FROM FARM TO FORK: UNIVERSITY STUDENTS' AWARENESS TOWARDS ANIMAL WELFARE AND ETHICAL FOOD CHOICES IN NORTHERN CYPRUS

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ABSTRACT

This study investigates the relationship between animal production practices, animal welfare, food safety and security, and consumer awareness among university students in Northern Cyprus. A structured questionnaire was administered to 200 students from health-related faculties, focusing on socio-demographic characteristics, awareness of animal welfare, consumption patterns, and perceptions of alternative protein sources. Results revealed that 87.9% of students regularly consumed animal-based products, with poultry and eggs as the most preferred, while internal organs were the least consumed. Religious and cultural influences strongly shaped dietary habits, particularly regarding low pork consumption (35.5%) among students. Awareness of animal welfare issues was moderate; only 1.9% cited poor welfare as a reason for avoiding animal products, suggesting limited integration of ethical concerns into actual food choices. A clear gender effect was observed, with female students expressing greater empathy for animals and a higher willingness to pay for welfare-certified products. Despite growing recognition of sustainability, willingness to pay premiums for animal welfare logos was modest, reflecting the persistent attitude–behavior gap. Moreover, skepticism toward labeling credibility undermines its potential impact on purchasing behavior. Resistance to alternative proteins, including artificial and plant-based meat, was notable, with most respondents unwilling to substitute them for conventional animal products even at price parity. These findings highlight the complexity of ethical food decision-making, shaped by socio-demographic, cultural, and economic factors. The study underscores the need for enhanced consumer education, stronger regulatory frameworks for labeling, and affordable access to welfare-friendly and sustainable foods to bridge the gap between ethical attitudes and purchasing behavior.

Keywords: Animal welfare, Ethical food choices, Socio-demographic factors, University students, Northern Cyprus

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INTRODUCTION

Animal welfare includes animals' physical, psychological, and behavioral health, shaped by environmental and husbandry conditions, including pre-slaughter stress (Ndou *et al.*, 2011; WOAH, 2019), while ethical food choices reflect consumers' morally guided decisions related to animal welfare, environmental sustainability, and human health (Willett *et al.*, 2019). These concepts are closely linked within the farm-to-fork approach, which emphasizes sustainability, transparency, and food safety across the entire food supply chain (European Commission, 2015). Animal welfare in livestock production refers to protecting animals from hunger, thirst, discomfort, pain, disease, fear, and distress, while allowing natural behaviours (International Dairy Federation, 2008; Broom and Fraser, 2015) and poor welfare causes stress that can impair health, growth, reproduction, and product quality (Grandin, 1993; Hewson, 2003; Arsoy, 2020).

Animal welfare is central to the ONE Welfare approach, linking animal, human, and environmental health with food safety and sustainability (Arsoy, 2023), and it's increasingly recognized in food policies shaped by scientific, ethical, economic, cultural, religious, trade, and sustainability considerations (Mench, 2008; Alonso *et al.*, 2020; Arsoy, 2022). Rising global demand for animal-based protein has intensified livestock production, raising concerns over animal welfare, environmental impacts, and resource use, while accounting for around 80% of agricultural land use (Ritchie and Roser, 2019; Arsoy and Uygun, 2023). Industrial livestock systems impose hidden economic costs and contribute significantly to pollution, biodiversity loss, and climate change, accounting for around 14.5% of global emissions (Gerber *et al.*, 2013; Ritchie and Roser, 2019). The methods applied in animal production are a major threat to human health, especially by

using antibiotics and growth hormones in terms of ONE Health framework (Arsoy, 2022; Arsoy, 2023). This issue is also reflected in global approaches such as One Welfare (Pinillos *et al.*, 2016) and FAO's sustainable food systems framework (FAO, 2018).

The emergence of antibiotic-resistant bacteria is a major global health challenge (WHO, 2017). Pathogens such as Salmonella and E. coli can cause severe foodborne diseases through contaminated animal products (Gerber *et al.*, 2013), while the widespread use of antibiotics and growth promoters in livestock production further contributes to antimicrobial resistance (WHO, 2015; Baptiste and Kyvsgaard, 2017). These concerns have increased the importance of animal welfare, prompting the EU to implement stricter regulations to improve farming conditions (Bennett and Blaney, 2003). Animal welfare is closely linked to food safety and security, as production practices directly influence public health outcomes (Blokhuis *et al.,* 2003). Accordingly, regulatory frameworks, including restrictions introduced by the European Commission and monitoring systems established under the European Food Safety Authority (EFSA), aim to safeguard animal and human health within the food system (European Commission, 2015; Bozzo *et al.*, 2021).

Previous studies have highlighted that animal welfare can influence food-related attitudes and preferences of consumers. Ethical food choices are often explained via behavioral frameworks such as the Theory of Planned Behavior (TPB) (Ajzen, 1991) and the Value-Belief-Norm (VBN) theory (Stern *et al.,* 1999), which highlight the role of attitudes, norms, and values. These approaches are particularly relevant for university students, who represent both current consumers and future opinion leaders.

Recent studies have extended and integrated these frameworks to better explain sustainable and ethical food choices (Chang *et al.*, 2026; Chi *et al.*, 2026; Wang and Chang, 2026). For instance, Chang and Chen (2022) found that TPB factors significantly influence intentions to buy animal welfare-friendly milk. Pasquariello *et al.* (2025) show that both TPB constructs and moral norms derived from VBN significantly influence consumers' intentions toward plant-based food consumption. Similarly, a recent study confirms that knowledge, environmental concern, and social norms play a crucial role in shaping sustainable dietary behaviors, particularly among younger consumers (Civero *et al.*, 2025). Moreover, recent VBN-based study shows that altruistic and biospheric values influence animal welfare beliefs and drive plant-based repurchase intentions (Wang and Chang, 2026). A similar evidence from Northern Cyprus shows that university students may express positive attitudes toward sustainable product attributes, while their willingness-to-pay remains highly sensitive to price and product characteristics (Çelik et al., 2026).

Consumers are increasingly aware of credence attributes, such as food safety and animal welfare (Bernués *et al.* 2003; Cheftel, 2005). When purchasing products, consumers often prioritize qualities that support animal welfare and environmentally responsible production practices (Bernués *et al.*, 2003; De Passillé and Rushen, 2005).

Socio-demographic factors such as gender, income, and education shape consumer awareness (Lassen *et al.*, 2006; Grgić *et al.*, 2025). Moreover, recent research shows that, U.S. consumers remain focused on price and safety (Barahona-Domínguez *et al.*, 2025), Bosnian youth exhibit high awareness and willingness to pay (Grgić *et al.*, 2025), and Swiss consumers place animal welfare above GHG reductions (Richter et al., 2025).

To the best of our knowledge, no prior study has examined animal welfare perceptions and ethical food choices among university students' in Northern Cyprus. This study explores the gap by analyzing students' awareness, preferences, and willingness to pay for welfare-friendly products, with a focus on socio-demographic factors, labelling, and attitudes toward alternative proteins.

MATERIALS AND METHODS

The Study Area and Sample Size: A quantitative research design was employed to collect data from a sample of students enrolled in health-related faculties at a university, located in Nicosia, Northern Cyprus from January to March, 2023. The participants were drawn from the Faculties of Medicine, Veterinary Medicine, Nursing, Health Sciences, Dentistry, and Pharmacy. Data were collected through face-to-face questionnaire, and respondents were given 20 minutes to complete them. Participants were selected using a convenience sampling method (Emerson, 2015), as the study targeted students enrolled in health-related faculties who are expected to have higher level of awareness regarding food safety and animal welfare issues. This method was preferred due to its practicality and accessibility, allowing efficient data collection within a defined population.

To determine the maximum sample size for the research area, the P and Q values were set at 0.50. Based on this, the sample size was calculated to be 202 participants with a 95% confidence level and a 6.9% margin of error (Churchill, 1995). The formula used is as follows:

$$\boldsymbol{n = \left(\frac{Z_{x/2}}{d}\right)^2 \mathbf{P.Q}}$$

P: Positive probability (50%)

Q: 1-P Negative probability (50%)
$Z_{x/2}$: Confidence interval (95%, table value 1.96)
d: Margin of error (6.9%)

$$n = \left(\frac{1.96}{0.069}\right)^2 0.50 * 0.50 = 202 \quad (1)$$

Although data were initially collected from 202 participants, the final analysis was conducted with 200 valid questionnaires after data screening.

The Questionnaire Development: The questionnaire was structured into three distinct sections. The first section collected socio-demographic data to establish a diverse and representative sample, including variables such as age, gender, field of study, and academic level. The second section evaluated participants' awareness and knowledge regarding animal welfare and production practices, aiming to gauge their level of understanding and concern related to these issues. The third section focused on participants' attitudes toward animal welfare, addressing key factors such as feeding, housing, breeding, and the physical and behavioral health conditions of animals. The questionnaire items were based on an extensive review of the relevant literature, ensuring both relevance and validity in addressing the research objectives (Napolitano, 2008; Clark *et al.*, 2016; Wolf and Tonsor, 2017).

Data Analyses: The data collected in this study were analyzed using the SPSS 27.0 Software. To assess the distribution of the data, a Shapiro-Wilk test (Razali and Wah, 2011) was performed. Descriptive statistics were employed to measure consumer awareness regarding the effects of animal production techniques and welfare on food safety and security. Additionally, a normality test was conducted to evaluate the distribution of the data. The skewness and kurtosis values indicated that the data for all variables were not normally distributed. Based on the guidelines provided by George and Mallery (2021), the acceptable range for skewness and kurtosis in a normality test is between -2 and +2. Since the data were not normally distributed, non-parametric tests were applied in the inferential analysis (Field, 2024). The Kruskal-Wallis test was used to compare differences across socio-demographic groups more than two categories. When significant differences were identified, pairwise comparisons were examined using Mann-Whitney U tests with Bonferroni adjustment (Mann and Whitney, 1947; Kruskal and Wallis, 1952). Furthermore, Spearman correlation coefficients were used to assess the strength and direction of monotonic relationships between variables. This non-parametric method was chosen due to its suitability for ordinal data and non-normal distributions (Bonett and Wright, 2000).

RESULTS

Socio-demographic Characteristics of Respondents: The socio-demographic profile of the respondents in this study is summarized in Supplementary Material (Table S1). Out of 200 participants, identified as female (58.0%), as male (40.0%), and as non-binary (2.0%). The majority of participants were aged 18-25 (88.78%, n = 177), followed by 26-35 (10.75%, n = 22), while only 0.47% (n = 1) were aged 36-45. In terms of nationality, the majority of participants were from Türkiye (55.61%), Nigeria (14.43%), and North Cyprus (7.01%). The remaining participants (22.95%) were from various other countries (Jordan, Sudan, Tanzania, Iraq, Iran, Kenya, Lebanon and so on). All participants, comprising undergraduate (98.60%) and postgraduate students (1.40%), were from health-related disciplines. Regarding religion, most respondents identified as Muslim (73.36%), followed by Christians (16.36%), while the remaining (11.21%) reported various other affiliations or no religious belief. The participants reported a monthly income in the majority group is below $100 (31.31%).

Young Consumers' Awareness and Preferences towards Animal-Based Products and Artificial Meat: Most respondents (87.85%) regularly consume animal-based products. As shown in Table 1, white meat (99.07%) and eggs (99.53%) are the most consumed, while pork (35.51%) is the least consumed, consistent with the predominantly Muslim sample (73.36%, $p<0.05$). Goat, cattle, and sheep are the most commonly consumed meats, whereas internal organs show relatively lower consumption (60.28%, $p<0.05$). The main reasons for not consuming animal-based products are individual preferences (35.51%) and religious considerations (22.43%). Awareness of poor animal welfare conditions is notably low (1.87%), although 19.6% perceive meat products as unhealthy. Knowledge of artificial meat remains limited: 52.34% report no information and 41.12% only minimal knowledge. When priced equally, 57.00% would not choose artificial meat, while 21.50% would sometimes and 21.50% would choose it. A majority (53.73%) perceive it as completely different from conventional meat. Vegetarianism is low (3.74%), and 91.12% believe plant-based products differ from animal-based ones. Willingness to consume vegetarian meat at equal price is 23.83%, and only 3.74% consider it equivalent in terms of health and development. Among non-consumers, key reasons include poor hygiene and health conditions (34.14%), sensory dislike (12.62%), and zoonotic disease concerns (7.48%), while environmental and related concerns are least cited (1.40%). Label awareness is high (84.58%), with strong interest in detailed product information (72.9%). Willingness to

pay more for welfare-friendly products is 33.3%, with most accepting up to a 10% premium (53.74%). Additionally, 86.92% are willing to buy organic products, and 60.28% would do so if prices were equal (see in Table 1).

Table 1. Descriptive Findings on Consumer Awareness, Consumption Behavior, and Perceptions of Animal Welfare and Alternative Food Options

Features	Groups	%
1. Animal-based product consumption	Some	8.41
	Vegetarian	3.74
	All	87.85
2. Consumers' preferences for animal products*	Red meat^{abcdef}	86.92
	White meat^{bcdg}	99.07
	Internal organs^{cefg}	60.28
	Processed animal products^{def}	73.83
	Egg^{eg}	99.53
	Milk^{fg}	96.73
	All^{g}	83.64
3. Consumers' choice of red meat animal species*	Goat^{acde}	98.13
	Cattle^{bcde}	96.73
	Sheep^{cde}	93.46
	Pig^{dabce}	35.51
	None^{ed}	76.17
4. The reasons for not consuming animal-based products.	Personal preferences	35.51
	Religion factor	22.43
	Because it is unhealthy	19.16
	Because it is not suitable	17.29
	Emotional factor	3.74
	Animal welfare conditions are not good	1.87
5. Do you have information about Artificial meat?	A little	41.12
	No	52.34
	Very good information	6.54
6. Is Artificial meat equal to normal meat for health?	Absolutely different	53.73
	Absolutely the same	4.21
	Similar	4.68
	There are some differences	37.38
7. If the same price, would you choose Artificial meat over red/white meat?	No	57.00
	Sometimes	21.50
	Yes	21.50
8. If the same price, would you choose plant-based options (soy meat/milk)?	No	49.07
	Sometimes	27.10
	Yes	23.83
9. Does Artificial meat match normal meat in benefits?	Absolutely different	67.76
	Absolutely the same	3.74
	Similar	5.14
	There are some differences	23.36
10. Is being a vegetarian equal to eating meat?	Absolutely different	67.76
	Absolutely the same	3.74
	Similar	5.14
	There are some differences	23.36
*Means with different superscripts (a,b,c,d,e,f,g) within the same column are statistically different ($p<0.05$)		

The Kruskal-Wallis H test showed statistically significant gender differences in all three dependent variables. Female respondents reported stronger preferences for vegetable-based alternatives, higher animal product consumption ranks, and greater willingness to pay for animal welfare-labelled products than male respondents (see in Table 2).

Table 2. Kruskal-Wallis Test Results by Gender on Animal Product Consumption, Alternative Preferences, and Willingness to Pay

Dependent Variable	H	df	p-value
If the price is same, would you prefer vegetable meat and milk instead of red or white animal meat and milk?	27.33	2	0.001
Do you consume animal products?	9.57	2	0.008
Would you pay more for a product with the animal welfare (happy animal) logo?	8.44	2	0.015

Note: Values are based on the Kruskal–Wallis H test. Only gender was included in this revised table because significant differences were observed for this variable. Post hoc pairwise comparisons indicated that the main significant differences were between female and male respondents.

Fig. 1 presents a histogram of participants' willingness-to-pay (WTP) more for animal welfare labelled (happy animal) logo. The largest group was concentrated at the 10% premium level (n=101), followed by the 20% premium level (n=38) and the 30% premium level (n=23). The number of respondents declined at higher premium levels, indicating that most participants were willing to pay only a modest additional amount. Female participants were more represented than male participants in most WTP categories. At the highest premium level, 100%, only six respondents were represented, suggesting limited willingness to pay a very high premium for animal welfare-labelled products.

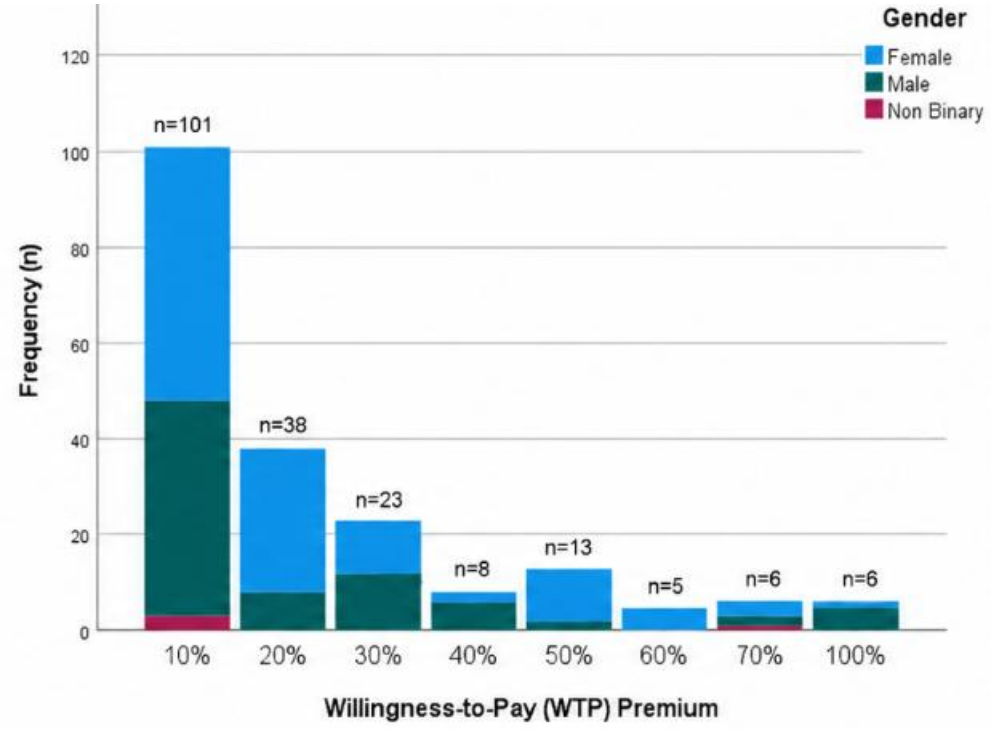

Figure 1. Willingness-to-Pay Premium for Animal Welfare Logo by Gender (n=200)

Consumer Awareness Regarding Animal Welfare and Production Techniques: The majority of participants, 46.3%, reported having knowledge about animal welfare, and 19.6% had no knowledge. Regarding animal production techniques, 36.5% indicated awareness. When asked about the healthiest or most suitable animal production method, 46.3% preferred organic production (see in Table 3).

Table 3. Consumer Awareness of Animal Welfare and Animal Production Techniques

Features	Groups	Distribution	
		n	%
Do you have any idea about Animal Welfare (Livestock or food animal, farm animals {Cattle, Pig, Chicken, Sheep, Goat})	A little bit	50	25.2
	No	39	19.6
	Not sure	18	8.9
	Yes	93	46.3
Do you have any idea about animal production techniques (Conventional, Organic, Good animal practice, Traditional/ecologic, pasture)	A little bit	53	26.6
	No	45	22.4
	Not sure	29	14.5
	Yes	73	36.5
Which animal production method is healthier/better for you to consume animal products?	Conventional	9	4.7
	Good animal practice	33	16.4
	Organic	93	46.3
	Traditional	44	22.0
	I don't know/Not important	21	10.6

Note: Values are reported as frequencies (n) and percentages (%); n=200.

The reliability of the Animal Welfare Perception Scale and its subscales was assessed, with Cronbach's Alpha coefficients, arithmetic means, and standard errors presented in the Supplementary Material (Table S2). The overall reliability of the general Animal Welfare Scale was 0.96, while the subscales, feeding, breeding, housing, animal health conditions, and animal behavior recorded Cronbach's Alpha coefficients of 0.74, 0.89, 0.91, 0.87 and 0.80, respectively (Nunnally, 1978).

Findings Regarding Relationships Between Respondents' Socio-Demographic Characteristics and Animal Welfare Perception: As presented in Supplementary Material (Table S3), socio-demographic factors partly shape respondents' perceptions of animal welfare. Gender shows significant differences across several dimensions ($p < 0.05$), particularly in feeding conditions (e.g., nutrition and water access), selected housing aspects (overcrowding and hygiene), health-related factors (such as caretaker behavior, biosecurity, and veterinary access), and certain behavioral indicators (e.g., freedom of movement and bonding). Nationality also plays a significant role, with differences observed across breeding, housing, health, and behavioral conditions ($p < 0.05$). In comparison, religion has more limited but still notable effects, mainly related to perceptions of individual housing and separation from mothers, while income does not show a statistically significant association with animal welfare perceptions ($p > 0.05$). Furthermore, the findings in Supplementary Table S3 indicate that respondents exhibit relatively higher awareness of animal health-related issues, particularly water conditions, access to on-site veterinary services, vaccination, general health status, and slaughter conditions. In contrast, awareness of certain breeding practices remains comparatively low, especially for practices such as nail trimming and dehorning.

The Relationship between consumers' perceptions towards food labeling, animal welfare, and willingness-to-pay for animal-based food: The relationship between consumers' perceptions of animal welfare and food safety and security variables—such as checking product labels (1, 2), obtaining information on gender, nationality, religion, income, breed, welfare, and rearing conditions, purchasing behavior based on welfare labels (3), and willingness to pay more for products (4) with animal welfare logos, was analyzed using Spearman's correlation.

A few significant relationships were identified. Nationality correlated positively with seeking label information and purchasing products labeled as manufactured to animal welfare standards ($r = 0.170$; $p < 0.05$ and $r = 0.180$; $p < 0.01$).

Animal selection techniques and the presence of health issues (e.g., lameness, coughing) positively correlated with label-checking behavior ($r = 0.164$; $p < 0.05$ and $r = 0.160$; $p < 0.05$). Conversely, animals housed alone or in barns, living conditions, as well as bonding, negatively correlated with seeking label information (see in Table 4).

Table 4. Spearman Correlation Results Between Animal Welfare Perception Dimensions and Food-Related Consumer Behavior

Features	1	2	3	4
Gender	-0.038	0.114	0.108	-0.068
Nationality	0.004	**.170***	**.180****	0.026
Religion	0.002	0.114	0.051	0.046
Income	0.066	0.058	0.015	-0.017
Nutrition Condition	0.019	0.029	-0.025	-0.063
Water Condition	0.073	0.007	-0.051	-0.019
Farming Conditions	0.04	-0.014	-0.065	-0.069
Selection Technique	**.164***	-0.092	-0.047	-0.083
Artificial Insemination Technique	0.014	-0.086	0.021	-0.077
Benefit from Pasture	0.031	-0.041	-0.01	0.042
Nail Trimming	0.004	-0.132	-0.033	-0.101
Dehorning, Tailing, Debeaking	0.042	-0.022	-0.007	-0.095
Overcrowded Housing Condition	-0.017	0.007	-0.02	-0.089
Living Condition	-0.054	**-.138***	-0.031	-0.057
Barn Climate Condition	-0.058	-0.047	-0.014	-0.053
Quality/Hygiene Condition	0.004	-0.037	-0.026	0.004
Milking and Udder Hygiene	-0.031	-0.066	0.031	-0.008
Housing Material/Shape	0.016	-0.018	0.006	-0.062
Number of Feeders/Drinkers	-0.021	-0.118	-0.042	-0.013
Caretaker Behavior to Animal	0.032	-0.102	-0.059	-0.041
Biosecurity Measures	0.002	-0.031	0.031	-0.043
Animal Vaccination	0.06	0.036	0.009	-0.058
On-Site Veterinarian	0.047	0.045	0.088	0.01
Animal Health Issues	**.169***	0.029	0.006	-0.025
Pest Infestation Issues	-0.048	-0.043	0.007	-0.096
Transportation Condition	-0.027	-0.1	-0.046	0.033
Slaughter Condition	0.025	0.025	-0.063	-0.103
Separation from Mothers	-0.037	**-.146***	-0.036	-0.095
Freedom of Movement	0.062	-0.048	-0.054	-0.102
Food and Water Access	0.001	-0.047	-0.026	-0.055
Individual Housing of Young Animals	0.036	**-.142***	0.045	-0.065
Bonding of Animals	-0.054	**-.142***	-0.025	-0.078

Note: 1-Do you look at the label of the product you buy?; 2-Would you like to have information such as the origin, region, sex, breed, condition, rearing of the animal on the label? 3-How do animal welfare labels impact your purchase decision?; 4-Would you pay more for a product with the animal welfare logo?

* Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

DISCUSSION

This study shows that although animal-based product consumption remains high among university students, animal welfare considerations have limited influence on actual food choices. This finding is consistent with recent research indicating that consumers still prioritize price, taste, and health over ethical and environmental concerns (Ammann *et al.*, 2024; Barahona-Domínguez *et al.*, 2025). The very low proportion of respondents avoiding products due to animal welfare concerns confirms the persistence of the attitude-behavior gap (Carrington *et al.*, 2010; Essiz *et al.*, 2023).

From a theoretical perspective, these results can be explained through recent extensions of the TPB and VBN framework. Studies show that knowledge, moral norms, and social influence are key drivers of sustainable consumption (Pasquariello *et al.,* 2025; Civero *et al.,* 2025). However, the limited role of animal welfare in consumption decisions in this study suggests that these mechanisms are not fully activated. Similarly, Wang and Chang (2026) demonstrate that altruistic and biospheric values influence animal welfare beliefs, but their behavioral impact depends on the strength of internalized norms.

Cultural and religious factor appear to play a more decisive role. The low consumption of pork and dominance of personal preferences confirm that food choices are strongly shaped by socio-cultural norms rather than ethical considerations alone, supporting previous findings (Font-i-Furnols and Guerrero, 2014; Grgić *et al.*, 2025). The gap between interest in labelling and willingness to pay is also evident. While most respondents seek detailed product information, only a limited share is willing to pay a premium. This supports recent studies emphasizing that trust and perceived credibility are critical for label effectiveness (Lim and Page, 2022; Kuchler *et al.,* 2023).

Resistance to alternative proteins further reinforces these findings. Most respondents are unwilling to substitute conventional meat with artificial or plant-based alternatives, which is consistent with recent literature highlighting low consumer acceptance due to perceived risks, lack of familiarity, and attachment to traditional diets (Sestino *et al.,* 2023; Civero *et al.,* 2025). This also aligns with Mendoza *et al.* (2024), who emphasize that perceived benefits, transparency, and trust in production processes are essential for improving acceptance of novel protein technologies. The high poultry and egg consumption observed here suggests that young consumers may be less aware of welfare issues tied to these products. Only 1.87% of respondents reported poor welfare as a reason to avoid certain foods, while most cited personal preferences, health, or religion. This finding aligns with Barahona-Domínguez *et al.* (2025), who reported low awareness of broiler welfare in the U.S., where choices were driven primarily by price and safety. In contrast, Grgić *et al.* (2025) found much higher awareness (79%) and willingness (91%) among Bosnian students.

A central finding is the persistence of the attitude–behavior gap: although concern for welfare is rising, it does not consistently translate into purchasing behavior. Price and cultural norms remain decisive, confirming Napolitano (2008) and Carrington *et al.* (2010). Food labeling plays an important role in narrowing this gap. Many respondents sought detailed labeling on production and welfare practices, consistent with Bernués *et al.* (2003) and Lim and Page (2022). However, skepticism toward certification undermines effectiveness, as highlighted by Kuchler *et al.* (2023).

Gender differences were also evident. Female consumers express greater empathy for animals and a stronger willingness-to-pay for welfare-certified products, as supported by Grgić *et al.* (2025). These results reinforce the importance of gender-sensitive strategies when promoting ethical and sustainable foods. Cultural and religious influences were also clear, particularly regarding pork consumption, which supports the findings of Font-i-Furnols and Guerrero (2014).

In the present study, more than half of respondents reported they would never consume artificial meat even at price parity, highlighting a strong resistance that mirrors earlier findings of limited consumer acceptance (Wilks and Phillips, 2017; Kantor and Kantor, 2021). This reluctance reflects a broader challenge in sustainable food consumption, where trust, price, and skepticism often constrain consumer acceptance (Çelik and Gül, 2023). Together, these results highlight that while young consumers increasingly value sustainability, adoption of novel proteins and certified products remains constrained. Finally, this study confirms the close link between animal welfare practices and food safety. Ethically farmed products are often perceived as healthier, tastier, and safer (Napolitano, 2008; Daley *et al.*, 2010).

Overall, the findings suggest that while ethical and sustainability-related attitudes are present among young consumers, their influence on behavior remains constrained by cultural norms, limited knowledge, trust issues, and economic considerations.

Conclusions: This study shows that there is still a clear attitude-behavior gap in ethical food consumption and animal welfare, showing that although young health science students recognize the importance of ethical production, their purchasing decisions were still strongly influenced by price, convenience, and cultural habits. Female participants appeared to be more concerned about animal welfare and were more willing to pay for ethically produced food. Labels also played a crucial role in shaping choices, but doubts about whether these labels are truly trustworthy reduced their impact. In addition, the low acceptance of alternative proteins such as artificial meat suggests that unfamiliarity, cultural habits, and limited knowledge continue to affect consumer choices. Overall, the findings suggest that better consumer education, clearer information, and more reliable labeling systems are needed to encourage more ethical and sustainable food choices.

The study has some limitations. First, the analysis is based on a sample of university students, which may limit generalizability. Second, the cross-sectional design does not capture changes over time. Future research may consider these limitations and apply frameworks such as Theory of Planned Behavior or Value Belief Norm Theory.

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