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Exploring moral disengagement in meat consumption among Malaysian youth – A cross-sectional study

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ABSTRACT

This study explores the moral disengagement with its five sub-dimensions and investigate the influence of animal ethics and environmental concern on moral disengagement in the context of adoption of plant-based diet among Malaysian youth. A cross-sectional survey involving 341 students from ten Malaysian universities was conducted using a structured questionnaire based on established scales for animal ethics, environmental awareness, intention to adopt plant-based diet and the five dimensions of moral disengagement, i.e. means-ends justifications, desensitization, denial of negative consequences, diffused responsibility, and reduced perceived choice. The findings indicate relatively low ethical concern regarding animal ethics and low-to-moderate environmental awareness concerning meat consumption as well as intention to adopt a plant-based diet. Moral disengagement was indicated as moderate-to-high with means-ends justification reported as the highest dimension, followed by diffused responsibility and desensitization. Animal ethics and environmental concerns are negatively related with moral disengagement and there is a significant negative relationship between moral disengagement with the intention to adopt plant-based diet. By identifying the psychological barriers to dietary change, this study helps design more effective strategies to promote plant-based diets and sustainability, thereby contributing to ethical food consumption and environmental protection.

1. Introduction

The increasing awareness of the environmental and animal welfare consequences of industrialised meat production has contributed to recent global discourse on ethical consumption. Notwithstanding the growing awareness, a significant gap persists between moral concern and actual dietary behavior; a phenomenon known as the "meat paradox" (Bastian et al., 2012; Loughnan et al., 2014). It reflects the psychological dissonance experienced by individuals who express concern for animal welfare and environmental sustainability yet continue to consume meat (Kunst & Haugestad, 2018; Rothgerber & Rosenfeld, 2021). The paradox is particularly salient among younger cohorts who simultaneously internalize global sustainability values and uphold meat-centric cultural traditions (Graça et al., 2019). Despite increasing awareness of ethical concerns, factors such as social norms, limited access to alternative narratives, and inherited dietary practices, continue to normalize meat consumption among youth (Talib et al., 2022). They consider the need to maintain dietary habits in rationalising the harm caused to animals and the environment, which conflict with their ethical values. Within this context, moral disengagement offers a compelling psychological explanation for how individuals resolve this internal conflict (Bandura, 2016; Jacobs et al., 2024).

The examination of moral disengagement in food ethics is relevant, not only for theoretical reasons, but also for the design of interventions aimed at decreasing meat consumption among young generations and facilitating sustainable and plant-based dietary shifts. However, despite widespread awareness of animal suffering and environmental degradation, this awareness has not been translated into good intentions and changes in behavior at a population level, particularly in countries such as Malaysia, where numerous physical, cultural, and emotional barriers exist (Jin et al., 2020).

With a youthful demographic profile, increasing exposure to global

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ethical discourses, and an expanding middle class, Malaysian youth navigate a complex moral and cultural landscape around food choices (Tan et al., 2021). While some studies have explored environmental attitudes and dietary preferences among Malaysian students (Chong et al., 2025; Kamal & Lau, 2023), the cognitive and moral mechanisms underpinning continued meat consumption remain poorly understood. Specifically, there is a notable absence of empirical studies that measure moral disengagement in meat consumption within the Malaysian context, limiting our understanding of how youth reconcile ethical concerns with consumption behavior.

Moreover, the roles of animal ethics and environmental concern in shaping moral disengagement are insufficiently theorised in this demographic. Previous research has demonstrated that higher empathy and mind attribution toward animals predict lower levels of moral disengagement and greater willingness to reduce meat intake (Ang et al., 2019; Mathur et al., 2021). However, the interplay between these factors and moral disengagement has not been systematically examined in the Malaysian youth population, where both religious and cultural considerations may influence ethical reasoning differently than in Western societies (Aminnuddin, 2020).

Sequel to the above, this study aims to explore the level of moral disengagement in meat consumption among Malaysian youth and investigate the influence of animal ethics and environmental concern on moral disengagement in the context of adoption of plant-based diet among Malaysian youth. This focus enables a more nuanced understanding of the psychological and cultural barriers to ethical food practices in rapidly changing societies. It also contributes to theory by integrating Bandura's (1999) theory of moral disengagement with constructs from animal ethics and environmental psychology, thus extending current models of ethical consumption into new socio-cultural contexts.

2. Social cognitive theory of moral disengagement

Although many different theories of moral disengagement have been proposed (Bandura, 1999), Albert Bandura's social cognitive Theory of moral disengagement (1999) serves as the underlying conceptual framework that explains how individuals rationalize behaviors inconsistent with their moral standards. Conceptualized initially within the context of aggression and violence, the Theory has also been applied to domains as varied as environmental damage (Heberlein, 2012; Keller & Siegrist, 2015), health behaviors (Ajzen, 1991; Armitage & Conner, 2001), and animal welfare (Graça et al., 2016). Moral disengagement encompasses a range of cognitive mechanisms that hinder self-regulation, enabling the commission of inhumane behavior without feelings of self-censure. These include moral justification, euphemistic labeling, advantageous comparison, diffusion and displacement of responsibility, disregard or distortion of consequences, dehumanization, and attribution of blame (Bandura, 2002).

In a dietary context, particularly regarding issues around the consumption of meat, individuals use these patterns to mediate the moral tension between, for example, caring about animals (or the environment) and continuing to eat meat. For instance, thoughts such as “meat is required for health” or “individual actions do not matter” serve as moral disengagement statements that mitigate dissonance (Bastian et al., 2012). By pretending that those are acceptable, people can still maintain their consumption patterns without feeling guilty or experiencing moral conflict.

Given that meat forms an integral part of Malaysian culture, religion, and family traditions, the use of these disengagement strategies can be further strengthened by incorporating societal norms and peer approval. By applying Bandura's model in this context, this research offers insights into a more nuanced understanding that moral disengagement is not merely an individual psychological coping mechanism that justifies unethical behavior, but rather is also a culturally and socially situated factor that explains the inhibitory power of ethical concerns in behavior.

2.1. Dimensions of moral disengagement in the context of meat consumption

According to Graca et al. (2016), moral disengagement is manifested in five sub-dimensions that reflect distinct rationalizations individuals employ to neutralize ethical conflict: means-ends justifications, diffused responsibility, desensitization, denial of negative consequences, and reduced perceived choice. These five dimensions have been recurrently discussed in recent literature on food ethics (e.g., Camilleri et al., 2023; MacInnis & Hodson, 2021) as key psychological buffers that allow people, especially young adults, to continue eating meat while distancing themselves from its ethical and environmental issues.

2.1.1. Means-ends justification

Means-ends justification is a type of moral rationalization that is used to justify unethical behavior as being in service of the greater good or necessary for some other reason. In dietary terms, it most commonly involves rationalising meat consumption as a matter of nutrition, tradition, or survival (Graça et al., 2016; Rothgerber, 2014). People often justify meat consumption on nutritional or traditional grounds, which can obscure ethical concerns regarding animal suffering, and (although environmental concerns are not explicitly mentioned) the damage it does to the environment. It is well-established that participants who have strong moral reasons for consuming meat are less likely to experience feelings of guilt or cognitive dissonance related to meat-eating (Piazza et al., 2015).

2.1.2. Diffused responsibility

Diffuse responsibility involves a belief that one's actions are unimportant within the overall social or environmental context. Those who contribute to this mechanism recognize that systemic problems facing society, such as environmental degradation in the meat industry, cannot be addressed by adopting different personal behaviors alone (Bandura, 2002; (Menzies & Sheeshka, 2012)). This diffusion of responsibility has a detrimental effect on personal accountability, particularly in young people who are likely to feel disempowered by the separation from decision making structures and discombobulated by the sheer scale of the issues the world is facing. Previous work had linked this mechanism to lower resistance to pro-environmental behavior and reduced support for animal welfare interventions (Graça et al., 2014).

2.1.3. Desensitization

Another key dimension of moral disengagement is desensitization, which is known as emotional damping, or tainting and impairing, of empathy and sensitivity to the suffering of food animals. Repeated meat consumption normalizes and neutralizes meat away from an animal's life and death and away from moral distress over it (Kunst & Hohle, 2016; Loughnan et al., 2014). A further mechanism involves minimizing the harm associated with meat consumption. In some younger consumers, cultural practices such as distancing meat from its animal origins, may further reinforce desensitization mechanisms. For example, the commodified meat, which is typically sold in the form of processed, wrapped, and disconnected abstractions, may also contribute to this. This distancing facilitates meat consumption without eliciting significant moral discomfort.

2.1.4. Denial of negative consequences

This mechanism involves reducing and/or denying the damage associated with the production and consumption of meat, affecting both animals, the environment, and public health. Such individuals minimize the causal link between their behavior and its broader negative consequences (Bandura, 1999; Bastian & Loughnan, 2017). Empirical research indicates that the denial or trivialization of animal suffering and the adverse effects on the environment of consuming meat are associated with significantly decreased moral concern and attenuated intention toward morally acceptable (ethical) behavioral choices

(Dowsett et al., 2018).

2.1.5. Reduced perceived choice

Reduced perceived choice refers to the belief that alternatives to meat consumption are either unavailable, impractical, or culturally unacceptable. This perception limits individuals' sense of agency in making ethical dietary decisions, even when they recognize the associated harms (Graça et al., 2015; Rosenfeld & Burrow, 2018).

In summary, the moral disengagement is disaggregated into five theoretically and empirically grounded sub-dimensions:

- Means-ends justification: Framing meat as essential for health, tradition, or energy balance
- Diffused responsibility: Belief that one's personal choices have a negligible impact
- Desensitization: Emotional disconnection or normalized acceptance of animal harm
- Denial of negative consequences: Rejection or minimization of the environmental or ethical effects of meat consumption
- Reduced perceived choice: Perception that plant-based alternatives are inaccessible, impractical, or culturally inappropriate

2.2. Animal ethics

Ethical concerns, especially animal ethics, are commonly cited as the primary motivations behind reducing meat consumption and adopting a plant-based diet (de Backer & Hudders, 2015; Ruby, 2012). These concerns relate to the suffering caused by the slaughter process, opposition to industrial slaughter methods, and moral objections to the use of animals as products. However, the power and behavioral impact of ethical beliefs vary significantly across cultures, generations, and individuals. Several researchers agreed that animal ethics are increasingly recognized as a concern by university students; however, this increased awareness has not necessarily led to significant dietary changes (Amiot & Bastian, 2017; Keller & Siegrist, 2015). One reason may be that moral considerations are sometimes attenuated or inhibited by moral disengagement processes. When faced with aversive information about animal suffering, individuals may defend their behaviors through means-ends justifications, diffused responsibility, or denial of consequences, diminishing moral tension without corresponding changes in behavior (Piazza et al., 2015).

2.3. Environmental awareness

The environmental impacts of meat production, such as greenhouse gas emissions, deforestation, and water pollution, have been widely discussed (Poore & Nemecek, 2018; Willett et al., 2019). These effects are directly associated with pro-environmental attitudes and dietary changes resulting from public awareness, particularly among environmentally conscious young people (Hartmann & Siegrist, 2017). However, the transition from environmental awareness to behavioral intention is uncertain and often mediated by more complex psychological and social processes. The bridge between individual eating decisions and global environmental impact can seem remarkably distant for many people. This level of abstraction, as well as moral decoupling, diminishes the motivation for behavior change. Specifically, mechanisms such as denial of environmental effects and diffusion of responsibility provide ways to downplay one's effect and blame institutions, governments, or society (Graça et al., 2016). Awareness alone may fail to evoke responsibility if disengagement mechanisms are activated.

2.4. Intention to shift to plant-based diets

A wide array of cognitive, emotional, and contextual factors influences the intention to adhere to a plant-based diet. Whereas early models, such as the Theory of Planned Behavior (Ajzen, 1991), focus on the importance of attitudes, subjective norms, and perceived behavioral control, later frameworks acknowledge that ethical and environmental considerations are also substantial antecedents of intention (Ruby, 2012; Siegrist et al., 2015). However, despite an increasing awareness, intention often remains stuck at the attitudinal level and does not translate into action, primarily due to moral disengagement and social-cultural inertia. In youth, intention may be influenced by identity discord, peer pressure, and internal locus of control (Rosenfeld & Burrow, 2017). Despite this group's relatively strong reputation regarding environmentalism and ethics, day-to-day food choices seem to be affected by emotional detachment, the ‘normalization’ of meat, and structural factors, such as prices and social norms (de Boer et al., 2017). This tension is particularly evident in collectivist societies, where dietary choices are not solely individual decisions but are deeply embedded within familial traditions, cultural heritage, and social norms.

2.5. Literature gaps

Despite the valuable contributions to understanding the psychological and socio-cultural aspects of meat consumption from previous research, several empirical gaps remain. First, most research on moral disengagement in the food domain has been conducted in Western culture, where vegetarianism and veganism are more culturally noticeable, normalized, and organizationally endorsed. Rarer are analyses in South East Asia, where the consumption patterns of meat products are influenced by the combination of religious, ethnic, and socioeconomic factors (Al-Beitawi et al., 1999). This bias in geographical scope restricts the applicability of findings and ignores the complex moral worlds of non-Western societies.

Second, the multidimensional nature of moral disengagement in the context of food ethics has not been widely researched. Previous research has typically examined general attitudes or single justifications, e.g., health effects or habit, failing to consider the mutually related cognitive mechanisms underlying the activities that combine to form consumers' complacency. This research, considering five sub-dimensions, provides a more fine-grained and psychologically holistic insight into the internal obstacles to ethical eating.

Third, the youth in Malaysia occupy a key position from an intersectional perspective, situated between globalization, digital flows, and entrenched cultures. This generation is also exposed to global dialogues on sustainability and animal ethics, but one that is immersed in a food culture in which meat becomes a symbol of family tradition, hospitality, and financial progress. Such a dual exposure could also result in a conflicting mindset, which is open to the message that plant-based diets are healthy, but not open to the context of one's eating behavior, the existence of which is yet to be fully taken into account in empirical studies.

This gap is addressed by the current study, which empirically examines the influence of ethical and environmental concerns on moral disengagement and the subsequent impact of moral disengagement on the intention to adopt a plant-based diet. Thus, it furthers theoretical development in the food morality literature and improves our understanding of moral cognition in underrepresented cultural contexts. It also underscores the need for developing culturally relevant interventions that acknowledge the complex psychological and social dynamics underlying food habits.

3. Methods

A quantitative cross sectional survey was conducted with the university students, both from public and private universities, and a convenience sampling technique was utilized. 5 public universities and 5 private universities located in Klang Valley were selected and academic staff who were readily accessible and willing to assist in distributing the online questionnaire were approached. While this convenience approach may introduce selection bias, it was employed due to access

and administrative constraints encountered in multi-institutional research. To reduce bias, academic staff were asked to distribute online questionnaire links during their classes rather than selectively to individual students. As the online link was shared through multiple intermediaries and channels, an exact response rate could not be determined. No specific criteria for participation as long as respondents are current university students. Klang Valley was specifically targeted as it represents Malaysia's most urbanized and socio-culturally diverse region, where students are exposed to varying perspectives on food consumption, ethical values, and sustainability. This diversity provided an ideal setting to capture a broad range of attitudes and behaviors related to moral engagement in meat consumption.

The focus on university students was deliberate for several reasons. First, university students are an important subset of Malaysian youth who are typically at a formative stage of moral reasoning and identity development. They are in a transition period where they make more independent lifestyle decisions, including dietary choices, compared to adolescents who are still strongly influenced by family environments. Second, university students represent the educated segment of Malaysian youth, who are more likely to be aware of social, ethical, and environmental issues through formal education, peer interaction, and exposure to media. Third, this group often reflects broader youth values and attitudes in Malaysia, making them a suitable proxy for understanding moral engagement among the younger generation who will soon enter the workforce and influence future societal trends. Moreover, Malaysian youth are a critical population to study because they account for a significant proportion of the country's demographic structure, and their attitudes towards ethical consumption have implications for future sustainability initiatives. By focusing on university students, the study captures a population that is not only accessible and cooperative for academic research but also socially significant in shaping long-term changes in consumption patterns.

Hence, university students who were willing to participate in this research comprised the sample for this study and the unit of analysis was individual students. A total of 341 responses were collected from April 2024 to Sept 2024. Informed consent was obtained from the respondents, and the survey questions received research ethics approval from MMU Secretariat of Research Ethics Committee with approval number EA0052024. Data cleaning and missing data analysis were conducted prior to analysis. All the 341 responses were complete and useable with no missing data identified. Based on Cohen's (1988) recommendations (i.e., effect size ($f2$) = 0.15 and α = 0.05 and power of 0.80), the required sample size was computed using the G* power software. The suggested minimum sample size of 68 is below the collected responses, i.e., 341 used in the analysis, fulfilling the requirement for sample size.

The questionnaire consists of 3 sections. The first section covers 5 social-demographic characteristics with nominal scaling, while the second section covers 13 questions on ethics, environment, and intention to practice plant-based diets (adapted from D'Souza et al., 2022; Tarrega et al., 2020), and the third section is the Moral Disengagement in Meat Questionnaire (MDMQ) by Graça et al. (2016) with 5-point Likert-Scaling. The MDMQ consists of a global scale which has shown adequate reliability (α = 0.93) and five subscales: desensitization (α = 0.90), denial of negative consequences (α = 0.89), diffused responsibility (α = 0.84), reduced perceived choice (α = 0.70) and means-ends justifications (α = 0.86) (Graça et al., 2016). Details of the items are shown in Table 3 in the next section. All items are written in English and no translation was done.

A pre-test was performed with 3 academic experts to check the suitability and the validity of the items. A pilot test with 30 university students was administered, and all the items scored a Cronbach alpha value above 0.7. As such, all the items are deemed reliable. Data were then analyzed with descriptive analysis by using mean and standard deviation. For each construct, mean score and standard deviation for each item within the construct were first examined, i.e. animal ethics (5 items), environment (4 items) and intention to adopt plant-based diets (4 items). Subsequently, a group mean score was computed by averaging the item means for each construct to allow the comparison of the importance between animal ethics and environment, with higher mean value indicating greater relative importance (see details in Table 2). Same procedures were applied to the 5 sub-scales of moral disengagement. Global scale of moral disengagement was computed by averaging the mean scores of the 5 sub scales. Next, multiple regression analysis was performed to examine the relationships between animal ethics and environment (both serve as independent variables) with moral engagement (dependent variable) using IBM SPSS version 28 software. Also, another regression model was used in examining the relationship between moral disengagement and intention to adopt plant-based diet. For both models, gender and frequency of meat consumption were included as the control variables.

4. Findings

Table 1 shows the details of the respondents' profiles. The majority of the respondents are female (62 %), and about 92 percent of the responses are from Gen Z (i.e., 18–27 years old). 43 percent of the responses are from Malay, followed by Chinese (35 %) and Indian (14 %). 64.8 percent comes from a Bachelor degree, and about 21 % from pre-university. More than half (57.8 %) considered themselves are medium meat eaters (6–10 meals per week), followed by light meat eaters (17.3 %) (1–5 meals per week), heavy meat eaters (22.3 %) (>10 meals per week), and only 2.6 % do not have meat consumption at all.

As shown in Table 2, respondents overall exhibit relatively low ethical concern regarding animal ethics in the context of meat consumption (group mean = 2.184). However, higher means in items 4 and 5 suggest an increase of emotional discomfort when directly confronted with animal slaughter. Having said so, respondents have reported very low guilt associated with meat consumption, minimal awareness or concern about linking eating meat with animal death and sufferings, and low emotional distress concerning animal suffering.

In addition, respondents also exhibit moderate-to-low environmental awareness concerning meat consumption (group mean = 2.32). Although respondents moderately recognize negative environmental impacts and associated responsibilities, explicit ethical or respectful attitudes towards environmental concerns are less pronounced. Results show that there are some recognitions of personal responsibility linked to issues surrounding meat production and their meat consumption implicitly supports environmentally damaging practices, but generally less acknowledgment among respondents that meat consumption negatively impacts the environment, and show minimal agreement that meat-eating is disrespectful towards life and environmental values.

Given that animal ethics and environmental concerns are significant predictors for dietary change toward plant-based diet, it is not surprising that respondents also exhibit a correspondingly low-to-moderate intention to adopt a plant-based diet (Mean = 2.34).

As reported in Table 3, the global scale of moral disengagement was indicated as moderate-to-high, with a mean value of 3.22. The highest disengagement was means-ends justification (mean value = 3.94), followed by diffused responsibility (mean value = 3.257), and desensitization (mean value = 3.02). Both denial of negative consequences and reduced perceived choice reported moderate-to-low mean values of 2.939 and 2.952, respectively. On the other hand, the internal consistency for the global moral disengagement scale demonstrated acceptable reliability (α = 0.783). At the subscale level, means-ends justifications (α = 0.923), denial of negative consequences (α = 0.880) and reduced perceived choice (α = 0.738) showed high and acceptable internal consistency while desensitization (α = 0.666) and diffused responsibility (α = 0.612) yielded lower alpha values. Nevertheless, these coefficients are considered acceptable for theoretically grounded subscales with a small number of items and multidimensional content, given the sensitivity of alpha to scale length (Nunnally & Bernstein, 1994; Tavakol &

Table 1
Respondents' profiles.

Variables	Classification Variables	n	%	Variables	Classification Variables	n	%
Gender	Female	212	62.2	**Education Level**	Pre University	71	20.8
	Male	129	37.8		Diploma	28	8.2
Age	18 to 22	226	66.3		Bachelor degree	221	64.8
	23 to 27	87	25.5		Master degree	18	5.3
	28 to 35	14	4.1		Doctorate	3	0.9
	36 to 43	4	1.2	**Meat Consumption Frequency**	No meat at all	9	2.6
	44 and above	10	2.9		Light	59	17.3
Ethnicity	Chinese	119	34.9		Medium	197	57.8
	Malay	146	42.8		Heavy	76	22.3
	Indian	47	13.8				
	Others	29	8.5				

Table 2
Means and standard deviation.

No	Items	Mean	SD
	Animal Ethics (α = 0.856)	**2.184**[a]	**1.243**
1	When I think about eating meat I feel guilty	1.7	1.018
2	I feel bad when I think about eating meat because of the animal suffering	1.84	1.159
3	Eating meat reminds me of the death and suffering of the animals	1.73	1.087
4	If I had to kill the animal myself, I would probably stop eating meat	2.89	1.515
5	It would be difficult for me to watch an animal being killed for food purposes.	2.76	1.436
	Environment (α = 0.841)	**2.32**[a]	**1.108**
1	Eating meat harms the environment	2.35	1.15
2	To eat meat is disrespectful towards life and the environment	2.03	1.024
3	By eating meat, I am also responsible for the problem associated with its production	2.48	1.105
4	By eating meat, I support an industry that is responsible for environmental damage.	2.42	1.154
	Intention to adopt plant-based diet (α = 0.951)	**2.34**[a]	**1.17**
1	I am willing to shift to plant-based diet	2.35	1.183
2	I intend to shift to plant-based diet by reducing heavy reliance on meat-based food and relying more on plant-based food	2.39	1.182
3	I plan to shift to plant-based diet by reducing heavy reliance on meat-based food and relying more on plant-based food	2.33	1.168
4	I want to shift to plant-based diet by reducing heavy reliance on meat-based food and relying more on plant-based food.	2.30	1.147

Note: α represents Cronbacj's alpha value for reliability.
[a] Group mean for each construct.

Table 3
Means and standard deviation – moral disengagement.

No	Items	Mean	SD
	Moral Disengagement (α = 0.783), global scale	**3.22**	**1.11**
	Means-ends justifications *(α = 0.923)*	**3.94**[a]	**0.98**
1	All things considered, meat is necessary to a human diet	3.93	0.999
2	The human being has needs that include eating meat	3.97	0.968
3	The problems associated with meat also apply to other foods	3.87	0.97
4	Eating meat keeps the balance of the food chain	3.94	0.977
5	Despite everything, eating meat is part of a balanced life	3.99	0.988
	Desensitization *(α = 0.666)*	***3.02***[a]	**1.302**
1	If I saw an animal being killed, I would have no problems eating it	3.23	1.232
2	It would be difficult for me to watch an animal being killed for food purposes[R]	3.01	1.291
3	If I had to kill the animals myself, I would probably stop eating meat[R]	2.99	1.351
4	I would be capable of skinning, separating the organs, and cutting an animal to pieces	2.84	1.336
	Denial of negative consequences *(α = 0.880)*	***2.939***[a]	**1.066**
1	People who eat meat should acknowledge the suffering in which food animals are kept[R]	3.06	1.115
2	It's important that people who eat meat think about the impacts on the environment[R]	3.13	1.051
3	Those who eat meat should be aware of its impacts on public health[R]	3.29	0.986
4	By eating meat, I engage with an industry responsible for major damages[R]	2.91	1.085
5	By eating meat I'm also responsible for the problems associated with its production[R]	2.91	1.091
	Diffused responsibility *(α = 0.612)*	**3.257**[a]	**1.104**
1	Even if I change my habits, I won't make a difference by myself	3.26	1.068
2	It doesn't matter if I change my habits because problems will still exist	3.55	1.049
3	I will consider changing my habits only if others also change theirs	2.96	1.195
	Reduced perceived choice *(α = 0.738)*	***2.952***[a]	**1.131**
1	Nowadays there are good alternatives to meat consumption[R]	3.28	1.089
2	It's possible to have an adequate diet without eating meat[R]	3.05	1.104
3	It's easy to have a meat-free diet[R]	2.81	1.201

Note: α represents Cronbacj's alpha value for reliability; [R] reverse items.
[a] Group means for each construct.

Dennick, 2011). Similar variability in subscale reliability has been reported in prior moral disengagement research (Graca et al., 2016; Weber & Kollmayer, 2022).

Prior to assessing the regression models, we conducted diagnostic tests to satisfy the conditions for normality and absence of multicollinearity. The examination of the partial regression plots and scatterplots of standardized residuals vs. predicted values revealed that the condition for normality is satisfied. Also, Variance Inflation Factors (VIF) for all predictors are less than 10, suggesting no severe multicollinearity.

To examine the influence of ethics and environmental orientations on moral disengagement, we estimated a multiple linear regression model with moral disengagement (global scale) as the dependent variable and animal ethics and environment as independent variables. Gender and frequency of meat consumption were included as control variables to account for potential confounding. The overall model was statistically significant, $F(2) = 131.55$, $p < 0.001$; $F(4) = 65.413$, $p < 0.001$, explaining 66.2 % of the variance in moral disengagement ($R^2 = 0.662$; adjusted $R^2 = 0.438$ R). As shown in Table 4, both ethics and environmental were significant predictors at $p < 0.001$, whereas the control variables (gender and meat consumption frequency) were not

Table 4
Animal ethics and environment as predictors of moral disengagement.

Predictor	b	β	SE	p-value	95 % CI
Ethics	−0.190	−0.386	0.027	<0.001	−0.243/ −0.136
Environment	−0.182	−0.338	0.030	<0.001	−0.241/ −0.123
Gender	0.10	0.010	0.042	0.816	−0.072/ 0.092
Frequency of Meat Consumption	−0.02	−0.003	0.029	0.951	−0.058/ 0.054

statistically significant.

Unstandardized coefficients (b) indicate the expected change in moral disengagement for a one-unit increase in each predictor, while standardized coefficients (β) allow comparison of relative effect sizes across predictors. Standardization was performed by z-scoring all variables (mean = 0, SD = 1) prior to estimation, and results matched the analytical transformation.

Furthermore, we employed another regression model to assess whether moral disengagement predicts intention to adopt a plant-based diet, with gender and frequency of meat consumption included as control variables. The model was statistically significant, $F(1) = 173.75$, $p < 0.001$; $F(4) = 57.70$, $p < 0.001$, explaining 58.2 % of the variance in intention to adopt plant-based diet ($R2 = 0.583$; adjusted $R2 = 0.339$). As shown in Table 5, moral disengagement was significant predictor at $p < 0.001$, whereas the control variables (gender and meat consumption frequency) were not statistically significant.

5. Discussion

From the descriptives analysis, participants reported a low level of affective and moral concern for animal welfare, as indicated by the low group mean for the ethics-related items. Some level of discomfort was reported for situations portraying the killing of animals, but guilt felt and empathy expressed were generally low. This result is consistent with previous evidence that the passive or indirect experience of the harm of meat (e.g., through abstract arguments or generalized campaigns) induces weaker moral reactions than vivid, affectively potent experiences (Bastian et al., 2012; MacInnis & Hodson, 2021). Furthermore, in the Malaysian setting, traditional eating habits, religious teachings, and family mealtime norms could induce desensitization, protecting youth from feeling threatened by ethical concerns. Given the population-level prevalence of these tendencies, a combination of these cultural trends could have a constraining effect on the moral salience of animal rights narratives, with potential implications for the ethical power to motivate plant-based behavior, despite rising levels of awareness and discourse worldwide.

The results of this study also suggest that levels of environmental concern are relatively moderate to low among the Malaysian university students studied, with partial agreement regarding environmental degradation associated with meat consumption. Most answers were of this kind: “Meat is harmful for the planet, but the harm is indirect, not obviously morally compelling, and I can't change my diet fast enough to make a difference.” These findings align with the notion that environmental concern is more likely to elicit behavioral change when it becomes personally ingrained as a moral norm, rather than as a distant, shared problem (Elzerman et al., 2021).

Table 5
Moral disengagement as predictor of intention to adopt plant based diet.

Predictor	b	β	SE	p-value	95 % CI
Moral disengagement	−1.294	−0.583	0.098	<0.001	−1.487/ −1.100
Gender	−0.37	−0.016	0.100	0.743	−0.113/ 0.158
Frequency of Meat Consumption	0.23	0.015	0.069	0.714	−0.233/ 0.160

The current study found weak intentions to adopt a plant-based diet among university students in Malaysia, despite moderate environmental concerns and awareness of ethical issues related to plant-based diets. This pattern supports the inhibiting model of moral disengagement. If people rationalize consuming meat as necessary, minimize their contribution, or deny that this consumption has negative consequences, their motivation to modify their behavior will decrease, despite being aware of the information.

The findings of the regression analysis illuminate the psychological factors that influence meat consumption behaviors among Malaysian youth. Notably, ethical and environmental factors were found to be negatively correlated with moral disengagement, indicating that youths who score high in these areas are less likely to justify or rationalize their meat consumption through cognitive mechanisms such as denial of harm, displacement of responsibility, or euphemistic labeling. This supports the idea that strong moral and environmental convictions may serve as protective factors against moral disengagement. It supports Bandura's (1999) theory of moral disengagement, which postulates that individuals use cognitive mechanisms (e.g., denial of responsibility, distortion of consequences) to justify actions that violate their moral standards. In this context, youths who are more ethically and environmentally conscious are less likely to use justifications such as “animals are meant to be eaten” or “my individual choice doesn't matter” to excuse meat consumption. This aligns with Piazza et al. (2015) and Camilleri et al. (2023), who found that moral disengagement mechanisms such as “carnism” (the belief that eating meat is natural, normal, and necessary) serve to buffer the cognitive dissonance meat-eaters experience when they also express concern for animal welfare.

Looking into the dimensions of moral disengagement, the means-ends justification was the most prevalent, suggesting that many young people justify their food choices as necessary or beneficial, even at the expense of ethics and the environment. This finding is consistent previous results that participants who have strong moral reasons for consuming meat are less likely to experience feelings of guilt or cognitive dissonance related to meat-eating (Piazza et al., 2015). Such justifications are especially resonant in Malaysia, where cultural norms and food heritage frequently elevate meat to a symbol of prosperity in a meal. This finding is consistent with the results of the present study, which indicates that means-ends justification was the most prevalent moral disengagement sub-dimension, suggesting that many young people justify their food choices as necessary or beneficial, even at the expense of ethics and the environment.

Diffused responsibility was the second most commonly identified disengagement mechanism, suggesting that many people do not feel that changing their consumption is sufficient to bring about change, thereby disassociating themselves from the moral implications of their dietary choices. The study's findings also revealed significant levels of desensitization among the sample. Although several of the students expressed emotional distress when directly confronted with animal slaughter, by imagining themselves slaughtering an animal, these experiences were largely subjugated beneath habituated or normalized meat-consuming practices. Furthermore, respondents showed a medium to low recognition of the negative consequences, primarily related to environmental issues and the industry's behavior. This may account for their limited motivation to embrace a plant-based diet.

Moreover, in developing and transitional societies like Malaysia, the availability of affordable plant-based options and social support for dietary change may be limited. As such, respondents in this study reported lower agreement with statements suggesting they have adequate options for a meat-free lifestyle. This perception serves as a significant barrier to dietary change, reinforcing the status quo despite emerging awareness. Although each moral disengagement dimension has been discussed separately, prior literature suggests these mechanisms often work synergistically (Piazza et al., 2015). For instance, individuals who justify

meat as necessary (means-ends justification) may also minimize their role in systemic harm (diffused responsibility) or perceive limited alternatives (reduced perceived choice). These overlapping mechanisms reinforce moral disengagement, thereby impeding the translation of ethical awareness into dietary change.

Taken together, these findings shed light on the complex interplay between moral cognition and behavioral intention. The above suggests that environmental stories are indeed circulating, but have yet to compete with deeply entrenched consumption practices or counteract strategies of moral disengagement. Importantly, concern for the environment made significant but weaker unique contributions to the prediction of moral disengagement than did ethical concern. This suggests that, in the absence of deep, internalized environmental ethics or social experiential reinforcement, awareness is incapable of generating behavioral change, especially in communities like Malaysia, where environmental discussions may still lack emotional or cultural significance. In other words, an in-depth psychological inquiry is required to understand why and in what ways ethical salience does not lead to dietary intentions, which is underpinned here by moral disengagement theory. Despite individuals being aware of the ethical implications and environmental harms of meat consumption, moral disengagement can suppress the translation of those beliefs into action. Thus, the gap between knowledge and action becomes evident, illustrating the challenges in fostering behavioral change in light of ethical considerations.

6. Implications

The findings of this study have important implications for theory, practice, and policy. Theoretically, this research enhances the field of moral psychology in food ethics by introducing the concept of moral disengagement, previously used in contexts like aggression and corporate misconduct, to dietary behavior. It illustrates that moral disengagement is relevant for both unethical actions and daily consumption habits that clash with moral values. It also indicates that ethical and environmental education campaigns targeting youth can effectively raise awareness but mitigate moral disengagement mechanisms that hinder behavior change. However, the role of moral disengagement suggests that awareness alone may not be sufficient. These campaigns should also aim to counter the common justifications and rationalizations that young people use to detach from ethical considerations. For instance, reframing meat consumption as a matter of personal accountability and illustrating the tangible impact of individual choices could diminish moral disengagement.

From a practical perspective, non-governmental organizations (NGOs) like the Malaysian Vegetarian Society, educators, and policymakers can design interventions that emphasize the realities of animal agriculture and its environmental repercussions in school curricula. These interventions should also be coupled with strategies to foster youths' or students' moral reflection and critical thinking, and help them manage cognitive dissonance and minimize justification for meat consumption.

Furthermore, these insights can be useful for plant-based product marketers and social influencers aiming to promote dietary shifts among Gen Z and Millennials. Messaging that emphasizes ethical concern and highlights environmental accountability may prove particularly effective in reducing moral disengagement and encouraging behavior change. Marketers should also expand their focus beyond just meat-eating consumers to include the growing community of vegetarians and those actively seeking to cut back on meat consumption. In crafting their communication strategies, food brands should shift away from a primary emphasis on animal welfare and instead illuminate the compelling health benefits and significant environmental advantages of reducing animal product intake. By highlighting how a diet lower in meat can lead to improved well-being and a more sustainable planet, brands can inspire a broader audience to embrace these transformative changes in their eating habits.

7. Limitation and future study

Notwithstanding the findings, this study has several limitations. Firstly, the cross-sectional design limits the researchers' ability to establish causal relationships. Secondly, the sample may not fully represent all Malaysian youth, particularly those from rural areas or lower socioeconomic backgrounds. Also, use of convenience sampling via academic staff who assisted in distributing the online questionnaire may have introduced selection bias and limited sample representativeness. Thirdly, self-reported data on intentions and attitudes may be influenced by social desirability bias, especially when addressing sensitive topics such as animal rights and environmentalism. Furthermore, the study fails to account for other potential factors, including cultural influences, religious beliefs, and peer pressure, which could also impact dietary choices and moral disengagement. In a multicultural society like Malaysia, food choices are significantly influenced by religious beliefs (such as halal diets or vegetarianism in Hinduism and Buddhism) and ethnic traditions. These cultural dimensions were not explored in depth but may interact with moral disengagement and dietary intentions.

Future research could adopt a longitudinal design to better understand the causal pathways between moral disengagement, ethical and environmental awareness, and dietary behavior. This approach would allow researchers to track changes over time, such as determining whether a decline in moral disengagement precedes the adoption of plant-based diets. Additionally, qualitative studies using focus groups or in-depth interviews may help uncover deeper motivations and rationalizations behind meat consumption among Malaysian youth. It is also important to examine not only urban areas but also rural or conservative regions where meat consumption is culturally normative.

Besides, expanding the demographic scope to include various ethnic, geographic, and religious groups in Malaysia would enhance the generalizability of the findings, given the country's multiracial composition. Furthermore, researchers could also explore the effectiveness of specific interventions (e.g., documentaries, school-based programs, social media campaigns) in reducing moral disengagement. This could provide actionable insights for promoting plant-based diets among younger generations.

Finally, conducting a cross-cultural comparison with youth from other Southeast Asian nations or Western societies could highlight differences in moral disengagement mechanisms and dietary intentions. This approach would foster a more global understanding of the issue. The research could also explore religious and cultural factors to better identify youths' perspectives on meat consumption and its moral implications.

Overall, the findings indicate that Malaysian youths' relatively low concern for animal ethics and environmental issues, coupled with moderate-to-high moral disengagement, particularly means–ends justification, undermines their intention to adopt plant-based diet and thus highlighting the importance of reducing moral disengagement while strengthening ethical and environmental awareness in promoting plant-based dietary adoption among youth.

CRediT authorship contribution statement

Chin Wei Chong: Writing – original draft, Supervision, Resources, Project administration, Methodology, Funding acquisition, Conceptualization. **Fadi Abdelfattah:** Writing – original draft, Investigation, Data curation. **Wendy Ming Yen Teoh:** Writing – review & editing, Writing – original draft. **Adedapo O. Ojo:** Software, Investigation, Formal analysis.

Ethics approval

EA0052024 (MMU Secretariat of Research Ethics Committee). (study of human beings).

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Declaration of competing interest

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.appet.2025.108439.

Data availability

Upon request.

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