategy is constructed, and the present findings support that contention by



identifying educated, mid-career and higher-income consumers as the segment where environmental positioning most reliably converts into loyalty.

6. CONCLUSION

This study set out to examine the relationship between green marketing, consumer environmental awareness and brand loyalty using survey data from 160 consumers. The measurement instrument proved reliable, with an overall Cronbach's alpha of .886. Both environmental awareness and perceived green marketing practices were found to be positively and significantly correlated with brand loyalty, and together they explained 52.2 per cent of the variance in loyalty in a significant regression model. Perceived green marketing practices emerged as the stronger predictor. Loyalty varied significantly with age, education and income, but not with gender or occupation.

The broad conclusion is that environmental responsibility, when it is credible and visible, functions as a genuine loyalty-building mechanism rather than merely as a promotional device. Awareness prepares the ground; the brand's conduct determines whether anything grows in it. For practitioners, three implications follow. Firms should invest in substantive environmental improvements across sourcing, production and packaging rather than confining their effort to communication, since respondents rated operational effort lower than advertising and the gap represents an unmet expectation. Environmental claims should be supported by independent certification and transparent disclosure, because credibility carries the loyalty effect and its loss is costly. Finally, green positioning should be targeted with attention to the capability constraints of different segments, using premium environmental positioning for higher-income groups while employing accessible pricing, smaller pack sizes or refill formats to convert the awareness already present among younger and lower-income consumers.

Several limitations should be borne in mind when interpreting these results. The sample of 160 respondents was drawn through non-probability sampling and is skewed towards younger and better-educated consumers, which restricts the generalisability of the findings to the wider consumer population. The data are self-reported and cross-sectional, so social desirability bias cannot be excluded and causal direction cannot be firmly established. The instrument measured perceptions of green marketing in general rather than in relation to a specific brand or product category, and responses may vary across categories in which environmental attributes differ in salience. Finally, the model accounted for slightly more than half the variance in loyalty, leaving substantial explanatory scope for variables not included here.

Future research could address these limitations by employing probability sampling across multiple regions, adopting a longitudinal design capable of tracing how loyalty develops as environmental perceptions change, and conducting category-specific studies in sectors such as personal care, food, apparel and durables. Incorporating mediating variables such as green trust, green satisfaction and green brand image, and moderating variables such as price sensitivity, perceived greenwashing and social influence, would allow a fuller specification of the mechanism through which environmental responsibility becomes commercial loyalty.



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