Factors influencing the intention to purchase meat-mushroom blended burgers among college students

**Title:**

Factors influencing the intention to purchase meat-mushroom blended burgers among college students

**Author list:**

Giovanni Sogari; Jie Li; Qian Wang; Michele Lefebvre; Miguel I. Gómez; Cristina Mora

**Author names and affiliations**

**Giovanni Sogari, Ph.D.**

University of Parma, Italy, giovanni.sogari@unipr.it

**Jie Li, Ph.D.**

Cornell University, USA, jl2522@cornell.edu

**Qian Wang, Ph.D.**

Shanghai University of Finance and Economics, China, sherryf080207@sina.com

**Michele Lefebvre,**

Purdue University Northwest, USA, mlefebvre@pnw.edu

**Miguel I. Gómez, Ph.D.**

Cornell University, USA, mig7@cornell.edu

**Cristina Mora, Ph.D.**

University of Parma, Italy, cristina.mora@unipr.it

**Corresponding author:**

Giovanni Sogari, Ph.D., University of Parma, Parco Area delle Scienze 47/A, 43124, Parma, Italy, giovanni.sogari@unipr.it

**Abstract**

In recent years, the rise in meat consumption has been criticized for health, environmental, and ethical reasons. This trend has fostered the shift from a meat-centric diet to a plant-forward diet. A prime example of this is the introduction of "blended meat products" that mix plant-based ingredients into meat-based foods. This study designed and implemented a survey in a U.S. college campus residential dining hall (n=296) to investigate the impact of key demographic, motivational and attitudinal factors on the purchase intention of a meat-

mushroom blended burger in which mushrooms partially replaced beef. The results show that young consumers with a positive perception of a sustainable diet, with a positive attitude toward food innovation, and with a positive motivation to process sustainability and nutrition information were more likely to purchase the meat-mushroom blended burger. The results have implications for marketers, policymakers, as well as for retailers. These findings can help them better understand young consumers' behavior and identify strategies to encourage young adults to shift from a meat-centric diet to a plant-forwarded diet.

**Keywords**

Consumer behavior, plant-based diet, blended burger, meat-mushroom blend, alternative protein

## 1. Introduction

In North American countries, meat is considered to be a central component of food culture. Meat-eating is regarded as a standard dietary practice (Lentz et al., 2018). However, several national and international health authorities consider the high consumption of red meat unhealthy because it leads to metabolic syndrome and even to noncommunicable diseases such as cancers and cardiovascular diseases (World Health Organization, 2017).

In addition to human health consequences resulting from a high intake of meat products, the agricultural and farming industry raising animals for human consumption is causing a negative environmental impact on the planet (de Boer & Aiking, 2017). For example, the livestock sector is responsible for producing a large quantity and variety of animal-derived foods, which requires an intensive amount of non-renewable resources such as water and land (Tucker, 2014). Therefore, to achieve more sustainable and healthy food consumption patterns in the future, research suggests it is vital to limit the consumption of animal products (Schösler et al., 2012). For instance, the shift from a meat-centric to a semi-vegetarian diet (also known as “flexitarian”) could have an enormously positive impact on public health and the environment if adopted by the majority of people (Spencer et al., 2018a). This has led many campus dining programs to support healthy nutrition campaigns (e.g., less meat options) across dining programs to reduce the risk of obesity among college students (Mueller et al., 2018). However, switching to a plant-based diet requires strong motivations and commitment from consumers, and researchers need to better understand how the motivating factors to reduce meat consumption are perceived by consumers and how they might affect consumer behaviors (Lentz et al., 2018). For instance, previous studies show that the purchasing behavior of young

adults is not strongly influenced by the healthiness of food but rather by their taste and convenience (Sogari et al., 2018).

One way to encourage young Western consumers to embrace a healthier eating lifestyle is to develop blended (mixed) dishes in which vegetables partially replace meat, whereas the sensory appeal is not compromised (Guinard et al., 2016; Myrdal Miller et al., 2014; Spencer et al., 2018a). For instance, the mushroom is the right candidate to serve as a healthy substitute for meat-based dishes due to its low amount of sodium and ability to maintain the overall flavor of the food (Guinard et al., 2016; Myrdal Miller et al., 2014). Mushrooms contain non-essential amino acids, glutamic acid, and aspartic acid, as well as 5_ribonucleotides. These acids are associated with the umami taste, described as a savory, brothy, rich, or meaty taste sensation (Myrdal Miller et al., 2014), and, therefore, it is one that is capable of mitigating the sensory effects of salt (and sodium) reduction.

Although mushrooms have been used in North America to partially replace the meat ingredient in familiar meat products, few studies have investigated consumers' acceptance of these blended dishes (Myrdal Miller et al., 2014; Guinard et al., 2016). A recent stream of the literature focused primarily on sensory elements or physical characteristics of meat-mushroom blended dishes, e.g., tacos, burgers, meatballs (Myrdal Miller et al., 2014; Spencer et al., 2018b). However, these studies are largely silent about the factors that influence consumption and purchase behaviors. Lang (2020) addresses this gap by designing and implementing an online survey to investigate U.S. consumers' acceptance and consumption of the mushroom and meat combination. The study found that the most preferred form of blended food products was burgers. As such, factors like a positive attitude toward a healthy diet and food innovation influence the acceptance of the blended products. While Lang (2020) made substantial contributions to the literature, it was based on an online survey, and the author calls for extending this research under more controlled conditions. For instance, exploring how behaviors and attitudes affect purchase intention of blended meat products on specific segments of the population. To fill this gap, this study designed and implemented a study in a U.S. college campus residential dining hall (n=296) to empirically test the impact of key demographic, motivational and attitudinal factors on the purchase intention of a meat-mushroom blended burger in which mushrooms partially replace beef. Specifically, the study employed measures of 1) healthy and sustainable diet perception, 2) motivation to process sustainability and nutrition information, and 3) attitudes toward innovation, to explain purchase intention of meat-mushroom blended burgers.

## 2. Materials and methods

### 2.1 Recruitment and sample size

To study various factors influencing young consumers' purchase intention of the mushroom-meat blended burger, a survey study using a college student sample was conducted in a residential dining location at Cornell University (Ithaca, U.S.). The survey was conducted during lunch and dinnertime in fall 2018 on two consecutive weekdays for eight weeks. The study took place in one of the "all you care to eat" dining venues. Cornell University is part of the Menus of Change Research Collaborative (MCURC), which is a research collaboration between several American universities and the Culinary Institute of America (CIA). MCURC was founded with the objective of effectuating healthy dietary shifts without the loss of sensory appeal. The main goal of MCURC is to encourage students across several U.S. college dining venues to reduce red meat intake and to increase their consumption of plant-based foods instead (Spencer et al., 2018b).

The paper and pencil survey was administered by two investigators during meal service (11 am - 2 pm for lunch; 5:30 - 7:30 pm for dinner). After students finished ordering their food, they were invited to participate in the survey. If they agreed, they were asked to sign a consent form. Anonymity and data privacy were assured. This study was deemed exempt by the Institutional Review Board (IRB) of the Office of Research Integrity and Assurance of Cornell University (Protocol ID#: 1808008184).

A total of 296 valid responses were collected. Table 1 presents the summary statistics of the demographic information of the sample. The sample consisted of 51% female and 75% North Americans (i.e., US and Canada). Their ages ranged from 18 to 35 years old (M=19.21, SD=1.95).

**Table 1. Sample Socio-Demographic (n=296)**

| Variable | Frequency | Percent |
|---|---|---|
| Gender | | |
| Female | 151 | 51.01 |
| Male | 145 | 48.99 |
| Origin | | |
| North America | 222 | 75 |
| Other Countries | 74 | 25 |
| Age | Mean | SD |

| | | |
|---|---|---|
| | 19.21 | 1.95 |

## 2.2 Questionnaire and Measures

A survey was designed and conducted primarily to achieve consumers' perception of and receptivity towards three specific elements: healthful diet, sustainable diet, and food innovation. Additionally, the survey was also meant to measure consumers' motivation to process nutrition and sustainability-related information.

A pilot study was carried out before the actual data collection to better understand if the questionnaire was filled out as instructed and to detect any difficulties with its compilation. Minor modifications were introduced to improve clarity and comprehension. The full set of questions is available in Table A.1 in the Appendix.

First, the motivation to process nutrition information was measured using two survey questions. Participants were asked to rate the following statements: 1) how interested are you in reading nutrition information from 1 (extremely not interested) to 7 (extremely interested); 2) how much do you care about reading nutrition information from 1 (not at all important) to 7 (extremely important). Similarly, the motivation to process sustainability information construct also consisted of two survey questions that asked participants to rate the following statements: 1) how interested are you in reading sustainability information from 1 (extremely not interested) to 7 (extremely interested); 2) how much do you really care about reading sustainability information from 1 (not at all important) to 7 (extremely important). These scales were adjusted based on previous studies (e.g., Keller et al., 2019).

In addition, three more constructs were created measuring participants' perception of a healthy diet, a sustainable diet, and food innovation. The perceptions of a healthy and sustainable diet are measured using three items each, all of which were adapted from a scale by Van Loo, Hoefkens, & Verbeke, (2017). Participants were asked to rate their level of agreement with three statements regarding a healthy diet from level 1 (strongly disagree) to 7 (strongly agree). More specifically, participants rated their level of agreement with the following statement: A healthy diet is 1) tasty, 2) filling, and 3) sustainable. Likewise, consumers' perception about a sustainable diet is also a construct of three survey items regarding the participants' level of agreement with the following statement: A sustainable diet is 1) tasty, 2) filling, and 3) nutritious. Next, the attitude toward food innovation construct (Huotilainen, Pirttilä-Backman, & Tuorila, 2006) consisted of two survey questions. Participants were asked to rate their level of agreement with the following statements from 1 (strongly agree) to 7 (strongly disagree).

The statements are: 1) If new, different, or innovative foods are available in dining places and supermarkets, I always choose them, 2) I do purchase new, different, or innovative foods even if I have not tasted/experienced them beforehand.

Finally, participants were asked to indicate their purchase intention (Vainio, Irz, & Hartikainen, 2018) toward a meat-mushroom blended burger on a Likert scale from 1 to 7, with 1 being extremely unlikely and 7 being extremely likely. They were asked three times in the survey. Each time, they were presenting one type of information about the burger: burger made better, burger made better for your body, and burger made better for the planet. The construct of purchase intention is used as the dependent variable in the linear regression analysis.

The last part of the questionnaire concerned demographic information, including age, gender, and country of origin, as well as consumption frequency (i.e., consumption of traditional meat burgers in the last month). The price, which is also very important, was not considered because, in our study, the sample (university students) had a meal plan on campus and, therefore, did not take the cost of their selections into consideration.

The model to test the impact of various factors on young consumers' purchase intention is explained in Figure 1.

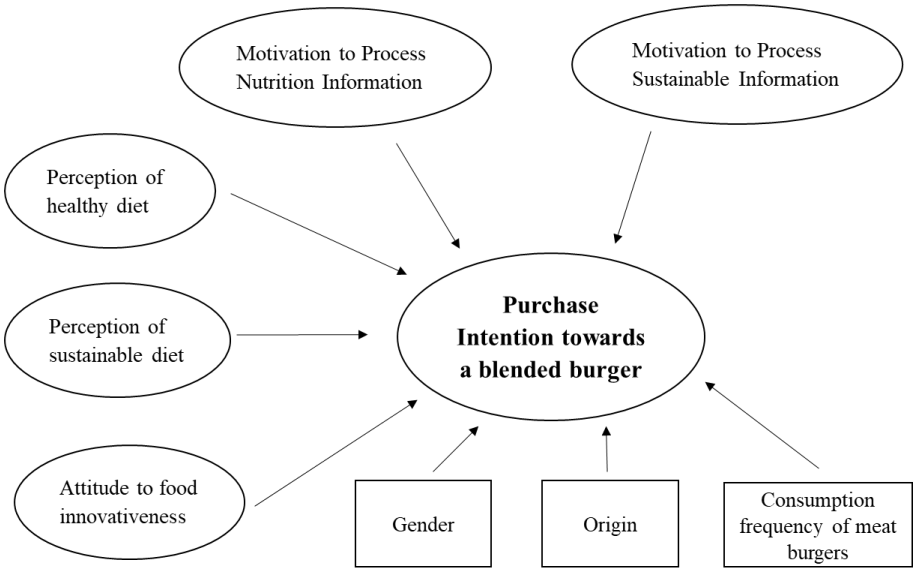


**Figure 1. Model**

## 3. Results

### 3.1 Factor analysis results

In this study, a confirmatory factor analysis (CFA) of the related survey questions was first employed to construct latent variables to be used in the linear regression. Secondly, a linear regression analysis was conducted to examine the relationship between the latent constructs and consumers' purchase intention.

The measurement model fit was assessed through the CFA to evaluate the validity of each construct. Convergent and discriminant validation and the overall fit with data were examined to ensure model validity and reliability. To test the internal consistency of the indicators of each construct, the most widely-used method is to calculate the coefficient alpha of a given construct (Kang, Liu, & Kim, 2013). The internal consistency of the scales (Cronbach's α ranging from 0.61 to 0.89) suggests that the constructs are acceptable (Table 2).

In addition to the main explanatory factors, we also controlled for demographic factors that may influence purchase intention. Moreover, the consumption frequency of regular burger was also controlled in this model. Gender (i.e., male was coded as 1, zero otherwise), and participant origin (i.e., people from the U.S. and Canada were coded as 1, zero otherwise) were also controlled in this model. The analysis was conducted using the statistical software STATA, version 16.

**Table 2. Reliability and Validity of the Constructs**

| Constructs | Standardized Factor Loading | Cronbach's α coefficients |
|---|---|---|
| ***Purchase Intention*** | | 0.72 |
| Burgers made better | 0.60 | |
| Burgers made better for your body | 0.70 | |
| Burgers made better for the planet | 0.60 | |
| ***Motivation to Process Nutrition Information*** | | 0.61 |
| How interested are you in nutrition information? | 0.59 | |
| How much do you care about nutrition information? | 0.59 | |
| ***Motivation to Process Sustainability Information*** | | 0.89 |
| How interested are you in sustainability information? | 0.86 | |
| How much do you care about sustainability information? | 0.86 | |
| ***Perception of a Healthy Diet*** | | 0.67 |
| A healthy diet is tasty | 0.77 | |
| A healthy diet is filling | 0.75 | |
| A healthy diet is sustainable | 0.34 | |

| | | |
|---|---|---|
| ***Perception of a Sustainable Diet*** | | 0.81 |
| A sustainable diet is tasty | 0.83 | |
| A sustainable diet is filling | 0.81 | |
| A sustainable diet is nutritious | 0.60 | |
| ***Attitude towards Food Innovation*** | | 0.70 |
| If new, different or innovative foods are available in dining places and supermarkets, I always choose them. | 0.64 | |
| I do purchase new, different, or innovative foods even if I have not tasted/experienced them beforehand. | 0.64 | |

### 3.2 Linear regression results

Table 3 presents the estimates of the linear regression. The results show that the motivation to process nutrition information has a positive and significant impact on purchase intention at a 10 percent significance level (*coefficient*=0.22, $p<0.1$), with a one-point factor score increase in motivation to process nutrition information causing a 0.22 point increase in purchase intention. Furthermore, the results indicate that the motivation to process sustainability information has a positive and significant effect on purchase intention at a one percent significance level (*coefficient*=0.43 $p<0.01$). A one-point factor score increase in motivation to process sustainability information results in a 0.43 point increase in purchase intention. The results indicate that motivation to process sustainability information has a more substantial impact on consumers' purchase intention for the mushroom-meat blended burger than nutrition information does.

Regarding the impact of consumers' perception on purchase intention, the results show that a more positive perception of a sustainable diet results in a higher consumers' purchase intention (*coefficient*=0.25, $p<0.1$), with a one-point score increase in the perception of a sustainable diet results in a 0.25 point increase in purchase intention. Furthermore, the results show that a more positive attitude toward innovation is associated with a higher purchase intention for the mushroom-meat blended burger (*coefficient*=0.18, $p<0.01$). A one-point factor score increase in attitude to innovation is associated with a 0.18 point increase in purchase intention. The results show that the perception of a healthy diet is not significant in this model.

Regarding other control factors, the results show that the origin of individuals, namely those originally from North America (i.e., the USA and Canada), have a negative and significant impact on purchase intention (*coefficient*=-0.433, $p<0.05$). The result indicates that individuals

from North America have a lower purchase intention for the blended burger relative to people from other regions. Lastly, consumption frequency and gender are not significant in this model.

**Table 3. Results of the linear regression predicting the purchase intention of a mushroom-meat blended burger (n=296)**

| | β | St.Err. |
|---|---|---|
| Motivation to access nutrition information | 0.220* | 0.129 |
| Motivation to access sustainability information | 0.432*** | 0.124 |
| Perception of a healthy diet | 0.014 | 0.138 |
| Perception of a sustainable diet | 0.254* | 0.144 |
| Attitude towards innovation | 0.179*** | 0.066 |
| Consumption frequency of meat burger | -0.072 | 0.073 |
| Gender (1=male) | -0.083 | 0.162 |
| Origin (1=North America) | -0.433** | 0.171 |
| Adj. R2 | 0.250 | |

Note: ***p < 0.01; **p < 0.05: *p < 0.1.

## 4. Discussion

This study investigated how motivation to process information and consumers' perception of eating patterns influence purchase intention towards a blended meat product (i.e., a burger that is 70% beef and 30% mushrooms). Consistent with Lang (2020) for the general population, our findings indicate that the attitudes of students from a private Northeastern US university toward innovation is an essential factor when studying behavior measures towards blended products. Compared to previous works which mainly focused on acceptance (Spencer et al., 2018b, Lang, 2020), our study focused on how innovativeness influences the purchase intention of the meat-mushroom burger. Given that we collected data in a real dining hall during lunchtime, we believe that our results have a closer link to actual behavior compared to the online survey. Moreover, based on the existing literature, intention is a critical predictor of behavior (Ajzen & Madden, 1986). This indicates the willingness to actually purchase the product when given the opportunity. This is consistent with other studies that focus on the strong link between attitude-intention-behavior for new novel foods (Menozzi et al., 2017). Our findings indicate that individuals who like to purchase new and different foods when

available at grocery stores or restaurants are more likely to consider this blended product as innovative and buy it. In addition, consumers with a positive perception of a sustainable diet have a higher purchase intention towards the meat-mushroom blended burger.

Furthermore, the results indicate that a more positive motivation to process sustainability and nutrition information leads to a higher purchase intention of the blended meat product. The motivation to process sustainability information has a more substantial impact on purchase intention compared to motivation to process nutrition information. These results extend the findings of Martin et al. (2021) to the younger college student demographic, which shows that providing information on the environmental benefits of eating blended meat products positively influences consumers' choices. Therefore, specific environmental benefits of eating this blended burger (e.g., a lower carbon footprint and less water usage than with a 100% beef burger) should be provided at the point-of-choice, whether that be food service or a retailer. Moreover, because our study was conducted in a real college dining hall setting, our insights are beneficial for restaurants, school canteens/cafeterias, and the food industry for the development of communication strategies (e.g., food labeling, public information campaigns, advertising and marketing campaigns, and educational programs) and the shift towards plant-based meals. We acknowledge that participants in our study were exposed to information about the MCURC principles and practices in the dining environment. This should be taken into consideration for a successful strategy to include this product in the food menu. Moreover, our study focused on burgers, which are the most preferred blended products (see Lang, 2020, for further details), and this can provide a significant healthier shift of one of the most iconic and popular menu items in the U.S.

As far as the origin of the participants is concerned, it is worth mentioning that young, North American consumers are less likely to purchase this product than their counterparts from other countries. The reason might be that the typical beef burger, or hamburger, is a classic dish in their diet; as a result, their acceptance of an alternative is lower than those individuals who consume fewer burgers. Therefore, U.S. producers need to understand the reasons (cultural, dietary, and other) behind this difference to better position these new products. Finally, contrary to Lang (2020), who found differences between regular and transitional meat consumers regarding their acceptance of blended products, we did not find that the consumption frequency of traditional burger is a significant factor influencing the purchase intention of the blended burger. This may be due to differences in the sample demographics, given that Lang's (2020) sample consists of older consumers, whereas our study focuses on college students.

As suggested by previous authors (e.g., Apostolidis & McLeay, 2016), behavioral researchers need to further investigate psychological reasons to eat less meat. In the case of the university-age population, it becomes important to create an environment that increases awareness of and engagement in healthy and sustainable dietary behaviors (Sogari et al., 2018). Our study showed how the involvement of social and behavioral researchers, along with nutritionists and university dining services, allows for a fruitful collaboration in consumer research towards red meat reduction. This type of collaboration can inform and inspire healthy and sustainable change in college menus across the U.S. as well as in other countries with heavy meat consumers. Blending food products has the potential to become mainstream, especially for products with which consumers are already familiar, e.g., burgers. Further studies could test other recipes for products in which meat has been replaced partially or entirely by plant-based ingredients and take into account variables that address real culinary and marketing factors (e.g., sensory testing, price, labeling), including a more stratified sample population.

We identified several limitations of our study. One of the limitations is that these results might not apply to other groups of consumers or other blended plant-based ingredients and meat products. Another limitation is that the study used a convenience sampling procedure and targeted a group of students from a single, private University. Future studies could extend this research to Universities across the US, including small/large and public/private colleges. Hence, the exploratory insights obtained from this study mainly apply to this population, whereas generalization to the overall population remains speculative.

## 5. Conclusions

This study designed and implemented a study in a university campus dining venue to provide insights into college students' perceptions about diet and their purchase intention of a meat-mushroom blended burger. Our results indicate consumers with a more positive perception of a sustainable diet and with a strong interest in reading sustainability information are more likely to purchase these new blended burgers.

Blending plant-based ingredients into traditional meat-based foods can be an efficient way to reduce meat consumption without dramatically changing traditional eating habits. Therefore, in alignment with MCURC practices and other researchers (Summers et al., 2017 ; Spencer et al., 2018a,b), we encourage university canteens/cafeterias to make such blended meat options more available in order to help students adopt a plant-forward diet.

**Funding:** This study is part of a more comprehensive project called "CONSUMEHealth. Using consumer science to improve healthy eating habits" and has received funding from the European Union's Horizon 2020 Research and Innovation Programme under the Marie Sklodowska-Curie grant agreement No 749514.

**Acknowledgments:** The authors are grateful to all the staff of the Cornell Dining venues for their collaboration and help in carrying out this study. Additionally, we want to express our gratitude to the students who helped in the data collection.

**Conflicts of Interest:** The authors declare no conflict of interest.

**CRediT authorship contribution statement: G.Sogari:** Conceptualization, Methodology, Data curation, Project administration, Supervision, Writing - original draft; **J.Li**: Data curation, Formal analysis, Writing - original draft; **Q.Wang**: Data curation and Formal analysis; **M.Lefebvre:** Methodology, Writing - review & editing; **M.I. Gómez:** Writing - review & editing; **C.Mora:** Writing - review & editing; Project administration

## References

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology*, *22*(5), 453–474. https://doi.org/10.1016/0022-1031(86)90045-4

Apostolidis, C., & McLeay, F. (2016). Should we stop meating like this? Reducing meat consumption through substitution. *Food Policy*, *65*, 74–89. https://doi.org/https://doi.org/10.1016/j.foodpol.2016.11.002

de Boer, J., & Aiking, H. (2017). Pursuing a Low Meat Diet to Improve Both Health and Sustainability: How Can We Use the Frames that Shape Our Meals? *Ecological Economics*, *142*, 238–248. https://doi.org/10.1016/j.ecolecon.2017.06.037

Huotilainen, A., Pirttilä-backman, A.-M., & Tuorila, H. (2006). How innovativeness relates to social representation of new foods and to the willingness to try and use such foods. *Food Quality and Preference*, *17*(5), 353–361. https://doi.org/10.1016/J.FOODQUAL.2005.04.005

Kang, J., Liu, C., & Kim, S.-H. (2013). Environmentally sustainable textile and apparel consumption: the role of consumer knowledge, perceived consumer effectiveness and perceived personal relevance. *International Journal of Consumer Studies*, *37*(4), 442–452. https://doi.org/10.1111/ijcs.12013

Keller, S. B., Landry, M., Olson, J., Velliquette, A. M., Burton, S., & Andrews, J. C. (2019). The Effects of Nutrition Package Claims, Nutrition Facts Panels, and Motivation to Process Nutrition Information on Consumer Product Evaluations. *Journal of Public Policy & Marketing*, *16*(2), 256–269. https://doi.org/10.1177/074391569701600206

Lang, M. (2020). Consumer acceptance of blending plant-based ingredients into traditional meat-based foods: Evidence from the meat-mushroom blend. *Food Quality and Preference*, *79*, 103758. https://doi.org/https://doi.org/10.1016/j.foodqual.2019.103758

Lentz, G., Connelly, S., Mirosa, M., & Jowett, T. (2018). Gauging attitudes and behaviours: Meat consumption and potential reduction. *Appetite*, *127*, 230–241. https://doi.org/10.1016/J.APPET.2018.04.015

Martin, C., Lange, C., & Marette, S. (2021). Importance of additional information, as a complement to information coming from packaging, to promote meat substitutes: A case study on a sausage based on vegetable proteins. *Food Quality and Preference*, *87*, 104058. https://doi.org/https://doi.org/10.1016/j.foodqual.2020.104058

Menozzi, D., Sogari, G., Veneziani, M., Simoni, E., & Mora, C. (2017). Eating novel foods: An application of the Theory of Planned Behaviour to predict the consumption of an insect-based product. *Food Quality and Preference*, *59*, 27–34. https://doi.org/10.1016/j.foodqual.2017.02.001

Myrdal Miller, A., Mills, K., Wong, T., Drescher, G., Lee, S. M., Sirimuangmoon, C., … Guinard, J. X. (2014). Flavor-Enhancing Properties of Mushrooms in Meat-Based Dishes in Which Sodium Has Been Reduced and Meat Has Been Partially Substituted with Mushrooms. *Journal of Food Science*, *79*(9), S1795–S1804. https://doi.org/10.1111/1750-3841.12549

Mueller, M. P., Blondin, S. A., Korn, A. R., Bakun, P. J., Tucker, K. L., & Economos, C. D. (2018). Behavioral Correlates of Empirically-Derived Dietary Patterns among University Students. Nutrients, 10(6). https://doi.org/10.3390/nu10060716

Schösler, H., Boer, J. De, & Boersema, J. J. (2012). Can we cut out the meat of the dish? Constructing consumer-oriented pathways towards meat substitution. *Appetite*, *58*(1), 39–47. https://doi.org/10.1016/j.appet.2011.09.009

Sogari, G., Velez-Argumedo, C., Gómez, M., & Mora, C. (2018). College Students and Eating Habits: A Study Using An Ecological Model for Healthy Behavior. *Nutrients*, *10*(12), 1823. https://doi.org/10.3390/nu10121823

Spencer, M., Kurzer, A., Cienfuegos, C., & Guinard, J.-X. (2018a). Student consumer acceptance of plant-forward burrito bowls in which two-thirds of the meat has been replaced

with legumes and vegetables: The Flexitarian Flip™ in university dining venues. *Appetite*, *131*, 14–27. https://doi.org/10.1016/J.APPET.2018.08.030

Spencer, M., Cienfuegos, C., & Guinard, J.-X. (2018b). The Flexitarian Flip™ in university dining venues: Student and adult consumer acceptance of mixed dishes in which animal protein has been partially replaced with plant protein. *Food Quality and Preference*, *68*, 50–63. https://doi.org/10.1016/J.FOODQUAL.2018.02.003

Tucker, C. A. (2014). The significance of sensory appeal for reduced meat consumption. *Appetite*, *81*, 168–179. https://doi.org/10.1016/j.appet.2014.06.022

Vainio, A., Irz, X., & Hartikainen, H. (2018). How effective are messages and their characteristics in changing behavioural intentions to substitute plant-based foods for red meat? The mediating role of prior beliefs. *Appetite*, *125*, 217–224. https://doi.org/10.1016/j.appet.2018.02.002

Van Loo, E. J., Hoefkens, C., & Verbeke, W. (2017). Healthy, sustainable and plant-based eating: Perceived (mis)match and involvement-based consumer segments as targets for future policy. *Food Policy*, *69*, 46–57. https://doi.org/10.1016/j.foodpol.2017.03.001

World Health Organization. (2017). Noncommunicable diseases: the slow motion disaster. In *World Health Organization*. Retrieved from http://www.who.int/publications/10-year-review/chapter-ncd.pdf?ua=1

**Appendix.**

**Table A.1. Questionnaire**

| **Variables** | **Phrasing of the question** | **Anchors (7-point Likert scale)** |
|---|---|---|
| *Purchase Intention* | How likely are you going to purchase this mushroom-meat burger when given the information that Burgers. Made Better | Extremely unlikely to Extremely Likely |
| | How likely are you going to purchase this mushroom-meat burger when given the information that Burgers. Better for Your Body | Extremely unlikely to Extremely Likely |
| | How likely are you going to purchase this mushroom-meat burger when given the information that Burgers. Better for the Planet | Extremely unlikely to Extremely Likely |
| *Motivation to process nutrition and sustainable information* | In general, how much interested are you in reading NUTRITION INFORMATION when you choose your food? | Extremely Not interesting-Extremely interesting |
| | In general, how much do you really care about reading NUTRITION INFORMATION when you choose your food? | Not at all important-Extremely important |

| | | |
|---|---|---|
| | In general, how much interested are you in reading SUSTAINABLE-RELATED INFORMATION when you choose your food? | Extremely Not interesting-Extremely interesting |
| | In general, how much do you really care about reading SUSTAINABLE-RELATED INFORMATION when you choose your food? | Not at all important-Extremely important |
| *Perception of a healthy and sustainable diet* | In your opinion, a healthy diet is tasty | Strongly disagree - Strongly agree |
| | In your opinion, a healthy diet is filling | Strongly disagree - Strongly agree |
| | In your opinion, a healthy diet is sustainable | Strongly disagree - Strongly agree |
| | In your opinion, a sustainable diet is tasty | Strongly disagree - Strongly agree |
| | In your opinion, a sustainable diet is filling | Strongly disagree - Strongly agree |
| | In your opinion, a sustainable diet is nutritious | Strongly disagree - Strongly agree |
| *Attitude to innovation* | If now, different or innovative food are available in dining places and supermarkets, I always choose them | Strongly disagree - Strongly agree |
| | I do purchase new, different or innovative foods even if I have not tasted /experienced them beforehand | Strongly disagree - Strongly agree |

**Consumption Frequency**

How many times have you consumed traditional meat burgers in the last month?

- ○ Every day
- ○ 4-5 times a week
- ○ 2-3 times a week
- ○ 3-4 times a month
- ○ 1-2 times a month
- ○ Never

**Age**

- ○ Under 18
- ○ Please write your specific age:

**Gender**

- ○ Male
- ○ Female
- ○ Other
- ○ Prefer not to answer

**Country of origin**

_____