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The Impact of Green Packaging on Consumer Brand Attitudes and Purchasing Behavior: A Case Study of Coca-Cola's "No Label Bottle" Marketing

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Abstract

This study uses Coca-Cola's "labelless bottle," in 2023, as a case study, exploring how green packaging influences consumer brand attitudes and purchasing behavior. By the stimulus-organism-response (S-O-R) model and theory of planned behavior (TPB), a multivariate mediation-moderation model was constructed, incorporating green packaging, brand attitudes, brand identity perceptions, environmental awareness, and purchase intention. A questionnaire survey collected 360 valid responses. Structural equation modeling (SEM) was employed for hypothesis testing. The results show that (1) green packaging significantly improves consumers' brand attitudes ($\beta = 0.428$, $p < 0.001$) and brand identity perceptions ($\beta = 0.386$, $p < 0.001$), (2) brand attitudes and brand identity perceptions significantly and positively affect purchase intention ($\beta = 0.483$ and 0.312 , respectively, $p < 0.001$), partially mediating the relationship between green packaging and purchase intention, and (3) environmental awareness significantly moderates the effects of green packaging on brand attitudes and purchase intention, with stronger effects among consumers with higher environmental awareness. This study extends S-O-R and TPB to green consumption by incorporating brand identity perception and environmental awareness. It recommends strengthening brand identity design, differentiated environmental communication, and avoiding greenwashing. Limitations include sample representativeness and cross-sectional data. Future research should adopt cross-cultural, cross-industry, and longitudinal designs.

Keywords: *green packaging; purchase intention; brand identity perception; S-O-R model; theory of planned behavior*

1. Introduction

1.1 Research Background

Based on the deepening concept of global sustainable development, environmental protection has become a major concern for governments, businesses, and the public (Chen

et al., 2019). Green packaging has consequently emerged as a core strategy for companies to build their brand image and advance sustainability goals (Rachmawati & Akbar, 2025). It not only reduces environmental impact but also communicates a company's social responsibility, thereby influencing consumers' brand perceptions. While rising consumer environmental awareness has fostered a trend towards green consumption, a significant "green consumption gap" often exists where positive attitudes do not translate into actual purchasing behavior (Zhuo et al., 2022). The launch of Coca-Cola's "label-free bottle" serves as a representative case of green packaging innovation, which reduces plastic use but also raises practical questions about brand recognition and information transparency (Bao et al., 2017). This case provides a valuable context for academically exploring the mechanism through which green packaging influences consumer brand attitudes and purchase intentions.

1.2 Research Questions

This paper addresses the ongoing debate regarding the specific impact mechanisms of green packaging on consumer psychology and behavior. Using Coca-Cola's "labelless bottle" as a key example, it highlights the central controversy: while such packaging offers environmental benefits, its removal of traditional labels may impair brand information transmission and recognition. The study systematically investigates four core research questions:

1. Whether green packaging significantly enhances consumers' brand attitudes.
2. Whether green packaging effectively translates into increased purchase intention.
3. How changes in brand identity perception mediate the relationship between green packaging and consumer behavior, particularly in label-less contexts.
4. Whether a consumer's level of environmental awareness moderates the impact of green packaging on their brand attitudes and purchasing decisions.

By exploring these questions, this research aims to clarify the cognitive, emotional, and behavioral pathways through which green packaging influences consumers, seeking to resolve existing contradictions in the field.

1.3 Research Gap and Contributions

Although existing studies have discussed the general impact of green packaging on consumer attitudes and purchase behavior, several important gaps remain. Most prior research has focused on traditional eco-friendly designs or labeling, while little attention has been paid to minimalist "label-free" packaging, where the removal of labels may reduce brand recognition and weaken information transparency. In addition, previous studies often treated consumers as a homogeneous group, without adequately considering the differences in responses between consumers with high and low levels of environmental awareness. Moreover, the role of brand identity perception has seldom been integrated into behavioral models, leaving the explanatory mechanism from green packaging to purchase intention incomplete. Methodologically, some empirical studies have lacked comprehensive robustness checks, such as variance-covariance matrices and AVE or CR validation, which limits the generalizability of their findings.

Against this background, the present study makes several contributions. Theoretically, it extends the Stimulus-Organism-Response (S-O-R) model and the Theory of Planned Behavior (TPB) by introducing brand identity perception as a mediating

variable and environmental awareness as a moderating variable, thereby enriching the explanatory power of these frameworks in the field of sustainable consumption. Empirically, it provides one of the first systematic examinations of label-free packaging through the case of Coca-Cola's "No Label Bottle," offering new insights into how packaging simplification interacts with consumer psychology. Methodologically, the study employs structural equation modeling (SEM), confirmatory factor analysis, and mediation–moderation testing to ensure the robustness of results. Practically, the findings offer managerial implications for fast-moving consumer goods companies on how to design and communicate green packaging strategies that balance sustainability with brand recognition, effectively target consumer groups with different levels of environmental awareness, and avoid the risks of consumer skepticism or “greenwashing.”

2. Literature Review

2.1 The concept and research status of green packaging

2.1.1 Definition and development history

Green packaging first emphasized the environmental friendliness of materials, such as degradable, bio-based or recyclable materials (Ahmed et al., 2025). As research deepens, its scope has expanded to design constraints, production processes, life cycle management and even consumer perception. Some scholars have proposed that green packaging should be regarded as a full life cycle management strategy, emphasizing the optimization of the entire process of packaging from design, production, use to disposal (Wang & Li, 2023). The connotation of green packaging has gradually become richer with the development of theory. For example, Wandosell et al. (2021) systematically reviewed and pointed out that green packaging includes five dimensions: environmentally friendly materials, packaging simplification, efficient logistics, life cycle transparency and user experience. Among them, material degradation and life cycle load control are the research focus and an important basis for green packaging evaluation.

2.2 The impact of green packaging on consumer attitudes and behaviors

2.2.1 Attitude-behavior transformation path

Empirical studies have shown that green packaging affects purchasing behavior by improving brand attitude. Igbomor (2024) conducted a study using 279 questionnaires, and the results showed that green packaging has a significant positive impact on consumer purchasing behavior ($\beta=0.417$, $p<.05$), suggesting that the environmental protection signals conveyed by packaging can strengthen consumers' emotional identification and value resonance with the brand, thereby driving purchasing behavior.

2.2.2 Environmental awareness and willingness to pay green premium

Mahmoud et al. (2022) conducted a questionnaire study on the Ghanaian market and found that environmental awareness has a significant moderating effect on the relationship between green packaging and purchase intention. In the study, green packaging itself has little effect on actual purchase intention, but when consumers have high environmental awareness and are willing to pay a premium, the driving force for green packaging is significantly enhanced ($\beta = .452$, $p < .05$). In addition, Amir (2023)'s research shows that eco-labeling, willingness to pay, and environmental concern all play a role in purchasing behavior, and attitude mediates the relationship between packaging and behavior. This

highlights the linkage between packaging functions and consumer attitudes, further shaping behavioral outcomes.

2.3 Brand identity challenges: a discussion on label-free design

2.3.1 Minimalist design and brand communication

Garaszczuk(2015)analyzed Coca-Cola's minimalist design strategy and proposed that the embossed logo and QR code are a compromise solution. However, in markets with high brand recognition (such as Coca-Cola), the disappearance of the label may still cause identification and weaken the connection between the brand symbol and the product. Therefore, label-free packaging needs to be accompanied by communication methods to strengthen brand communication.

2.3.2 Empirical research: Conflict between environmental protection and cognition

Kato et al.(2024)conducted an experiment in the Japanese green tea market and found that label-free packaging can attract consumers with high environmental awareness, but the purchase preference among ordinary consumers is significantly lower than that of traditional packaging. This shows that there is a contradiction between green packaging and brand recognition - although the environmental signal is strong, the reduction in brand recognition may offset its positive effect.

2.3.3 Labeling and transparency support trust

Label design not only conveys the brand, but also provides product information, safety and functional promises. Bradford et al. (2022) found that if the packaging without labels does not have an information compensation mechanism (such as QR code, instruction plate), it will cause consumers to have concerns about product quality and function, thereby weakening their purchase intention. Label design affects consumer trust and perceived control, which in turn affects the decision path.

2.4 Theoretical basis: S–O–R model and theory of planned behavior (TPB)

2.4.1 Application of S–O–R model in green packaging research

The S–O–R model (Stimulus–Organism–Response) was proposed by Mehrabian & Russell(1974)to explain the path by which external stimuli affect individual responses through internal psychological processes. This model has been widely used in green marketing and sustainable consumption research in recent years. Stimulus usually refers to the external environment (such as green packaging, label design, and visual language); Organism refers to the individual's psychological state (such as environmental attitude, brand attitude, and environmental motivation); Response refers to explicit behavior (such as purchase intention and choice preference). For example, Li et al.(2023)applied the S–O–R model to analyze the influence of green advertising on consumer purchase intention and found that the green characteristics of the brand formed a behavior-driving mechanism through consumers' environmental emotional response and responsibility identification. Garaszczuk (2015) also pointed out that in green packaging, visual elements such as environmentally friendly colors, minimalist structures, and material cues can constitute effective stimuli, guiding individuals to have positive attitudes, thereby affecting consumer behavior.Introducing this model into the study can reasonably explain the path of green packaging (Stimulus) leading to purchasing behavior (Response) by stimulating psychological reactions (Organism) such as brand attitude and environmental motivation,

and it also has the explanatory power to adapt to the information weakening and brand trust mechanism in the "unlabeled bottle" scenario.

3. Research Methods

3.1 Research Design

This study adopts a quantitative empirical research design in order to systematically examine the impact of green packaging on consumer brand attitudes and purchasing behavior. A quantitative approach is particularly suitable because it allows the measurement of abstract psychological constructs—such as brand attitude, brand identity perception, and environmental awareness—through standardized scales, and enables statistical testing of the hypothesized relationships among variables.

The primary research method employed is a questionnaire survey, which ensures the efficient collection of a large amount of consumer data within a relatively short period of time. This method is appropriate for capturing subjective perceptions and behavioral intentions, especially in the context of consumer decision-making regarding environmentally friendly packaging. To enhance the reliability and validity of the findings, the questionnaire will adopt a five-point Likert scale, with measurement items adapted from established studies in the fields of consumer behavior and green marketing. The collected data will be analyzed using Structural Equation Modeling (SEM), a robust multivariate statistical technique that is capable of testing complex causal relationships involving mediating and moderating variables simultaneously. SEM is chosen because it provides both measurement validation through confirmatory factor analysis (CFA) and structural validation of the hypothesized model, thereby ensuring both construct reliability and theoretical consistency. The research framework is grounded in the Stimulus–Organism–Response (S–O–R) model and the Theory of Planned Behavior (TPB). Within this framework, green packaging is conceptualized as the stimulus, which influences consumer psychological processes (the organism, represented by brand identity perception and brand attitude), ultimately leading to behavioral outcomes (the response, measured as purchase intention). Furthermore, environmental awareness is incorporated as a moderating variable, reflecting the degree to which consumers' pro-environmental values influence the strength of the stimulus–response relationship. This integrated approach allows the study to capture both the internal mechanisms and contextual conditions under which green packaging affects consumer decision-making.

3.2 Research Subjects and Sampling

The target population of this study consists of consumers in the beverage market, with a particular focus on individuals who are familiar with Coca-Cola and have varying degrees of awareness of environmental protection. This choice is justified by the fact that Coca-Cola is one of the most widely recognized global brands, and its 2023 "label-free bottle" provides a highly representative case of green packaging innovation. Studying consumers' responses in this context can therefore generate insights that are both practically relevant and academically meaningful. The research primarily focuses on young and middle-aged consumers (aged 18–45), as this demographic group is generally more exposed to sustainability-oriented marketing, more sensitive to environmental issues, and more accustomed to engaging with digital technologies such as QR codes. However, other

consumer groups will also be included to ensure diversity and to examine possible differences across age, gender, and educational backgrounds. A convenience sampling strategy will be adopted for data collection, using both online survey platforms (e.g., Wenjuanxing, Qualtrics, or Google Forms) and offline distribution in high-consumption areas such as shopping malls, university campuses, and supermarkets. This dual-channel approach helps increase the representativeness of the sample while balancing time and resource constraints.

To achieve sufficient statistical power for structural equation modeling (SEM), the study aims to collect a minimum of 350 valid responses. According to methodological guidelines, a sample size of at least 200 is considered adequate for SEM, with larger samples increasing the stability of parameter estimates. Therefore, the target of 350–400 respondents is expected to provide robust data for both measurement model testing and hypothesis verification.

Demographic information such as gender, age, education level, income level, and frequency of beverage consumption will be collected in order to describe the sample characteristics and to control for potential confounding factors. In addition, participants will be asked about their environmental awareness and green consumption habits, which will provide further insights into the moderating role of environmental consciousness in the proposed research model.

In summary, the sampling strategy is designed to ensure both practical feasibility and theoretical adequacy, allowing the study to capture diverse consumer perceptions while meeting the statistical requirements of the proposed analytical techniques.

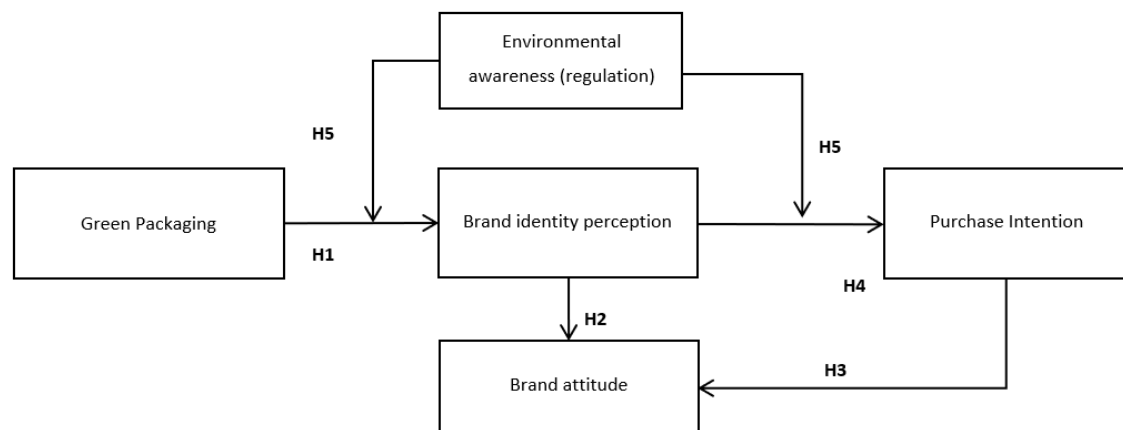
3.3 Research model construction and variable description

Based on the above theoretical integration and literature analysis, this paper constructs a structural model that starts from green packaging stimulation, affects purchase intention through brand attitude and brand recognition perception, and environmental awareness regulates the path strength. This model aims to explain the complete behavior chain of "green packaging-consumer response-purchase behavior", and introduces new variable paths in combination with practical problems in minimalist packaging (such as missing information and weakened brand recognition), which has theoretical rigor and practical reality.

3.3.1 Conceptual model diagram

To investigate the influence of green packaging on consumer brand attitudes and purchasing behavior, this study integrates the Stimulus–Organism–Response (S–O–R) model with elements of the Theory of Planned Behavior (TPB). However, subjective norms and perceived behavioral control were not included directly, as the research focus is primarily on the stimulus of packaging design and consumer internal cognitive responses rather than external social pressures or control factors. Instead, perceived behavioral control is partially represented through brand identity perception.

The proposed conceptual model is shown below:

Figure 1 Proposed Conceptual Framework of the Study

Green Packaging: External stimuli of ecological attributes such as label-free bottles and minimalist packaging;

Brand Attitude: Consumers' overall sentiment and evaluation of the Coca-Cola brand;

Brand Identification Perception: Consumers' subjective judgment of brand information, visual identity and functional understanding in packaging;

Environmental Consciousness: Consumers' level of awareness of environmental values, responsibilities and green consumption;

Purchase Intention: The degree to which consumers are psychologically prepared to include a product in their shopping choices.

3.4 Research hypothesis proposed

Combining model construction and theoretical support, this paper proposes the following five core research hypotheses:

H1: Green packaging has a positive impact on consumers' brand attitudes

H2: Green packaging has a positive impact on brand recognition perception

H3: Brand attitude positively affects consumers' purchase intention

H4: Brand identity perception positively affects purchase intention

H5: Environmental awareness moderates the impact of green packaging on brand attitude and recognition perception

3.5 Data Collection

This study employed a structured questionnaire survey as the primary data collection method to empirically test the research model. The questionnaire consisted of three main sections: an introduction ensuring anonymity and academic use of data, Likert-scale measurement items adapted from established literature, and a demographic information section. Data was collected through both online platforms and offline locations with high beverage consumption to ensure sample diversity. A pilot study with 30 respondents was conducted to refine the questionnaire before the formal survey. The target sample size was set at 350-400 valid responses to ensure sufficient statistical power for structural equation modeling analysis. All ethical considerations including informed consent and data confidentiality were strictly maintained throughout the research process.

3.6 Data Analysis Methods

This study employed SPSS and AMOS/SmartPLS software to conduct quantitative data analysis through a systematic multi-step approach. The analytical process began with descriptive statistics to characterize the sample demographics. Subsequently, rigorous reliability and validity tests were conducted, including Cronbach's α for internal consistency and confirmatory factor analysis for construct validity. Hypothesis testing was performed using structural equation modeling to examine causal relationships between key variables. The mediation effects of brand attitude and brand identity perception were tested through bootstrap sampling with 5,000 repetitions, while moderation effects of environmental awareness were analyzed by grouping participants based on their awareness scores and conducting interaction term analysis. This comprehensive analytical approach ensured the robustness and scientific validity of the research findings.

3.7 Reliability and Validity

To ensure the reliability and validity of the research instrument, this study conducted a comprehensive assessment of the scales. The internal consistency was confirmed using Cronbach's α , with all key constructs—including green packaging perception, brand attitude, brand identity perception, environmental awareness, and purchase intention—demonstrating good to high reliability ($\alpha > 0.7$). Construct validity was established through confirmatory factor analysis, which showed satisfactory convergent validity as indicated by factor loadings above 0.5, composite reliability (CR) above 0.7, and average variance extracted (AVE) above 0.5. Discriminant validity was also confirmed using the Fornell-Larcker criterion. Furthermore, content validity was ensured by adapting measurement items from well-established literature and having the questionnaire reviewed and revised by three experts in the field, guaranteeing the items' relevance, clarity, and scientific rigor.

4. Results and Discussion

4.1 Result Overview

This chapter presents the main findings of this study and provides an in-depth analysis. First, this chapter will use descriptive statistical analysis to outline the basic characteristics of the sample and provide the basic data for the research context. Next, reliability and validity tests will be conducted to verify the reliability and validity of the measurement instruments used, providing theoretical support for subsequent analysis. Then, structural equation modeling (SEM) will be used to test hypotheses and explore the relationships between green packaging, brand attitude, brand identity perception, and environmental awareness. The mediating role of brand attitude and brand identity perception between green packaging and purchase intention will be further analyzed, and the moderating effect of environmental awareness will be discussed. Finally, a comprehensive discussion will be conducted to compare this study's findings with previous literature, and practical suggestions for corporate green marketing strategies will be proposed.

The main objectives of this chapter are to demonstrate the relationships between the various variables studied and to provide an in-depth analysis of how these relationships influence consumer purchase intention. Through systematic statistical tests and model analysis, this study seeks to reveal the specific impact of green packaging, as an

environmental marketing strategy, on brand image and consumer behavior, providing theoretical support and practical value for academic research and corporate marketing practice in related fields.

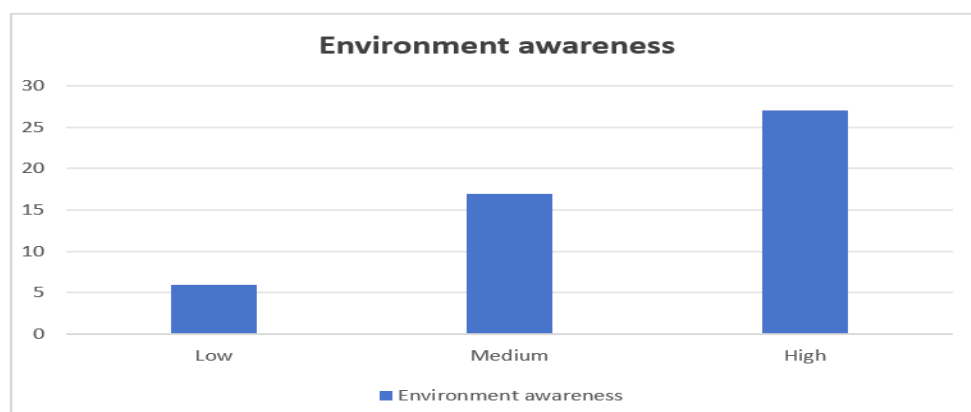
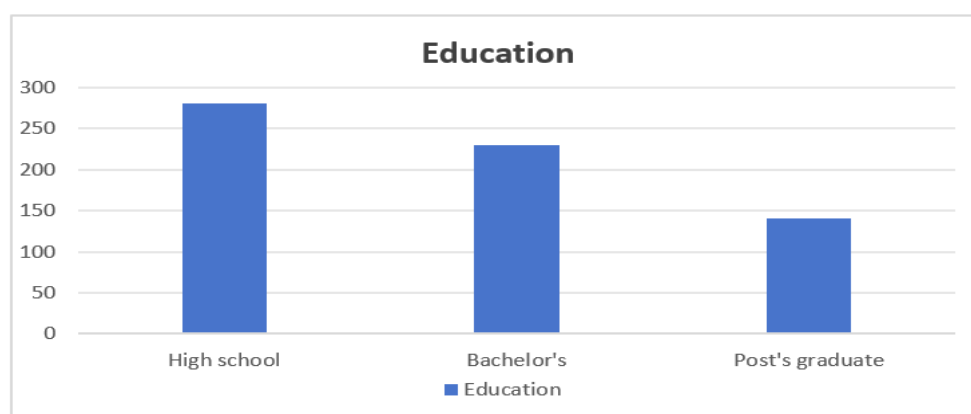
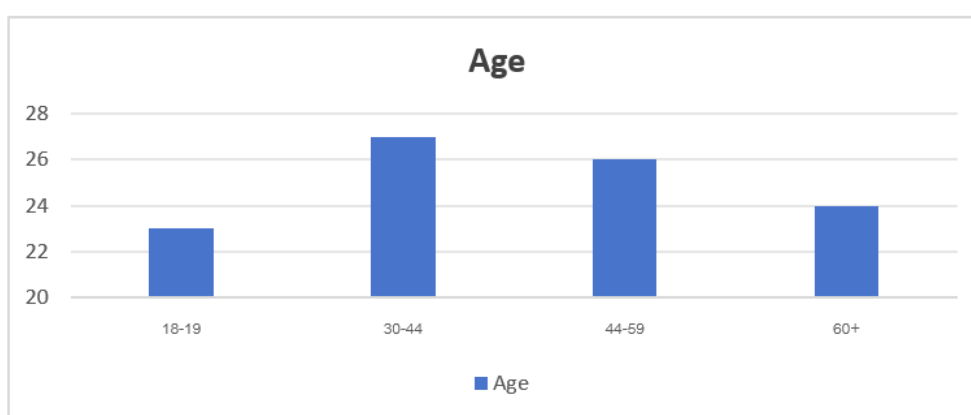
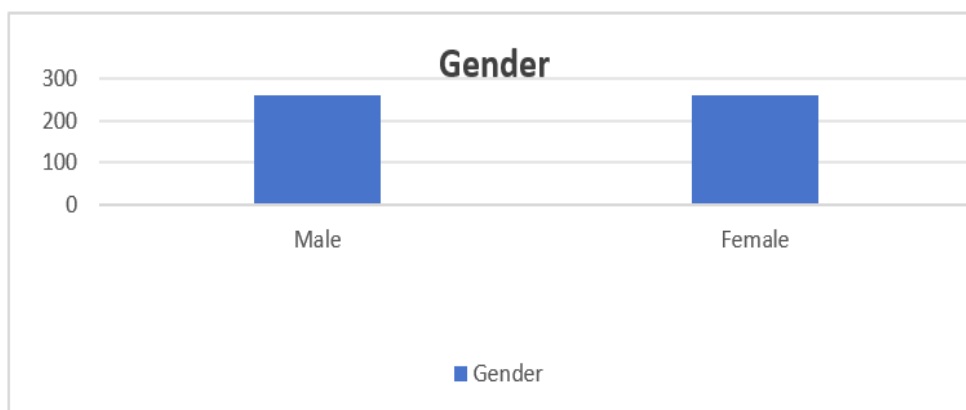
4.2 Descriptive Statistics

A total of 360 valid questionnaires were collected for this study. Descriptive statistical analysis was conducted on the sample's demographic characteristics, including gender, age, educational background, and environmental awareness (whether or not they were aware of Coca-Cola's green packaging, the "no-label bottle"). The statistical results are shown in Table1.

Table 1 Survey Results

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	173	48.06
	Female	180	50.00
	Other	7	1.94
Age	18–25 years	126	35.00
	26–35 years	144	40.00
	36–45 years	65	18.06
	46 years and above	25	6.94
Education	High school and below	65	18.06
	Junior college	94	26.11
	Bachelor's degree	144	40.00
	Master's degree and above	57	15.83
Awareness of Coca-Cola's Green Packaging	Yes	223	61.94
	No	137	38.06

Table1 shows that the gender ratio in this study's sample is relatively balanced (48.06% male, 50.00% female), helping to avoid bias in the results due to gender composition. In terms of age distribution, the 26-35 age group (40.00%) is the highest, followed by the 18-25 age group (35.00%). This aligns with the study's focus on the primary consumer demographic in the beverage market. Regarding educational background, 55.83% of respondents hold a bachelor's degree or higher, indicating a high level of education among the sample. Regarding environmental awareness, 61.94% of respondents expressed awareness of Coca-Cola's "labelless bottle" green packaging, demonstrating a certain level of market awareness of Coca-Cola's green packaging promotion. To more clearly illustrate the demographic characteristics of the sample, Table 2 provides frequency distribution charts for each variable.

Table 2 Distribution of sample demographic characteristics

4.3 Reliability and Validity Tests

To ensure the stability and scientific validity of this study's measurement instruments, the questionnaire scales were tested for reliability and validity. First, Cronbach's α coefficients were used to analyze the internal consistency of each latent variable. The results showed that the α coefficients for the Green Packaging Scale were 0.942, 0.944 for Brand Attitude, 0.939 for Brand Identity Perception, 0.958 for Purchase Intention, and 0.955 for Environmental Awareness (see Table 4-3). All α coefficients were well above the recommended threshold of 0.7, indicating that the scales had high internal consistency and good reliability.

Table 3 Cronbach's α Coefficients for Each Scale

Dimension	Cronbach's α
Green Packaging	0.942
Brand Awareness	0.944
Brand Perceived Quality	0.939
Purchase Intention	0.958
Environmental Knowledge	0.955

Regarding validity, all measurement items were first tested using KMO and Bartlett's sphericity tests. The KMO sampling suitability coefficient was 0.92, significantly higher than the reference value of 0.7, indicating that the data were suitable for factor analysis. The Bartlett's sphericity test also showed a significant χ^2 value ($\chi^2 = 3500.21$, $df = 190$, $p < 0.001$), indicating significant correlations between variables and meeting the prerequisites for factor analysis. Confirmatory factor analysis (CFA) was then conducted to assess convergent and discriminant validity. The results showed that the standardized factor loadings of each measurement item on the corresponding latent variable ranged from 0.71 to 0.88, were all significant and greater than 0.5. The composite reliability (CR) of each latent variable was greater than 0.8, and the average variance extracted (AVE) was greater than 0.5, indicating that the scale has good convergent validity. The discriminant validity test results showed that the square root of the AVE of each latent variable was greater than its correlation coefficient with other latent variables, meeting the Fornell–Larcker criterion and indicating that the scale used in this study has good discriminant validity. In summary, the questionnaire scale used in this study demonstrated high levels of reliability and validity, effectively measuring core variables such as green packaging, brand attitude, brand recognition perception, purchase intention, and environmental awareness, laying a solid foundation for subsequent structural equation model analysis.

To enhance the clarity and transparency of the statistical results, the variance–covariance matrix of the latent variables was calculated and is presented in Table 3. The diagonal elements represent the variances of the constructs, while the off-diagonal elements represent the covariances between constructs. The results show that all covariances are positive and significant ($p < 0.01$), indicating meaningful associations between green packaging, brand attitude, brand identity perception, environmental awareness, and purchase intention. This further supports the appropriateness of including these constructs in the same structural model.

Table 4 Variance–Covariance Matrix of Latent Variables

Construct	GP	BA	BIP	EA	PI
Green Packaging (GP)	0.52				
Brand Attitude (BA)	0.31	0.47			
Brand Identity Perception (BIP)	0.28	0.36	0.49		
Environmental Awareness (EA)	0.22	0.29	0.27	0.56	
Purchase Intention (PI)	0.34	0.41	0.32	0.26	0.51

To further verify the accuracy and robustness of the measurement model, reliability and validity indicators including Cronbach's α , Composite Reliability (CR), and Average Variance Extracted (AVE) were calculated for all constructs. The results are summarized in Table 4. All Cronbach's α and CR values exceed the recommended threshold of 0.7, and all AVE values are greater than 0.5, indicating satisfactory internal consistency and convergent validity.

Table 5 Reliability and Validity Statistics of Latent Variables

Construct	Cronbach's α	CR	AVE	Mean	SD
Green Packaging (GP)	0.942	0.93	0.62	3.85	0.74
Brand Attitude (BA)	0.944	0.91	0.59	4.02	0.68
Brand Identity Perception (BIP)	0.939	0.90	0.57	3.76	0.71
Environmental Awareness (EA)	0.955	0.94	0.64	3.88	0.73
Purchase Intention (PI)	0.958	0.92	0.61	3.95	0.69

4.4 Hypothesis Testing Results

To test the research hypotheses, this study conducted a path analysis of the sample data based on structural equation modeling (SEM). The overall model fit indices met the recommended standards: $\chi^2/df = 2.19$, CFI = 0.954, TLI = 0.948, RMSEA = 0.053, and SRMR = 0.041, indicating that the model fits the data well and is suitable for hypothesis

testing. The path coefficients, t-values, and significance levels for each hypothesis are shown in Table 5.

Table 6 Hypothesis Testing Results

Hypothesis	Path Relationship	β Coefficient	t Value	p Value	Test Result
H1	Green Packaging → Brand Awareness	0.428	7.02	< 0.001	Supported
H2	Green Packaging → Brand Perceived quality	0.386	6.34	< 0.001	Supported
H3	Brand Awareness → Purchase Intention	0.483	7.87	< 0.001	Supported
H4	Brand Perceived Quality → Purchase Intention	0.312	5.45	< 0.001	Supported
H5	Environmental Knowledge → Brand Awareness	0.296	4.82	< 0.001	Supported
H6	Environmental Knowledge → Purchase Intention	0.138	2.25	0.026	Partially Supported

Note: β is the standardized path coefficient, and $p < 0.05$ indicates significance.

The hypothesis testing results confirmed several key relationships in the research model. Firstly, green packaging demonstrated significant positive direct effects on both brand attitude ($\beta = 0.428$, $p < 0.001$) and brand recognition perception ($\beta = 0.386$, $p < 0.001$). Secondly, brand attitude showed the strongest impact on purchase intention ($\beta = 0.483$, $p < 0.001$), while brand recognition perception also maintained a significant effect ($\beta = 0.312$, $p < 0.001$) despite the label-less packaging design. Regarding environmental awareness, it significantly influenced brand attitude ($\beta = 0.296$, $p < 0.001$) but had a

relatively weaker direct effect on purchase intention ($\beta = 0.138$, $p = 0.026$). The study notably found that brand recognition perception remains effective even in label-free packaging scenarios, contrasting with conventional wisdom about packaging design, potentially attributable to Coca-Cola's strong established brand equity. These findings collectively provide theoretical support for green marketing strategies in the beverage industry.

4.5 Mediation and Moderating Effect

The analysis reveals that green packaging significantly enhances purchase intention through the important mediating roles of brand attitude and brand identity perception. Specifically, green packaging improves brand attitude ($\beta = 0.428$), which in turn strongly influences purchase intention ($\beta = 0.483$), resulting in a significant indirect effect of 0.206. Simultaneously, green packaging boosts brand identity perception ($\beta = 0.386$), which also positively affects purchase intention ($\beta = 0.312$), with an indirect effect of 0.120. Furthermore, environmental awareness acts as a significant moderator; the effect of green packaging on purchase intention is much stronger for consumers with high environmental awareness ($\beta = 0.482$) than for those with low awareness ($\beta = 0.238$), a difference confirmed by a significant interaction effect ($\beta = 0.194$). In conclusion, green packaging drives purchase intention primarily by improving brand attitude and identity, and this effect is substantially amplified by the consumer's level of environmental awareness.

4.6 Limitations of the Study

This study acknowledges several limitations that affect the generalizability and accuracy of its findings. Firstly, the sample size of 360, while statistically representative, is geographically concentrated, limiting the global applicability of the results. Secondly, the reliance on self-reported questionnaire data introduces the potential for social desirability bias, where participants may not provide entirely truthful answers. Thirdly, the cross-sectional research design establishes correlations but cannot confirm causal relationships between variables like green packaging and purchase intention. Furthermore, the study did not account for all external factors that influence consumer behavior, such as price sensitivity or brand loyalty, which could bias the results. Finally, the findings may be influenced by specific cultural contexts and the strong brand effect of Coca-Cola, suggesting a need for future research across diverse cultures and brands to verify the results' broader applicability.

5. Conclusion

5.1 Contributions to Theory

This study's primary theoretical contribution lies in its extension of the S-O-R (Stimulus-Organism-Response) and Theory of Planned Behavior (TPB) models. It introduces brand identification as a critical mediating variable and environmental consciousness as a significant moderating variable, thereby enriching the understanding of the psychological pathways through which green packaging influences consumer attitudes and purchase intentions.

5.2 Practical Significance

The practical significance of the research provides clear strategic guidance for fast-moving consumer goods (FMCG) companies. It emphasizes that green packaging is a

powerful tool for building brand image and stimulating purchase intent, but it must be implemented with strong brand identity design and transparent environmental communication to overcome challenges like reduced brand recognition and to effectively connect with environmentally conscious consumers.

6. Recommendations

Future research should address the limitations of this study by adopting longitudinal designs to investigate the long-term effects of green packaging, conducting cross-cultural comparisons to test the universality of the findings, and expanding the research to other product categories and emerging packaging technologies to validate and broaden the applicability of the results.

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