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## Brand equity and consumers' purchase intention for vegan cosmetics in an emerging market: Evidence from Ho Chi Minh City, Vietnam

### Abstract

**Research background and purpose:** Consumer preferences have increasingly shifted toward sustainable products in recent years, especially in the cosmetics industry, as a result of the COVID-19 pandemic and growing concerns about climate change. Vegan cosmetics, which are free of animal-derived ingredients and not tested on animals, have attracted substantial attention from Vietnamese consumers. However, limited empirical research has examined how brand equity influences purchase intentions in emerging markets. This study investigates the impact of four key components of brand equity—brand awareness, perceived quality, brand associations, and brand loyalty—on consumers' purchase intention toward vegan cosmetics in Ho Chi Minh City.

**Design/methodology/approach:** A convenience sampling approach was adopted, and 452 valid responses were collected through a structured questionnaire survey. Multiple regression analysis using SPSS was applied to test the proposed hypotheses.

**Findings:** The results indicate that all four brand equity dimensions significantly and positively influence purchase intention.

**Value added and limitations:** Theoretically, this study extends Aaker's brand equity model to the context of sustainable and ethical consumption. Practically, it provides marketers with insights into how brand-related perceptions can enhance brand positioning, strengthen consumer loyalty, and foster competitiveness in the fast-growing vegan cosmetics sector of emerging markets such as Vietnam.

**Keywords:** *brand equity; purchase intention; vegan cosmetics; sustainable consumption; emerging markets; Ho Chi Minh City*

**JEL classification:** M31, M37, D12, Q56

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## 1. Introduction

Global consumers have become more aware of their health and environmental responsibilities in the wake of the Covid-19 pandemic and the increasing effects of climate change. This has led to a rise in responsible consumption, especially in the cosmetics industry, which is closely linked to ethical, sustainable, and eco-friendly values. Of these, vegan cosmetics—items free of animal-derived ingredients and that do not undergo animal testing—are becoming increasingly popular among contemporary consumers (Ngo-Thi-Ngoc et al., 2024; Zhai et al., 2022).

The demand for vegan cosmetics is skyrocketing in Vietnam, especially in major urban centers like Ho Chi Minh City. The Institute for Business Value under IBM reports that 90% of consumers worldwide have shifted their consumption habits toward sustainability in the post-pandemic era (General Statistics Office of Vietnam, 2022). According to Statista (2022) data, the global vegan cosmetics market grew from USD 13.56 billion in 2018 to USD 16.29 billion in 2021 and is expected to reach USD 20.8 billion by 2025. According to a Nielsen survey, 72% of Vietnamese customers are prepared to pay more for ecologically friendly products (VOV, 2024). Meanwhile, a Bui & Nguyen analysis from 2025 found that the vegan cosmetics market in Vietnam is growing at an average annual rate of 30%. These figures suggest that Vietnam represents a promising emerging market for sustainable cosmetics (Amalia & Darmawan, 2023; Park et al., 2023).

While much research has been done on consumer behavior about cosmetics, there is still a lack of research on vegan cosmetics in Vietnam. Some recent studies have used behavioral models like the Theory of Planned Behavior (TPB) to approach this topic; for example, Ngo-Thi-Ngoc et al. (2024) used an extended TPB model to analyze the purchase intention of vegan cosmetics in Ho Chi Minh City and Hanoi, highlighting the significant roles of belief, environmental awareness, and product knowledge; Phu et al. (2024) discovered that social influence, environmental concern, and health consciousness have a significant impact on the purchasing behavior of Generation Z in Ho Chi Minh City. Since consumers increasingly base their decisions on their perceptions of brands and their experiences, it is essential to understand the key components of brand equity, such as brand awareness, brand associations, perceived quality, and brand loyalty. However, most existing studies have primarily focused on ethical, environmental, or demographic factors without thoroughly examining the role of brand equity—a core determinant in product selection behavior (Aaker, 1991; Keller, 2013). Recent international research has emphasized the critical role of brand equity in shaping consumer trust, loyalty, and purchase intention in sustainable product markets (Limbu & Ahamed, 2023; Lavuri et al., 2022; Testa et al., 2024). Yet empirical evidence on its application to vegan cosmetics, especially in emerging economies, remains scarce.

Applying the brand equity model to vegan cosmetics therefore provides both theoretical and practical contributions. Theoretically, it extends the application of brand equity research into the field of sustainable and ethical consumption. Practically, it provides businesses with insights to strengthen brand positioning and competitiveness in the growing vegan cosmetics market (Huo et al., 2025).

To address these gaps, this study is guided by the following research questions:

*RQ1: How do the components of brand equity (brand awareness, perceived quality, brand associations, and brand loyalty) influence consumers' purchase intention for vegan cosmetics?*

*RQ2: Which component of brand equity exerts the strongest effect on purchase intention?*

## 2. Theoretical background and research hypotheses

### 2.1. Theoretical background

#### 2.1.1. Related concepts

**Cosmetics:** Products applied to the human body for washing, beautifying, improving attractiveness, or changing appearance without harming the body's structure or physiological processes are called cosmetics by the U.S. Food and Drug Administration (FDA, 2023). According to the Ministry of Health of Vietnam's Circular No. 06/2011/TT-BYT (Ministry of Health, 2011), cosmetics are substances that are applied externally to the skin, teeth, or oral mucosa with the intention of cleaning, smelling, altering appearance, resolving body odors, or preserving the body.

**Vegan Cosmetics:** Vegan cosmetics are beauty and personal care products that are mostly made of natural plant-based substances and do not contain any ingredients that come from animals. These products frequently reduce or eliminate chemicals that could endanger consumers' health (Wuisan & Februadi, 2022). Furthermore, vegan cosmetics are well known for being environmentally friendly because they do not include animal testing and frequently come in recyclable or biodegradable packaging, which helps to maintain ecosystems and reduce pollution (Kim & Chung, 2011).

**Purchase Intention:** Levy et al. (2019) view purchase intention as a valuable indicator for forecasting consumer behavior in the marketing domain. Once consumers intend to buy a product from a specific brand or location, they are more likely to act accordingly. Similarly, Amalia & Darmawan (2023) define purchase intention as the likelihood that a consumer will choose a particular product or service. Purchase intention is a key concept in consumer behavior research, reflecting the degree of willingness and likelihood that a consumer will engage in a buying action in the future (Ajzen, 1991). From a simplified

perspective, Zhang (2015) characterizes it as the probability that a client will decide to purchase a product. Meanwhile, Bagozzi et al. (1989) consider purchase intention as a behavioral propensity originating from an individual's perception of a particular brand.

*Brand Equity:* According to Farquhar (1989), brand equity is the added value a brand adds to a product, as demonstrated by customer perceptions, loyalty, and willingness to pay a premium price. Yoo and Donthu (2001) emphasize that brand equity comprises brand recognition, customer loyalty, and consumer satisfaction with the brand. Brand equity is a set of intangible values associated with a brand name and image that contribute to competitive advantage and influence consumer behavior (Aaker, 1991; Farquhar, 1989).

### 2.1.2. Theoretical foundation

The Theory of Reasoned Action (TRA), developed by Fishbein and Ajzen in 1975, provides a basic framework for understanding how individuals make decisions and perform specific actions. According to this theory, a person's conduct is mostly determined by their behavioral intention, which stands for the motivations behind a particular action. TRA is predicated on the idea that people are logical agents who methodically make decisions based on the information. Instead of behaving impulsively or out of habit, people weigh the effects of their actions and adjust their objectives accordingly. Subjective norms and attitude towards the behavior are the two primary aspects that impact behavioral intention, the central concept of TRA. A person's attitude is determined by their ideas about the results of their actions and may be either good or negative. The term "subjective norms" describes the perceived social pressure to engage in or refrain from engaging in a behavior that stems from an individual's perception of whether or not essential others, such as friends, family, or society, approve of the behavior. These elements determine how strongly someone intends to carry out a particular action.

Ajzen (1991) created the Theory of Planned Behavior (TPB) as an extension of TRA by including perceived behavioral control because TRA does not consider circumstances outside of an individual's control. This construct represents the individual's assessment of the behavior's ease or difficulty. TPB states that attitude toward the conduct, subjective norms, and perceived behavioral control impact behavioral intention. In this study, the integration of TRA and TPB provides a theoretical foundation for explaining the relationship between the components of brand equity and consumers' purchase intention toward vegan cosmetics. TPB has been widely applied in recent consumer behavior studies, such as research on organic food, sustainable products, and vegan cosmetics (Ngo-Thi-Ngoc et al., 2024; Limbu & Ahamed, 2023). TPB has been widely applied in various consumer

behavior studies, such as research on organic food, sustainable products, and vegan cosmetics. This, in turn, helps generate appropriate recommendations for businesses in developing sustainable brand strategies.

A key theoretical idea in modern marketing, brand equity describes how brands generate value for consumers and businesses. Aaker (1991) defined brand equity as a collection of intangible assets linked to a brand's name, symbol, and image that help differentiate a product, foster consumer trust, and affect consumer behavior. Four of the five essential components of Aaker's (1991) brand equity model—brand awareness, perceived quality, brand associations, and brand loyalty—are frequently used in consumer behavior research. These components interact with one another to shape a brand's overall value in the consumer's mind. Numerous empirical studies in a variety of industries, including consumer products, services, education, and most notably the cosmetics sector, where brand image plays a critical role in influencing customer decision-making, have adopted and verified Aaker's concept. Recent research also confirms the importance of brand equity in driving purchase intention in sustainable and ethical cosmetics markets (Zhai et al., 2022; Lavuri et al., 2022; Park et al., 2023; Testa et al., 2024).

By integrating TPB and Aaker's brand equity model, this study establishes a solid theoretical foundation for analyzing how perceptions of brand equity influence consumer purchase intention toward vegan cosmetics in Ho Chi Minh City. This combination not only clarifies the psychological mechanisms underlying consumer decision-making but also addresses a growing area of interest in sustainable consumption.

## 2.2. Research hypothesis

Brand awareness (BA) is the extent to which consumers can recognize or recall a specific brand within a given product category (Aaker, 1991). Establishing brand equity is crucial since it plays a big role in customers' purchasing decisions, especially when they are choosing between multiple competing companies (Keller, 1993; Kotler & Keller, 2016). Strong brand awareness gives companies a psychological edge in customers' eyes in the fiercely competitive cosmetics industry. According to a 2024 study by Phu et al. (2024), Vietnamese consumers' purchasing intentions are positively impacted by brand recognition. Also, according to recent studies, brand awareness is crucial in influencing consumer behavior regarding vegan cosmetics (Testa et al., 2024; Ngo-Thi-Ngoc et al., 2024). International evidence also shows that higher brand awareness significantly enhances purchase intention for sustainable beauty products across different markets (Zhai et al., 2022; Limbu & Ahamed, 2023).

*H1: Brand awareness positively influences consumers' purchase intention toward vegan cosmetics in Ho Chi Minh City*

According to Aaker (1991), perceived quality is the subjective evaluation by customers of a product's superiority over competing options. Monroe and Krishnan (1985) assert that price, distribution reputation, and brand name affect perceived quality. Purchase intention increases when consumers believe a product is high quality (Dodds et al., 1991; Chi et al., 2009). Particularly in green consumption, recent research confirms the importance of perceived quality in influencing cosmetics purchase intention. Perceived quality is a significant determinant of purchase intention for vegan cosmetics, according to research conducted in South Korea by Park and Lee (2021). Similarly, Testa et al. (2024) demonstrated that a favorable opinion of product quality increases customer confidence and encourages sustainable buying practices. More recent studies also support the central role of perceived quality in driving consumers' willingness to purchase eco-friendly and cruelty-free cosmetics across emerging and developed markets (Amalia & Darmawan, 2023; Park et al., 2023).

*H2: Perceived quality positively influences consumers' purchase intention toward vegan cosmetics in Ho Chi Minh City*

The facts, feelings, and attitudes customers associate with a specific brand are called brand associations (BAS) (Keller, 1993). Attributes, benefits, and attitudes are the three categories into which these associations are typically divided (Keller, 1993). Positive brand connections help increase brand loyalty and set the company apart from its rivals, claims Aaker (1996). Over the past few years, several studies have demonstrated how crucial brand connections are to customers' purchase intentions. Chen et al. (2020), for example, found that associations with ethical and ecological ideals boost consumer trust and promote the use of eco-friendly cosmetics. Similarly, Ngo-Thi-Ngoc et al. (2024) found that brand connections are the most critical factor influencing Vietnamese consumers' intentions to purchase vegan cosmetics. Recent international evidence further supports that strong associations with sustainability and ethical identity enhance consumer confidence and willingness to buy green cosmetic products (Lavuri et al., 2022; Testa et al., 2024).

*H3: Brand associations positively influence consumers' purchase intention toward vegan cosmetics in Ho Chi Minh City*

Brand loyalty (BL) is the commitment of a consumer to consistently support or repurchase a particular brand over time; it stems from psychological attachment rather

than just habitual behavior (Oliver, 1999; Jacoby & Chesnut, 1978). As a customer's sustained attachment to a brand, brand loyalty is a crucial component of brand equity, according to Aaker (1991). Recent research has confirmed loyalty's crucial role in influencing purchase intentions. For example, brand loyalty is the most crucial element influencing purchase intention in retail systems, according to Tran & Luu (2022). Ngo-Thi-Ngoc et al. (2024) showed that brand loyalty positively and directly impacts the decision to buy sustainable products. Additionally, Kim & Chung (2011) noted that devoted consumers in the vegan cosmetics sector are more inclined to pay higher costs and continue making repeat purchases because of their faith in the brand. More recent evidence highlights that brand loyalty remains the most influential factor driving purchase intention in ethical and green consumption contexts (Limbu & Ahamed, 2023; Huo et al., 2025).

*H4: Brand loyalty positively influences consumers' purchase intention toward vegan cosmetics in Ho Chi Minh City*

Based on the aforementioned research hypotheses, the following conceptual model is proposed:

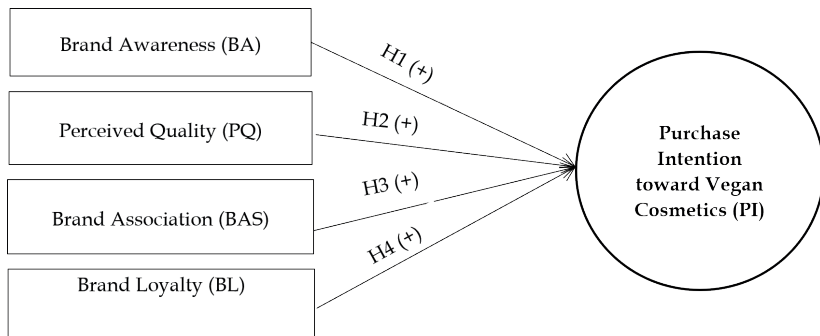


Figure 1. **Research model**

Source: own study

### 3. Research methods

#### 3.1. Research process

The study started with a review and synthesis of pertinent literature to create the suggested research paradigm and initial measuring scales. Following that, ten respondents participated in a focus group discussion and three economics experts were consulted as part of a qualitative study. According to the findings, every participant approved the suggested measurement scales and offered no suggestions for changes.

The author created a questionnaire and administered a pilot survey to 45 participants using the measurement scales derived from the qualitative phase. The reliability test results demonstrated that every scale satisfied the necessary requirements with Cronbach's Alpha coefficients over 0.6 and item-total correlations above 0.3. Consequently, the measurement scales were reliable enough to be used in the primary survey.

470 online questionnaires from different Ho Chi Minh City areas were used for the official survey. There were 452 legitimate questionnaires left after 18 invalid responses were eliminated. The author processed and analyzed the data using SPSS version 26 in preparation for further statistical analysis. A convenience sampling technique was applied, which is commonly used in consumer behavior studies in emerging markets due to its feasibility and cost-effectiveness (Hair et al., 2019). Although convenience sampling has limitations regarding generalizability, it is suitable for exploratory research in contexts where probability sampling is impractical. Ethical considerations were strictly followed: participation was voluntary, informed consent was obtained, and all responses were kept anonymous and confidential. No participants under the age of 18 were included in the survey.

For data analysis, Cronbach's Alpha was employed to assess reliability, followed by Exploratory Factor Analysis (EFA) to evaluate construct validity. Multiple regression analysis was then conducted to test the proposed hypotheses. These statistical techniques are widely adopted in consumer behavior and marketing studies to validate constructs and examine causal relationships (Hair et al., 2019; Pallant, 2020).

#### 3.2. Measurement scales

The author proposed a research model with five key constructs based on the theoretical overview and prior studies on consumer behavior toward vegan cosmetics. Observable variables were adapted from previous research and modified to fit the Ho Chi Minh City context. All items were measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). Table 1 presents the comprehensive measurement scales.



Table 1. **Measurement Scales**

Construct	No. of items	Key sources	Scale
Brand Awareness (BA)	5	Aaker (1991); Keller (1993); Phu et al. (2024); Testa et al. (2024); Ngo-Thi-Ngoc et al. (2024)	5-point Likert
Perceived Quality (PQ)	5	Aaker (1991); Monroe & Krishnan (1985); Dodds et al. (1991); Park and Lee (2021); Testa et al. (2024)	5-point Likert
Brand Association (BAS)	5	Keller (1998, 2003); Aaker (1996); Chen et al. (2020); Ngo-Thi-Ngoc et al. (2024)	5-point Likert
Brand Loyalty (BL)	5	Oliver (1999); Aaker (1991); Jacoby & Chesnut (1978); Tran & Luu (2022); Ngo-Thi-Ngoc et al. (2024))	5-point Likert
Purchase Intention (PI)	5	Ajzen (1991); Testa et al. (2024); Testa et al. (2024); Ngo-Thi-Ngoc et al. (2024)	5-point Likert

Source: own study

## 4. Research results

### 4.1. Descriptive statistics

The official survey questionnaire was dispersed randomly to people in Ho Chi Minh City who are at least 15 years old and either aware of or interested in vegan cosmetics to guarantee representativeness. There were 452 valid responses in all. The sample's demographics, including gender, age, income, occupation, and favorite vegan cosmetic brand, are shown in the Table 2.

Table 2. **Descriptive statistics of survey respondents**

Category	Characteristics	Frequency	Percentage (%)
Gender	Male	217	48.0
	Female	235	52.0
	Total	452	100.0
Age	18 – 24 years	82	18.1
	25 – 34 years	123	27.1
	35 – 44 years	171	37.9
	Above 45 years	76	16.8
	Total	452	100.0

Monthly Income	Under 5 million VND	53	11.8
	5 – 10 million VND	80	17.7
	11 – 15 million VND	108	23.9
	16 – 20 million VND	106	23.5
	Over 20 million VND	105	23.1
	Total	452	100.0
Occupation	Student	25	5.5
	Office staff	80	17.6
	Government employee	86	19.1
	Business owner	81	18.0
	Freelancer	86	19.0
	Manual laborer	53	11.7
	Homemaker / Retired	41	9.1
	Total	452	100.0
Most Preferred Vegan Cosmetic Brand	The Body Shop	80	17.7
	CoCoon	53	11.8
	Pacifica Beauty	63	13.9
	e.l.f. cosmetics	79	17.5
	Melixir	59	13.1
	Cover FX	56	12.4
	Herbivore Botanicals	61	13.5
	Total	452	100.0

Source: own study

With 52.0% of the respondents being female and 48.0% being male, the descriptive data show a relatively balanced gender distribution. Working-age adults appear to be the main demographic interested in vegan cosmetics, as seen by the most significant percentage (37.9%) among the 35–44 age group and the second-highest percentage (27.1%) among the 25–34 age group. The sample's income ranged from 11 to 20 million VND per month (47.4%), indicating a reasonably stable purchasing power consistent with consumers

of cosmetics made ethically and ecologically. The groupings comprising government workers, independent contractors, and business owners had the most significant percentages for occupation (all above 18%), demonstrating the range of occupations in the sample. The Body Shop was the most popular brand among those who favored vegan cosmetics (17.7%), followed by e.l.f. Cosmetics (17.5%) and Herbivore Botanicals (13.5%). This implies that globally known brands well-liked in the Vietnamese market are the focus of brand awareness and preference.

#### 4.2. Cronbach's Alpha reliability test

After conducting the descriptive statistics, the next step was to assess the internal consistency of the observed variables using Cronbach's Alpha. The results are presented in Table 3.

Table 3. Results of Cronbach's Alpha reliability test

Construct	No. of items	Cronbach's Alpha
Brand Awareness	5	0.790
Perceived Quality	5	0.768
Brand Association	5	0.828
Brand Loyalty	5	0.756
Purchase Intention	5	0.812

Source: own study

Cronbach's Alpha coefficients for all measuring scales are higher than 0.7, as shown in Table 3, suggesting a satisfactory degree of reliability. The corrected item-total correlations for all observed variables are greater than 0.3, indicating strong construct validity and internal consistency. As a result, every component was kept for the ensuing exploratory factor analysis (EFA).

#### 4.3. Exploratory Factor Analysis

The researcher conducted an Exploratory Factor Analysis (EFA) on the independent variables, with the results summarized in Table 4.

Table 4. Results of Exploratory Factor Analysis

Construct	No. of items	Factor Loading Range	Cronbach's Alpha
Brand Awareness	5	.655 – .787	0.790
Perceived Quality	5	.619 – .758	0.768
Brand Association	5	.651 – .805	0.828
Brand Loyalty	5	.621 – .775	0.756

KMO = 0.852; Bartlett's Test Sig. = 0.000; Total Variance Explained = 62.487%.

Source: own study

The measurement items were categorized into four different factors, which correspond to the four suggested constructs: Brand Association, Brand Awareness, Perceived Quality, and Brand Loyalty, according to the EFA results for the independent variables. Strong convergent validity is demonstrated by all observed variables having factor loadings larger than 0.6. The data is appropriate for factor analysis, as shown by the KMO score of 0.852 and the statistical significance of Bartlett's Test (Sig. = 0.000). The four factors effectively explain most of the dataset's variance, as evidenced by the overall variance of 62.487%. These findings support the concept validity and reliability of the measurement scales used in the study model.

After completing the EFA for independent variables, the author conducted an EFA for the dependent variable, with the results shown in Table 5.

Table 5. EFA results for the dependent variable

Construct	No. of items	Factor Loading Range	KMO	Bartlett's Test Sig.	Eigenvalue	Variance Explained
Purchase Intention	5	.752 – .841	0.794	0.000	2.577	64.1%

Source: own study

The EFA results for the dependent variable show that all five items of Purchase Intention loaded strongly on a single factor, with factor loadings above 0.75, indicating strong convergent validity. The KMO value (0.794) and the significance of Bartlett's Test ( $p < 0.001$ ) confirm the suitability of the data for factor analysis. The extracted factor explained 64.1% of the total variance, demonstrating the construct validity and reliability of the Purchase Intention scale.

#### 4.4. Pearson correlation analysis

A Pearson correlation analysis was performed to examine the linear correlations between the variables in the study model. With correlation coefficients ranging from moderate to high, the findings, as displayed in Table 6, reveal that all variables are positively and statistically significantly connected. This provides a solid foundation for additional multiple linear regression analysis by confirming the existence of suitable linear correlations between the independent variables (Brand Awareness, Perceived Quality, Brand Association, and Brand Loyalty) and the dependent variable (Purchase Intention).

Table 6. **Pearson correlation coefficients**

Variable	PI	BA	PQ	BAS	BL
PI	1				
BA	0.497**	1			
PQ	0.476**	0.484**	1		
BAS	0.522**	0.490**	0.294**	1	
BL	0.597**	0.376**	0.413**	0.295**	1

Note: \*  $p < 0.05$ ; \*\*  $p < 0.01$  (2-tailed)

Source: own study

According to the Pearson correlation analysis (two-tailed), all constructs are positively correlated with one another and the correlations are statistically significant ( $p < 0.01$ ). Purchase Intention (PI) shows the strongest correlation with Brand Loyalty ( $r = 0.597$ ), followed by Brand Association ( $r = 0.522$ ), Brand Awareness ( $r = 0.497$ ), and Perceived Quality ( $r = 0.476$ ). All coefficients are below 0.70, suggesting a low risk of multicollinearity; this is consistent with the VIF results reported later (Table 8). These findings provide a sound basis for conducting multiple linear regression.

#### 4.5. Multiple linear regression analysis

A multiple linear regression analysis was conducted to evaluate the extent to which the independent variables influence the purchase intention of vegan cosmetics. The results are presented in Table 7.

Table 7. Results of Multiple Linear Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients (Beta)	t	Sig.	VIF
	B	Std. Error				
Constant	0.103	0.244	–	0.420	0.675	–
BA	0.130	0.054	0.127	2.412	0.016	1.617
PQ	0.222	0.063	0.173	3.514	0.001	1.423
BAS	0.306	0.049	0.299	6.235	0.000	1.343
BL	0.327	0.041	0.372	7.926	0.000	1.286
R	0.719					
	0.516					
Adjusted R <sup>2</sup>	0.510					
Durbin- Watson	1.493					
F (Sig.)	0.000					

Source: own study

The multiple linear regression model fits the data well ( $R = 0.719$ ; Adjusted  $R^2 = 0.510$ ; F-test  $p < 0.001$ ). All four predictors have positive, statistically significant effects on purchase intention: Brand Loyalty ( $\beta = 0.372$ ,  $p < 0.001$ ) exerts the strongest influence, followed by Brand Association ( $\beta = 0.299$ ,  $p < 0.001$ ), Perceived Quality ( $\beta = 0.173$ ,  $p = 0.001$ ), and Brand Awareness ( $\beta = 0.127$ ,  $p = 0.016$ ). Model diagnostics indicate no violations—Durbin-Watson = 1.493 (no autocorrelation) and VIFs = 1.286–1.617 (no multicollinearity). Residual diagnostics (normal P–P plot, residuals–fitted inspection, and Cook’s distance  $< 1$ ) indicated no major violations, supporting the validity of the regression inferences. These findings support H1–H4.

*The standardized regression equation is expressed as:*

$$PI = 0.127BA + 0.173PQ + 0.299BAS + 0.372BL$$

Consistent with the coefficients, Brand Loyalty has the largest relative effect on purchase intention, Brand Association ranks second, while Perceived Quality and Brand

Awareness—though smaller—still contribute meaningfully to strengthening consumer trust and initial interest in vegan cosmetic brands.

#### 4.6. Multicollinearity diagnostics of the model

The Variance Inflation Factor (VIF) and Tolerance statistics were used to investigate the existence of multicollinearity among the independent variables; as Table 8 illustrates, all variables have VIF values less than 2 and Tolerance values greater than 0.1, suggesting that there are no significant multicollinearity problems in the regression model.

Table 8. Multicollinearity diagnostics results

Independent Variable	Tolerance	VIF
Brand Awareness (BA)	0.618	1.617
Perceived Quality (PQ)	0.703	1.423
Brand Association (BAS)	0.744	1.343
Brand Loyalty (BL)	0.778	1.286

Source: own study

The multicollinearity diagnostics indicate no concern: all tolerance values exceed 0.10 (0.618–0.778) and all VIFs are very low (1.286–1.617), well below conservative thresholds (e.g., 5). This confirms that the predictors are not excessively correlated, supporting the stability of the coefficient estimates and the validity of the regression inferences.

#### 5. Discussion of research findings

According to the findings of the multiple linear regression analysis, consumers' purchase intentions for vegan cosmetics in Ho Chi Minh City are positively and significantly influenced by all four independent variables: Brand Awareness (BA), Perceived Quality (PQ), Brand Association (BAS), and Brand Loyalty (BL):

The multiple linear regression results indicate that all four brand-equity components—Brand Awareness (BA), Perceived Quality (PQ), Brand Association (BAS), and Brand Loyalty (BL)—positively and significantly predict consumers' purchase intention for vegan cosmetics in Ho Chi Minh City, thereby supporting H1–H4. In terms of magnitude, BL ( $\beta = 0.372$ ,  $p < 0.001$ ) exerts the strongest effect, followed by BAS ( $\beta = 0.299$ ,  $p < 0.001$ ), PQ ( $\beta = 0.173$ ,  $p = 0.001$ ), and BA ( $\beta = 0.127$ ,  $p = 0.016$ ).

For Brand Awareness (BA), the positive but comparatively smaller effect ( $\beta = 0.127$ ,  $p = 0.016$ ) supports H1 and is consistent with Testa et al. (2024) and Phu et al. (2024), who show that recognition aids recall and choice in competitive settings. This pattern is also in line with recent green-cosmetics literature suggesting that awareness alone is insufficient unless accompanied by credible sustainable cues (e.g., Lavuri et al., 2022; Limbu & Ahamed, 2023).

For Perceived Quality (PQ), the significant effect ( $\beta = 0.173$ ,  $p = 0.001$ ) supports H2, echoing Park and Lee (2021) and the classic quality–value–intention link (Monroe & Krishnan, 1985; Dodds et al., 1991). In sustainable beauty contexts, quality judgments increasingly hinge on performance, safety, and verified ethical production (e.g., Park et al., 2023; Amalia & Darmawan, 2023).

For Brand Association (BAS), the second-strongest effect ( $\beta = 0.299$ ,  $p < 0.001$ ) confirms H3 and aligns with Chen et al. (2020) and Ngo-Thi-Ngoc et al. (2024) that ethical, environmental, and social associations enhance persuasiveness and intention. This is further supported by international evidence that sustainability-laden associations strengthen trust and willingness to buy green cosmetics (Zhai et al., 2022; Testa et al., 2024).

For Brand Loyalty (BL), the strongest effect ( $\beta = 0.372$ ,  $p < 0.001$ ) supports H4 and is consistent with Tran & Luu (2022) and Ngo-Thi-Ngoc et al. (2024), indicating loyal consumers are more likely to repurchase, recommend, and resist switching. Recent work also highlights loyalty as the primary pathway through which brand equity translates into intention in ethical/green categories (Limbu & Ahamed, 2023; Huo et al., 2025).

Model fit and diagnostics are satisfactory:  $R = 0.719$ ; Adjusted  $R^2 = 0.510$ ; F-test  $p < 0.001$ ; Durbin–Watson = 1.493; VIFs = 1.286–1.617 (no autocorrelation/multicollinearity). Overall, the ordering  $BL > BAS > PQ > BA$  suggests that relational and identity-laden cues (loyalty, sustainability associations) weigh more heavily than purely informational cues (quality, awareness) when consumers evaluate vegan cosmetics in an emerging market. This has both theoretical and managerial implications for brand strategy in Vietnam’s fast-growing sustainable beauty segment.

## 6. Conclusion and managerial implication

This study draws on Aaker’s (1991) brand equity model, Fishbein and Ajzen’s (1975) TRA, and Ajzen’s (1991) TPB to examine how brand awareness, perceived quality, brand associations, and brand loyalty shape consumers’ purchase intention for vegan cosmetics in Ho Chi Minh City. Using survey data from consumers interested in vegan cosmetics, we empirically validate a four-construct framework.

All four dimensions exert positive and statistically significant effects on purchase intention; the effects descend in the following order: brand loyalty, brand associations,



perceived quality, and brand awareness ( $BL > BAS > PQ > BA$ ). These results confirm the applicability of Aaker's model to the vegan-cosmetics context in an emerging market and mirror the rise of sustainability-oriented consumption in Vietnam.

We extend brand equity research by validating Aaker's model in the underexplored setting of vegan cosmetics in Vietnam and by linking brand equity to sustainability-oriented purchase intention.

Findings offer evidence-based priorities for brand managers, emphasizing loyalty building and value-laden brand meanings as the strongest levers of intention. From a managerial perspective, the findings provide a prioritized roadmap for cosmetic brand managers in emerging markets. (i) Prioritize loyalty-building—design tiered programs, strengthen post-purchase service, and sustain personalized CRM—because brand loyalty exerts the strongest effect on intention. (ii) Sharpen brand associations by embedding credible vegan/ESG cues, coherent visual identity, and authentic storytelling with aligned KOLs. (iii) Strengthen perceived quality through transparent ingredients, independent safety/dermatological testing, recognized certifications, and trial-reducing policies (samples, flexible returns). (iv) Expand brand awareness via integrated digital–offline campaigns and marketplace presence. This sequence ( $BL \rightarrow BAS \rightarrow PQ \rightarrow BA$ ) translates the empirical ranking into actionable priorities for attracting and retaining vegan-cosmetics consumers in Ho Chi Minh City and comparable emerging markets.

Grounded in the estimated effect sizes ( $\beta_{BL} = 0.372 > \beta_{BAS} = 0.299 > \beta_{PQ} = 0.173 > \beta_{BA} = 0.127$ ), firms should prioritize actions in the order  $BL \rightarrow BAS \rightarrow PQ \rightarrow BA$ .

First, build and retain loyalty (BL): design tiered membership programs (points plus privileges), referral incentives, and robust after-sales service (fast support, easy returns/exchanges), and personalize CRM via email/apps/messaging to lift repeat purchase and positive word-of-mouth. Complement these with behavior-based perks (RFM), replenishment reminders, value bundles, and educational content on vegan lifestyles.

Second, sharpen brand associations (BAS): integrate credible certifications (e.g., Leaping Bunny, Vegan Society), create a coherent visual identity (name–logo–color palette–packaging), and tell an authentic sustainability story (provenance, community, and environmental responsibility). Collaborate with aligned KOLs/KOCs (vegan/green lifestyle) to enhance authenticity; activate community UGC (reviews, tips, before–after) to amplify ethical and environmental cues.

Third, strengthen perceived quality (PQ): invest in R&D and independent testing (dermatological/safety), disclose ingredients/origins/processes transparently on packs and websites, and reduce trial barriers with samples, travel sizes, and clear, flexible return policies. Provide guidance on the functionality of natural/vegan actives to reinforce trust and willingness to pay.

Fourth, expand brand awareness (BA): run integrated online–offline campaigns (short-form video, SEO/SEM, targeted social ads), optimize marketplace storefronts (e.g., Shopee/Lazada), and stage experiential sampling (pop-ups, green-beauty events) to raise aided and unaided recall, especially in Ho Chi Minh City.

Track progress with KPIs including repeat-purchase rate, member share of sales, NPS/ratings, number of third-party certifications, aided/unaided recall, share of voice, and channel-level conversion/CPA. Aligning investment with the empirically derived sequence BL → BAS → PQ → BA maximizes conversion and retention in Vietnam’s vegan-cosmetics market by prioritizing relationship strength and sustainability-laden meanings first, then reinforcing quality signals and scaling awareness efficiently.

## 7. Limitations and directions for future research

This study has several limitations. First, the survey was conducted in a single city (Ho Chi Minh City) using convenience, online self-administered sampling, which may restrict generalizability and introduce measurement or response biases. Second, the cross-sectional design limits causal inference. Third, although respondents evaluated a focal brand from a list of vegan cosmetics labels, unobserved brand-level heterogeneity may remain. Finally, outcomes rely on self-reported purchase intention, which may not fully reflect actual buying behavior and may be subject to common-method variance.

Future research should broaden the sampling frame to multiple cities/provinces (and cross-country settings) and consider probability sampling to improve external validity. Scholars could combine surveys with behavioral/transaction data or panel data, and employ longitudinal or experimental designs to strengthen causal claims. Methodologically, applying CFA/SEM or PLS-SEM (e.g., HTMT, measurement invariance) and modeling brand fixed effects or multi-group comparisons can address brand heterogeneity. Finally, examining mediators (e.g., attitude, brand trust) and moderators (e.g., green involvement, price sensitivity, eco-label credibility, social norms), or using multilevel models, would provide a richer understanding of how brand equity shapes vegan-cosmetics purchase intention in emerging markets.

## Declaration of Generative AI and AI-assisted technologies in the writing process

While preparing this manuscript, the author did not use any tool/service.

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