

SUSTAINABLE EATING HABITS: FACTORS SHAPING GEN Z'S CONTINUED INTENTION TOWARD PLANT-BASED HOT MEALS

Nguyen Thi Quynh Nhu* - Assoc.Prof.PhD. Nguyen Van Nguyen*
PhD. Nguyen Minh Dat**

Abstract: *Plant-based hot meals (PHM) have attracted a large number of young people in Vietnam, especially those from Gen Z. However, no studies have explored the continued intention to adopt plant-based hot meals (IN), which has created a large theoretical gap. Therefore, this study focuses on exploring the motivation and barriers behind IN. The data was collected through a survey with 325 participants. Analysis of the Partial Least Squares Structural Equation Modeling indicates that the benefits of PHM and barriers to adopting PHM are important predictors of IN, which are mediated by the global motives. This study has many meaningful contributions to plant-based consumption theory. At the same time, this study provides a foundation for the development of more comprehensive communication and education policies and interventions to promote PHM choice in the community.*

• Keywords: animal welfare, environmental benefits, health benefits, plant-based, sustainability.

JEL code: M31

Date of receipt: 20th May, 2025

Date of delivery revision: 26th Jun., 2025

DOI: <https://doi.org/10.71374/jfar.v25.i5.09>

Date of receipt revision: 05th Aug., 2025

Date of approval: 28th Sep., 2025

1. Introduction

In recent years, Vietnam has witnessed an increase in awareness of sustainable consumption, especially in the field of vegan food choices. In 2024, the vegan food market size will reach about 103.2 million USD, and is expected to increase to 220.5 million USD by 2033, with a Compound Annual Growth Rate of 8.1% (IMARC, 2024). A major part of this shift seems to come from young consumers, who tend to be better informed, more health-conscious, and more mindful of ecological issues (vnEconomy, 2024).

Promoting the choice of plant-based meals not only leads to a healthy lifestyle but also contributes to solving environmental and ethical issues in animal food production. Previous studies indicate that food temperature strongly affects appetite, satisfaction, and long-term satiety; in particular, hot food is often seen as a real meal compared to cold food (Zhang et al., 2024). Therefore, it is necessary to study the intention to adopt a plant-based hot meal (PHM) to explain the acceptance mechanism and provide a scientific basis for product development and marketing strategies in accordance with modern consumer needs. PHM is defined as a meal where most of the dishes are cooked and served hot, with ingredients mainly from plant-based sources. On the opposite side, cold meals

include only cold dishes, such as salads, ready-to-eat cereal, muesli, and smoothies.

Adopting the PHM of consumers is not just about health but also a lifestyle that reflects ecological and ethical concerns. The temperature of dishes strongly affects the perception and acceptance, as hot dishes are often considered the main meal. However, the habit of eating plant-based meals still faces plenty of hurdles, and research into why people choose (or avoid) vegetarian options remains fairly limited. Therefore, this study aims to explore the factors that determine IN, with the hope of offering insights that may guide product strategies, marketing approaches, and even policy efforts to encourage more sustainable eating habits.

2. Theoretical Background

The theory of planned behavior (TPB) introduced by Ajzen (1991) is considered a framework for predicting human behavior. According to TPB, the more positive the attitude and subjective norms, the better the perceived behavioral control, the higher the intention to perform the behavior (Ajzen, 1991). The TPB is considered an appropriate framework for this research because it has been applied to understand a variety of behaviors, especially in the food sector.

* Tra Vinh University; email: ntqnhu2308@sdh.tvu.edu.vn - nguyentvu@tvu.edu.vn

** Ho Chi Minh City University of Law; email: nmdat@hcmulaw.edu.vn

However, TPB also has limitations Conner and Armitage (1998). To overcome this, Westaby (2005) developed the Behavioral Reasoning Theory (BRT), which emphasizes the role of reasons in linking beliefs, values, global motives, intentions, and behaviors. Reasons that help individuals justify, strengthen confidence when acting. Reasons are classified into two categories: reasons for and reasons against. Meanwhile, global motives such as attitudes, subjective norms, and perceived behavioral control are abstract, which stably affect intentions in many contexts.

From there, it is expected that the combination of TPB and BRT in this study will help improve the ability to interpret behavioral intention, maintain the generality and strict predictive structure of TPB, and supplement the theoretical dimension of BRT to clarify the role of contextual factors and behavioral reasons.

3. Hypotheses development and conceptual framework

3.1. Factors influencing the continued intention to adopt plant-based hot meals

Behavioral intention is defined as the level of conscious effort of the individual to perform a particular behavior in the future, and the attitude reflects the individual's global positive or negative evaluation of that behavior (Ajzen, 1991). In this study, the continued intention to adopt plant-based hot meals (IN) reflects an individual's willingness and desire to continue adopting PHM. Besides, attitudes towards plant-based hot meals (AT) reflect the individual's global positive assessment of PHM.

When individuals have a positive attitude, it thereby promotes their continued intention to adopt PHM. Many studies in the context of food consumption have demonstrated a relationship between attitudes and intention (Kopplin & Rausch, 2022). From there, the author puts forward the following research hypothesis:

H1: AT has a positive impact on IN

Subjective norms (SN) represent the approval or disapproval of important people for a plant-based meal. When individuals believe that relatives, friends, or the community support and desire them to perform a certain behavior, they will tend to be more likely to form the intention to perform that behavior (Ajzen, 1991). Many studies indicate that encouragement or approval from the reference group has a significant impact on food choice intention (Kopplin & Rausch,

2022). From the above arguments, the following hypothesis is proposed:

H2: SN has a positive impact on IN

Perceived behavioral control (PBC) refers to the level of control that a person believes is involved in performing a particular behavior (Ajzen, 1991). In this study, PBC reflects the ease with which PHM is adopted. TPB shows that the better the PBC, the higher the intention to perform the behavior (Ajzen, 1991). Many studies have shown a positive relationship between PBC and behavioral intention (Ajzen, 1991; Paul et al., 2016). From the above grounds, the author puts forward the following research hypothesis:

H3: PBC has a positive impact on IN

3.5. The influence of environmental benefits (EB) and animal welfare (AW) on global motives

First, environmental benefits (EB) are defined as an individual's perception and belief that a plant-based meal can contribute to reducing harm to the environment, such as reducing greenhouse gas emissions, saving water, or conserving biodiversity (Gifford et al., 2024; Hartmann & Siegrist, 2017). Secondly, animal welfare (AW) reflects an individual's belief in the benefits that a plant-based meal brings to animals, saving animals from having to live and being killed in fear and pain (OIE, 2018)

The BRT, along with empirical evidence, all support the existence of a relationship between EB, AW, and global motives (AT, SN, and PBC) (Le-Anh et al., 2023; Norman et al., 2012; Westaby et al., 2010). So it can be expected that when the individual is aware that adopting PHM is a moral action, bringing EB and AW will increase AT. As EB and AW become prominent in awareness, individuals tend to believe that significant others and the community will support plant-based meals because it is moral. Finally, EB and AW provide moral motivation to help individuals overcome barriers to enforcement and increase PBC. From the above bases, the author puts forward the following research hypothesis:

H4a, b, c: EB has a positive impact on AT, SN, and PBC

H5a, b, c: AW has a positive impact on AT, SN, and PBC

3.4 The influence of Physical health (PH) and Psychological health (PSH) on global motives

Plant-based diets have been shown to provide many benefits for physical and psychological health. First, the physical health benefits of vegetarianism

have been proven in numerous studies. A properly planned plant-based diet can provide health benefits, help prevent and cure certain diseases, plant-based diet helps reduce the risk of cardiovascular diseases, diabetes, high cholesterol, high blood pressure, cancer, and death, and reduce the risk of disease (Appleby & Key, 2015; Tonstad et al., 2009). Therefore, in this study, the physical health benefits (PH) reflect an individual's perception of the benefits that PHM can bring to their body, such as helping them improve their physical health, cure diseases, and prevent disease.

Besides, a plant-based diet has been proven to bring many benefits to psychological health. Studies show that a plant-based diet improves positive emotions (Warner et al., 2017) life satisfaction, happiness, and psychological health (Blanchflower et al., 2013) increases vitality, euphoria, and motivation (Conner et al., 2017) and reduces anxiety and depression (Null & Pennesi, 2017). Based on BRT (Westaby et al., 2010) and above grounds, the author puts forward the following research hypothesis:

H6a, b, c: PH has a positive impact on AT, SN, and PBC

H7a, b, c: PSH has a positive impact on AT, SN, and PBC

3.5. The influence of perceived barriers (PB) on global motives

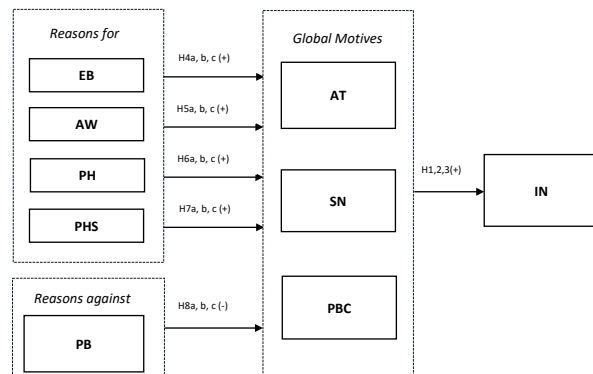
The previous research pointed out that the choice of plant-based food in Vietnam faces three biggest barriers, including inconvenience, high prices, and taste. To be more specific, Vietnamese consumers said they had difficulty finding plant-based products where they lived, plant-based products cost more than traditional animal products, and are not as tasty as animal-based ones (AAU Consulting, 2025). These obstacles seem to make the shift to a plant-based diet more difficult. From the above bases, in this study, perceived barrier (PB) reflects how individuals perceive the barriers of adopting PHM, such as inconvenience, high price, and unattractive taste. Based on BRT (Westaby et al., 2010) and the above grounds, the author puts forward the following research hypothesis:

H8a,b,c: PB has a negative impact on AT, SN, and PBC

3.7 Research framework

Based on theories and practices, relationships from H1-H8 are integrated to build a more comprehensive conceptual framework to explain the influences of factors on continued intention to adopt PHM (Figure 1).

Figure 1. Conceptual framework



4. Methodology

The current study uses convenience sampling. The survey subjects are Gen Z residents of Ho Chi Minh City (HCM), aged 18 to 25, who had chosen PHM in the last 3 months. The questionnaire uses a five-point Likert scale. The data was processed using the Partial Least Squares Structural Equation Model (PLS-SEM) method using SmartPLS 4 software.

5. Results

5.1 The assessment of the measurement model

The results of PLS-SEM analysis show that the scale ensures reliability, discriminant validity, and convergent validity (Hair et al., 2017). Specifically, all outer loadings, Cronbach Alpha, and composite reliability exceed the threshold of 0.7, and AVE is higher than 0.5 (Table 1). In addition, the structures all meet the Fornel-Lacker criteria and the HTMT index (Table 2, Table 3)

Table 1: Reliability and validity

Variable/item	Outer loadings	Cronbach's alpha	Composite reliability (rho_a)	Average variance extracted (AVE)
AT		0.943	0.943	0.815
AT1	0.921			
AT2	0.905			
AT3	0.895			
AT4	0.886			
AT5	0.905			
AW		0.934	0.937	0.836
AW1	0.939			
AW2	0.933			
AW3	0.928			
AW4	0.854			
EB		0.929	0.931	0.825
EB1	0.919			
EB2	0.911			
EB3	0.912			
EB4	0.890			
IN		0.930	0.930	0.826
IN1	0.907			
IN2	0.927			
IN3	0.907			
IN4	0.894			
PB		0.889	0.891	0.693

Variable/item	Outer loadings	Cronbach's alpha	Composite reliability (rho_a)	Average variance extracted (AVE)
PB1	0.857			
PB2	0.823			
PB3	0.824			
PB4	0.823			
PB5	0.834			
PBC		0.941	0.945	0.808
PBC1	0.915			
PBC2	0.903			
PBC3	0.931			
PBC4	0.872			
PBC5	0.871			
PH		0.917	0.918	0.708
PH1	0.809			
PH2	0.868			
PH3	0.841			
PH4	0.854			
PH5	0.852			
PH6	0.823			
PSH		0.909	0.909	0.610
PSH1	0.779			
PSH2	0.792			
PSH3	0.784			
PSH4	0.798			
PSH5	0.770			
PSH6	0.812			
PSH7	0.773			
PSH8	0.738			
SN		0.937	0.942	0.798
SN1	0.939			
SN2	0.909			
SN3	0.909			
SN4	0.851			
SN5	0.857			

Table 2: Discriminant validity

	AT	AW	EB	IN	PB	PBC	PH	PSH	SN
Fornell-Larcker Criterion									
AT	0.903								
AW	0.647	0.914							
EB	0.616	0.631	0.908						
IN	0.748	0.557	0.517	0.909					
PB	-0.466	-0.412	-0.366	-0.441	0.832				
PBC	0.559	0.598	0.576	0.593	-0.504	0.899			
PH	0.702	0.664	0.590	0.602	-0.434	0.624	0.841		
PSH	0.678	0.642	0.651	0.607	-0.431	0.626	0.689	0.781	
SN	0.520	0.610	0.581	0.570	-0.460	0.524	0.626	0.628	0.894
Heterotrait-Monotrait Ratio (HTMT)									
AT									
AW	0.690								
EB	0.658	0.677							
IN	0.798	0.598	0.554						
PB	0.508	0.450	0.401	0.483					
PBC	0.589	0.635	0.613	0.630	0.548				
PH	0.753	0.717	0.635	0.651	0.479	0.669			
PSH	0.732	0.697	0.707	0.660	0.477	0.673	0.752		
SN	0.549	0.649	0.619	0.609	0.501	0.552	0.673	0.678	

5.2 Structural Model Evaluation

The results of PLS-SEM analysis (Table 4) indicate that all constructs have VIF <3, so multicollinearity does not occur (Hair et al., 2017).

Bootstrapping analysis with 5,000 bootstrapping times on SmartPLS 4 software is performed to evaluate the relationships in the structural model. The results of direct effects and indirect effects shown

in Table 6 show that the hypotheses are statistically significant (p-value less than 0.05).

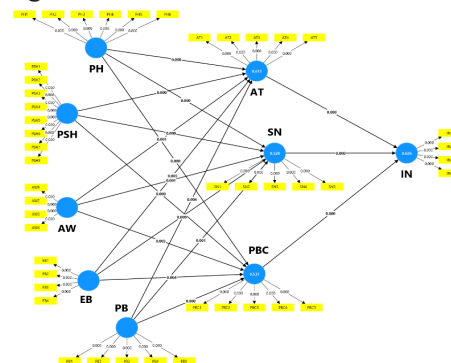
Table 4: VIF - Inner model matrix

	AT	AW	EB	IN	PB	PBC	PH	PSH	SN
AT				1.622					
AW	2.245					2.245			2.245
EB	2.044					2.044			2.044
IN									
PB	1.307					1.307			1.307
PBC				1.633					
PH	2.348					2.348			2.348
PSH	2.451					2.451			2.451
SN				1.537					

Table 6: Hypothesis Testing

	Beta	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Outcome
AT → IN	0.543	0.544	0.056	9.661	0.000	supported
AW → AT	0.163	0.161	0.050	3.287	0.001	
AW → PBC	0.151	0.147	0.050	3.013	0.003	
AW → SN	0.180	0.180	0.054	3.363	0.001	
EB → AT	0.150	0.149	0.054	2.807	0.005	
EB → PBC	0.155	0.157	0.053	2.892	0.004	
EB → SN	0.158	0.157	0.061	2.611	0.009	
PB → AT	-0.119	-0.120	0.041	2.906	0.004	
PB → PBC	-0.212	-0.212	0.044	4.842	0.000	
PB → SN	-0.150	-0.150	0.044	3.382	0.001	
PBC → IN	0.190	0.191	0.050	3.841	0.000	
PH → AT	0.307	0.309	0.044	6.945	0.000	
PH → PBC	0.206	0.206	0.058	3.575	0.000	
PH → SN	0.210	0.210	0.060	3.514	0.000	
PSH → AT	0.213	0.212	0.050	4.223	0.000	
PSH → PBC	0.196	0.194	0.053	3.669	0.000	
PSH → SN	0.200	0.202	0.054	3.711	0.000	
SN → IN	0.188	0.187	0.047	3.966	0.000	

Figure 2: Results of structural modelling



The R-square shown in Table 7 indicates that reasons for and reasons against explain 61.3% of the variation of AT, 53.7% of the variation of PBC, and 52.8% of the variation of SN. In addition, three variables of TPB account for 62.6 per cent of the variation of the IN.

Table 7: R-squared and R-squared adjusted

	R-square	R-square adjusted
AT	0.613	0.607
IN	0.626	0.623
PBC	0.537	0.530
SN	0.528	0.521

The *f*-square effect size was employed to evaluate the importance of independent variables. The results

communication, education, and policy interventions. The media needs to raise awareness of PSH, PH, EB, EW, and, at the same time, inspire responsible eating choices. Interventions can be to provide free PHM at schools, businesses, and public places, combined with promoting the support of family, friends, professionals, and nutrition organizations. This resonant effect will strengthen AT, SN, and PBC, thereby increasing IN in the community.

Table 8: f-square matrix

	AT	AW	EB	IN	PB	PBC	PH	PSH	SN
AT				0.487					
AW	0.031					0.022			0.031
EB	0.029					0.025			0.026
IN									
PB	0.028					0.074			0.037
PBC				0.059					
PH	0.103					0.039			0.040
PSH	0.048					0.034			0.035
SN				0.062					

6. Discussion

First, the results show that a combination of reasons for (benefits) and reasons against (barriers) is meaningful in forecasting IN through the global motives (AT, SN, and PBC). This shows that compared to TPB, which only relies on AT, SN, and PBC to forecast IN, BRT helps to provide a more multi-dimensional perspective, capturing both the motives and barriers that have affected IN. Similar to previous studies, this study shows the positive impact of global motivation on behavioral intentions. In addition, among global motives, AT is the most important factor and has the strongest impact on IN ($\beta = 0.543, p < 0.000$).

Second, the current research stands out in detecting the relationship between PSH and global motives. Most notably, among the reasons influencing global motives, PSH and PH are the two most influential factors. Specifically, PSH and PH both have significant positive effects on AT ($\beta = 0.213, \beta = 0.307, p < 0.001$). This new point shows that young people adopt PHM not only for physical health benefits but also for psychological health benefits.

7. Implications and limitations

By combining BRT and TPB, this study makes a valuable contribution to the existing theory to predict behavioral intention. This combination provides a more comprehensive view of the psychological and social factors influencing IN, which also shows the value of the BRT and TBP theoretical frameworks in predicting IN. More importantly, this study explored the causal relationship between PSH and AT, SN, and PBC. So far, these causal relationships haven't been explicitly discussed in previous studies. Together, the PH and PSH aspects shed more light on the effects of health on AT, SN, and PBC.

In terms of management, a multi-dimensional approach is recommended to promote the transition to PHM as a sustainable meal option, including

References:

- AAU Consulting. (2025). Thực Phẩm Plant-Based: Xu Hướng Mới Đang Thay Đổi Thị Trường F&B Tại Việt Nam. <https://aau.vn/blogs/news/th%E1%BB%A4c-ph%E1%A4m-plant-based-xu-h%E1%BB%A9ng-m%E1%BB%A9b-dang-thay-%E1%BB%95i-th%E1%BB%8B-tr%E1%BB%A9ng-d%E1%BB%9Dng-f-b-%E1%BB%A4i-v%E1%BB%87nang>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Appleby, P., & Key, T. (2015). The long-term health of vegetarians and vegans. *The Proceedings of the Nutrition Society*, 1-1, 1-7. <https://doi.org/10.1017/S0029665115004334>
- Blanchflower, D. G., Oswald, A. J., & Stewart-Brown, S. (2013). Is Psychological Well-Being Linked to the Consumption of Fruit and Vegetables? *Social Indicators Research*, 114(3), 785-801. <https://doi.org/10.1007/s11205-012-0173-y>
- Brouwer, A. R., D'Souza, C., Singaraju, S., & Arango-Soler, L. A. (2022). Value attitude behaviour and social stigma in the adoption of veganism: An integrated model. *Food Quality and Preference*, 97, 104479. <https://doi.org/10.1016/j.foodqual.2021.104479>
- Conner, M., & Armitage, C. J. (1998). Extending the Theory of Planned Behavior: A Review and Avenues for Further Research. *Journal of Applied Social Psychology*, 28(15), 1429-1464. <https://doi.org/https://doi.org/10.1111/j.1559-1816.1998.tb01685.x>
- Conner, T., Brookie, K., Carr, A., Maimvil, L., & Vissers, M. (2017). Let them eat fruit! The effect of fruit and vegetable consumption on psychological well-being in young adults: A randomized controlled trial. *PLoS One*, 12, e0171206. <https://doi.org/10.1371/journal.pone.0171206>
- Diener, E., Wirtz, D., Biswas-Diener, R., Tov, V., Kim-Prieto, C., Choi, D.-w., & Oishi, S. (2009). New Measures of Well-Being. In E. Diener (Ed.), *Assessing Well-Being: The Collected Works of Ed Diener* (pp. 247-266). Springer Netherlands. https://doi.org/10.1007/978-90-481-2354-4_12
- Gifford, R., Lacroix, K., Asgari-zadeh, Z., Ashford-Anderson, E., Milne-Ives, M., & Sugrue, P. (2024). Applying the theory of behavioral choice to plant-based dietary intentions. *Appetite*, 197, 107271.
- Hartmann, C., & Siegrist, M. (2017). Food perception and behaviour regarding sustainable protein consumption: A systematic review. *Trends in Food Science & Technology*, 61, 11-25. <https://doi.org/https://doi.org/10.1016/j.tifs.2016.12.006>
- IMARC. (2024). Vietnam Vegan Food Market Report by Product (Dairy Alternatives, Meat Substitutes, and Others), Source (Almond, Soy, Oats, Wheat, and Others), Distribution Channel (Supermarkets and Hypermarkets, Convenience Stores, Specialty Stores, Online Stores, and Others), and Region 2025-2033. <https://www.imarcgroup.com/vietnam-vegan-food-market>
- Koppin, C. S., & Rausch, T. M. (2022). Above and beyond meat: the role of consumers' dietary behavior for the purchase of plant-based food substitutes. *Review of Managerial Science*, 16(5), 1335-1364. <https://doi.org/10.1007/s11846-021-00480-x>
- Le-Anh, T., Nguyen, M. D., Nguyen, T. T., & Duong, K. T. (2023). Energy saving intention and behavior under behavioral reasoning perspectives. *Energy Efficiency*, 16(2), 8. <https://doi.org/10.1007/s12053-023-10092-x>
- Martiniello, E., & De Canio, F. (2021). Purchasing veg private labels? A comparison between occasional and regular buyers. *Journal of Retailing and Consumer Services*, 63, 102748.
- Norman, P., Conner, M. T., & Stride, C. B. (2012). Reasons for binge drinking among undergraduate students: An application of behavioural reasoning theory. *British Journal of Health Psychology*, 17(4), 682-698. <https://doi.org/https://doi.org/10.1111/j.2044-8287.2012.02065.x>
- Null, G., & Pennesi, L. (2017). Diet and lifestyle intervention on chronic moderate to severe depression and anxiety and other chronic conditions. *Complementary Therapies in Clinical Practice*, 29, 189-193. <https://doi.org/https://doi.org/10.1016/j.ctcp.2017.09.007>
- Paul, J., Modi, A., & Patel, J. (2016). Predicting green product consumption using theory of planned behavior and reasoned action. *Journal of Retailing and Consumer Services*, 29, 123-134. <https://doi.org/https://doi.org/10.1016/j.jretconser.2015.11.006>
- Povey, R., Conner, M., Sparks, P., James, R., & Shepherd, R. (2000). Application of the Theory of Planned Behaviour to two dietary behaviours: Roles of perceived control and self-efficacy. *British Journal of Health Psychology*, 5(2), 121-139.
- Remner, B., Sproesser, G., Strohbach, S., & Schupp, H. T. (2012). Why we eat what we eat. *The Eating Motivation Survey (TEMS)*. *Appetite*, 59(1), 117-128. <https://doi.org/https://doi.org/10.1016/j.appet.2012.04.004>
- Seffen, A. E., & Dohle, S. (2023). What motivates German consumers to reduce their meat consumption? Identifying relevant beliefs. *Appetite*, 187, 106593. <https://doi.org/https://doi.org/10.1016/j.appet.2023.106593>
- Sharps, M. A., Fallon, V., Ryan, S., & Coulthard, H. (2021). The role of perceived descriptive and injunctive norms on the self-reported frequency of meat and plant-based meal intake in UK-based adults. *Appetite*, 167, 105615.
- Tonstad, S., Butler, T., Yan, R., & Fraser, G. (2009). Type of Vegetarian Diet, Body Weight, and Prevalence of Type 2 Diabetes. *Diabetes care*, 32, 791-796. <https://doi.org/10.2337/d08-1886>
- Veraim, M. C. D., Reinders, M. J., Bouwman, E. P., & Dagevos, H. (2024). Gradual behavioral change towards meat reduction revisited: Applying the decision balance scale in a Dutch study. *Appetite*, 203, 107712. <https://doi.org/https://doi.org/10.1016/j.appet.2024.107712>
- Yang, K., & Jolly, L. D. (2009). The effects of consumer perceived value and subjective norm on mobile data service adoption between American and Korean consumers. *Journal of Retailing and Consumer Services*, 16(6), 502-508. <https://doi.org/https://doi.org/10.1016/j.jretconser.2009.08.005>
- Zhang, T., Gao, Y., & Spence, C. (2024). Ready meals that look hot increase consumers' willingness to pay for plant-based options. *Food Quality and Preference*, 121, 105277. <https://doi.org/https://doi.org/10.1016/j.foodqual.2024.105277>