Investigating the Determinants of Eco-Friendly Purchase Intention Among Malaysian Consumers in the Food and Beverage Industry

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ARTICLE INFORMATION

ABSTRACT

The global shift toward sustainability has increasingly shaped consumer behavior, particularly in Malaysia's growing food and beverage (F&B) sector. However, a persistent gap remains between consumers' pro-environmental attitudes and their actual purchasing decisions. Addressing this issue, the present study investigates the determinants of eco-friendly purchase intention among Malaysian consumers in the F&B industry, focusing on environmental concern, environmental knowledge, and perceived consumer effectiveness (PCE). A quantitative research design was employed, utilizing an online survey administered to 200 Malaysian consumers, and the collected data were analyzed using multiple regression analysis. The results demonstrate that environmental concern (β = 0.301), environmental knowledge (β = 0.480), and PCE (β = 0.155) all exert significant positive effects on eco-friendly purchase intention, with environmental knowledge emerging as the strongest predictor. The regression model explains 72.2% of the variance in purchase intention (R^2 = 0.722), indicating strong explanatory power. These findings enhance understanding of eco-friendly consumption and provide practical insights for F&B firms in developing effective sustainability-oriented marketing strategies.

Keywords: Eco-Friendly Consumption; Environmental Concern; Environmental Knowledge; Food and Beverage Industry; Purchase Intention

INTRODUCTION

Following the increase in the global environmental crisis, from climate change to resource depletion, sustainable consumption has shifted from a niche trend towards a global necessity. The United Nations Sustainable Development Goal (SDG) 12, which is "Responsible Consumption and Production," emphasizes the urgent need to decouple economic growth from environmental degradation (United Nations, 2025). Among all industrial sectors, the food and beverage (F&B) sector contributes a large portion of global greenhouse gas emissions, water usage, and single-use plastic waste (Ritchie et al., 2022). As consumer environmental awareness on these impacts grows, a paradigm shift towards green consumerism has appeared, where individuals increasingly seek products that minimize environmental harm.

In recent years, unsustainable consumption such as single-use plastics has become a concern over environmental degradation have encouraged consumers to become more conscious of the products they purchase, specifically within the F&B industry. As sustainable use continues to gain attention in Malaysia, a rapidly developing nation, this shift is particularly critical. Malaysia faces severe waste management challenges, producing thousands of tons of food and plastic waste, much arising from the F&B sector's reliance on disposable packaging and resource-intensive supply chains (Abdul Halim et al., 2025). While recent industry surveys state that Malaysian consumers possess a high level of environmental awareness, with up to 91% expressing willingness to purchase sustainable products (Phung, 2025). However, this awareness is characterized by a distinct 'intention-behavior gap,' where financial restrictions and skepticism often obstruct the translation of environmental concern into actual purchase behavior. This suggests that awareness does not consistently translate into practice. The intention-behavior gap suggests that while consumers express concern for the environment, barriers such as price sensitivity, habit, and a lack of trust in "green" claims prevent them from purchasing eco-friendly F&B products (Andrlić et al., 2025).

Despite the abundance of literature on sustainable purchasing behavior, remarkable gaps remain. First, most of the existing studies focus on Western developed economies, where consumer psychographics show a very significant difference from those in Southeast Asian developing markets such as Malaysia. Second, research specifically targeting the F&B sector in Malaysia remains fragmented, even though eco-friendly purchase intention has been widely studied. The F&B sector is unique since purchase decisions are driven by altruistic environmental concerns and immediate personal factors such as food safety, health consciousness, and halal certification. Existing frameworks often fail to capture the interaction between these industry-specific nuances and standard behavioral determinants.

Consequently, this study examines the key determinants influencing eco-friendly purchase intention among Malaysian consumers in the F&B sector by focusing on environmental concern, environmental knowledge, and perceived consumer effectiveness (PCE) as critical cognitive and belief-based drivers. Drawing on the Theory of Planned Behavior (TPB), this research provides context-specific empirical evidence from an emerging economy setting where sustainable consumption remains constrained by structural and perceptual barriers. The study aims to inform policymakers, industry stakeholders, and marketers by identifying which psychological factors most effectively translate environmental awareness into purchase intention. The novelty of this research lies in its focused application of a TPB-based framework to the Malaysian F&B industry, a sector characterized by frequent purchasing decisions and heightened sensitivity to price, health, and sustainability cues. Theoretically, the study extends the sustainable consumption literature by clarifying the relative roles of affective, cognitive, and efficacy-

related factors in a developing-market context. Practically, it offers actionable insights for designing education, labeling, and communication strategies that reduce the intention–behavior gap and promote more consistent eco-friendly purchasing behavior among Malaysian consumers.

LITERATURE REVIEW

Purchase Intention
Purchase intention comes up when consumers plan or are willing to purchase a product and represents a critical stage before actual purchase behavior (Harjanti, 2021). It is widely used in sustainability and consumer behavior research as a key indicator to predict environmentally responsible consumption. Previous studies indicate that consumers tend to exhibit stronger purchase intentions when products or packaging are perceived as eco-friendly, as such attributes align with their environmental values and beliefs (Imran et al., 2024). In addition, recent empirical evidence emphasizes that consumers' environmental consciousness and related cognitive factors significantly play a role in influencing sustainable purchasing decisions (Harjadi & Gunardi, 2022). A meta-analysis conducted by Zhuang et al. (2021) confirms that environmental concern consistently shows a positive relationship with consumers' intention to purchase green products. This is consistent with the findings of Wijekoon and Sabri (2021), which underscore environmental knowledge as a key determinant influencing consumers' intention to purchase green products, proving that consumers with environmental knowledge are more likely to apply environmental awareness in purchasing intentions.

To support this perspective, eco-friendly purchase intention has been validated as a reliable predictor of sustainable purchasing behavior, including high-involvement contexts like housing or premium products (Chanda et al., 2025). These findings highlight the interplay between sustainability and consumers' purchase intention, indicating the need for further exploration in the context of the F&B sector.

Environmental Concern
Environmental concern represents the extent to which individuals are aware of environmental issues and are willing to take action to minimize negative environmental impacts (Wong et al., 2018). A number of scholars highlight that consumers with higher levels of environmental concern are more inclined to develop intentions to purchase eco-friendly products, as such behavior reflects their environmental values and sense of responsibility (Ahmed et al., 2020; Kumar et al., 2021). Empirical findings further support this relationship in packaging and beverage contexts, indicating that environmental concern positively influences consumers' purchase intention toward sustainable F&B products (Imran et al., 2024). Moreover, evidence from Malaysian studies supports this association as environmental concern enhances consumers' intention to purchase eco-labelled products, which suggests that environmental values are translated into pro-environmental purchasing tendencies (Yahya et al., 2022). However, existing literature largely emphasizes specific product attributes, leaving a limited understanding of how environmental concern interacts alongside other cognitive factors within the F&B industry. Based on this discussion, the following hypothesis is proposed.

H1: Environmental concern has a positive influence on purchase intention

Environmental Knowledge
Saari et al. (2021) emphasized that environmental knowledge can be defined as an individual's understanding level of environmental issues. Environmental knowledge extends beyond general awareness of environmental issues to encompass consumers' ability to comprehend eco-friendly labels and product information during purchase

decisions (Hossain et al., 2022; Taufique et al., 2016). There is growing evidence to support this view that consumers with higher levels of environmental knowledge are more likely to have a strong willingness to purchase green products, as they are more aware of the environmental consequences of their consumption (Simanjuntak et al., 2023). Internal cognitive drivers like ethical obligations and green self-identity have been found to strengthen the impact of environmental knowledge on purchase intention (Kumar et al., 2023). In light of these studies, it becomes apparent that environmental knowledge is positively associated with consumers' perceptions of sustainability through product attributes such as eco-friendly labels and packaging, which in turn guides consumers toward more sustainable choices (Bandara et al., 2022). While the findings are valuable, extensive research is necessary to examine the influence of environmental knowledge on consumers' purchase intentions, particularly in the F&B sector.

H2: Environmental knowledge has a positive influence on purchase intention

**Perceived Consumer Effectiveness (PCE)**
PCE has been identified as an individual's belief that their personal actions can contribute to tackling environmental problems and promoting sustainability (Kumar et al., 2022). Existing literature demonstrates that PCE interacts with ecological awareness, whereby people who perceive their actions as effective are more motivated to act in sustainable behavior (Hussain & Huang, 2022). Furthermore, Quoc et al. (2025) show that consumers with a higher level of PCE are more responsive towards eco-friendly cues such as green labels and packaging in the F&B industry. This indicates that the capability of consumers to contribute to environmental protection is more receptive to eco-friendly product attributes. In terms of sustainable consumption behavior, PCE has also been found to influence individuals' attention to engage in environmentally responsible actions like reducing food waste (Lin & Guan, 2021). In addition, PCE complements environmental consciousness in shaping sustainable purchase intentions, aligning with cognitive-behavioral frameworks that emphasize the role of PCE in motivating pro-environmental action (Gul & Ahmed, 2024). The above findings propose the following hypotheses.

H3: PCE has a positive influence on purchase intention

Conceptual Framework
The study framework model is depicted in Figure 1.

Figure 1. Research Framework
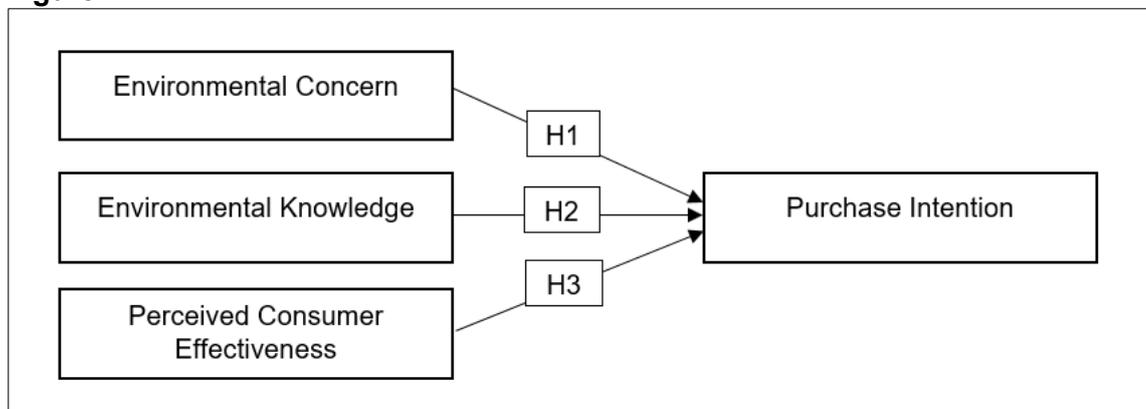
RESEARCH METHOD

Research Design and Approach
This study adopted a quantitative research approach using a cross-sectional survey design to examine the determinants of eco-friendly purchase intention among Malaysian consumers in the F&B sector. A quantitative approach was considered appropriate as it enables statistical testing of hypothesized relationships between psychological constructs and purchase intention, consistent with prior consumer behavior and sustainability research grounded in the TPB.

Sampling and Data Collection Procedure
Data were collected through an online self-administered questionnaire distributed via Google Forms. The survey link was disseminated by members of the research team across various social and professional networks to reach a broad and diverse pool of Malaysian consumers. This convenience-based sampling technique is commonly employed in consumer behavior studies due to its efficiency, accessibility, and suitability for exploratory and theory-testing research. A total of 200 valid responses were obtained and included in the final analysis, which satisfies the minimum sample size requirements for regression-based statistical analysis.

Measurement of Constructs
All constructs were measured using previously validated scales adapted from established studies. Responses were recorded on a five-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree").

Environmental Concern
Environmental concern was measured using a three-item scale adapted from Wang et al. (2020) and Zou et al. (2021). Respondents evaluated their level of concern regarding environmental conditions and the consequences of human activities using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Sample items included: "I am concerned about the state of the world environment and how it will affect my future," "I am concerned that humanity is overusing the environment," and "I am concerned about the disastrous consequences of human destruction of nature."

Environmental Knowledge
Environmental knowledge was assessed using a three-item, five-point Likert scale adapted from Molinillo et al. (2020) and Wang et al. (2020). This scale measured respondents' self-perceived knowledge of environmental issues and eco-friendly product labeling, with response options ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Sample items included: "I have more knowledge about environmental issues than an average person," "I have knowledge about the eco-friendly labels used on product packages," and "I am very knowledgeable about environmental and social issues."

Perceived Consumer Effectiveness (PCE)
PCE was measured using a three-item scale adapted from Wang et al. (2020). This construct captured respondents' beliefs regarding their ability to contribute to environmental protection through individual actions. All items were measured on a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Sample items included: "I feel I can help solve natural resource problems by conserving water and energy," "I can protect the environment by buying green products," and "I think there are many things I can do to protect the environment."

Eco-Friendly Purchase Intention

Eco-friendly purchase intention was measured using a three-item scale adapted from Molinillo et al. (2020), Wang et al. (2020), Wang et al. (2022), and Zou et al. (2021). Respondents indicated their willingness to purchase eco-friendly products on a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Sample items included: "I am committed to buying green products," "My willingness to buy eco-friendly products is high," and "I will pay more for a product that has more environmental benefits."

Data Analysis Technique

The collected data were analyzed using statistical software to perform descriptive and inferential analyses. Reliability and validity assessments were conducted to ensure the robustness of the measurement model. Multiple regression analysis was employed to test the hypothesized relationships between environmental concern, environmental knowledge, perceived consumer effectiveness, and eco-friendly purchase intention.

Ethical Considerations

Participation in the survey was voluntary, and respondents were informed of the purpose of the study prior to participation. Anonymity and confidentiality were assured, and no personally identifiable information was collected. The study adhered to standard ethical guidelines for social science research.

RESULTS

Table 1. Summary of Respondent's Demographic Information (N=200)

Response	Frequency	Percentage (%)
Gender		
Male	61	30.5
Female	139	69.5
Age		
Below 18 years old	12	6.0
18-24 years old	136	68.0
25-34 years old	31	15.5
35-44 years old	13	6.5
45 years old and above	8	4.0
Race		
Malay	111	55.5
Chinese	42	21.0
Iban	7	3.5
Indian	36	18.0
Kadazan	2	1.0
Kenyah	1	.5
Serani	1	.5
Educational Level		
High school	20	10.0
Diploma	28	14.0
Bachelor's Degree	126	63.0
Master's Degree	26	13.0
Occupation		
Employee	51	25.5
Self-employed	11	5.5
Student	138	69.0

According to the data in Table 1, the demographic profile of respondents (N=200). The majority of respondents were female (69.5%), while males made up (30.5%). Regarding age distribution, most respondents were aged between 18 and 24 years old (68%). This was followed by those aged 25-34 years (15.5%). Smaller proportions of respondents were below 18 years old (6%), aged 35-44 years (6.5%), and aged 45 years and above (4%). In terms of race, Malay respondents form the largest group at (55.5%), followed by Chinese respondents at (21%) and Indian respondents at (18%). Other ethnic groups include Iban (3.5%), Kenyah (0.5%), Kadazan (1%), and Serani (0.5%). With respect to educational background, most respondents held a bachelor's degree (63%). This was followed by Diploma holders at (14%) and those with a master's degree at (13%). Respondents with a high school qualification made up (10%). Finally, in terms of occupation, students represented the majority of respondents (69%). Employees accounted for (25.5%), while self-employed individuals comprised (5.5%) of the total sample.

Table 2. Descriptive Statistics, Cronbach's Coefficient Alpha, and Zero-order Correlations for all study variables

	Variables	1	2	3	4
1	Environmental Concern	0.952			
2	Environmental Knowledge	0.711**	0.948		
3	PCE	0.844**	0.613**	0.926	
4	Purchase Intention	0.774**	0.790**	0.704**	0.947
	Number of items	3	3	3	3
	Mean	4.438	4.041	4.450	4.065
	Standard Deviation	0.749	0.930	0.766	0.893

Note: N=200; $*p < 0.05$, $**p < 0.01$, $***p < 0.001$. The diagonal entries represent Cronbach's Coefficient Alpha.

Table 2 presents descriptive statistics, measures of reliability, and zero-order correlations among the study variables. Environmental concern recorded a Cronbach's alpha of 0.952, with a mean of 4.438 and a standard deviation of 0.749. However, environmental knowledge showed Cronbach's alpha of 0.948, a mean of 4.041, and a standard deviation of 0.930. Meanwhile, PCE had a Cronbach's alpha of 0.926, with a mean score of 4.450 and a standard deviation of 0.766. Finally, purchase intention showed Cronbach's alpha of 0.947, with a mean of 4.065 and a standard deviation of 0.893. All variables ranged from 0.613 to 0.844 and were statistically significant.

Table 3. Regression Analysis

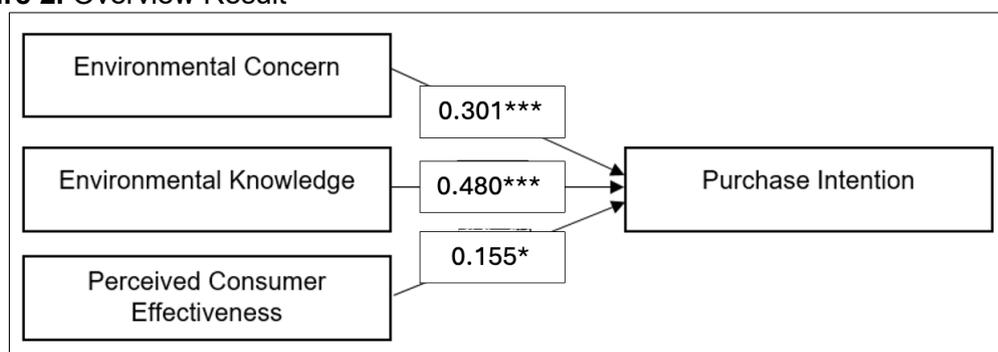|	Variable	Purchase Intention
1	Environmental Concern	0.301***
2	Environmental Knowledge	0.480***
3	PCE	0.155*
	R²	0.722
	F value	169.514
	Durbin-Waston Statistic	1.677

Note: N=200; $*p < 0.05$, $**p < 0.01$, $***p < 0.001$.

Table 3 shows the results of the regression analysis on factors influencing purchase intention. The findings indicate that environmental concern, environmental knowledge, and PCE all have positive effects on purchase intention. The table shows that variables of environmental concern have a positive relationship with purchase intention (β=0.301). This means that respondents who are more concerned about environmental issues are more likely to have a higher intention to purchase these eco-friendly F&B products. To conclude, H1 is supported by environmental concern. Next, the table also shows that

variables of environmental knowledge positively correlated with purchase intention (β=0.480). Among the three variables, environmental knowledge is the largest standardized coefficient, which means it is the most influential factor on consumers' eco-friendly purchase intention. This means that consumers who are more concerned about environmental issues are more likely to purchase eco-friendly F&B products. Consequently, H2 is supported. Finally, PCE also has a positive effect on purchase intention based on Table 3 (β=0.155). Even though it is the smallest standardized coefficient compared to other variables, the result shows that consumers who believe their individual actions can contribute to environmental protection are more likely to purchase eco-friendly products. Thus, H3 is supported (see Figure 2).

Besides that, the table also explains 72.2% of the variation in purchase intention (R²=0.722), indicating a strong explanatory power. The F-value of 169.514 shows that the regression model is statistically significant. The Durbin-Waston Statistics of 1.677 suggests that there is no serious autocorrelation issue. Overall, the results show that all of these variables significantly influence and support purchase intention.

Figure 2. Overview Result

DISCUSSION

This study set out to examine the determinants of eco-friendly purchase intention among Malaysian consumers in the F&B industry, with particular emphasis on environmental concern, environmental knowledge, and PCE. The empirical results confirm that all three constructs significantly influence consumers' intention to purchase eco-friendly F&B products, thereby supporting H1, H2, and H3. Importantly, the findings reveal a differentiated pattern of influence, with environmental knowledge emerging as the strongest predictor, followed by environmental concern and PCE. This hierarchy of effects provides important insights into the psychological mechanisms underlying sustainable consumption behavior and highlights the relative importance of cognitive versus affective and belief-based drivers in shaping purchase intentions.

Environmental Concern and Eco-Friendly Purchase Intention (H1)
The findings demonstrate that environmental concern has a significant and positive effect on consumers' eco-friendly purchase intention, lending empirical support to H1. Consumers who are more aware of environmental degradation, such as plastic pollution, climate change, and excessive resource consumption, exhibit a stronger inclination to support environmentally responsible products. This result is consistent with prior empirical evidence indicating that environmental concern plays a crucial role in shaping pro-environmental attitudes and behavioral intentions (Imran et al., 2024). Similarly, Ahmed et al. (2020) and Kumar et al. (2021) report that heightened environmental concern increases consumers' moral motivation to engage in green purchasing behavior.

However, the findings of this study also suggest that environmental concern alone may not be sufficient to translate into strong purchase intention in the absence of complementary cognitive resources. While concern generates a favorable disposition toward sustainability, it does not necessarily equip consumers with the ability to evaluate or differentiate eco-friendly products in the marketplace. In the F&B sector, sustainability attributes are often communicated through packaging, labels, and certifications, which require consumers to interpret technical or symbolic information. As argued by Nilsson et al. (2004), the effectiveness of environmental concern in influencing purchase behavior depends heavily on the clarity, credibility, and comprehensibility of environmental information provided to consumers.

This insight helps explain why environmental concern, although significant, exerts a weaker effect than environmental knowledge in this study. Concern may function as an emotional or moral trigger, but without sufficient understanding of eco-labels or environmental claims, consumers may experience uncertainty or skepticism, which inhibits actual purchase intention. Furthermore, cultural and contextual factors specific to Malaysia, such as varying levels of environmental literacy and price sensitivity in the F&B market, may moderate the strength of this relationship. As such, the generalizability of these findings should be approached with caution, and future studies may benefit from incorporating contextual moderators such as trust in green claims, perceived price premiums, or brand reputation.

Environmental Knowledge and Eco-Friendly Purchase Intention (H2)

Environmental knowledge was found to be the strongest determinant of eco-friendly purchase intention, providing robust support for H2. This finding underscores the central role of cognitive understanding in driving sustainable consumption behavior, particularly in routine and low-involvement product categories such as food and beverages. Consumers with higher levels of environmental knowledge are better able to recognize eco-friendly attributes, assess environmental consequences, and distinguish between genuinely sustainable products and those that merely engage in "greenwashing." This result aligns with previous studies demonstrating that environmentally knowledgeable consumers are more capable of translating pro-environmental attitudes into concrete purchasing decisions (Saari et al., 2021; Simanjuntak et al., 2023).

The dominance of environmental knowledge over environmental concern and PCE further reinforces the argument that knowledge serves as a critical bridge between awareness and action. Zeng et al. (2023) suggest that environmental knowledge strengthens the link between concern and behavior by reducing cognitive ambiguity and increasing consumers' confidence in their purchasing decisions. In the context of the F&B industry, where product differentiation is often subtle and claims of sustainability are widespread, such knowledge becomes especially important.

Eco-labels, recyclable packaging symbols, and sustainability certifications function as informational cues that guide consumer decision-making. As noted by Agarwal et al. (2025), credible certifications related to sustainable sourcing or environmentally friendly production processes enhance consumer trust and facilitate informed choice. Consumers who understand these cues are more likely to reward genuinely eco-friendly brands and avoid misleading claims. Consequently, environmental knowledge not only influences individual purchase intention but also plays a broader role in shaping market demand for sustainability and encouraging firms to adopt authentic green practices.

Overall, the findings highlight environmental knowledge as a pivotal mechanism through which consumers move from abstract environmental values to tangible purchasing behavior. This is particularly salient in emerging markets such as Malaysia, where rapid

consumption growth in the F&B sector amplifies the environmental impact of everyday purchasing decisions.

Perceived Consumer Effectiveness and Eco-Friendly Purchase Intention (H3)
The results also indicate that perceived consumer effectiveness positively influences eco-friendly purchase intention, thereby supporting H3. This finding is consistent with earlier research suggesting that consumers are more likely to engage in sustainable behavior when they believe their individual actions can contribute meaningfully to environmental protection (Hussain & Huang, 2022; Kumar et al., 2022). PCE reflects consumers' sense of agency and personal responsibility, reinforcing the idea that individual consumption choices matter in addressing environmental challenges.

Consumers with higher levels of PCE tend to perceive their purchasing decisions as part of a collective effort toward sustainability, which increases their willingness to support environmentally responsible firms. As highlighted by Muhammad (2019), such consumers are more inclined to patronize brands that adopt green practices, including the use of biodegradable packaging or energy-efficient production processes. In this sense, PCE functions as a motivational driver that complements both environmental concern and knowledge.

Nevertheless, the relatively weaker effect of PCE compared to environmental concern and knowledge suggests that belief in personal impact alone may not be sufficient to drive strong purchase intention. This may be due to structural and contextual constraints within the F&B market, such as limited availability of eco-friendly options, price premiums, or skepticism regarding corporate sustainability claims. Without adequate environmental knowledge, consumers may doubt whether their purchases truly make a difference, thereby weakening the motivational force of PCE.

Moreover, the reliance on self-reported data in this study may partially account for the observed effect size, as stated intentions may not always translate into actual behavior. Future research could strengthen this line of inquiry by incorporating objective behavioral measures, such as purchase data or experimental designs, to assess how perceived effectiveness influences real-world consumption choices.

Implications for Theory and Practice
The findings of this study generate several important implications for both theory development and practical decision-making in the context of sustainable consumption. From a theoretical perspective, this study strengthens and refines the application of the TPB in the domain of eco-friendly consumption within an emerging economy. By empirically demonstrating the differentiated effects of environmental concern, environmental knowledge, and perceived consumer effectiveness, the results suggest that eco-friendly purchase intention cannot be sufficiently explained by attitudinal concern alone. Instead, sustainable consumption behavior is better understood through an integrated framework that combines affective motivation (environmental concern), cognitive capability (environmental knowledge), and belief-based efficacy (PCE). This finding extends TPB-based sustainability research by highlighting the relative dominance of cognitive factors over purely affective ones in low-to-moderate involvement product categories such as food and beverages. Consequently, future theoretical models of green consumption should move beyond single-factor explanations and explicitly account for how knowledge and perceived agency interact with attitudes to reduce the intention–behavior gap.

From a managerial perspective, the results provide clear guidance for F&B firms seeking to stimulate eco-friendly purchasing behavior. The strong effect of environmental knowledge indicates that broad, symbolic "green" messaging is insufficient in influencing consumer decisions. Instead, firms should invest in information-rich strategies that enhance consumers' ability to identify, interpret, and trust eco-friendly product attributes. This includes the use of standardized and easily understandable eco-labels, transparent disclosure of packaging materials and sourcing practices, and concise explanations of environmental benefits at the point of purchase. By lowering consumers' cognitive processing costs, firms can make eco-friendly choices more intuitive and actionable, particularly in fast-moving consumer goods contexts where decision-making is often habitual and time-constrained.

In addition, the significance of perceived consumer effectiveness suggests that marketing communications should be designed to empower consumers rather than overwhelm them with abstract environmental threats. Messaging that explicitly links individual purchase decisions to tangible environmental outcomes, such as reduced plastic waste or lower carbon emissions, can strengthen consumers' sense of agency and increase the likelihood that environmental concern translates into actual purchase intention. Campaigns that emphasize collective impact through individual action may be especially effective in sustaining long-term engagement with eco-friendly products.

From a policy perspective, the findings underscore the importance of consumer-focused sustainability policies that prioritize environmental literacy rather than relying solely on regulatory enforcement. Public initiatives aimed at improving consumers' understanding of eco-labels, sustainable packaging, and environmental impacts can complement firm-level efforts and enhance policy effectiveness. In line with the United Nations SDG 12, policymakers may consider fostering public–private partnerships that integrate sustainability education into school curricula, digital platforms, and mass communication channels. Such coordinated efforts can help institutionalize sustainable consumption norms and narrow the persistent gap between environmental awareness and eco-friendly purchasing behavior in developing economies such as Malaysia.

CONCLUSION

The primary objective of this study was to examine the psychological and cognitive determinants of eco-friendly purchase intention among Malaysian consumers in the F&B industry. Drawing on empirical evidence from 200 respondents, the findings confirm that environmental concern, environmental knowledge, and PCE significantly influence consumers' intentions to purchase eco-friendly F&B products. Among these factors, environmental knowledge emerged as the most influential predictor, underscoring the pivotal role of consumers' ability to recognize eco-labels, understand environmental impacts, and evaluate sustainability-related product information in shaping green purchasing decisions.

Furthermore, the results demonstrate that these determinants collectively explain a substantial proportion of the variance in eco-friendly purchase intention, providing strong empirical support for the applicability of the TPB–based framework within the Malaysian context. The findings indicate that while environmental concern establishes an essential motivational base, it is consumers' practical knowledge and belief in the effectiveness of their individual actions that more effectively convert pro-environmental attitudes into concrete purchase intentions.

From a practical standpoint, the study highlights the importance of prioritizing consumer education, transparent eco-labeling, and clear sustainability communication within the F&B sector. Policymakers and industry practitioners should focus on enhancing environmental literacy and reinforcing consumers' perceived impact to narrow the gap between environmental awareness and actual purchasing behavior. Overall, this study contributes to the growing body of literature on sustainable consumption in developing economies by providing robust empirical evidence on the relative importance of cognitive and belief-based factors, thereby informing more targeted and effective strategies to promote environmentally responsible consumption in Malaysia.

LIMITATION
Despite its theoretical and practical contributions, this study has several limitations that should be acknowledged and considered when interpreting the findings. First, the research employed a cross-sectional design and relied on self-reported data collected through an online survey. While this approach is suitable for examining relationships among psychological constructs, it is inherently vulnerable to social desirability bias. Respondents may have overstated their environmental concern or eco-friendly purchase intention to align with socially accepted norms, particularly in the context of sustainability. As a result, the reported intention levels may not fully reflect actual purchasing behavior in real-world retail settings, where situational factors such as price sensitivity, time pressure, and product availability often influence decisions. Future research could address this limitation by adopting longitudinal designs, experimental approaches, or behavioral methods, such as transaction data analysis or field experiments, to capture consumers' actual eco-friendly purchasing behavior more accurately.

Second, the sample composition presents a limitation in terms of generalizability. A substantial proportion of respondents were students (approximately 69%) and young consumers aged 18–24 (around 68%). While this demographic focus offers valuable insights into Generation Z consumers—who represent the future of sustainable consumption—it restricts the applicability of the findings to the broader Malaysian population. Older consumers, higher-income groups, working professionals, and rural residents may exhibit different levels of environmental awareness, purchasing power, and decision-making criteria. To enhance representativeness, future studies should employ more diverse sampling strategies that include respondents from various age groups, income levels, occupations, and geographic locations. Comparative analyses between urban and rural consumers may be particularly valuable in understanding how access to information and infrastructure shapes eco-friendly consumption behavior.

Third, the scope of the conceptual framework was limited to three core psychological determinants: environmental concern, environmental knowledge, and perceived consumer effectiveness. Although these variables demonstrated strong explanatory power, the exclusion of external and contextual factors represents another limitation. Variables such as price sensitivity, product availability, brand loyalty, and green trust were not incorporated into the model, despite their potential relevance in a price-sensitive market like Malaysia. The premium often associated with eco-friendly F&B products may act as a significant barrier to purchase, even among environmentally concerned and knowledgeable consumers. Future research could expand the model by incorporating these moderating or mediating variables to provide a more comprehensive understanding of eco-friendly purchase intention.

Additionally, this study did not explicitly consider the role of digital marketing and social media influences in shaping environmental knowledge and purchase intention. Given the growing reliance on digital platforms for information dissemination and the increasing influence of social media influencers on consumer behavior, particularly among younger

consumers, future studies could explore how digital communication strategies affect sustainability perceptions and decision-making in the F&B sector. The intersection between environmental concern and health consciousness also warrants further investigation, as consumers often associate eco-friendly products with healthier consumption choices.

Finally, the study did not fully account for cultural and religious factors specific to the Malaysian context. Elements such as Halal certification, cultural values, and religious beliefs may interact with eco-friendly attributes, particularly in food-related purchasing decisions. For instance, the compatibility between Halal compliance and sustainable packaging could play a crucial role in shaping consumer trust and acceptance. Qualitative research methods, such as in-depth interviews or focus group discussions, could be employed in future studies to uncover deeper emotional, cultural, and contextual drivers behind the persistent intention–behavior gap observed in sustainable consumption. Such approaches would complement quantitative findings and provide richer insights into why environmentally concerned consumers may still engage in unsustainable purchasing practices.

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