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THEY'RE HEALTHY, THEY'RE SUSTAINABLE ALTERNATIVE FOOD SOURCES. WHY DON'T MALAYSIANS AND INDONESIANS EAT MORE BUGS?

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ABSTRACT

In recent years, the consumption of healthy foods, particularly organic options, has emerged as a key factor in driving sustainable transformation. However, the rising global population, increasing incomes, and urbanization have intensified concerns over food security due to the depletion of natural resources. To address these challenges, governments and businesses have introduced strategies such as adopting innovative, efficient, and cost-effective technologies to enhance agricultural productivity. Despite these efforts, food insecurity remains a significant issue for low-income households in developing countries, including Malaysia and Indonesia. This study aims to explore the influence of trust, food neophobia, perceived benefits, perceived risks, and perceived naturalness on consumer acceptance of edible insects in Malaysia and Indonesia. Data was collected through purposive sampling from 388 respondents, comprising 288 Malaysians and 100 Indonesians, using a structured questionnaire. Hierarchical multiple regression analysis was conducted using SPSS to test the proposed relationships. The findings reveal that trust (in the individual endorsing the product), perceived benefits, perceived naturalness, and food neophobia significantly affect consumer acceptance of edible insects. Moreover, nationality moderated the relationship between perceived risks and perceived benefits, with these factors having a stronger impact on Malaysian and Indonesian consumers. This study contributes to the understanding of consumer behavior in the emerging edible insect market and provides valuable insights for businesses and professionals to develop more effective marketing strategies aimed at increasing demand for edible insect-based food products.

Keywords: *Comparison study, acceptance, entomophagy, sustainable consumption*

1. INTRODUCTION

The United Nations Department of Economic and Social Affairs reports that the global population has exceeded 7.8 billion and is projected to reach 8.5 billion by 2030, 9.7 billion by 2050, and 10.9 billion by 2100 (Gu et al., 2021). This population growth has intensified demand for food, raising concerns about food security and the overuse of natural resources. In response, there is growing interest in exploring alternative protein sources that are healthier and more sustainable.

Food security has emerged as a critical global issue, as emphasized in the United Nations' 2030 Agenda for Sustainable Development, where it is prioritized as the second most

important goal. The rise in population, income, employment, and urbanization has escalated food demand, making food security an urgent global challenge. According to van Huis et al. (2013), the global population is expected to reach 9 billion by 2050, which will drive a nearly 70% increase in food demand. This underscores the necessity for nations to enhance their food supply systems.

In Asia, food security remains a significant concern, particularly in rapidly developing countries such as Malaysia and Indonesia. Both nations face increasing challenges in providing sufficient, safe, and nutritious food for their populations. Indonesia ranks 75th, and Malaysia ranks 36th in food security performance, with both experiencing a decline in recent years (Deep Knowledge Analytics, 2022). Malaysia's food security is influenced by various factors, including climate change, economic instability, and rising food prices. Malaysia faces a dual burden of undernutrition alongside overweight and obesity, which poses risks to public health and well-being (UNICEF, 2024). Additionally, it highlights the need for greater investment in agriculture and food systems to improve food security and contribute to sustainable development. Similarly, food security remains a pressing issue in Indonesia, particularly for low-income households and rural communities. A study by the International Food Policy Research Institute (IFPRI) notes that while Indonesia has made progress in reducing undernourishment, substantial challenges remain in ensuring access to nutritious food for all (IFPRI, 2020). These challenges include inadequate infrastructure, limited market access, and a lack of agricultural investment.

In Malaysia, the government’s Nine National Priority Areas (NPAs), which include environmental pollution and climate change, play a crucial role in addressing food security. Climate change-induced extreme weather events, such as floods and droughts, significantly impact livestock feed quality and availability, while rising temperatures lead to increased animal heat stress, reducing productivity (Thornton et al., 2019). Moreover, climate change has expanded the geographical spread of pests and diseases, increasing the risks and costs associated with animal production (Sutherst et al., 2017). Environmental pollution, particularly air and water pollution, also negatively affects food production. For instance, water pollution contaminates aquatic systems where fish and seafood are farmed, rendering them unsafe for consumption (FAO, 2018), and air pollution can harm animal health and productivity while contributing to greenhouse gas emissions (Sejian et al., 2016).

Climate change and environmental pollution have significantly affected the production of animal-based foods, including meat, fish, milk, and eggs (Lensvelt & Steenbekkers, 2014). Animal farming requires extensive land use and is a notable contributor to greenhouse gas emissions (Foley et al., 2011). To address these challenges, governments and businesses have adopted technologies such as genetically modified foods (Falk et al., 2002). In response, the Food and Agriculture Organization (FAO) of the United Nations has advocated for alternative food sources, including edible insects (FAO, 2010).

Entomophagy, the practice of consuming insects as food (FAO, 2013), has ancient roots, with evidence showing that ants, beetle larvae, lice, ticks, termites, and mites were consumed in South Africa, America, and Spain (Lesnik, 2014). Although relatively new compared to traditional meat consumption and vegetarianism, entomophagy has been practiced for centuries. In many parts of Asia, Africa, Mexico, and South America, insects are regularly eaten as snacks, street food, or part of meals (Feng et al., 2017).

However, despite its long history, entomophagy is not widely accepted in certain regions. For example, a survey in the United States found that only 12% of participants were willing to try edible insects, with many expressing negative views on insect consumption (Tan et al., 2015). These findings highlight that while entomophagy offers nutritional and environmental benefits, cultural and psychological factors may significantly influence its low acceptance in some societies.

Most research on consumer behavior regarding edible insects has focused on willingness (Verbeke, 2015) or openness (Myers & Pettigrew, 2018) to try insect-based products rather than their consumption experience or the factors influencing intention. In Malaysia, cultural factors also play a role in acceptance. Hakimah Mohd Yusoff, director of the Halal hub division at JAKIM, has noted that insects such as lice, flies, and other parasites are considered impure and forbidden (haram), which may influence consumer attitudes (The Star Malaysia, 2013).

Currently, little is known about the consumption intentions of insects among Malaysian and Indonesian consumers. This study, therefore, contributes academically by addressing this gap, providing valuable insights into the willingness of these populations to include insects in their diets. Such knowledge can aid developers and marketers in effectively targeting their audiences. Moreover, promoting entomophagy aligns with the global need to address food security challenges while supporting sustainable development goals.

2. RESEARCH METHOD

This study, being primarily quantitative in nature, focuses on examining the relationships between independent and dependent variables. A non-probability sampling approach was employed to achieve a satisfactory response rate. Given the lack of precise data on the total population of potential edible insect consumers in Indonesia and Malaysia, a purposive sampling method was adopted to collect data effectively. The study sample comprises non-Muslim local nationals currently residing in Malaysia or Indonesia. A total of 450 questionnaires were distributed using the snowball sampling technique, resulting in 388 completed responses, including 288 from Malaysians and 100 from Indonesian consumers. Data collection was conducted through a self-administered online survey.

Section A includes statements about the independent variables, such as food neophobia adapted from Pliner, P & Hobden (1992), while trust in the institution and producer, trust in the person using the product, perceived benefits, perceived risks and perceived naturalness were adapted from Lensvelt & Steenbekkers (2014). Section B contains measurement items for consumer acceptance which adapted from Cokki, et. al., (2020). Finally, in Section C, respondents' demographic information is requested. The survey utilized a five-point Likert scale in Sections A and B, where the scale ranged from 1 to 5, with 1 being "Strongly Disagree," 2 being "Disagree," 3 being "Neutral," 4 being "Agree," and 5 being "Strongly Agree." Figure 1 illustrates the proposed conceptual model.

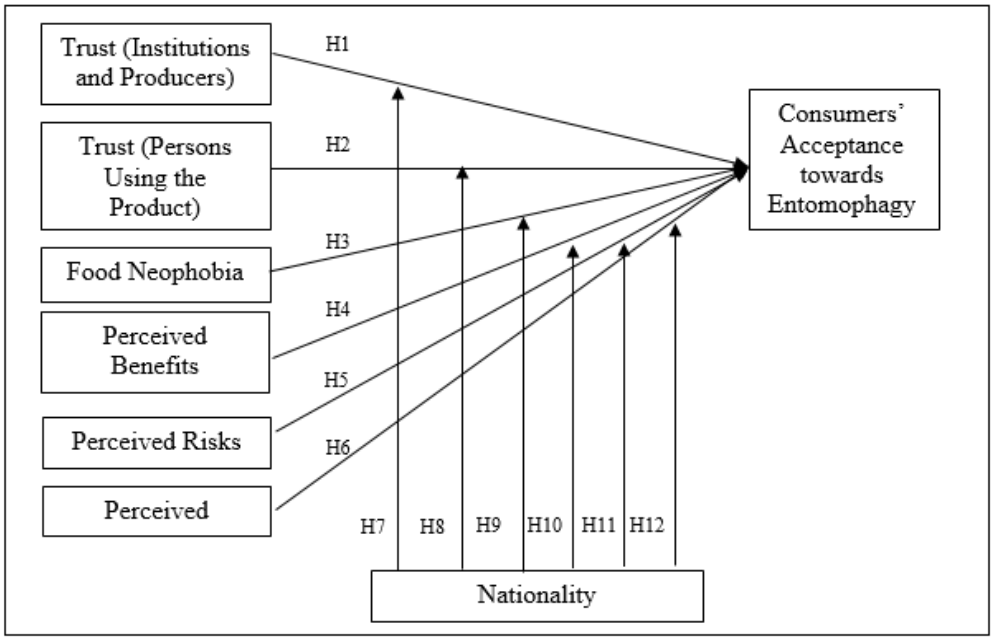

Figure 1. Conceptual Model of Consumers' Acceptance towards Entomophagy
Source: Siegrist and Hartmann, 2020; Siegrist, 2008

Hypotheses are as follows:
H1: Trust in institutions and producers significantly influences consumers' acceptance of entomophagy.
H2: Trust in individuals using the product significantly influences consumers' acceptance of entomophagy.
H3: Food neophobia significantly influences consumers' acceptance of entomophagy.
H4: Perceived benefits significantly influence consumers' acceptance of entomophagy.
H5: Perceived risks significantly influence consumers' acceptance of entomophagy.
H6: Perceived naturalness significantly influences consumers' acceptance of entomophagy.
H7: Nationality moderates the relationship between trust in institutions and producers and consumers' acceptance of entomophagy.
H8: Nationality moderates the relationship between trust in individuals using the product and consumers' acceptance of entomophagy.
H9: Nationality moderates the relationship between food neophobia and consumers' acceptance of entomophagy.
H10: Nationality moderates the relationship between perceived benefits and consumers' acceptance of entomophagy.
H11: Nationality moderates the relationship between perceived risks and consumers' acceptance of entomophagy.
H12: Nationality moderates the relationship between perceived naturalness and consumers' acceptance of entomophagy.

SPSS was used for the descriptive statistical evaluation conducted in this research. In order to better understand the relationships among variables, the data analysis in this study employs Exploratory Factor Analysis (EFA), which helps to identify underlying factors or dimensions that explain the correlation among a set of observed variables. By identifying patterns in the data, EFA can reduce the complexity of the data and provide insights into the relationships among the variables. Hierarchical multiple regression was utilized to examine the relationship between variables and to determine the extent to which each predictor variable accounted for

unique individual differences in the dependent variable. The next part of this paper will present the results of the data analysis.

3. RESULTS AND DISCUSSIONS

Data analysis was conducted using SPSS for descriptive statistical evaluation. To understand the relationships among variables, this study utilized Exploratory Factor Analysis (EFA) to identify underlying factors or dimensions that explain the correlations among observed variables. EFA reduced data complexity and revealed patterns, offering insights into the relationships between constructs. The analysis followed the guidelines of Worthington and Whittaker (2006) and Field (2013). Hierarchical multiple regression was employed to investigate the relationships between the variables and to quantify the unique contributions of each predictor to the dependent variable.

Descriptive Analysis

According to the demographic data (Table 1), 64.9 percent was male and 35.1 percent was female. Only 74.2 percent of consumers are Malaysian, with the remaining 25.8 percent from Indonesia. In term of education level, 54.6 percent consumers have at least an undergraduate degree.

Table 1. Overview of Characteristics of Survey Participants (n=388)

Characteristic	Percentage (%)
Gender	
Male	64.9
Female	35.1
Nationality	
Malaysian	74.2
Indonesian	25.8
Education	
High School	8.3
Diploma	16.5
Undergraduate	54.6
Postgraduate	20.6

Exploratory Factor Analysis

The exploratory factor analysis (EFA) was conducted using the principal axis factoring method with oblique rotation (Promax). Oblique rotation was chosen based on the guidance of Costello and Osborne (2005), as inter-correlations among factors are typical in social science research. The criteria for significant factor loadings were determined by the sample size, in line with recommendations from Hair et al. (2010). For this study, with a sample size of 388, the threshold for significant factor loadings was set at 0.50. The statistical results for EFA are as follows: Bartlett's test of sphericity was highly significant ($p < 0.01$) (Field, 2013), and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.843, reflecting an excellent fit (Hutcheson and Sofroniou, 1999). Two items were excluded from the analysis due to communalities below the acceptable threshold of 0.5 (Field, 2013). The EFA explained 75.25% of the total variance, exceeding the recommended minimum of 50% (Podsakoff and Organ, 1986).

Table 2. The results of Exploratory Factor Analysis

	Factor Loading						
	F1	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**
Consumer Acceptance							
ACCP4	0.896						
ACCP2	0.865						
ACCP1	0.862						
ACCP3	0.847						
ACCP5	0.830						
Variance (percent of explained)	**17.083**						
Trust (Institutions and Producers)							
STNI4		0.877					
STNI5		0.864					
STNI3		0.784					
STNI2		0.672					
Variance (percent of explained)		**12.684**					
Trust (Person using the product)							
STN9			0.842				
STN6			0.762				
STN7			0.756				
STN8			0.722				
Variance (percent of explained)			**11.098**				
Perceived Risks							
PR3				0.912			
PR2				0.829			
PR1				0.777			
Variance (percent of explained)				**9.330**			
Perceived Benefits							
PB3					0.797		
PB1					0.757		
PB2					0.745		
Variance (percent of explained)					**8.975**		
Perceived Naturalness							
PN2						0.878	
PN3						0.838	
Variance (percent of explained)						**8.053**	
Food Neophobia							
NEO2							0.857
NEO3							0.830
NEO1							0.532
Variance (percent of explained)							**8.028**
Total Variance (percent of explained)							**75.250**

Note. *ACCP= Acceptance; STNI= Trust (Institutions and Producers); STN= Trust (Person using the product); PR= Perceived risks; PB= Perceived benefits; NEO= Food neophobia

Hierarchical Multiple Regression

The moderating effect of nationality on individual paths is outlined in Table 3. The results reveal that nationality moderates the relationship between perceived risks, perceived benefits, and consumers' acceptance of entomophagy. Specifically, perceived risks explain only 0.3% of the variance in consumer acceptance, which is not statistically significant ($R^2 = 0.006$, F change = 2.184, $p > 0.05$). When the nationality variable is introduced in Step 2, it contributes an additional 0.5% to explain consumer acceptance ($R^2 = 0.010$, R^2 change = 0.005, F change = 1.715, $p > 0.05$). However, in Step 3, when both perceived risk and nationality are included, the interaction between perceived risk and nationality significantly explains an additional 4% of the variance ($R^2 = 0.047$, R^2 change = 0.040, F change = 14.928, $p < 0.05$). While all effects in Step 3 are statistically significant, the part correlation is small ($r = -0.192$), indicating that although nationality has a moderating effect, it is relatively minor

in moderating the relationship between perceived risk and consumer acceptance of entomophagy.

Regarding perceived benefits, they explain 16.4% of the variance in consumer acceptance, which is statistically significant ($R^2 = 0.164$, $F = 75.928$, $p < 0.05$). In Step 2, nationality adds 1% to the explanation of consumer acceptance ($R^2 = 0.175$, R^2 change = 0.010, F change = 4.728, $p < 0.05$). In Step 3, the interaction between perceived benefits and nationality adds 0.9% to the variance explained, which is also statistically significant ($R^2 = 0.183$, R^2 change = 0.009, F change = 4.227, $p < 0.05$). Despite the statistical significance of all effects in Step 3, the part correlation remains low ($r = -0.095$). This suggests that nationality plays a minor moderating role in the relationship between perceived benefits and consumer acceptance of entomophagy.

In the case of trust in institutions and producers, the initial model (Step 1) shows that trust explains 5.9% of the variance in consumer acceptance ($R^2 = 0.059$, $F = 24.73$, $p < 0.05$), and this relationship is significant. When nationality is added (Step 2), it increases the variance explained by 1.7% ($R^2 = 0.076$, F change = 7.923, $p < 0.05$), highlighting that nationality moderates the relationship between trust in institutions and consumer acceptance. However, in Step 3, when the interaction between trust and nationality is considered, the additional variance explained is not significant ($R^2 = 0.076$, R^2 change = 0.000, F change = 0.078, $p > 0.05$).

Trust in individuals using the product explains 10.4% of the variance in consumer acceptance in Step 1 ($R^2 = 0.104$, $F = 44.589$, $p < 0.05$). In Step 2, nationality explains an additional 0.8% of the variance ($R^2 = 0.112$, F change = 3.464, $p < 0.05$). However, when the interaction between trust in users and nationality is examined in Step 3, the moderating effect of nationality is not significant ($R^2 = 0.112$, R^2 change = 0.001, F change = 0.409, $p > 0.05$), indicating that nationality does not significantly moderate the relationship between trust in users and consumer acceptance.

For perceived naturalness, the initial model explains 1.1% of the variance in consumer acceptance ($R^2 = 0.011$, $F = 4.315$, $p < 0.05$). In Step 2, nationality adds 0.6% to the explained variance ($R^2 = 0.018$, F change = 2.537, $p > 0.05$). When the interaction between perceived naturalness and nationality is examined in Step 3, it significantly explains an additional 1.2% of the variance ($R^2 = 0.030$, R^2 change = 0.012, F change = 4.769, $p < 0.05$), showing that nationality moderates the relationship between perceived naturalness and consumer acceptance.

Lastly, food neophobia initially explains 6.9% of the variance in consumer acceptance ($R^2 = 0.069$, $F = 28.765$, $p < 0.05$). In Step 2, nationality adds 0.3% ($R^2 = 0.072$, F change = 1.228, $p > 0.05$), which is not statistically significant. In Step 3, the interaction between food neophobia and nationality explains an additional 0.1%, but this effect is not significant ($R^2 = 0.074$, R^2 change = 0.001, F change = 0.539, $p > 0.05$), indicating that nationality does not significantly moderate the relationship between food neophobia and consumer acceptance.

Table 3. Results of Moderation Effect

Variables	R^2	Adjusted R^2	$R^2\Delta$	FΔ	SE B	Beta	Sig	Correlation (Part)
Trust (Institutions and Producers)								
Step 1								
Constant					0.189	1.315	0.000	
Trust (Institutions and Producers)	0.059	0.057	0.059	24.73	0.053	0.260	0.000***	0.243
Step 2								
Constant					0.286	0.748	0.009	
Trust (Institutions and Producers)					0.053	0.278	0.009***	0.258
Nationality	0.076	0.071	0.017	7.923	0.110	0.289	0.009***	0.129
Step 3								
Constant					0.844	0.526	0.533	
Trust (Institutions and Producers)					0.225	0.339	0.132	0.074
Nationality					0.461	0.414	0.369	0.044
Trust (Institutions and Producers)* Nationality	0.076	0.069	0.000	0.078	0.124	-0.035	0.780	-0.014
Trust (Person using the product)								
Step 1								
Constant					0.168	1.142	0.000	
Trust (Person using the product)	0.104	0.101	0.104	44.589	0.058	0.386	0.000***	0.322
Step 2								
Constant					0.248	0.801	0.001	
Trust (Person using the product)					0.058	0.383	0.000***	0.320
Nationality	0.112	0.107	0.008	3.464	0.107	0.199	0.063	0.089
Step 3								
Constant					0.715	1.230	0.086	
Trust (Person using the product)					0.249	0.228	0.360	0.044
Nationality					0.394	-0.043	0.912	-0.005
Trust (Person using the product) *Nationality	0.112	0.106	0.001	0.409	0.137	0.088	0.523	0.031
Perceived Risks								
Step 1								
Constant					0.154	2.001	0.000	
Perceived Risks	0.006	0.003	0.006	2.184	0.045	0.067	0.140	0.075
Step 2								
Constant					0.208	1.817	0.000	
Perceived Risks					0.054	0.029	0.583	0.028
Nationality	0.010	0.005	0.004	1.715	0.134	0.175	0.191	0.066
Step 3								
Constant					0.568	-0.231	0.684	
Perceived Risks					0.227	0.883	0.000***	0.194
Nationality					0.343	1.399	0.000***	0.203
Perceived Risks*Nationality	0.047	0.040	0.037	14.928	0.125	-0.483	0.000***	-0.192
Perceived Benefits								
Step 1								
Constant					0.160	0.884	0.000	
Perceived Benefits	0.164	0.162	0.164	75.928	0.047	0.406	0.000***	0.405
Step 2								
Constant					0.241	0.490	0.043	
Perceived Benefits					0.046	0.407	0.000***	0.407
Nationality	0.175	0.170	0.010	4.728	0.103	0.224	0.030**	0.101
Step 3								
Constant					0.672	-0.801	0.234	
Perceived Benefits					0.196	0.798	0.000***	0.188
Nationality					0.371	0.957	0.010***	0.119
Perceived Benefits*Nationality	0.183	0.177	0.009	4.227	0.108	-0.222	0.040**	-0.095
Perceived Naturalness								
Step 1								
Constant					0.190	2.599	0.000	
Perceived Naturalness	0.011	0.008	0.011	4.315	0.050	-0.105	0.038**	-0.105
Step 2								
Constant					0.297	2.235	0.000	
Perceived Naturalness					0.051	-0.092	0.073	-0.091
Nationality	0.018	0.012	0.006	2.537	0.114	0.181	0.112	0.080
Step 3								
Constant					0.793	3.842	0.000	
Perceived Naturalness					0.198	-0.509	0.010***	-0.129
Nationality					0.440	-0.748	0.090	-0.085
Perceived Naturalness *Nationality	0.030	0.022	0.012	4.769	0.112	0.244	0.030***	0.110

Food Neophobia								
Step 1								
Constant					0.193	3.220	0.000	
Food neophobia	0.069	0.067	0.069	28.765	0.050	-0.027	0.000***	-0.263
Step 2								
Constant					0.295	2.972	0.000	
Food neophobia					0.051	-0.261	0.000***	-0.251
Nationality	0.072	0.067	0.003	1.228	0.111	0.123	0.268	0.054
Step 3								
Constant					0.862	3.566	0.000	
Food neophobia					0.213	-0.412	0.053	-0.095
Nationality					0.471	-0.213	0.651	-0.022
Food Neophobia*Nationality	0.074	0.066	0.001	0.539	0.118	0.087	0.463	0.036

Note. ***Statistically significant at the 0.01 level and **at the 0.05 level

Multiple Regression Analysis

The multiple regression analysis explored the relationship between several factors—trust in institutions and producers, trust in users of the product, perceived risks, perceived naturalness, food neophobia, and perceived benefits—and consumer acceptance of entomophagy (edible insects). Table 4 summarizes the results.

The adjusted R^2 value of 0.329 indicates that the six factors together account for 32.9% of the variance in consumer acceptance of entomophagy. The Durbin-Watson statistic is 1.969, suggesting that the assumption of independent errors has been satisfied, meaning there is no significant autocorrelation in the residuals. The F-value for the regression model is 32.651, with a p-value of 0.000, confirming that the combined effect of these six independent variables significantly explains consumer acceptance.

None of the predictors exhibited multicollinearity issues, as evidenced by the tolerance values being higher than 0.1 and the variance inflation factors (VIF) being lower than 10, which confirms the reliability of the regression model (Menard, 1995; Myers, 1990).

The results from Table 4 demonstrate that trust in institutions and producers ($\beta = 0.000$, $t = 0.007$, $p = 0.994$) and perceived risks ($\beta = 0.024$, $t = 0.634$, $p = 0.527$) are not significant predictors of consumer acceptance of entomophagy. Therefore, hypotheses H1 and H3 are rejected.

In contrast, trust in people who use the product ($\beta = 0.285$, $t = 5.063$, $p < 0.01$) and perceived benefits ($\beta = 0.427$, $t = 8.540$, $p < 0.01$) show a significant positive influence on consumer acceptance, supporting hypotheses H2 and H4. This suggests that when consumers trust those who use insect-based products and perceive these products as beneficial, they are more likely to accept entomophagy.

On the other hand, perceived naturalness ($\beta = -0.122$, $t = -2.365$, $p < 0.05$) and food neophobia ($\beta = -0.293$, $t = -5.763$, $p < 0.01$) negatively affect consumer acceptance, confirming hypotheses H5 and H6. Consumers with concerns about naturalness or who are neophobic are less inclined to accept edible insects.

These findings are in line with prior research. For example, Sogari et al. (2017) found that negative attitudes within social circles can deter consumers from trying insect-based foods. Lensvelt and Steenbekkers (2014) similarly highlighted that educating consumers, particularly through tasting sessions, can increase entomophagy acceptance. Other studies, like Berger et al. (2018), emphasize that edible insects are perceived as a sustainable alternative to traditional protein sources, making them more appealing in contexts where

sustainability is prioritized. However, food neophobia, as discussed by Cinar et al. (2021), remains a significant barrier to adoption, as consumers often resist novel or unfamiliar foods due to inherent conservatism (Faria & Kang, 2022).

Table 4. Multiple Regression of Consumer Acceptance towards Edible Insects

	Unstandardized Coefficients				Collinearity Statistics	
Variables	**B**	**Std. Error**	**t**	**Sig.**	**Tolerance**	**VIF**
(Constant)	1.475	0.246	5.998	0.000		
H_1 Trust (Institutions and producers)	0.000	0.057	0.007	0.994	0.614	1.628
H_2 Trust (Person using the product)	0.285	0.056	5.063	0.000***	0.785	1.274
H_3 Perceived risks	0.024	0.038	0.634	0.527	0.956	1.046
H_4 Perceived benefits	0.427	0.050	8.540	0.000***	0.696	1.437
H_5 Perceived naturalness	-0.122	0.052	-2.365	0.019**	0.641	1.560
H_6 Food neophobia	-0.293	0.051	-5.763	0.000***	0.706	1.416
R^2 0.340	Adjusted R^2	0.329		Durbin Watson	1.969	

Note. ***Statistically significant at the 0.01 level and **at the 0.05 level

4. CONCLUSIONS AND SUGGESTIONS

Consumers in emerging markets like Malaysia and Indonesia are increasingly showing interest in healthy food options. However, there is limited research on the specific factors that drive consumers in these developing nations to purchase edible insects. This study sought to address that gap by examining what influences consumer acceptance of entomophagy. The findings reveal that trust in people who use the product, perceived benefits, perceived naturalness, and food neophobia have a direct impact on consumer acceptance, while trust in institutions and producers, as well as perceived risks, do not significantly influence the decision. Several factors contribute to consumer acceptance of eating insects, with trust being one of the key drivers. Specifically, trust in individuals who consume edible insects significantly enhances acceptance among Malaysians, whereas trust in institutional producers does not. This may be because consumers, particularly younger generations, tend to rely more on personal connections or peer recommendations when making food choices (Chen & Antonelli, 2020).

In both Malaysia and Indonesia, trust in users of insect-based products, along with perceived benefits and naturalness, were found to play an essential role in consumers' willingness to try entomophagy. Research suggests that consumers are more inclined to accept edible insects if they believe these products offer tangible benefits, such as nutritional value (Kauppi et al., 2019). On the other hand, food neophobia—an individual's fear of trying new or unfamiliar foods—had a negative impact on acceptance in both countries. People who are apprehensive about new food types may develop an aversion to them over time, making it less likely for edible insects to become part of their diet. In today's digital era, consumers are more informed about the products they buy, thanks to the easy access to information for comparison purposes. This increased awareness, particularly regarding health, has made perceived benefits a key determinant in the purchasing decisions of Malaysian consumers. Given this, government initiatives, such as subsidies or programs to promote healthier food choices like edible insects, could be introduced. These initiatives would not only benefit health-conscious consumers but also support the growth of local insect breeders and sellers by expanding their market reach and making insect-based products more accessible.

For companies in the edible insect industry, it is recommended to focus on building a positive brand image by highlighting the environmental sustainability and nutritional value of their products. A well-crafted promotional strategy can help businesses shape favorable consumer perceptions, boost customer loyalty, and generate interest in trying edible insects. Effective

marketing campaigns can influence consumer behavior, encouraging first-time buyers to explore insect-based products and fostering long-term consumer engagement. Success in this industry depends on the strategic use of marketing tools that resonate with the target audience and are executed effectively to achieve desired results.

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