Consumer acceptance of meat and plant-based meat alternatives

The case of Sri Lanka

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Abstract

The demand for healthy and sustainable protein sources has attracted global attention towards plant-based meat alternatives (PBMAs). In a developing country like Sri Lanka, cultural traditions, economic conditions, and food preferences significantly influence food consumption. Accordingly, this study aims to investigate consumer acceptance of traditional meat and plant-based meat alternatives in Sri Lanka using the Theory of Planned Behavior (TPB) as the main theoretical framework. To do this more specifically, it examines the role of attitudes, subjective norms, and perceived behavioral control on consumers' intentions.

A quantitative research approach was adopted, using a structured online questionnaire distributed to Sri Lankan consumers through digital platforms. The 252 valid responses received were analyzed using IBM SPSS Statistics (version 26). Reliability testing showed good internal consistency (Cronbach's alpha = 0.907). Descriptive statistics, an independent samples t-test, one-way ANOVA, and Pearson correlation analysis were used to examine the effects of demographics on consumer perceptions and acceptance.

The results show that Sri Lankan consumers are aware of the environmental ($M = 3.84$) and health ($M = 3.56$) benefits of PBMA. However, they are skeptical about the sensory attributes of PBMA, such as taste ($M = 2.68$) and texture ($M = 2.91$). Accordingly, quality is important for food choice and acts as a barrier to the adoption of PBMA. Acceptance of female consumers was significantly higher than that of male consumers ($p = 0.017$). Income level also had a significant effect on PBMA consumption ($p = 0.003$), with low and middle-income groups being more likely to accept PBMA. Thus, an "income paradox" was observed in the Sri Lankan market. Also, although there was a significant effect on acceptance of dietary habits ($p = 0.024$), there was no significant effect on education, age, and area of residence. In the correlation analysis, trust in nutritional information was a significant predictor of confidence in choosing PBMA ($r = 0.71$, $p < 0.01$).

It was concluded that although Sri Lankan consumers' attitude towards plant-based meat alternatives is positive, sensory satisfaction, product availability, and lack of consumer knowledge are barriers to adopting alternative meat products. Health benefits were the strongest drivers for overcoming cultural and social resistance. The results suggest that the successful growth of the Sri Lankan market depends on the availability of affordable PBMA that matches local preferences, improved sensory quality, transparent nutritional communication, and a strong distribution network. Therefore, this study adds to the limited South Asian literature on alternative protein acceptance and provides practical insights for policymakers, food manufacturers, and sustainability stakeholders.

Keywords: Plant-based meat alternatives (PBMA); Consumer acceptance; Sri Lanka; Theory of Planned Behavior; Sustainable diets; Alternative proteins; Consumer behavior; Food choice; Sensory perception; Behavioral intention; Health perception; Environmental awareness; Dietary transition.

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Abbreviations

Abbreviation	Description
ANOVA	Analysis of Variance
IBM	International Business Machines
PBC	Perceived Behavioral Control
PBMA	Plant-Based Meat Alternatives
PII	Personally Identifiable Information
SLU	Swedish University of Agricultural Sciences
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences
TBP	Theory of Planned Behavior

1. Introduction

1.1 Background of the Study

Meat has been an important component of the human diet over time, mainly due to its high percentage of protein, amino acids, and vital nutrients. In many cultures around the world, including Sri Lanka, meat is not only a dietary choice, but also it is embedded in their culture, social status, and individual preferences (Alahakoon et al., 2016). However, throughout the past decades, there has been a change in this attitude. Environmental, ethical, and health concerns associated with conventional meat production worldwide have led to an increased demand for alternative protein sources, including plant-based meat alternatives (PBMAs) (Charles et al., 2018; Rubio et al., 2020).

The environmental impact of conventional livestock production is a critical problem because it leads to greenhouse gas emissions, land use, and water use, as well as biodiversity loss. However, along with these environmental impacts, health research has revealed the impact of the high consumption of meat products on non-communicable diseases like heart disease and obesity (Charles et al., 2018). These factors have prompted the need for a healthy, environmentally friendly diet by reducing meat consumption and increasing plant-based consumption (Graca et al., 2019; Wendin et al., 2025).

As a response to these challenges, plant-based meat alternatives (PBMAs) have been considered as one of the main solutions. These are created using various ingredients such as legumes, grains, mushrooms, and oil seeds in a manner that imitates the taste, texture, and appearance of animal meat (Rubio et al., 2020; Castaneda et al., 2025). As a result, these have come to be marketed as a more ethical and sustainable option for enjoying meat-like experiences without the negative impacts of traditional livestock.

On a global scale, interest in plant-based foods is on the increase through ‘flexitarian’ diets, whereby consumers reduce their consumption of meat-based foods without cutting it out entirely (Malek et al., 2019; Hess et al., 2025). However, awareness does not necessarily equate to acceptance. Acceptance of PBMAs by consumers is inconsistent, with many consumers still favoring traditional meat-based foods due to their familiar sensory appeal, cultural significance, cost implications of plant-based foods, and overall skepticism about food technology (de Oliveira Padilha et al., 2022; Dean et al., 2024).

Understanding Consumer Acceptance

However, the success of PBMAs is mainly dependent on the willingness of consumers to accept PBMAs. According to research, consumer acceptance is influenced by various factors, both functional and psychological. These factors range from taste and price to personal attitude and social norms (Akinmeye et al., 2024; Barnés Calle et al., 2025). Taste and texture are often consider as the major challenges facing PBMAs. Currently, many consumers perceive PBMAs as inferior to conventional meat in terms of flavor and "mouthfeel" (Safdar et al., 2025).

Not only sensory issues but also psychological barriers play a significant role. Studies applying behavioral theories show that a person's attitude toward PBMAs, the influence of their social circle, and the ease of buying these products are key to their adoption (Pasquariello et al., 2025; Civero et al., 2025). Some consumers also struggle with "food neophobia" called a fear of trying new foods or see these alternatives as "too processed" or artificial (Barnés-Calle et al., 2025; Spendrup & Persson Hovmalm, 2022). Health perceptions are also divided; while many see PBMAs as a low-fat option, others worry about the quality of the plant protein and the level of processing involved (Hess et al., 2025; Spendrup & Persson Hovmalm, 2022).

The Intention-Behavior Gap

There is a considerable gap between consumers' positive attitudes towards sustainable alternatives and actual purchasing behavior. For example, consumers are still consuming conventional meat products on a daily basis, even after being aware of the environmental and health impact associated with such consumptions (Graca et al., 2019; Linder et al., 2026). This is mainly related to developing countries. In these countries, consumers are highly price-sensitive, and awareness of availability is constant. As a result, PBMAs are struggling to penetrate these markets (Dean et al., 2024; Zhao et al., 2023).

Regional Knowledge Gaps

Though research on PBMAs is increasing rapidly globally, the majority of the studies are conducted on the population of the Western part. There is a lack of empirical studies conducted on the South Asian population, such as in Sri Lanka. This is a major gap because the diet, culture, and economic circumstances of the Sri Lankan population are mostly different from those of the West.

In Sri Lanka, consumers are at an intermediate stage between traditional high-plant-based diets and an emerging trend towards increased meat consumption (Alahakoon et al., 2016). However, the PBMAs ingredients are familiar to sri

lankans and also specifically formulated to replicate the eating experience of meat, but are not yet familiar or accepted in Sri Lanka. For Sri Lankan consumers, traditional meat products are still the first choice due to sensory satisfaction, traditional eating habits, availability, and perceived nutritional value.

The Need for Local Research

In Sri Lanka, the way people eat meat is determined by an unique mix of cultural, religious, and economic factors. Chicken consumption is the highest in quantity, averaging at 10.64 kg/capita, followed by less quantities of beef (1.23 kg/capita), pork (0.42 kg/capita), and mutton (0.13 kg/capita), according to the data based on the Department of Animal Production and Health (2023). Although the native diet is predominantly plant-based, including lentils, vegetables, and coconut. However the urbanization and the increase of incomes, the consumption of meat, especially chicken, has been on the increase (Alahakoon et al., 2016).

While there is a growing interest in vegetarian diet among the younger urban population (Salwathura & Ahmed, 2023), there appears to be a lack of research on how Sri Lankans perceive these PBMAs. Most research conducted in Sri Lanka appears to have focused on the food science aspect of developing a veggie burger or sausages using jackfruit and mushrooms (De Silva et al., 2011; Paranagama et al., 2022). Although these studies prove that it is possible to locally produce these products, it does not indicate whether the average consumer is ready or able to replace their traditional meat with the PBMAs.

Currently, research on the acceptance of traditional meat and plant-based meat alternatives among Sri Lankan consumers remains limited. Specifically, there is a lack of understanding regarding consumers' perceptions of these food products, particularly in relation to their attitudes, subjective norms (social influences), and purchase intentions.

The lack of research in this area creates a problem in terms of how policymakers, food manufacturers, and marketers can effectively promote a shift towards a more sustainable food source. It is not clear why consumers in Sri Lanka would rather consume meat than plant-based meat alternatives or under what conditions they might be able to shift their consumption. But also not clear how Sri Lankan consumers perceive plant-based meat alternatives as a replacement for meat.

1.2 Problem Statement

There is a large intention behavior gap, whereby individuals' concerns about environmental sustainability do not always translate into reduced meat

consumption (Graca et al., 2019; Linder et al., 2026). Reducing meat consumption is considered important because high levels of meat production and consumption are associated with environmental and health concerns. In Sri Lanka, this challenge is particularly relevant, as meat consumption, especially poultry consumption, has been increasing due to urbanization, rising incomes, and changing lifestyles (Alahakoon et al., 2016).

Plant-based meat alternatives (PBMAs) have been developed as a potential solution to promote more sustainable dietary patterns. However, their acceptance among Sri Lankan consumers remains largely unknown. Most existing studies in Sri Lanka have focused on the technological development and production of plant-based meat alternatives (De Silva et al., 2011; Paranagama et al., 2022). In contrast, limited research has examined the psychological and social factors that influence consumers' willingness to choose PBMAs instead of conventional meat (Dean et al., 2024; Zhao et al., 2023). Consequently, there is insufficient empirical evidence to support the development of effective strategies for promoting sustainable diets in the Sri Lankan context.

1.3 Significance of the Study

This study important for several stakeholders who will be affected by the future of food and nutrition in Sri Lanka:

For Food Manufacturers and Entrepreneurs:

The study offers direct view of what Sri Lankan consumers desire, in terms of taste, texture, and price. This will help guide the prepare the locally sourced PBMAs that incorporate ingredients like jackfruit and mushrooms, and actually meet the demands of the Sri Lankan population.

For Policymakers and Health Authorities:

The study will help government agencies better understand the limitations of plant-based meat adoption and also create better-informed public health and environmental campaigns that promote the consumption of sustainable protein sources.

For Academic Research:

The study will help address the "Western bias" of existing literature by providing empirical data from a South Asian perspective.

For Environmental Sustainability:

Overall, the study will help to incorporate the limitations on Sri Lanka's land and water resources by providing insights into how plant-based meat alternatives can be successfully implemented.

1.4 Aim of the Study

The aim of this study is to examine consumer acceptance of plant-based meat alternatives among Sri Lankan consumers and to investigate how attitudes, subjective norms, and perceived behavioural control influence acceptance.

This study analyzes the key drivers, including sensory quality, price, health concerns, and environmental concerns, to understand their impact on the attitudes and perceptions of consumers, either promoting or limiting the use of plant-based proteins in Sri Lanka.

1.5 Research questions

Main research question

How do Sri Lankan consumers perceive and accept plant-based meat compared to traditional meat?

Specific questions

- What limitations do the Sri Lankan consumers have to get over to get to meat alternatives made from plants?
- In what way do cultural and religious practices dictate the food choices that include or exclude plant-based meat?
- How informed are consumers at present about the health and environmental benefits of plant-based meats?
- To what extent does the area of residence influence the acceptance of PBMA in Sri Lanka?

2. Theoretical Framework

This study uses the Theory of Planned Behavior (TPB) as the main theoretical framework to explain consumer acceptance of meat and plant-based meat alternatives.

2.1 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) was developed by Icek Ajzen. The theory explains how individuals' beliefs and perceptions influence their behavioral intentions and decisions. According to TPB, human behavior is primarily predicted by behavioral intentions, which are influenced by three key factors: attitudes toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991).

Attitudes

Several factors influence consumer attitudes towards alternative proteins. Sensory attributes such as taste, texture, smell and appearance have been found to play a critical role in shaping consumers' perceptions of plant-based meat alternatives (Michael et al., 2021). It has also been found that consumers often compare plant-based products to conventional meat and may reject them if they perceive the sensory experience to be inferior (Safdar et al., 2025).

Health and environmental impact considerations also influence attitudes toward plant-based foods. That is, growing awareness of environmental issues related to livestock production, including greenhouse gas emissions and land use, has encouraged consumers to use more sustainable protein sources (Charles et al., 2018; Rubio et al., 2020). In addition, it has been found that people who adopt plant-based diets may experience changes in sensory perceptions and hedonic responses to meat products over time. (Abeywickrema et al., 2024).

Furthermore, studies show that positive attitudes toward alternative proteins are associated with perceptions of sustainability, health benefits, and ethical concerns about animal welfare (Akinmeye et al., 2024; Graca et al., 2019). Therefore, positive attitudes are hoped to increase consumers' intention to accept plant-based meat alternatives.

Subjective norms

Food choices are often socially influenced. Especially in cultures where food is shared within households or communities. Research suggests that social expectations and peer influence significantly influence consumers' willingness to try new food products, including alternative proteins (Chia et al., 2024). Similarly, family preferences and social acceptance can both encourage and discourage individuals from trying plant-based meat alternatives (Juraimi et al., 2026).

Perceived behavioral control

Studies have shown that the limited availability and high prices of plant-based meat alternatives often reduce consumers' willingness to purchase them (Dean et al., 2024; Zhao et al., 2023). Consumers may also feel uncertain about how these products fit into or are incorporated into a traditional diet, which may further limit adoption (Safdar et al., 2025).

In addition, psychological barriers such as food neophobia and resistance to dietary change may lead to reduced cognitive control over adopting a sustainable diet (Linder et al., 2026). Therefore, it is expected that higher cognitive behavioral control will increase consumers' intention to adopt plant-based meat alternatives.

TPB has been widely used in most studies to examining food consumption behavior, sustainable diets, and alternative protein acceptance (Pasquariello et al., 2025; Civero et al., 2025). It is useful for understanding how psychological and social factors influence consumers' willingness to adopt plant-based meat alternatives.

However, Pasquariello et al.(2025) and Rombach et al.(2025) showed that consumers with positive attitudes, supportive social norms, and higher perceived behavioural control are more likely to develop strong intentions to adopt alternative protein products.

Therefore, consumer acceptance in this study is conceptualised as the outcome of behavioural intention, reflected through willingness to consume, purchase, and prefer plant-based meat alternatives compared to conventional meat.

3. Methodology

3.1 Research Approach

This study utilizes a quantitative research methodology, as the primary objective is to measure consumer attitudes, perceptions, and behavioral intentions regarding plant-based meat alternatives (PBMA) in Sri Lanka. The quantitative approach was selected to facilitate the objective testing of hypotheses derived from the Theory of Planned Behavior (TPB). By utilizing structured data collection methods, this study aims to produce generalizable findings that can be statistically validated. A quantitative survey approach was considered appropriate because it enables the collection of data from a relatively large number of respondents and allows statistical examination of relationships between variables. The online format was selected due to its cost-effectiveness, ease of distribution across different regions of Sri Lanka, and ability to reach consumers efficiently within the available timeframe.

3.2 Research Design

The research design follows a dual approach:

- Descriptive Research: This component is employed to map the landscape of consumer behavior. It provides a detailed profile of the respondents (demographics, dietary habits) and quantifies the levels of awareness, perceived sensory quality, and structural barriers to adoption.
- Explanatory Research: This component investigates the causal relationships and interdependencies between TPB variables. By using inferential statistical tests, this study explores how attitudes, subjective norms, and perceived behavioral control (PBC) correlate with and influence the acceptance of PBMA.

3.3 Area of Study and Population

The research focuses on the Sri Lankan consumer market. As the country transitions through a period of economic and dietary shifts, Sri Lanka represents a critical context for studying the acceptance of sustainable protein alternatives.

The target population consists of educated Sri Lankan consumers who possess a basic awareness of PBMA. Given the exploratory nature of this study and the logistical constraints of broad-scale physical surveys, a non-probability convenience sampling method was utilized. Participants were reached through

digital networks, specifically WhatsApp and Messenger, to ensure rapid, nationwide dissemination. While convenience sampling carries an inherent risk of selection bias, it was deemed the most efficient method to capture a diverse range of responses within the specified study period. The target sample size was established at 200–255 respondents to ensure statistical power for parametric analysis.

3.4 Data Collection and Instrumentation

3.4.1 Primary Data Collection

Primary data were gathered using a structured, self-administered questionnaire designed via Google Forms. The survey instrument was constructed to reflect the multidimensional constructs of the TPB framework. The language of the survey was English, ensuring that the terminology regarding PBMA remained consistent and accessible to the target demographic.

The survey period extended from January 16, 2026, to February 4, 2026. Respondents utilized a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) for sections E, F, and H to ensure nuanced measurement of perceptions.

Table 1 Summary of the Questionnaire Structure

Section	Content
A	Screening question
B	Demographic Information
C	Dietary Habits and Meat Consumption
D	Awareness and Experience with Plant- Based Meat Alternatives
E	Sensory Perceptions
F	Health and Environmental Attitudes
G	Cultural and Social Influences
H	Knowledge and Competences
I	Barriers and Motivations

3.4.2 Secondary Data Collection

Secondary data were synthesized to ground the study in existing literature. Sources included peer-reviewed journal articles, government reports from the

Department of Animal Production and Health, and international food industry databases. These sources were critical for the development of the theoretical framework and for benchmarking the study's findings against global standards.

3.5 Data Analysis

The data collected from the survey were analyzed using IBM SPSS Statistics (Version 26.0). In order to enhance methodological rigors, the data analysis procedure was done following an elaborate four-step methodology. In the first step, data screening and reliability testing were done to establish missing values within the dataset. It is worth noting that during this process, internal reliability was assessed using the Cronbach Alpha test, resulting in a value of 0.907. This indicates that items measured the variable of consumer acceptance with high reliability. Subsequently, descriptive profiling was done through the calculation of frequency distribution and measures of central tendency, like mean and standard deviation, to describe demographic profiles and overall perceptions about consumers. Subsequently, inferential statistics were utilized to examine demographic determinants of acceptance. This included the application of the Independent Samples T-Test to determine the significance of gender in influencing consumer acceptance. One-Way ANOVA was used to establish differences in consumer perception based on various demographic factors, including income, eating habits, education, age, and residential areas. The final analysis involved carrying out a Pearson correlation test to examine the relationship and interrelationships among various perceptual factors, including health concerns, environmental effects, and trust.

3.6 Ethical Considerations

This study adheres to the principles of research ethics, including informed consent and confidentiality. Respondents were informed of the study's purpose and the voluntary nature of their participation. All data were collected anonymously, and no personally identifiable information (PII) could be linked back to individual participants. The data was used exclusively for academic research purposes.

4. Results

4.1 Reliability and Normality

In order to verify the reliability of the measurement tool, the Cronbach Alpha Test was carried out on the 11 questions assessing consumer acceptance. The value of 0.907 obtained reflects very good internal reliability. The high value clearly shows that all the questions related to aspects such as taste and texture, health, and the environment accurately reflect the single concept of "consumer acceptance." Normality tests showed that the data were normally distributed.

4.2 Descriptive Profile of Respondents

The survey achieved a total of N=252 valid responses from a diverse cross-section of the Sri Lankan population. As illustrated in Table 2, the sample is primarily composed of young, urban-dwelling females. A significant majority of respondents (77.8%) identify as regular meat consumers, which provides a critical baseline for evaluating the potential transition toward plant-based alternatives.

Table 2 Socio - Demographic Profile of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	95	37.7
	Female	157	62.3
Age	18–25	154	61.1
	26–35	70	27.8
	36–45	16	6.3
	46–60	12	4.8
Area	Urban	119	47.2
	Semi-urban	91	36.1
	Rural	42	16.7
Dietary Habit	Meat eater	196	77.8
	Flexitarian	42	16.7
	Vegetarian/Vegan	14	5.5

4.3 Detailed Analysis of Consumer Perceptions

The core of this study lies in the 1–5 Likert scale responses regarding specific attributes of plant-based meat. The mean scores for each item provide a window into the current mindset of the Sri Lankan consumer.

Table 3 Descriptive Statistics of Perceptions & Acceptance Items

Item Description	**Mean**	**Std. Deviation**
Sensory quality importance	4.24	0.94
Environmental benefit	3.84	0.96
Healthier than traditional meat	3.56	0.99
Trust in nutritional information	3.22	0.97
Confident in choosing PBMA over meat	3.05	1.08
Similar taste to traditional meat	2.68	1.11
Acceptable texture	2.91	1.05

The core findings from the Likert scale data reveal a notable 'perception-gap' among Sri Lankan consumers. While there is strong recognition of the environmental and health benefits of PBMAs, this positive attitude is heavily moderated by skepticism regarding sensory attributes like taste and texture (Table 3). This suggests that while consumers are intellectually aware of the benefits, the physical experience of the product remains a major hurdle for adoption.

4.4 Hypothesis Testing: Inferential Statistics

To understand the drivers of acceptance, the study tested the relationship between demographics and the composite Acceptance Score.

Table 4 Differences in Acceptance by Demographic Factors

Demographic Factor	Group	Mean±SD	Statistics	p-value
Gender	Male	3.12±0.74	t = -2.41	0.017*
	Female	3.45±0.81		
Income (LKR)	Below 50,000	3.57±0.82	F = 4.19	0.003*
	50,000 100,000	3.51±0.73		
	Avove 200,000	3.14±0.70		

Dietary habits	Vegan	2.62±0.93	F = 2.36	0.024
	Vegetarian	3.75±1.00		
	Pescatarian	3.46±0.89		
	Eat everything	3.27±0.68		

Note: Significance at $p < 0.05$

4.4.1 Gender Analysis (Independent Samples T-Test)

In order to study the effects of gender on the adoption of plant-based meat alternatives (PBMA) by the Sri Lankan population, an Independent Samples T-Test was performed. In the analysis, the "Composite Acceptance Score" (which was calculated based on 11 items regarding the perception of PBMA) was considered as the dependent variable, while the independent variable was the Gender (Male/Female). According to the hypothesis (H_1), there was a difference in acceptance scores among men and women.

For the preliminary testing of homogeneity of variances, Levene's Test was used. The results showed that the homogeneity of variances cannot be rejected since $F = 0.822$, and $p = 0.365$. This means that the equal variances assumption can be made, and the reported values are those of an "Equal Variances Assumed" t-test. The t-test results show that there is a statistically significant difference between the groups, $t(250) = -2.40$, $p = 0.017$. Given that the significance value (p-value) is lower than alpha (0.05), the research hypothesis (H_1) is confirmed.

According to the results, female participants showed a much higher mean acceptance rating (mean±standard deviation, 3.45±0.81) than male participants (3.12±0.74). The mean difference of -0.23 showed that females in Sri Lanka had a tendency toward using plant-based products. This finding is in line with the "gender-diet gap" observed in other countries' foodscape, where women were generally more aware of health issues and were willing to minimize their meat intake due to environmental considerations. In the context of Sri Lanka, it could be assumed that the implementation of PBMA would come from female consumers who play an important role in food selection in their families.

4.4.2 Income Level Analysis (One-Way ANOVA)

Hypothesis two (H_2) proposed that consumer acceptance differed across household income levels.

This interesting trend was clearly depicted by the descriptive data in the analysis. The common notion that meat substitutes were primarily favored by high-income "premium" consumers was not supported by these findings. Instead, the highest mean acceptance scores were observed among the lower and middle-income segments. Specifically, respondents earning Below 50,000 LKR

(3.57±0.82) and 50,000–100,000 LKR (3.51±0.73) demonstrated the most favorable attitudes. As income levels rise, the mean acceptance scores showed a steady decline, with the highest earners (Above 200,000 LKR) reporting a significantly lower mean score of 3.14±0.70. Thus, the null hypothesis was rejected in favor of the research hypothesis (H_2).

Such results lead to the identification of an “Income Paradox” in the Sri Lankan market. The increased level of acceptance by lower-income groups demonstrates that PBMA cannot be regarded solely as a means of improving one’s lifestyle but also as a protein substitute, especially when the prices of animal-based protein are going up. The consumers within this category could be more open to plant-based protein benefits if their cost is comparable to that of animal-based protein. Therefore, PBMA products should be marketed at a low price point.

4.4.3 Dietary Habits Analysis

The dietary habits were classified into different categories such as "Eat Everything" (omnivore), "Vegetarian," "Pescatarian," and "Vegan," among others. It was hypothesized in H_3 that there is a significant impact of one's dietary habits on his/her acceptance of meat alternatives.

As shown in the results, there were significant differences in the acceptance rate of these groups based on the descriptive statistics. The vegetarians had the highest acceptance rate (3.75±1.00), while the pescatarians had the second-highest rate (3.46±0.89). Interestingly, the respondents who “Eat everything” (which had the largest number of participants) still had an acceptable rate (3.27±0.68). However, the vegans had the lowest acceptance rate (2.62±0.93), which is quite unexpected. Based on this result, it can be inferred that the Sri Lankan vegans do not have a favorable attitude towards processed plant-based products because they might prefer fresh vegetables over highly processed vegetarian food items.

The inferential results from the ANOVA indicate that these differences are statistically significant, $F(7, 243) = 2.36$, $p = 0.024$. As the p-value is less than the standard significance threshold of 0.05, the null hypothesis is rejected, and the research hypothesis (H_3) is supported.

Key findings from the study are that diet identification significantly influences PBMA adoption. Whereas the high scores obtained from vegetarians and pescatarians reveal an ideal market for such products, the average scores for omnivores point to a growing flexitarian segment within the country that may be interested in eating less meat. The poor scores for vegans further confirm a vital difference in market segments, whereby the "meat alternative" product range is more appealing to individuals trying to emulate the taste of meat than those who have distanced themselves from all things related to meat.

4.4.4 Education, Age, and Residence

Apart from the demographic factors that are directly responsible for the consumer acceptance of the product, the effects of education level, age group, and the geographical location of living were also assessed. To our surprise, the results of the data analysis showed that none of these three variables played any considerable role in influencing the consumption pattern of the plant-based meat alternatives (PBMA) in Sri Lanka. This finding is highly relevant in terms of the research objectives, as it shows that the preference for meat alternatives is not confined to any particular socio-demographic niche but rather cuts across society as a whole.

As can be seen from the results, neither educational level nor age had a significant impact on acceptance levels as indicated by the One-Way ANOVA test statistics. In particular, while educational level had an F-statistic value of 0.343 and p-value of 0.710, this implies that the acceptance levels were more or less constant regardless of whether the respondent was of secondary school education (M=3.28) or postgraduate (M=3.44). The same trend can be observed with regard to age, with a p-value of 0.726. In essence, respondents from the youngest age bracket (18-24 years, M=3.23) to the oldest group (45 years and above, M=3.45) had consistently moderate-high acceptance levels. The same holds for the area of geographical residence, where the p-value is 0.777, and the mean values are within the 3.3-3.4 range.

The absence of any statistical significance in these areas indicates that the "meat alternative" phenomenon in Sri Lanka is more influenced by internal attributes, like perceived health benefits and ecological consciousness, rather than external demographic factors. In terms of marketing, it means that the promotional efforts for PBMA need not be confined to particular demographic segments but can opt for a more generalized communication approach at the national level. As shown in the results, the consistency in mean acceptance levels among all these distinct demographic segments emphasizes the fact that the inclination towards sustainable sources of protein is fast turning into a general trend in modern-day Sri Lanka.

4.5 Correlation Analysis of Perceptual Factors

In order to analyze the relationship among different consumer perceptions and their collective acceptance of PBMA, a Pearson Correlation Analysis has been conducted. This type of analysis plays a vital role in understanding which particular beliefs (like health perception, environmental perception, or trust) are closely linked with a consumer's belief in consuming such products. It is from these correlations that the "drivers" of consumer behavior within the Sri Lankan society will be identified. The resulting values of correlation (r) reflect the nature

of relationships between important perceptual variables. As shown in Table 5, some highly positive and statistically significant correlations were detected. The strong correlation between Perceived Health Benefits and Environmental Impact ($r = 0.60$, $p < 0.01$) indicated that consumers in Sri Lanka did not see these two variables separately; in other words, people who consider PBMA to be healthier also perceive it to have higher environmental benefits. As shown in Table 5, the results indicated that Trust in Nutritional Information (Q28) was most strongly associated with Confidence in Choosing PBMA (Q29) with the highest positive correlation coefficient ($r = 0.71$, $p < 0.01$). It should be noted that consumer confidence is highly dependent on the quality of information provided on product labels. Lastly, sensory factors were positively correlated, especially Taste and Texture ($r = 0.62$).

Table 5 Pearson Correlation Matrix of key perceptual factors

Variables	Taste	Texture	Health	Environment	Trust	Confidance
Taste	1.00					
Texture	0.62**	1.00				
Health	0.37**	0.36**	1.00			
Environment	0.36**	0.48**	0.60**	1.00		
Trust	0.35**	0.53**	0.50**	0.53**	1.00	_
Confidance	0.37**	0.49**	0.43**	0.53**	0.71**	1.00

*Note: ** Correlation is significant at the 0.01 level (2-tailed)*

These results can serve as critical inputs in formulating policies for the growth of the PBMA market in Sri Lanka. The strong relationship between trust and confidence implies that the aforementioned “information gap” is one of the critical barriers, since consumers lack trust in the information, their confidence in shifting away from regular meat would continue to be low. Thus, marketing campaigns and initiatives need to emphasize creating “nutritional trust” through proper certification of labels as well as ingredient sourcing. In addition, since health and environmental perceptions are related, marketing strategies should consider communicating the “dual benefits” of PBMA as a food product that is

good both for personal consumption ("you") and for the environment ("the planet").

4.6 Barriers, Motivators, and Social Influence

Qualitative frequency analysis highlighted Limited Availability and Lack of Information as the dual pillars of consumer resistance. Furthermore, analysis of the Question “Social Influence” suggests that family and religion remain strong "anchors" for traditional meat consumption, but a shift is visible when health benefits are emphasized.

Table 6 Strategic Breakdown of barriers & motivators

Variable	Top Response	Second Response	Third Response
Barriers	Limited Availability	Lack of Information	Poor Taste/Texture
Motivators	Health Benefits	Better Taste/Texture	Sustainability

Apart from the logical barriers, Social Influence was investigated on the basis of religion, family, and culture influencing food preferences among Sri Lankans. The evidence indicates that the traditions of the family and religions continue to act as strong "anchors" sustaining the consumption of meat traditionally. It was highlighted that eating behavior is greatly affected by family gatherings during which meat becomes an essential part. However, a major change was seen in the qualitative comments: the social pressure to eat traditional meat starts losing its importance when Health Benefits are discussed. Consumers admitted that they would prefer PBMA if it were better than traditional meat regarding disease prevention, despite social or family traditions.

The reasons for adoption further reinforce this pattern. According to the strategic analysis, Health Benefits came out as the leading reason for adoption, followed by the preference for Better Taste and Texture and Environmental Sustainability. It clearly indicates that although there is consideration about the environment, it comes secondary to one’s own health and well-being. Hence, for PBMA to be able to make its mark in the market of Sri Lanka, it is important for it to fill the availability gap while making sure that proper information is disseminated about these products being beneficial to health.

5. Discussion

5.1 The Sensory-Reality Gap

An understanding of the adoption of PBMA by Sri Lankans lies within a split structure of attitude characterized by significant divergence between cognitive and sensory satisfactions. Within TPB, the component of Attitude serves as the connection between belief and behavioral intention. The data showed that Sri Lankans hold highly positive beliefs regarding the environmental benefits (M=3.84) and health benefits (M=3.56) of PBMA in line with a global trend towards sustainability consciousness among consumers (Charles et al., 2018). However, Sri Lankans also exhibit a significant gap between sensory reality and satisfaction, which hinders acceptance. Despite the fact that sensory appeal takes the top priority among consumers (M=4.24), taste (M=2.68) and texture (M=2.91) are relatively poorly rated. This conflict represents an internal obstacle in which individuals desire a sustainable diet but do not wish to sacrifice the joy of consuming their favorite foods. Following the ideas of Michel et al. (2021), sensory characteristics play the major role in determining whether a person will adopt or reject a particular food item. If consumers view something as a poor imitation of what they know well, ethical motivations may not be enough for a sustained shift in behavior. This provides an opportunity for local producers to innovate in the field, and they should abandon the westernized approach based on meat analogues and use local products such as jackfruit, oyster mushrooms, or coconut flour in creating new textures.

5.2 The Health-Tradition Pivot: Reconfiguring Subjective Norms

In Sri Lanka, subjective norms, the pressure from family, peer, and religious groups in terms of food choice, are shifting toward health-oriented considerations. Since traditional diets in Sri Lanka are community-based and religious, the linkages between community/religion and diet reinforce the consumption of meat in this society (Alahakoon et al., 2016). In this research, a shift towards health-oriented norms is observed. Family, peer, and religious pressure force individuals to follow traditional practices regarding meat consumption. Once the diet transition was reframed in terms of health benefits, the role of social factors became less prominent. When it comes to the perceived value of PBMA as a preventive measure against non-communicable diseases, the influence of the family on the consumers becomes significantly weaker. These findings prove that individual concerns with their health take precedence over tradition-based practices, thus providing social permission to explore alternatives to meat protein

products, a trend similar to shifts observed among aging, health-conscious populations in the European Union (Grasso et al., 2019).

5.3 The Income Paradox: Economic Necessity as a Driver for Acceptance

Certainly, one of the most innovative findings in this study concerns the analysis of Perceived Behavioral Control (PBC) and, specifically, the development of what can be referred to as the "Income Paradox" ($p = .003$). While most international research on the topic sees PBMA as a premium, lifestyle-driven product targeting high-earning urban dwellers (Zhao et al., 2023), in contrast, Sri Lankan lower-middle-income respondents expressed significantly more acceptance ($M = 3.57$) than higher-income earners ($M = 3.14$). The current trend implies that, as prices on conventional livestock production (Alwis et al. 2023) as well as animal proteins are expected to go up, individuals belonging to poorer classes will treat PBMA as a cheaper solution to maintain the required protein consumption. Nevertheless, regardless of such tendencies, PBC appears to be the least developed factor affecting willingness to shift to PBMA. Based on the qualitative findings, "Limited Availability" and "Lack of Information" regarding PBMA as a nutritious source of proteins are viewed as primary constraints. Dean et al. (2024) confirm this point, arguing that intention is of no use without a proper supply chain and consumer awareness.

5.4 Geographic Democratization and the Narrowing Intent-Behavior Gap

Finally, the research rejects the myth that only urban consumers are willing to buy sustainable and plant-based diet choices. The Area of Residence did not influence the willingness to purchase PBMA products ($p = 0.777$). In other words, the demand for sustainable and plant-based diets is widespread and does not depend on the residence type, which indicates that this desire exists throughout Sri Lanka rather than in urban areas of the Western Province (Salwathura and Ahmed, 2023). Despite the high willingness and readiness of consumers to purchase PBMA products, there is an Intention-Behavior Gap (Linder et al., 2026). Positive attitudes and supportive behaviors do not necessarily turn into purchases of such goods because of sensory and structural barriers described above. The results show that vegans tend to be less tolerant of processed PBMA products than the general population. Hence, the existing market seems to target "flexitarians," who seek similar products to meat-based alternatives, whereas vegans require unprocessed and healthier alternatives. The industry must focus on building

"Nutritional Trust" through transparent labeling and the development of affordable, localized products that fit seamlessly into both the financial constraints and the rich cultural fabric of the entire Sri Lankan population.

5.5 Limitations of the Study

This study has several limitations. First, a convenience sampling approach was used, which may limit the representativeness of the findings. Second, the sample was dominated by female respondents and young adults, potentially introducing demographic bias. Third, the vegan subgroup was very small, limiting the reliability of conclusions regarding this consumer segment. Fourth, the use of an online survey may have excluded consumers with limited internet access. Finally, the cross-sectional nature of the study captures consumer perceptions at one point in time and does not allow conclusions regarding changes in attitudes or behaviour over time.

Future research should use probability sampling methods, include a more balanced demographic distribution, and explore regional differences in consumer acceptance of PBMAs across Sri Lanka.

6. Conclusion

Our study demonstrated an important turning point for diet practices in Sri Lanka, where consumers are willing to make a transition towards sustainable sources of protein, but face hurdles at the sensory and practical level. Based on the Theory of Planned Behavior (TPB), consumers acknowledge that PBMA products provide significant health and environmental benefits. However, the presence of a “Cognitive-Sensory Dissonance” confuses, due to the disparity between what consumers perceive and what they experience. Reality is the greatest limitation to consumption. This implies that ethical consideration alone cannot fulfill the consumers’ expectations with respect to flavor and texture. There is a dramatic shift in the social dynamics of this case study. There seems to be an emergence of what may be termed "Health-Driven Subjective Norms," whereby the traditionally strong norms within the culture of meat-eating become much more flexible when viewed against the backdrop of disease prevention. This shift provides a green signal to experiment with different dietary plans.

Perhaps the most significant contribution of this study is the debunking of the "Income Paradox." In contrast to the Western market conception that views PBMA as a luxury item, in Sri Lanka, poor individuals seek to purchase cheap protein through PBMA. However, due to Perceived Behavioral Control, there is insufficient knowledge and market access to realize this possibility.

To close the gap between intention and action, everyone involved should work toward a tailored local strategy. The success of the market in the long run will rely on the move from imitation of “Western products” to localized products that contain local ingredients and have the right texture and affordability that suits the Sri Lankans. Ultimately, it will be clear that the transition to a plant-based diet among Sri Lankans is hindered not because of a lack of willingness to do so, but rather due to the unavailability of accessible and appealing products.

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Appendix 1- Popular science summary

This is the style “Normal”. This research examines the changing food habits in Sri Lanka, specifically focusing on why people are considering switching from animal meat to plant-based meat alternatives (PBMA). By using a well-known framework called the Theory of Planned Behavior, the study looks past simple shopping trends to see what is actually happening in people's minds when they choose what to eat. The data reveals a clear "Sensory-Reality Gap": while people intellectually agree that plant-based meat is better for their health and the planet, they are very disappointed with how it actually tastes and feels. Because Sri Lankans care deeply about the flavor and texture of their food, the fact that current products do not satisfy these senses is the biggest reason they are not buying them more often.

One of the most surprising and important findings is the "Income Paradox". Usually, people think that meat alternatives are luxury items only for the wealthy, but this study shows the opposite is true in Sri Lanka. Acceptance was actually much higher among lower and middle-income groups. This suggests that as the price of real meat goes up, these families are looking at plant-based options as a smart, affordable way to get the protein they need rather than just a fancy lifestyle choice. Furthermore, the study shows that interest in these foods is not just a city trend; people living in rural areas are just as open to the idea, proving that the desire for sustainable food is a nationwide shift.

The study also explores how social life and culture influence these choices. In Sri Lanka, family traditions and religious beliefs act as "anchors" that keep people eating traditional meat. However, a major shift happens when health is mentioned. The research found that when people believe a plant-based diet will prevent diseases or improve their health, the social pressure to stick to traditional meat starts to disappear. This means that health is the most powerful reason for Sri Lankans to change their habits. To help more people make the switch, the study concludes that companies need to build "Nutritional Trust" by using clear labels and creating products that fit the unique flavors and budgets of local families.

Appendix 2- Questionnaire

Consumer acceptance of meat versus plant-based meat
The case of Sri Lanka

This survey is part of an academic study that explores consumer opinions and acceptance of plant-based meat alternatives compared to traditional meat in Sri Lanka. The aim is to understand people's food preferences, awareness, and willingness to try plant-based meat alternatives.
Your responses are anonymous and will be used only for research purposes. The survey takes about 5 minutes to complete.

Thank you for your participation.

Section A: Screening Question

1.Are you currently living in Sri Lanka?
☐ Yes
☐ No (If No, terminate survey)

2.Are you 18 years or older?
☐ Yes
☐ No (If No, terminate survey)

Section B: Demographic Information

3.Age

4.Gender
☐ Male
☐ Female
☐ Prefer not to say

5.Highest Level of Education Completed
☐ Secondary education or below
☐ Bachelor's or Master degree
☐ Higher than Master degree

6.Monthly Household Income (LKR)
☐ Below 50,000
☐ 50,000–100,000
☐ 100,001–200,000
☐ Above 200,000
☐ Prefer not to say

7.Area of Residence
☐ Urban
☐ Semi-urban
☐ Rural

Section C: Dietary Habits and Meat Consumption

8.Which best describes your current diet?
☐ Vegan
☐ Vegetarian
☐ Eat everything
☐ Pescatarian (Avoids: red meat and poultry)
☐ Other,.....…

9. For how many years have you had this food habit?
☐ Less than one year
☐ 1-3 years
☐ 4-6 years
☐ More than six years

10.How often do you consume traditional meat (chicken, beef, pork, fish)?
☐ Daily
☐ Several times a week
☐ Once a week
☐ Rarely
☐ Never

11.What types of meat do you consume most frequently? (Multiple answers allowed)
☐ Chicken
☐ Fish
☐ Beef
☐ Pork
☐ Mutton
☐ None

Section D: Awareness and Experience with Plant-Based Meat

12.Have you heard of plant-based meat alternatives?
☐ Yes
☐ No
☐ Other: …….

13.Do you consume plant-based meat products?
☐ Yes
☐ No

14.If yes, how often?
☐ Several times per week
☐ Several times per month
☐ Less than once per month

15.Where did you first learn about plant-based meat alternatives?
☐ Social media
☐ Friends or family
☐ Restaurants
☐ Supermarkets
☐ News/media
☐ Other (please specify): _____

Section E: Sensory Perceptions
(5-point Likert scale: 1 = Strongly Disagree, 5 = Strongly Agree)

16.Plant-based meat alternatives can taste similar to traditional meat.
17.The texture of plant-based meat is acceptable to me.
18.The aroma of plant-based meat is appealing.
19.I am satisfied with the appearance of plant-based meat alternatives.
20.Sensory quality is important when deciding whether to buy plant-based meat alternatives.

Section F: Health and Environmental Attitudes
(5-point Likert scale: 1 = Strongly Disagree, 5 = Strongly Agree)

21.Plant-based meat alternatives are healthier than traditional meat.
22.I am concerned about the health effects of consuming too much traditional meat.
23.Plant-based meat is better for the environment.
24.Reducing meat consumption helps address climate change.
25.Environmental impact influences my food purchasing decisions.

Section G: Cultural and Social Influences

26.How do religion, family, friends, and culture affect your choice of meat or plant-based meat alternatives?

A. They encourage eating meat, but I may try plant-based meat alternatives if it tastes good.

B. They encourage eating meat, but I may try plant-based meat alternatives if it tastes cheaper.

C. They influence me toward both, and health or environmental benefits matter to me.

D. They support eating plant-based meat alternatives, and others' opinions encourage me.

E. They influence me, but I choose food on my own.

Section H: Knowledge and Competences

(5-point Likert scale: 1 = Strongly Disagree, 5 = Strongly Agree)

27.I understand what ingredients are used in plant-based meat.

28.I know how to cook plant-based meat alternatives dishes.

29.I trust the nutritional information provided on plant-based meat alternatives.

30.I feel confident choosing plant-based meat alternatives over traditional meat.

Section K: Barriers and Motivations

31.What are the main barriers preventing you from consuming plant-based meat alternatives?

☐ High price
☐ Poor taste/texture
☐ Limited availability
☐ Lack of information
☐ Cultural preferences
☐ Distrust of processed foods
☐ Not interested

32. What would most motivate you to try or consume plant-based meat alternatives?

☐ Better taste and texture
☐ Lower price
☐ Clear information about ingredients and nutrition
☐ Greater availability in stores/restaurants
☐ Environmental or sustainability benefits
☐ Health benefits

☐ Social acceptance / recommendations
☐ Nothing would motivate me
☐ Other

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