Environment and Social Psychology (2025) Volume 10 Issue 5 ISSN: 2424-8975 (O)
doi: 10.59429/esp.v10i5.3527 2424-7979 (P)

RESEARCH ARTICLE

Social-Psychological mechanisms in green marketing: Influencing consumer purchase attitudes and behaviors through environmental consciousness

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ABSTRACT

This study investigates the social-psychological mechanisms through which green marketing influences consumer purchase behavior, with a specific focus on the mediating role of environmental consciousness and the moderating effect of collectivism. Using a mixed-methods sequential explanatory design, we collected data from 1,103 consumers across six metropolitan areas in China through surveys and follow-up focus groups (n=72). Structural equation modeling revealed that environmental consciousness mediates approximately 55% of green marketing's influence on purchase behavior ($\beta = 0.22$, 95% CI: 0.17-0.28), indicating that the majority of green marketing's effectiveness operates through enhancing consumers' environmental awareness rather than direct persuasion. The findings also demonstrate a significant moderation effect of collectivism on the relationship between environmental consciousness and purchase behavior ($\beta = 0.15$, $p < 0.01$), with stronger effects observed among highly collectivistic consumers. This suggests that cultural values substantially shape how environmental consciousness translates into sustainable consumption practices. The moderated mediation index was significant (index = 0.09, 95% CI: 0.04-0.15), confirming that the indirect effect of green marketing varies conditional on collectivism levels. By integrating perspectives from the Theory of Planned Behavior, Value-Belief-Norm theory, and Social Cognitive Theory, our research establishes a comprehensive framework for understanding the psychological pathways underlying green consumer behavior. These findings contribute to both theoretical development in environmental psychology and practical insights for marketers, suggesting that green marketing strategies should prioritize consciousness-raising approaches tailored to different consumer segments based on their environmental awareness levels and cultural orientations. The demonstrated importance of collectivism has particular implications for cross-cultural marketing strategies, indicating that emphasizing community benefits may be especially effective in collectivistic contexts.

Keywords: environmental consciousness; green marketing; collectivism; consumer behavior; sustainable consumption

1. Introduction

The intensifying global environmental challenges have prompted significant shifts in marketing strategies and consumer behavior toward more sustainable practices. Green marketing, characterized by the development and promotion of environmentally friendly products and services[1], has emerged as a strategic

ARTICLE INFO
Received: 12 March 2025 | Accepted: 16 April 2025 | Available online: 16 May 2025

CITATION
Ge BK. Social-Psychological mechanisms in green marketing: Influencing consumer purchase attitudes and behaviors through environmental consciousness. *Environment and Social Psychology* 2025; 10(5): 3527. doi:10.59429/esp.v10i5.3527

approach for businesses responding to growing ecological concerns. This concept extends beyond mere product promotion to encompass a holistic philosophy that considers environmental impacts throughout the marketing process[2]. Concurrently, sustainable consumption has gained prominence as consumers increasingly recognize their purchasing decisions' environmental implications[3]. Despite growing awareness, a considerable gap remains between consumers' expressed environmental concerns and their actual purchasing behaviors, necessitating deeper investigation of the psychological mechanisms that drive environmental consumption[4].

Research has identified numerous factors influencing pro-environmental purchasing behavior, including personal values, situational context, and product attributes[5]. Studies examining the antecedents of pro-environmental behavior have revealed complex interrelationships between attitudinal, normative, and habitual factors[6]. Within this framework, environmental consciousness—conceptualized as awareness of environmental problems combined with the willingness to address them—serves as a critical mediating factor between marketing stimuli and consumer responses[7]. Consumer environmental consciousness significantly impacts perceived value from sustainable consumption options, potentially reshaping consumption patterns across various sectors[8]. As economies worldwide transition toward more sustainable models, understanding these psychological mechanisms becomes increasingly important for developing effective environmental policies and business strategies[9].

The theoretical foundation for understanding green consumer behavior draws primarily from established social-psychological frameworks. The Theory of Planned Behavior provides a structured approach for examining how attitudes, subjective norms, and perceived behavioral control influence environmental purchase intentions[10]. Recent applications of this theory to green purchasing behavior in various cultural contexts have demonstrated its utility in predicting sustainable consumption, while also highlighting the need for contextual adaptations[11]. Extensions of the theory incorporating product familiarity and perceived value have further enhanced its explanatory power for sustainable consumer choices[12]. Complementing this approach, the Value-Belief-Norm theory offers insights into how personal values activate environmental norms that guide pro-environmental behaviors[13], with recent evidence supporting its applicability to community-level environmental actions[14].

Social Cognitive Theory provides additional perspective by emphasizing the role of observational learning and self-efficacy in adopting sustainable behaviors[15]. Contemporary applications of this theory have expanded its relevance to diverse domains[16], including knowledge management in organizational settings[17]. Comparative analyses of multiple attitude-behavior models suggest that integrated theoretical approaches offer more comprehensive explanations of complex environmental behaviors than single-theory frameworks[18]. Empirical studies in China have identified multilevel factors affecting green consumption, including individual characteristics, social influences, and institutional contexts[19], while systematic reviews have cataloged diverse drivers of sustainable consumption across cultural settings[20].

Despite these advances, significant research gaps persist in understanding the social-psychological mechanisms underlying green consumption. Gender-related beliefs and norms significantly impact sustainable behaviors[21], but comprehensive frameworks integrating demographic, psychological, and contextual factors remain underdeveloped[22]. Recent bibliometric analyses highlight the evolving nature of green marketing research, indicating emerging areas requiring further investigation[23]. Studies of environmental consciousness among European consumers reveal distinct consumer segments with varying receptiveness to green marketing[24], while methodological reviews point to challenges in measuring environmental concern consistently across contexts[25]. The persistent intention-behavior gap in green

consumption represents a particular challenge for both researchers and practitioners[26], necessitating more sophisticated theoretical frameworks that account for the complex social-psychological dynamics of sustainable consumption[27].

While environmental consciousness likely serves as a universal mediating mechanism, its manifestation varies across cultural contexts. This research recognizes that rational choice theory may offer alternative explanations in individualistic societies where personal benefits outweigh collective concerns, providing a foundation for future cross-cultural comparisons.

Building on these foundations and addressing identified research gaps, this study aims to develop and test an integrated conceptual framework that elucidates the social-psychological mechanisms through which environmental consciousness mediates the relationship between green marketing stimuli and consumer purchase attitudes and behaviors. By examining both direct and indirect pathways of influence, this research seeks to contribute to a more nuanced understanding of green consumer behavior and provide practical insights for more effective marketing strategies.

2. Materials and methods

2.1. Theoretical framework and hypotheses

This study establishes an integrated theoretical framework examining how environmental consciousness mediates the relationship between green marketing and consumer purchase behavior. Recent research by Khan[28] demonstrates that environmental consciousness significantly influences green travel behavior, with environmental attitudes as key mediators and green self-efficacy as a critical moderator. Building on these findings, our conceptual model proposes that green marketing stimuli affect consumer purchase behavior through both direct and indirect pathways.

As illustrated in **Figure 1**, our theoretical model advances three main hypotheses. First, we propose that green marketing stimuli positively influence environmental consciousness (H1). This relationship finds support in research on sustainable labeling by Siraj et al.[29], which demonstrates how environmental information shapes consumer awareness and knowledge. The second hypothesis posits that environmental consciousness positively influences green purchase attitudes and behaviors (H2), aligning with Savari et al.'s[30] integrated framework combining norm activation and planned behavior theories. Our third hypothesis addresses the mediating role of environmental consciousness between green marketing and purchase behavior (H3). This mediating mechanism draws from Ellis et al.'s[31] dimensional model of environmental experience, which explains how external stimuli are processed through cognitive-affective systems before manifesting as behavior. Additionally, we propose that cultural factors, particularly collectivism, moderate these relationships. This proposition is supported by Yang et al.'s[32], who demonstrated how collectivist values shape environmental behavior through social mechanisms.

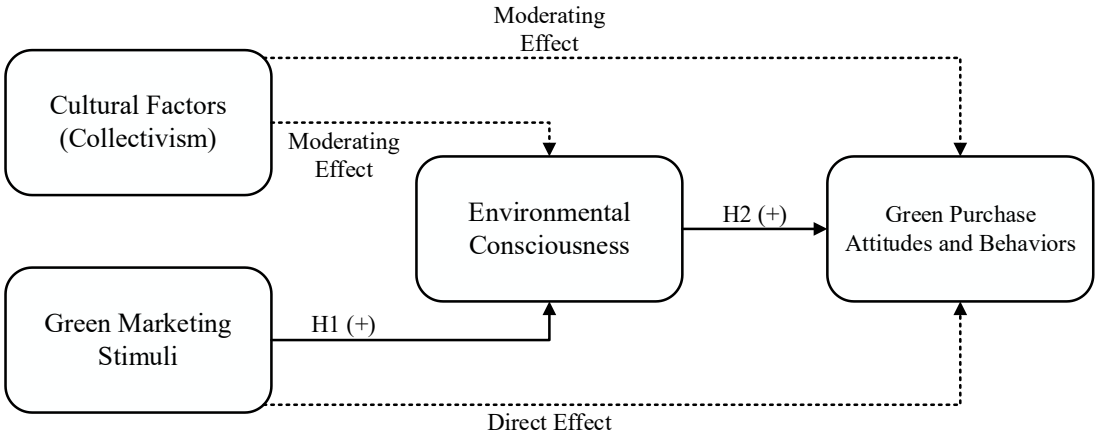

Figure 1. Conceptual framework of social-psychological mechanisms in green marketing.

This framework extends previous research by Liang et al.[33] on chain mediation models among Generation Z consumers and complements Zacher et al.'s[34] work on employee green behavior in organizational contexts. The model acknowledges that sustainable behaviors are embedded within broader organizational cultures that either support or hinder environmental practices[35]. By examining both direct and indirect effects alongside key moderators, our approach addresses theoretical gaps identified by Tian and Liu[36], particularly regarding the integration of individual psychological processes with sociocultural factors.

Alternative theoretical perspectives, including rational choice theory and self-determination theory, may offer stronger explanatory power in individualistic cultures where personal autonomy and individual benefits predominate. However, the integrated social-psychological framework adopted here better captures how marketing communications interact with cultural orientations in collectivistic societies.

The proposed conceptual framework contributes to green marketing literature by integrating previously separate theoretical perspectives and explicating the precise psychological mechanisms through which marketing stimuli influence environmental consciousness and subsequent consumer behavior.

2.2. Research design and data collection

This study employed a mixed-methods sequential explanatory design to investigate the mediating role of environmental consciousness between green marketing stimuli and consumer purchase behavior. Following the theoretical framework outlined in Section 2.1, we conducted a two-phase data collection process between January and April 2024. In the first phase, we administered an online survey to consumers across six metropolitan areas in China (Beijing, Shanghai, Guangzhou, Shenzhen, Chengdu, and Wuhan), targeting a demographically diverse sample. Participants were recruited through a professional research panel using stratified random sampling to ensure representativeness across age, gender, education, and income levels. A total of 1,247 responses were collected, with 1,103 valid responses retained after removing incomplete questionnaires and outliers (response rate: 88.5%). The second phase involved 12 focus group discussions (n=72 participants) to provide deeper insights into the psychological mechanisms underlying quantitative findings. Focus group participants were selected from survey respondents who indicated willingness for further participation, ensuring representation across different levels of environmental consciousness. The survey instrument contained established scales measuring green marketing exposure, environmental consciousness, purchase attitudes and behaviors, and cultural values, as detailed in **Table 1**. All measurement items were adapted from validated scales in previous literature[37,38] and underwent back-

translation to ensure cultural equivalence. A pilot study (n=50) was conducted to refine the instrument, resulting in minor modifications to improve clarity and cultural relevance.

Table 1. Sample characteristics.

Demographic Variable	Category	Percentage (%)
Gender	Male	48.2
	Female	51.3
	Non-binary/Other	0.5
Age	18-24	21.6
	25-34	35.7
	35-44	24.8
	45-54	12.4
	55+	5.5
Education	High school or below	14.2
	Bachelor's degree	63.5
	Postgraduate	22.3
Monthly Income (CNY)	<5,000	15.8
	5,000-10,000	37.2
	10,001-15,000	27.4
	>15,000	19.6

2.3. Measurement and analytical methods

This study employed a comprehensive analytical approach to test the proposed theoretical framework. All constructs were measured using multi-item scales adapted from established literature. Green marketing stimuli were assessed using a 7-point Likert scale developed from Haj-Salem et al.[37], measuring exposure to eco-friendly product information, sustainability claims, and green branding. Environmental consciousness was operationalized using Han et al.'s[38] validated scale, capturing awareness, knowledge, and concern dimensions. Purchase attitudes and behaviors were measured following established protocols in consumer psychology literature.

Structural equation modeling (SEM) was adopted as the primary analytical approach due to its capacity to simultaneously examine complex relationships among multiple latent constructs[39]. Following Cheung et al.'s[40] recommendations, we conducted a two-step analysis, first establishing measurement model validity before testing structural relationships. The mediation effect was analyzed using the causal steps approach complemented by bootstrapping procedures[41,42]. For moderation analysis, we employed interaction terms within the structural model and calculated marginal effects at representative values[43, 44].

The mediating effect of environmental consciousness was statistically quantified using the product-of-coefficients method[45], with the indirect effect calculated as:

$$IE = \alpha \times \beta$$

Where α represents the path coefficient from green marketing stimuli to environmental consciousness, and β represents the path coefficient from environmental consciousness to purchase behavior. The total effect was decomposed as:

$$TE = DE + IE = \gamma + \alpha \times \beta$$

Where γ represents the direct effect from green marketing stimuli to purchase behavior. Bootstrap resampling (5,000 resamples) with bias-corrected confidence intervals was employed to test the significance of the indirect effect[46, 47], providing robust estimation unaffected by non-normality. The moderated mediation was tested using the index of moderated mediation based on the following equation:

$$IMM = \alpha \times (\beta + \beta_{mod} \times MOD)$$

Where β_{mod} represents the interaction term coefficient and MOD represents the moderator variable.

Table 2. Measurement scales and reliability assessment.

Construct	Sample Item	Cronbach's α	CR	AVE
Green Marketing Stimuli	"I frequently see advertisements highlighting environmental benefits of products"	0.89	0.91	0.67
Environmental Consciousness	"I am concerned about environmental problems"	0.92	0.93	0.71
Purchase Attitudes	"Buying environmentally friendly products is a good idea"	0.87	0.89	0.65
Purchase Behavior	"I regularly purchase products because they are less polluting"	0.85	0.87	0.62
Collectivism	"Group welfare is more important than individual rewards"	0.88	0.90	0.64

Note: *CR = Composite Reliability; AVE = Average Variance Extracted*

To minimize social desirability bias, participants were assured anonymity, reverse-coded items and attention checks were incorporated, and indirect questioning was used for sensitive items. Harman's single-factor test revealed that the first factor accounted for 38.7% of variance, below the 40% threshold, suggesting common method bias was not a significant concern.

3. Results

3.1. Descriptive and preliminary analysis

Prior to hypothesis testing, we conducted a comprehensive assessment of descriptive statistics and correlation analysis to evaluate the basic relationships among focal constructs. **Table 3** presents the means, standard deviations, and correlation coefficients for all primary variables in our conceptual model.

Table 3. Descriptive statistics and correlation matrix for key variables.

Variables	Mean	SD	1	2	3	4	5
1. Green Marketing Stimuli	4.85	1.23	1.00				
2. Environmental Consciousness	5.28	1.12	0.53***	1.00			
3. Purchase Attitudes	5.14	1.27	0.48***	0.64***	1.00		
4. Purchase Behavior	4.57	1.36	0.42***	0.57***	0.62***	1.00	
5. Collectivism	5.42	1.08	0.29***	0.39***	0.33***	0.35***	1.00

Note: ****p < 0.001; SD = Standard Deviation.*

Green marketing stimuli demonstrated significant positive associations with environmental consciousness ($r = 0.53$, $p < 0.001$), purchase attitudes ($r = 0.48$, $p < 0.001$), and purchase behavior ($r = 0.42$, $p < 0.001$). The strongest correlation was observed between environmental consciousness and purchase attitudes ($r = 0.64$, $p < 0.001$), suggesting a substantial relationship between these constructs. Additionally, environmental consciousness showed a robust association with actual purchase behavior ($r = 0.57$, $p < 0.001$), while purchase attitudes were strongly correlated with purchase behavior ($r = 0.62$, $p < 0.001$), indicating consistency between attitudinal and behavioral measures.

The collectivism variable demonstrated moderate positive correlations with environmental consciousness ($r = 0.39$, $p < 0.001$) and purchase behavior ($r = 0.35$, $p < 0.001$), providing initial evidence for its potential moderating role in our model. Variance Inflation Factor (VIF) values ranged from 1.32 to 2.47, substantially below the critical threshold of 5.0, indicating that multicollinearity was not a significant concern in our analysis.

The descriptive statistics also revealed that participants reported moderate to high levels of environmental consciousness ($M = 5.28$, $SD = 1.12$) and moderately positive purchase attitudes ($M = 5.14$, $SD = 1.27$), though actual purchase behavior scores were somewhat lower ($M = 4.57$, $SD = 1.36$), suggesting a potential intention-behavior gap that merits further investigation in the structural model. Notably, significant demographic differences were observed, with female participants reporting higher environmental consciousness ($t = 3.84$, $p < 0.001$) and stronger purchase intentions ($t = 3.27$, $p < 0.01$) than male participants. Similarly, participants with higher education levels demonstrated stronger environmental consciousness ($F = 8.93$, $p < 0.001$) and more frequent green purchase behaviors ($F = 7.48$, $p < 0.001$). These preliminary results highlight the importance of controlling for demographic factors in subsequent analyses to isolate the effects of our focal predictors.

3.2. Structural model assessment and hypothesis testing

Following the preliminary analysis, we conducted structural equation modeling to test the hypothesized relationships. The overall model demonstrated good fit with the data, as evidenced by multiple fit indices: $\chi^2/df = 2.34$, CFI = 0.947, TLI = 0.938, RMSEA = 0.057 (90% CI: 0.049-0.064), and SRMR = 0.043.

As shown in **Figure 2**, green marketing stimuli exhibited a significant positive effect on environmental consciousness ($\beta = 0.53$, $p < 0.001$), supporting Hypothesis 1. This finding indicates that exposure to environmentally oriented marketing communications effectively enhances consumers' awareness and concern for environmental issues. Environmental consciousness, in turn, demonstrated a significant positive influence on both purchase attitudes ($\beta = 0.64$, $p < 0.001$) and purchase behaviors ($\beta = 0.42$, $p < 0.001$), providing support for Hypothesis 2a and 2b.

The direct path from green marketing stimuli to purchase behaviors was significant but of smaller magnitude ($\beta = 0.18$, $p < 0.01$), suggesting that while direct effects exist, a substantial portion of green marketing's influence operates through environmental consciousness. Notably, the path from purchase attitudes to purchase behaviors was strongly significant ($\beta = 0.47$, $p < 0.001$), confirming the attitude-behavior linkage established in previous literature.

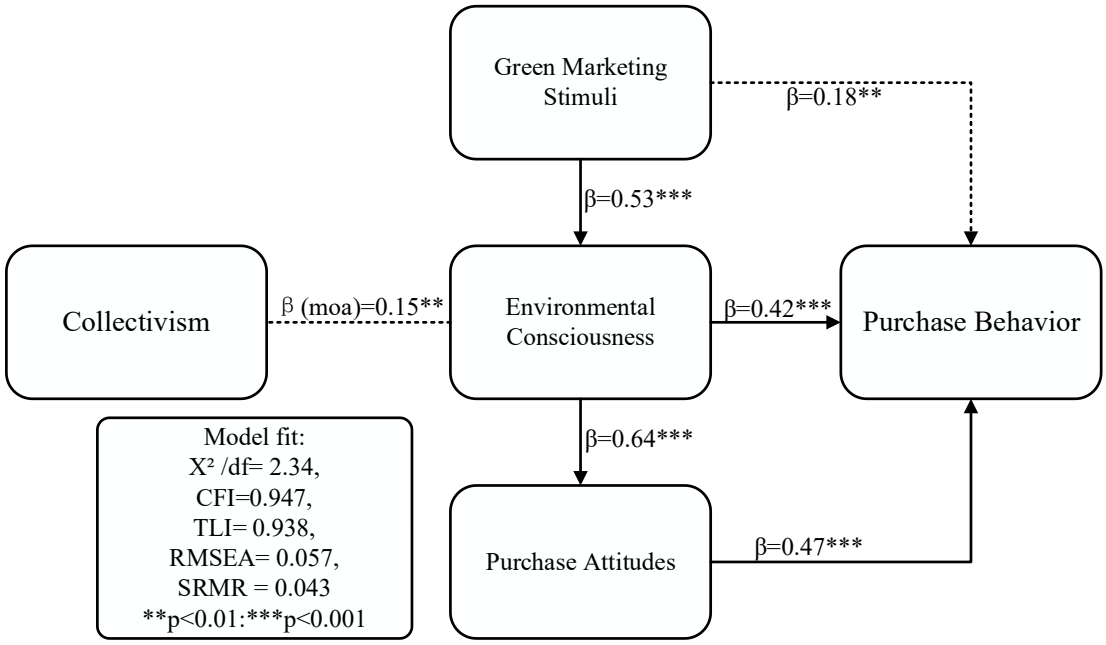

Figure 2. Structural equation model analysis results.

To test the mediating role of environmental consciousness (Hypothesis 3), we employed bootstrap analysis with 5,000 resamples. As detailed in **Table 4**, the indirect effect of green marketing stimuli on purchase behaviors through environmental consciousness was significant (β = 0.22, 95% CI: 0.17-0.28), confirming the hypothesized mediation effect. The total effect (β = 0.40) was decomposed into direct (β = 0.18) and indirect effects (β = 0.22), revealing that approximately 55% of green marketing's influence on purchase behavior operates through the enhancement of environmental consciousness.

Table 4. Summary of hypothesis testing results.

Hypothesis	Path	Coefficient (β)	t-value	p-value	Result
H1	Green Marketing Stimuli → Environmental Consciousness	0.53	13.27	<0.001	Supported
H2a	Environmental Consciousness → Purchase Attitudes	0.64	15.83	<0.001	Supported
H2b	Environmental Consciousness → Purchase Behavior	0.42	9.56	<0.001	Supported
H3	Green Marketing Stimuli → Environmental Consciousness → Purchase Behavior (indirect effect)	0.22	7.84	<0.001	Supported
H4	Moderating effect of Collectivism on the relationship between Environmental Consciousness and Purchase Behavior	0.15	3.42	<0.01	Supported

Note: *Indirect effect confidence intervals based on 5,000 bootstrap samples; 95% CI: [0.17, 0.28].*

Further analysis examined the conditional indirect effects at different levels of collectivism. The moderated mediation index was significant (index = 0.09, 95% CI: 0.04-0.15), indicating that the mediation effect was stronger among consumers with higher collectivistic values (+1SD: β = 0.31, $p < 0.001$) compared to those with lower collectivistic values (-1SD: β = 0.14, $p < 0.01$). This finding supports Hypothesis 4, suggesting that cultural factors significantly shape how environmental consciousness translates into sustainable purchase behaviors.

3.3. Mediation and moderation effect analysis

To thoroughly examine the proposed mediation and moderation mechanisms in our conceptual model, we conducted comprehensive analyses using established procedures. Following the significant results of the structural model, we further explored how environmental consciousness mediates the relationship between green marketing stimuli and purchase behavior, and how collectivism moderates these relationships.

The mediation analysis employed bootstrapping techniques with 5,000 resamples to generate bias-corrected confidence intervals for the indirect effects. As illustrated in **Figure 3**, the total effect of green marketing stimuli on purchase behavior ($\beta = 0.40$, $p < 0.001$) was decomposed into direct effect ($\beta = 0.18$, $p < 0.01$) and indirect effect through environmental consciousness ($\beta = 0.22$, $p < 0.001$). The 95% confidence interval for the indirect effect [0.17, 0.28] did not include zero, confirming a significant mediation. Additionally, the ratio of indirect to total effect (0.22/0.40 = 0.55) indicates that more than half of green marketing's influence on purchase behavior is transmitted through enhanced environmental consciousness. This finding substantiates our theoretical proposition that green marketing works by cultivating environmental awareness and concern, which subsequently translates into sustainable consumption behaviors.

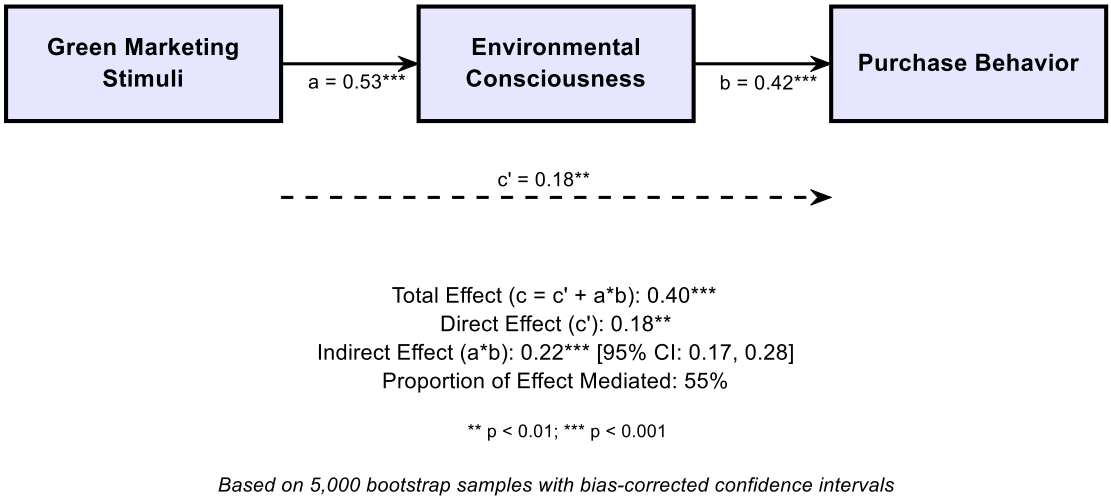

Figure 3. Mediation effect of environmental consciousness.

To investigate the contingent nature of the mediation process, we tested the moderating role of collectivism in the relationship between environmental consciousness and purchase behavior. As shown in **Figure 4**, collectivism significantly moderates this pathway, with stronger effects observed at higher levels of collectivism. For consumers with high collectivism (one standard deviation above the mean), the effect of environmental consciousness on purchase behavior was substantially stronger ($\beta = 0.57$, $p < 0.001$) compared to those with low collectivism (one standard deviation below the mean; $\beta = 0.28$, $p < 0.01$). The Johnson-Neyman analysis revealed that the relationship between environmental consciousness and purchase behavior becomes statistically significant at collectivism values above 3.74 (on a 7-point scale), which encompasses 92.3% of our sample.

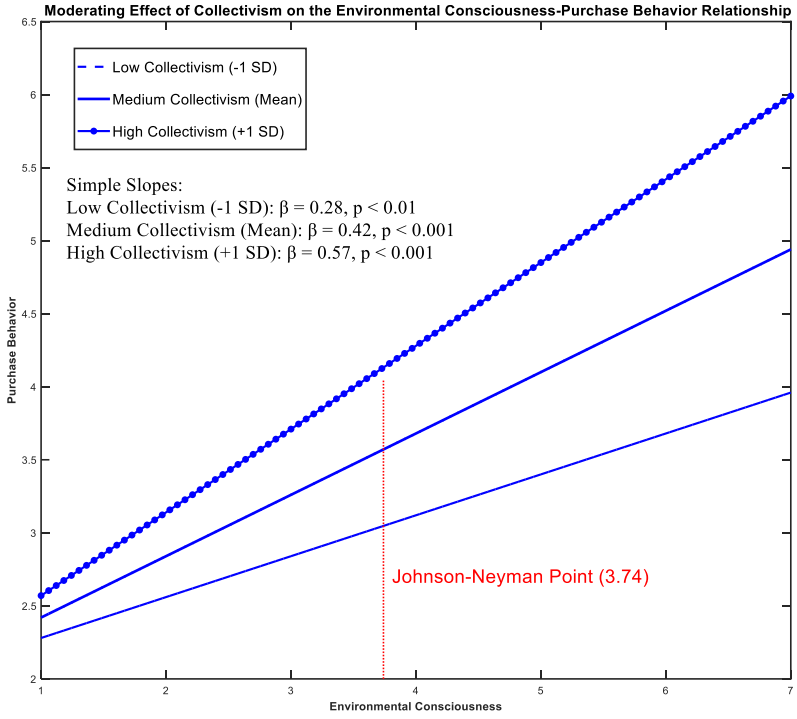

Figure 4. Moderating effect of collectivism on the environmental consciousness-purchase behavior relationship.

The moderated mediation index was positive and significant (index = 0.09, 95% CI [0.04, 0.15]), confirming that the indirect effect of green marketing on purchase behavior through environmental consciousness varies conditional on collectivism levels. Specifically, the conditional indirect effect was stronger at high levels of collectivism (β = 0.31, 95% CI [0.24, 0.38]) compared to low levels (β = 0.14, 95% CI [0.08, 0.21]). These findings suggest that cultural values significantly shape how environmental consciousness translates into sustainable purchase behaviors, with collectivistic orientation enhancing the environmental consciousness-behavior link, potentially through mechanisms of social responsibility and group-oriented norms.

4. Discussion

This study provides compelling evidence for the mediating role of environmental consciousness in the relationship between green marketing stimuli and consumer purchase behavior, along with the moderating effect of collectivism. Our findings offer several theoretical and practical implications that extend current understanding of green marketing mechanisms.

Our results demonstrate that environmental consciousness serves as a critical mediating variable, channeling approximately 55% of green marketing's influence on purchase behavior. This finding resonates with Khan's[28] work on environmental consciousness in travel behavior but extends beyond it by quantifying the precise mediating effect in the broader consumption context. The significant mediating role supports Sharma and Bansal's[7] conceptualization of environmental consciousness as a key psychological mechanism that translates marketing stimuli into behavioral responses. Unlike Wang et al.[11], who focused primarily on direct relationships in the theory of planned behavior, our integrated model explicates the complex psychological pathways through which green marketing actually influences consumer behavior.

The moderation analysis reveals that collectivism significantly enhances the relationship between environmental consciousness and purchase behavior, with stronger effects observed among consumers with higher collectivistic values. This aligns with Yang et al.'s[32] findings on cultural influences but offers a more

nuanced understanding by identifying the specific pathway (environmental consciousness to behavior) where cultural values exert their strongest influence. Our results suggest that collectivistic orientations effectively bridge the intention-behavior gap identified by Nguyen et al.[26], particularly by strengthening the translation of environmental consciousness into actual purchase behaviors.

The mediating role of environmental consciousness may operate through different pathways across cultures. In individualistic contexts, this mechanism might emphasize personal health or economic advantages rather than collective welfare, suggesting universal principles operate through culturally specific channels.

For marketing practitioners, our findings suggest that green marketing efforts should be strategically designed to enhance environmental consciousness rather than merely promoting product attributes. This requires a fundamental shift from traditional product-focused approaches toward consciousness-raising communication strategies. Effective green marketing should address not only the "what" of environmentally friendly products but also the "why" that cultivates deeper environmental consciousness. As illustrated in **Figure 5**, marketing strategies should be tailored to different consumer segments based on their environmental consciousness levels and cultural orientations. For consumers with low environmental consciousness, fundamental awareness-building and educational approaches are essential prerequisites before attempting to influence purchase behaviors. Conversely, for environmentally conscious consumers, marketing should focus on strengthening the consciousness-behavior link by addressing practical barriers and emphasizing collective benefits.

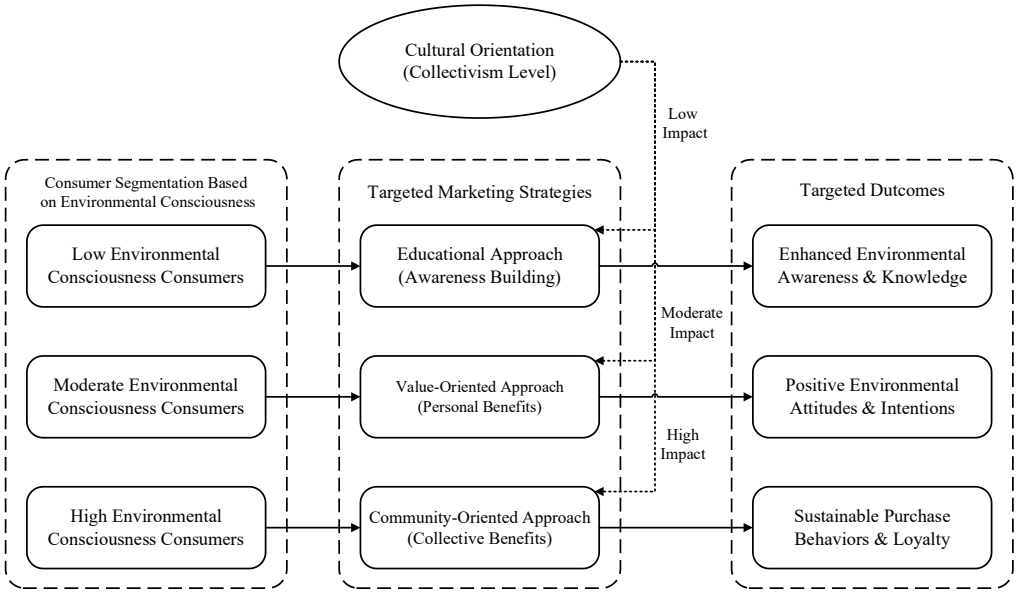

Figure 5. Green marketing strategy framework based on research findings.

The significant moderating effect of collectivism carries important implications for international marketing strategies. Companies operating across culturally diverse markets should consider adapting their green marketing approaches to align with prevailing cultural values. In more collectivistic societies, emphasizing community benefits and social responsibility may be particularly effective in translating environmental consciousness into purchase behaviors. This contrasts with Golob and Kronegger's[24] findings on European consumers, suggesting that cultural context significantly shapes how environmental consciousness manifests in behavior.

Several limitations warrant consideration. Our cross-sectional design precludes definitive causal inferences, necessitating longitudinal research to establish temporal relationships more conclusively. While our model demonstrates good explanatory power, other psychological mechanisms beyond environmental consciousness may also play important roles in green consumer behavior. The relatively homogeneous cultural context limits the generalizability of our findings to markets with different cultural compositions. Additionally, our reliance on self-reported measures may introduce social desirability bias, potentially inflating the relationship between attitudes and behaviors.

The cross-sectional design constrains causal inference, requiring longitudinal research to establish temporal sequences from marketing exposure through consciousness development to behavioral change. Self-reported measures, despite methodological controls, cannot eliminate social desirability effects entirely. Observational methods or actual purchase data would provide stronger validation. Practical implementation requires market-specific adaptation. In collectivistic markets, green marketing should emphasize collective welfare and social harmony. For individualistic markets, messages should highlight personal achievement and individual benefits. Strategies must accommodate varying environmental consciousness levels, developing differentiated approaches that move consumers along the consciousness-behavior continuum.

Future research should explore additional mediating mechanisms, examine how environmental consciousness develops over time in response to green marketing, and investigate how different types of green marketing stimuli might differentially affect environmental consciousness dimensions. Cross-cultural studies comparing the mediating and moderating effects across diverse cultural contexts would further enrich our understanding of the social-psychological mechanisms underlying green consumer behavior.

5. Conclusion

This study illuminates the social-psychological mechanisms underlying green marketing by empirically establishing environmental consciousness as a critical mediator between marketing stimuli and consumer purchase behavior. Our findings reveal that environmental consciousness transmits approximately 55% of green marketing's influence on purchase behavior, indicating that effective strategies should prioritize consciousness-raising approaches rather than merely promoting product attributes. The significant moderating effect of collectivism demonstrates that cultural values substantially shape how environmental consciousness translates into actual purchase behaviors, with the relationship strengthening considerably among consumers with stronger collectivistic orientations. Cultural values fundamentally shape how environmental awareness translates into consumption practices, with collectivistic orientations facilitating this transition through social responsibility and normative influence.

By integrating elements from the Theory of Planned Behavior, Value-Belief-Norm theory, and Social Cognitive Theory, our framework provides a comprehensive explanation of how marketing communications foster sustainable consumption. For practitioners, these findings suggest tailoring green marketing strategies to consumer segments based on both environmental consciousness levels and cultural orientations, with particular emphasis on strengthening the consciousness-behavior link through culturally resonant messaging. The demonstrated importance of collectivism implies that emphasizing community benefits may be especially effective in translating environmental awareness into purchase behaviors in collectivistic contexts.

These findings must be understood within their contextual boundaries. While the identified mechanisms likely operate universally, their strength and manifestations may vary across cultures. The high explanatory power in this collectivistic context may not translate directly to individualistic settings, necessitating systematic cross-cultural validation.

Future research should examine how environmental consciousness develops longitudinally in response to various green marketing stimuli and explore how different cultural dimensions beyond collectivism moderate these relationships. Investigating potential boundary conditions and additional mediating mechanisms would further enrich our understanding, particularly regarding how different forms of marketing communication affect specific dimensions of environmental consciousness. Additionally, studying how digital environments influence these social-psychological mechanisms would provide valuable insights for contemporary green marketing strategies. This integrated framework contributes to bridging the gap between environmental concern and sustainable consumption, advancing both marketing effectiveness and environmental sustainability.

Conflict of interest

The authors declare no conflict of interest.

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