

Is it easier being green (and cute)? The impact of default and cuteness nudges on plant-based meal choice

Ana Francisca Ribau da Cruz Botelho

Master's Degree in Social and Organizational Psychology

Supervisor:

Doctor Professor Catarina Possidónio, Invited Assistant Professor,  
Iscte-Instituto Universitário de Lisboa

Co-Supervisor:

Doctor Professor Marília Prada, Assistant Professor with  
Habilitation, Iscte-Instituto Universitário de Lisboa

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## Resumo

O consumo de carne está a aumentar rapidamente. Este aumento de procura envolve várias questões ambientais, bem como preocupações relacionadas com a saúde das pessoas e problemas éticos que envolvem o bem-estar dos animais. Para mitigar os impactos negativos que surgem de um elevado consumo de carne, torna-se urgente explorar estratégias que facilitem a transição para padrões alimentares mais sustentáveis, nomeadamente para uma dieta vegetariana. Assim, a nossa investigação tem como objetivo analisar o impacto da utilização de dois *nudges* - o efeito *default* e a *cuteness* via antropomorfismo - nas escolhas das refeições. Para o efeito, realizámos um estudo online ( $N = 129$  voluntários,  $M_{Age} = 32.53$ ,  $DP = 10.84$ ) apresentando 20 imagens de refeições (e.g., hambúrguer; massa). Cada refeição apresentava duas opções: uma de origem animal e outra de origem vegetal, que era identificada com uma folha antropomorfizada *cute* ou com uma letra “V” verde. Além disso, a opção à base de plantas podia ser pré-selecionada (i.e., opção por *default*) ou não (controlo). Esperávamos que a utilização simultânea de ambos os estímulos resultasse numa maior seleção de refeições de base vegetal. No entanto, os nossos resultados não corroboraram esta ideia, uma vez que não se observaram efeitos significativos de ambos os estímulos na proporção de escolha dessas refeições. Concluímos que as mulheres tendem a escolher mais opções de refeições de base vegetal do que os homens e que as pessoas tendem a ver as opções à base de carne como menos calóricas do que as opções vegetarianas na condição de *cuteness* via do antropomorfismo. Os resultados serão discutidos em termos das suas contribuições para a investigação do consumidor e do marketing alimentar e no âmbito de políticas governamentais.

**Palavras-chave:** Psicologia do Consumidor, Psicologia Ambiental, *Nudging*, *Default Effect*, Antropomorfismo, *Cuteness*, Refeições Vegetarianas

**American Psychological Association (PsycINFO Classification Categories and Codes):**

**3900** Psicologia do Consumidor

**3920** Atitudes e Comportamento do Consumidor

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## **Abstract**

Meat consumption is increasing rapidly. This rise in demand leads to several environmental issues, as well as concerns related to people's health and ethical predicaments involving animal welfare. To mitigate the negative impacts that arise from a high level of meat consumption, it becomes urgent to explore strategies that facilitate a transition into more sustainable dietary patterns, namely to a plant-based diet. Thus, our investigation aims to examine the impact of using two nudges - the default effect and cuteness via anthropomorphism – in meal choices. To test this, we conducted an online study ( $N = 129$  volunteers,  $M_{\text{Age}} = 32.53$ ,  $SD = 10.84$ ) presenting 20 images of meals (e.g., hamburger; pasta). Each meal presented two options: one regular (i.e., animal-based) and one plant-based, which was identified with a cute anthropomorphized leaf or with a green letter “V”. Moreover, the plant-based option was pre-selected (i.e., default option) or not (control). We expected that the simultaneous use of both nudges would result in a higher selection of plant-based meals. However, our results did not support this hypothesis, as neither nudge had a significant effect on the proportion of plant-based meals selected. We found that women tend to choose more plant-based meal options than men and that people tended to view meat-based options as less caloric than plant-based options in the condition of cuteness via anthropomorphism. This research provides a better understanding of strategies that encourage people to make more sustainable food choices. Findings are discussed in terms of their contributions to consumer research, food marketing and government policies.

**Key-words:** Consumer Psychology, Environmental Psychology, Default Effect, Anthropomorphism, Cuteness, Plant-Based Meals.

## **American Psychological Association (PsycINFO Classification Categories and Codes):**

**3900** Consumer Psychology

**3920** Consumer Attitudes & Behavior

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## Chapter 1

### Introduction

In the present study, we intend to explore how using two nudging strategies, the default effect and cuteness via anthropomorphism, can lead to an increase in people's intention to choose more plant-based meals compared to meat-based meals.

The consumption of meat products is growing with time due to population increase and the rise in individual wages (Godfray et al., 2018). This tendency tends to be more evident in high-income countries, versus those with middle or low income (Godfray et al., 2018). It is expected that by the year 2050, there will be a growth of 76 %, worldwide, in the production of meat which will reflect an increase of 200 million tonnes of meat (Alexandratos & Bruinsma, 2012). In Portugal this tendency is also noticeable, given that in the last two decades, from 2000 to 2022, meat consumption increased by 14.6 kg per person. Specifically, in 2000 the average consumption was 103.9 kg/person which has risen to 118.5 kg/person, including the meat of bovine animals, sheep, goats, horses, poultry, offal, and other types of meat (Portal do INE, 2023). In the European Union, the average meat consumption in 2000 was, approximately, 65 kg/person and in 2022 it rose to 68 kg/person. By 2031 these numbers are expected to keep rising by about 1,4 % per year (European commission, 2020). Worldwide, from 2020 to 2022, meat production rose from 328 million metric tons to 345,17 million metric tons (Statista, 2024).

This pattern has a lot of different types of consequences namely, environmental problems, human health issues, and animal welfare. When it comes to meat consumption, the environmental consequences are various, namely in terms of global warming. Specifically, to obtain meat products, one must rely on animal breeding which results in a negative ecological footprint of greenhouse gas emissions when compared to the farming of vegetables (Poore & Nemecek, 2018). Particularly when it comes to water consumption, it is known that the farming of vegetable products involves much less use of water than animal production. In like manner, of the absolute value of the water use in agriculture worldwide, a total of 29 % belongs to the production of meat, alone. Because of this, it can be estimated that if meat products were to be replaced by 50 % by plant-based foods, the water impact would be minimized by 30 % (Mekonnen & Hoekstra, 2010). All this data enables us to understand that in terms of water consumption, it is more advantageous to get calories and even protein and fat though products with a vegetable origin than products of animal origin (Mekonnen & Hoekstra, 2010).

There are a lot of studies investigating the potential side effects of the overconsumption of meat products (Richi et al., 2015). In terms of human health, the investigation concluded that the higher the ingestion of processed meat (i.e., meat products, including ham, bacon, sausages, and small part of minced meat), the more probable the development of cardiovascular problems which are a major cause of death (Rohrmann et al., 2013). It is also recognized that processed meat as well as red meat can contribute to the presence of colorectal cancer (World Cancer Research Fund & American Institute for Cancer Research, 2018). Particularly, processed red meat (bacon, hot dogs, sausages, salami, bologna, and other processed red meats) as well as unprocessed red meat (e.g., main dishes of beef, lamb, or pork) is related to the development of type 2 diabetes (Pan et al., 2011). Another study pointed out that, in a general manner, excessive intake of both processed and unprocessed red meat is linked to a higher probability of premature death (Sun, 2012).

The consumption of meat implies that animals experience pain. The question of whether animals can feel pain is a topic of great interest, with one argument being that if animals actively try to escape from situations that can induce pain and even learn to abstain from it, that might indicate that they do experience this feeling. Beyond this argument is the fact that animals show some cognitive capabilities that are recognized in humans so, it can be argued that one of them can include the capacity to feel pain (Bateson, 1991). Meat production raises concerns in the topic of animal welfare because it involves operations, namely, castration without numbness, killing without stunning, among others, that are legal in most countries and specifically in Europe (Bonnet et al., 2020). Most animal production is made in sites where animals do not have enough space, where they are kept in an exaggerated quantity, the environment around them does not provide good nutrition, they are subjected to many painful procedures and there is even genetic manipulation to attain a large number in production. This happens due to the goal of producing more and reducing the costs entailed in animal husbandry (Faucitano & Nannoni, 2023; Lebret & Čandek-Potokar, 2022).

Considering that meat consumption impacts animal welfare (Bonnet et al., 2020), human health (Rohrmann et al., 2013) and the environment, in a detrimental manner (Poore & Nemecek, 2018), it becomes necessary explore other alternatives to a meat-based diet. One of these alternatives is a plant-based diet. It is known that people who follow this type of diet have reduced risk of developing problems such as chronic diseases (Dinu et al., 2017) and heart disease (Dinu et al., 2017; Glenn et al., 2019). This diet also allows for a lower fat consumption (Key et al., 2022), which results in a lower mass body index and lower cholesterol (Dinu et al.,

2017), as well as a lower likelihood of developing diabetes, when compared to a nonvegetarian and nonvegan diets (Papier et al., 2019; Tonstad et al., 2013). Plant based diets also have a positive impact on the environment once they allow for a smaller emission of greenhouse gas. It also implies a requirement of less land use, minus 60 %, than a diet based on animal products (Hallström et al., 2015). Lastly, it is important to realize the benefits of meat reduction that can be attained by substituting some animal-based meals with plant-based alternatives. This does not necessarily imply a change to a fully vegetarian diet, but a change to some extent towards opting for more plant-based alternatives. For this reason, one of the strategies that can lead people to choose more plant-based meals is nudging.

Nudging is a strategy that influences people's decision-making processes in a certain direction while keeping all the choices available and without the interference of economic inducement (Thaler & Sustein, 2008). This approach allows for a behaviour change in contexts as wide as policy tactics and marketing (Beshears & Kosowsky, 2020). Examples of such strategies include nudges that do not involve deliberation, such as the default effect, that cause a greater impact than nudges that do not implicate automaticity (Beshears & Kosowsky, 2020).

Nudging has been shown promising results in what concerns healthy eating promotion. For example, a review by Bucher and colleagues (2016), concluded that the majority of studies considered, have shown that there is a positive influence of nudging strategies in choosing more healthy food choices. Another systematic review concluded that the use of nudges appears to have a positive impact in healthy food choices in more than 80 % of the studies being analysed (Vecchio & Cavallo, 2019). Specifically, nudging is also being used in order to shift people towards a more plant-based diet. Concretely, a review by Meier and colleagues (2022) has shown that the use of nudging strategies, in particular, the default effect, leads to a diminishing quantity of meat consumed, in this case, practically all studies analysed have shown this effect. Kurz (2018) also found that by making the vegetarian meal more notable, this results in a rise of vegetarian meals consumed. Despite the influence that these types of strategies have on people's food choices, it is yet to be explored which of these processes have the most influence, if they can be combined (Beshears & Kosowsky, 2020).

In this specific work, we will, first present the literature referring to the nudging strategies we will be focusing on as well as presenting the goal of our research and the hypotheses we composed. After a global vision of these topics we will present the methods of the pretest and of the main experiment and we will present the results of each. After that we will focus on

discussing the results obtained, including its contributions and limitations, and we will give suggestions of future studies.

### Literature Review

#### 2.1. Nudging: Default Effect

Several types of nudging strategies are applied to contexts such as food selection (Vecchio & Cavalo, 2019) one of the most commonly used is the default effect. Imagine ordering a meal and salad is already pre-selected as the side dish. You can trade it for French fries or rice, but it becomes less likely that you will because we tend to stick with the pre-selected option. The default effect, or status quo, can be thought as a phenomenon of decision-making in which people tend to conserve the pre-selected option (Samuelson & Zeckhauser, 1988). That is when presented with a pre-selected choice and other options, people tend to keep the option previously defined (Thaler & Sunstein, 2008).

##### 2.1.1 Why does the default effect impact people's choices?

There are several reasons that can be pointed out when trying to understand why the default effect occurs. Namely, it is thought that the effect of the status quo may happen due to loss aversion (Johnson & Goldstein, 2003; Thaler & Sunstein, 2008), in which losses tend to have a bigger impact than gains. For this reason, the process of decision-making becomes partial, leading people to prefer to keep the existing option in detriment of other alternatives (Tversky & Kahneman, 1991). Another explanation is the fact that this type of decision is undemanding once people are not actively making their decision (Johnson & Goldstein, 2003; Thaler & Sunstein, 2008). Lastly, the default effect can be accounted for as a recommendation made by an authority entity, leading people to believe that the pre-selected choice is the best choice (Johnson & Goldstein, 2003), which can also be called an endorsement (Meier et al., 2022).

##### 2.1.2 The default effect in different contexts

This nudging strategy has been applied in multiple contexts. For example, regarding peoples finances, it was found that individuals tend to participate more in automatic saving plans when the employment place pre-defines the quantity of money that goes to the employee saving plan, altering people's saving behaviour. Overall people tend to stick with the predefined plan, which, in the long run, results in a much larger savings (Madrian & Shea, 2000). In addition, the status quo also influences major life decisions like organ donation. It is known that if organ donations are made in an automatic manner (e.g., pre-checked option in a form), people tend to stick with it, resulting in more organ donors (Johnson & Goldstein, 2003).

### **2.1.3 The default effect and its influence in food choices**

The default effect also influences choice in sustainable menus, leading to an increase of the selection of sustainable menu options, not only in a hypothetical sense but also in a real context (Radnitz et al., 2018, 2023). The application of the default effect on healthier food in the context of online grocery shopping also produces positive effects, nudging people to choose more wholesome foods (Coffino et al., 2021; Valenčič et al., 2024).

When the default effect is used in plant-based meal options, it results in a bigger adoption of plant based meals in real life context (Boronowsky et al., 2022; Hansen et al., 2021; Hielkema et al., 2022; Taufik et al., 2022), in self-service meal designs (Friis et al., 2017) and in online menus that presented some type of meat alternatives (Taufik et al., 2022). In a nutshell, the use of the default effect produces a positive impact on the reduction of meat consumption, leading people to choose more plant-based alternatives. According to the literature review of Meier and colleagues (2022), this is due to endorsement and effort. This phenomenon is broadly presented in different studies that although having different methods, end up reaching the same conclusion.

## **2.2 Nudging: Anthropomorphism and cuteness**

Another nudging mechanism that can be used to influence choice is anthropomorphism. This concept relates to the attribution of human characteristics, namely cognition processes and motivation aspects, to nonhuman entities (Epley et al., 2007). The level of anthropomorphism a person attributes to an entity may depend on various aspects. According to Epley and colleagues (2007), these factors include the expertise a person has about particular aspects that distinguish humans from other entities, the motivation to engage with these nonhuman entities, and the willingness a person has to develop a social connection to other people.

Anthropomorphism can be accompanied by an effect called cuteness. Frequently cute stimuli tend to have anthropomorphic characteristics, precisely because the attributes that are typically considered cute are human attributes. Still, this is not always the case and sometimes anthropomorphic stimuli are not considered cute. The term cuteness relates to certain characteristics present in babies, for example, big head, face with round features and large eyes. These features are considered cute, inducing a motivation for behaviour of caretaking. The first scientist to propose this definition of baby schema, or “*Kindchenschema*”, was Konrad Lorenz (Glocker et al., 2009). This concept was later supported by many researchers who came to the conclusion that, in fact, these baby-like features are interpreted as cute and this motivates a

caretaker behaviour in adults (Glocker et al., 2009). Investigators also found that if car fronts have cute attributes, this triggers physical responses in people's face muscles, particularly those responsible for smiling. This leads to the conclusion that products with cute characteristics are positively evaluated by consumers (Miesler, 2011).

### **2.2.1 Application of anthropomorphism and cuteness in different contexts**

In marketing, cute brand logos tend to positively increase people's perception of a brand, particularly when consumers are feeling hopeful (Septianto & Paramita, 2021). There is also evidence that cute anthropomorphic stimuli in advertising when accompanied by an altruistic message, highlighting the water cups positive impact for the environment, lead to a bigger purchase intention of green products, namely juices (Lu et al., 2021). Cuteness also influences recycling motivations. When presented with a poster of an animal with cute features, people with strong approach motivation tend to have higher recycling intent and have a bigger tendency towards products with a positive environmental impact (Wang et al., 2017).

Interestingly, when people are exposed to sounds and images with cute characteristics, they tend to show more inclination towards decisions that benefit others. This is also true when it comes to donations (Shin & Mattila, 2021). Anthropomorphizing social causes produces a similar effect, making people more predisposed to behave in a prosocial manner (Ahn et al., 2014)

In relation to food waste, anthropomorphizing can also be a good strategy to reduce this problem. Typically, misshapen products are less appealing than regular ones which translates into people's tendency to buy them less. Considering this, when these products are anthropomorphised (e.g., carrots, tomatoes, cucumbers, and potatoes), people tend to buy them more making this a good strategy to minimize the quantity of discarded food (Cooremans & Geuens, 2019; Shao et al., 2020). Moreover, the process of anthropomorphising not only increases purchase intentions but also actual behaviour of consumers (Cooremans & Geuens, 2019). This effect is more prominent in women (vs men) who show a higher intention to buy these products. Still, such gender differences disappear when older adults are considered (Shao et al., 2021).

### **2.2.2 Cuteness and anthropomorphism influence in people's food choices**

Regarding food consumption, in general, the effect of cuteness depends on the type of food being presented. Thus, when hedonic food is presented with cute characteristics, that tends to

increase consumption. On the contrary, when healthy food is presented, in order to increase consumption, it is best to present the food in a neutral manner (Lee et al., 2018). Interestingly, This is also the case when it comes to novel foods like insect-based food, that is, when insect chips are presented with cute features, people tend to have higher purchase intentions of said product (Marquis et al., 2023).

In spite of this, Schroll (2023) found that, although anthropomorphising food can lead to a bigger intention of purchase, it can also lead to reverse effects, leading to minor actual consumption. According to the authors, this effect can be explained by the fact that the attribution of human characteristics to food, can lead to a perception of pain felt by the animal which then, leads to morality concerns when it comes to the consumption of the food. Specifically, when it comes to meat consumption, it appears that people tend to have less tendency to eat meat when the animals are considered cute (Zickfeld et al., 2018) and when they are anthropomorphised (Mishra & Mehta, 2023; Niemyjska et al., 2018). Once again this tendency is not directly reflected in actual meat consumption, as cuteness has only an indirect effect (Mishra & Mehta, 2023; Zickfeld et al., 2018). Wang and Basso (2019) extended this finding with different types of meat and found that anthropomorphising animals leads to lower buying intentions, in the case of pork meat and not in beef meat. These results appear to happen due to feelings of guilt anticipation.

This pattern is explored in a context of food packaging. For instance, Choueiki and colleagues (2021), used anthropomorphised stickers containing the image of a cow and text appeals to either the cows intelligence, pro-social behaviour or appealing to the animal suffering on burgers packages. It was found that people exposed to the sticker, had lower motivation towards meat consumption and even intended to reduce their actual levels of consumption. Again, this effect appears to happen due to anticipatory guilt.

There is a growing tendency to look for meat alternative foods. This has led investigators to study novel foods as an alternative to the dietary patterns of people. For this, anthropomorphism has been broadly studied as an effective way of influencing people to become more open to trying novel foods. Considering this, it was found that the anthropomorphization of novel foods (edible insects) on a package leads to a bigger purchase intention of this type of food (Wang & Park, 2023). In an interesting multicultural study, it was found that only younger French people were more willing to try novel food (insects) when the packaging of the product had an anthropomorphised image (Marquis et al., 2024). Moreover,

studies that explore the effect of cuteness on purchase intentions of novel food, find some evidence that support the positive effect of cuteness manipulation on purchase intentions but only in hedonic food, in this case, chips (Marquis et al., 2023).

In contrast with these results, an experiment by Bruckdorfer and Büttner (2022) did not find effects of cute packaging on the willingness to try novel foods (insect-based products). This can be attributed to the fact that since the beginning of the experiment people's intentions of trying this product was very high to begin with and most people that refused to try, had food restrictions.

### **2.2.3 Nudging influence in plant-based alternatives**

Considering the existing literature, it is not yet clear if the effect of nudging does lead to a higher adoption of novel foods or plant-based foods. Previous research has demonstrated that nudges, namely, the default effect can effectively influence consumer choices across novel foods, including plant-based options (e.g. Boronowsky et al., 2022; Friis et al., 2017; Taufik et al., 2022) and, anthropomorphism can lead to a decrease of intentions to eat meat (e.g. Choueiki et al., 2021; Mishra & Mehta, 2023). However, the effectiveness of combining different nudges, such as the default effect and cuteness via anthropomorphism, remains underexplored. While some evidence suggests that nudges can interact positively in contexts such as food waste (Qi et al., 2022; Zheng et al., 2023), other studies indicate that hybrid nudges may not always be effective or can even produce counterproductive results (Broers et al., 2019; den Dekker, 2023; Di Matola, 2020; Starke et al., 2021). Particularly, there is limited data on how these combined nudges specifically impact plant-based meal selection. To address this gap, our research aims to investigate whether the simultaneous application of the default effect and cuteness via anthropomorphism can lead to a higher adoption rate of plant-based meals. This exploration is crucial for understanding the potential of combined nudges in promoting more sustainable dietary choices.

Because of these mixed results, and the heterogeneity of nudges, the current study aims to understand if the use of the default effect and cuteness via anthropomorphism leads to a higher selection of plant-based meals. Hence, we formulated three hypotheses:

1. The default effect will lead to higher choice of plant-based meal options when compared to the control condition;

2. Cute anthropomorphism will lead to higher choice of plant-based meal options, when compared to the control condition;
3. The combined effect of both nudges - default effect and cute anthropomorphism, will lead to the highest choice of plant-based meal options.

## Chapter 3

### Pilot Test

The goal of the pilot test was to select an anthropomorphised image of a leaf that people considered to be cute. This image was selected and used as cuteness via anthropomorphism stimulus in the experiment.

#### 3.1 Method

##### 3.1.1 Participants

A total of 33 participants were recruited through social media. One participant was excluded from the analysis because of the discrepancy of age (52 years old), when compared to the mean of ages in the total sample ( $M_{\text{age}} = 23.31$ ,  $SD = 2.24$ ,  $\text{Min} = 18$ ,  $\text{Max} = 30$ ).

From a total of 32 subjects, 21 identified as women (65.6 %) and the remaining as men (34.4 %). Most participants ( $n = 27$ ) reported not following any particular diet, 2 reported following a vegetarian/vegan diet, 2 reported following a weight loss diet and 1 reported following a gain height diet.

##### 3.1.2 Materials

Based on an online search, we selected 20 images of cute anthropomorphized green leaves (Appendix A). The choice of a leaf was based on the fact that the vegan symbol for the symbol of a vegetarian meal is frequently a small green leaf. The only difference is that our selection only comprised cute anthropomorphized leaves (e.g., with eyes; smiling).

##### 3.1.3 Measures and Procedures

Each symbol was evaluated in four dimensions, using 7-points rating scales, namely: a) cuteness (“In my opinion this symbol is”, from 1 = *not very cute* to 7 = *very cute*); b) valence (“In my opinion this symbol is”, from 1 = *not very positive* to 7 = *very positive*); c) familiarity of the symbols (“In my opinion this symbol is”, from 1 = *not very familiar* to 7 = *very familiar*) d) suitable for signalling vegetarian meals (“In my opinion this symbol is”, from 1 = *not very suitable for signalling vegetarian meals* to 7 = *very suitable for signalling vegetarian meals*).

A questionnaire was developed in the platform *Qualtrics*. Participants were asked to participate in the study, giving their informed consent. It was solicited that they responded to some questions related to the symbols they were presented, to understand their impression of

the appropriateness of the symbol in the signalization of a vegetarian meal. They gave their opinion about the cuteness, valence, familiarity and suitability of the symbols. The participants gave their judgment about all 20 symbols. The presentation order of the symbols was randomized, and each symbol and questions related, were presented in individual pages of the online questionnaire. The mean time to respond to the questionnaire was 5 to 10 minutes. At the end, participants were thanked and debriefed.

### **3.2 Results**

To analyse the results of the pretest, SPSS (*Statistical Package for the Social Sciences*) version 26 was used to compute descriptive statistics.

Overall, concerning the mean score of the cuteness of the symbols, people considered them to be high in the cuteness dimension, overall ( $M = 4.5$ ,  $SD = .48$ ). Participants also considered the images to be positive and in general ( $M = 4.9$ ,  $SD = .411$ ) and to be suitable for the signalization of vegetarian meals ( $M = 3.7$ ,  $SD = .35$ ). Lastly, people reported not being familiarized with the symbols, in a general manner ( $M = 3.3$ ,  $SD = .29$ ). Based on these mean results, the selected image 11 to use in the study.

In selecting a cute, anthropomorphized leaf to identify the vegetarian options, we applied inclusion criteria. Firstly, we excluded images that were perceived as similar to vegetables according to participants, as our focus was not on anthropomorphizing food itself. These images were also not included because they were not similar to the commonly known vegan symbol representing a leaf. Additionally, images with additional elements (e.g., vases) were excluded to prevent interference and other associations. Participant responses indicated that the selected image was perceived as very cute ( $M_{\text{image}} = 5.0$ ,  $SD = 2.08$ ), and as very suitable for signalling plant-based food ( $M_{\text{image}} = 4.2$ ,  $SD = 1.94$ ).

In Appendix A, we show the total of 20 images that we used in the pilot study. The image number 11 was the one selected to be used in the experiment, according to the scores we obtained in the pilot study (Appendix B).

## Chapter 4

### Experiment

#### 4.1 Method

##### 4.1.1 Participants and design

A total of 129 participants volunteered to participate in the experiment. We employed a between-subjects design with a 2 (default vs. no default) x 2 (anthropomorphized cute leaf vs. no leaf). This design resulted in four conditions: (1) the default condition, where the vegetarian option was presented as the default choice accompanied by a green “V” letter to signify its vegetarian nature; (2) the cute condition, featuring the presentation of a cute anthropomorphized leaf to indicate the vegetarian meal; (3) the default-cute condition, combining both nudges, by presenting the vegetarian option as the default option, alongside the anthropomorphized leaf; and (4) the control condition, where neither the default nor the cute leaf were presented, with only the green letter “V” provided as a signal for the vegetarian option.

##### 4.1.2 Materials

We displayed a total of 20 pictures, two of each type of meal (i.e. pasta, pizza, hamburgers, etc.), retrieved from the internet to present more hedonic images. Based on Erhard e colleagues work (2023), to mitigate potential variation in the level of appeal of different images representing animal-origin option and plant-based options, we selected one image for each meal that could represent both options.

Alongside the plant-based option, we presented a cute, anthropomorphized leaf that was pre-selected in the pre-test or, in the control condition, a green letter “V” to signalize the option as plant-based.

##### 4.1.3 Measures

Firstly, we measured the proportion of choice of selected plant-based options versus animal origin options (i.e., number of plant-based option selected / 20 trials). After the main task of meal selection, participants were asked to rate the vegetarian meals in comparison to the meat meals in a 7 point *rating* scale for: a) calories (“The vegetarian options you've just seen compared to the meat options are” from 1 = *less caloric* to 7 = *more caloric*), b) tastiness (“The vegetarian options you've just seen compared to the meat options are” from 1 = *less tasty* to 7 = *more tasty*) c) healthiness (“The vegetarian options you've just seen compared to the meat

options are” from 1 = *less healthy* to 7 = *more healthy*), d) environmentally friendly (“The vegetarian options you've just seen compared to the meat options are” from 1 = *less environmentally friendly* to 7 = *more environmentally friendly*), e) ethical (“The vegetarian options you've just seen compared to the meat options are” from 1 = *more ethical* to 7 = *less ethical* ), f) processed (“The vegetarian options you've just seen compared to the meat options are” from 1 = *less processed* to 7 = *more processed*), and g) price (“The vegetarian options you've just seen compared to the meat options are” from 1 = *less expensive* to 7 = *more expensive*) .

Additionally, participants indicated their diet (e.g., flexitarian; vegetarian) and their frequency of consuming various products (i.e., red meat, white meat, fish and seafood, fruits and vegetables, legumes, vegetable products alternative to meat and products alternative to dairy in a 7-point rating scale (“Think about your diet over the last few months and select the options that best describe the frequency of consumption of each of the different types of food presented”, from 1 = *never*, 2 = *less than once a month*, 3 = *one to two times a month*, 4 = *three to four times a month*, 5 = *five to six times a month*, 6 = *seven to eight times a month* to 7 = *nine to more times a month*).

#### **4.1.4 Procedure**

This experiment was conducted online via Qualtrics. Firstly, participants provided informed consent and were assured of data anonymity. They were informed that the study aimed to investigate selection preferences between animal-based meals and plant-based meals. Moving forward, participants received instruction indicating they would be presented with various meal options and that they could choose the animal-based or the plant-based meal, with the latest option identified either with a green letter “V” or with a cute anthropomorphized leaf, depending on their assigned condition. It was also noted that both options were illustrated by a single image.

Following meal selection, participants were asked to rate the vegetarian meals compared to the meat meals regarding their characteristics, namely: calories, taste, healthiness, environmentally friendly, ethical, level of processing, and price.

We also asked participants to state if they followed any specific diet and their frequency of consumption of different types of foods.

Lastly, we thanked participants for their contribution and provided with contact information for any study-related inquiries.

Figure 1

*Test trial*

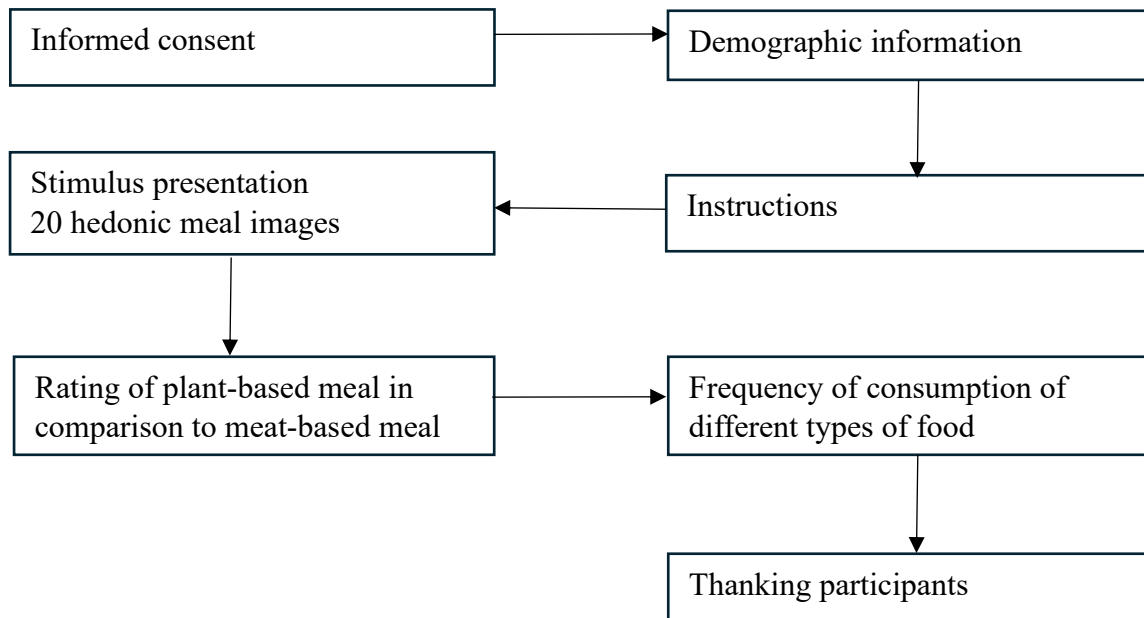


Table 1

*Experimental design: Example of stimulus presented in each condition*

| Cuteness via<br>anthropomorphism<br>and default effect                              | Cuteness via<br>anthropomorphism                                                    | Default effect                                                                       | Control                                                                               |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |
| <input checked="" type="radio"/> Hamburger                                          | <input type="radio"/> Hamburger                                                     | <input checked="" type="radio"/> Hamburger                                           | <input type="radio"/> Hamburger                                                       |
| <input type="radio"/> Hamburger                                                     | <input type="radio"/> Hamburger                                                     | <input type="radio"/> Hamburger                                                      | <input type="radio"/> Hamburger                                                       |

## 4.2 Data Analytic plan

In order to analyse the results of the study, SPSS (*Statistical Package for the Social Sciences*) version 26 was used. Next, we will present the results of the following statistical analyses. We

first conducted a two-way ANOVA with all the participants ( $N = 129$ ) in order to understand if there were significant differences in the proportion of plant-based meal choices and meat-based choice in the different conditions. After that, we conducted another two-way ANOVA excluding the vegetarian participants ( $N = 115$ ). After that we conducted an independent samples  $t$ -test to understand if gender had an impact on the proportion of plant-based meal choices. We then conducted a correlation analysis in order to understand if the proportion of plant-based meal choice was correlated with plant-based and meat-based meal characteristics. Next, we did another correlation analysis allowing us to explore if the nudges were correlated with the frequency of consumption of different types of food.

## Chapter 5

### Results

#### 5.1 Participants and design

Overall, our sample was composed of 106 women and 23 men with a total of 129 participants. The mean age of participants was 32.53 years. Our youngest participant was 19, and our oldest participant was 65 years old, the standard deviation was 10.84.

We implemented a between-subjects design with four conditions: (1) default effect condition, (2) cuteness via anthropomorphism condition, (3) default effect and cuteness via anthropomorphism condition and (4) control condition. In the default effect and cuteness via anthropomorphism condition there were a total of 36 participants. In the cuteness via anthropomorphism group we had 30 participants, in the default group there were 31 participants and, in the control group we had a total of 32 participants.

#### 5.3 Impact of nudges (default effect and cuteness via anthropomorphism) on plant-based meal selection

We performed a two-way ANOVA to test the effect of the default effect and cuteness via anthropomorphism on plant-based meal choice.

Contrary to our H3, we did not find a significant interaction between the default effect and cuteness via anthropomorphism on the proportion of plant-based meal choice,  $F(1,125) = 1.24$ ,  $p = .268$  such that the proportion of such meals chosen when the default and the anthropomorphised leaf was present ( $M = .48$ ,  $SE = .05$ ) did not differ from what was observed when the default and the anthropomorphised leaf was not present ( $M = .40$ ,  $SE = .06$ ) (see Graphic 1).

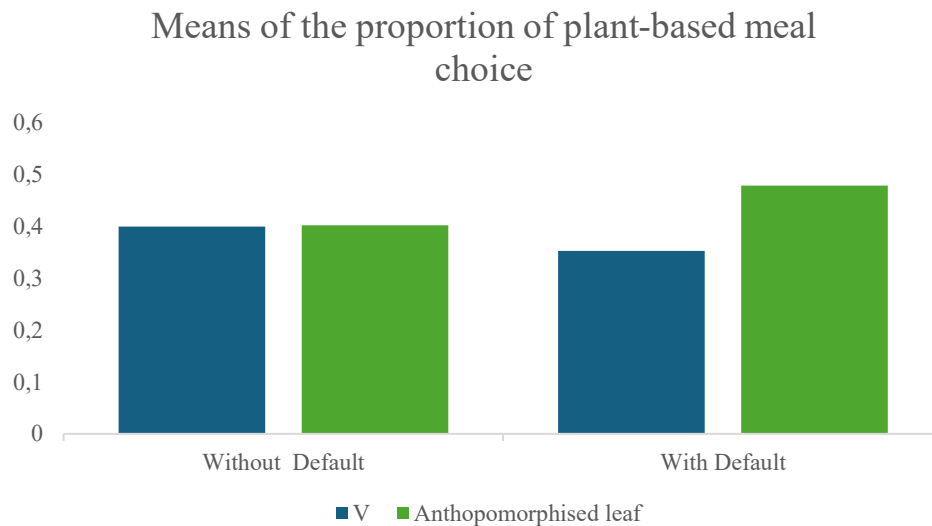
We could not support H1, because analysis showed that the default effect did not have a statistically significant effect on the proportion of plant-based meal choice,  $F(1, 125) = .076$ ,  $p = .784$  such that the proportion of such meals chosen when the default was present ( $M = .42$ ,  $SE = .04$ ) did not differ from what was observed when the default was not present ( $M = .40$ ,  $SE = .04$ ) (see Graphic 1).

Opposite to H2, we observed that cuteness via anthropomorphism also did not have a significant main effect on the proportion of plant-based meal choice,  $F(1,125) = 1.40$ ,  $p = .256$ , such that the proportion of such meals chosen when the cute leaf was used ( $M = .44$ ,  $SE = .04$ )

did not differ from what was observed when the letter V was presented ( $M = .38$ ,  $SE = .04$ ) (see Graphic 1).

Graphic 1.

*Mean differences of proportion of plant-based meal choice in the different conditions*



We also performed a two-way ANOVA without the vegetarian participants. We did not find any significant interaction between default and cuteness via anthropomorphism,  $F(1,111) = 1.61$ ,  $p = .207$ , on the proportion of plant-based meal choice such that the proportion of such meals chosen when the default and cuteness via anthropomorphism was used ( $M = .42$ ,  $SE = .05$ ) did not differ from what was observed when the letter “V” was presented ( $M = .36$ ,  $SE = .05$ ).

We found no statistically significant effect of default  $F(1,111) = .035$ ,  $p = .853$  on the proportion of plant based meal choice, such that the proportion of such meals chosen when the default was present ( $M = .35$ ,  $SE = .04$ ) did not differ from what was observed when the default was not presented ( $M = .36$ ,  $SE = .04$ ).

We found no statistically significant effect of anthropomorphism via cuteness  $F(1,111) = 1.56$ ,  $p = .215$  on the proportion of plant based meal choice, such that the proportion of such meals chosen when cute leaf was present ( $M = .39$ ,  $SE = .04$ ) did not differ from what was observed when the letter “V” was not presented ( $M = .32$ ,  $SE = .04$ ).

#### **5.4 Impact of gender on the proportion of plant-based meal choice**

We performed an independent-samples *t*-test to understand if the gender of participants affected the proportion of plant-based meals chosen. We found significant differences, such that women tend to choose more plant based meals ( $M = 0.44$ ,  $SD = 0.32$ ) than men ( $M = 0.28$ ,  $SD = 0.26$ ),  $t(127) = 2.26$ ,  $p = .025$ .

#### **5.5 Correlation of the proportion of plant-based meal choice with the perception of plant-based meal characteristics**

To understand whether the proportion of plant-based meals choice was correlated with other variables, we conducted a correlation analysis. We found that the proportion of plant-based meal choice was positively correlated with the level of perceived tastiness in plant-based meals and in meat meals,  $r(129) = .29$ ,  $p < .001$ . The proportion of plant-based meals choice was also correlated to the perceived environmental impact of plant based meals versus meat based meals,  $r(129) = .20$ ,  $p = .022$ . The perceived ethics of plant-based meals versus meat-based meals was correlated to the proportion of plant based meals choice,  $r(129) = .25$ ,  $p = .004$ . We can conclude that when people have the perception that plant-based meal options are tastier, have a more positive impact on the environment and are perceived as being more ethical, they also tend to choose more plant-based meals.

Table 1.

*Correlation of the proportion of plant-based meal choice with the perception of plant-based meal characteristics*

|                                                    |                            | Proportion of<br>plant-based<br>meal choice | Calories | Processed | Tastiness | Price  | Healthines<br>s | Environme<br>ntal<br>Friendly | Ethical |
|----------------------------------------------------|----------------------------|---------------------------------------------|----------|-----------|-----------|--------|-----------------|-------------------------------|---------|
| Proportion<br>of plant-<br>based<br>meal<br>choice | Pearson<br>Correlatio<br>n | 1                                           |          |           |           |        |                 |                               |         |
|                                                    | Sig. (2-<br>tailed)        |                                             |          |           |           |        |                 |                               |         |
| Calories                                           | Pearson<br>Correlatio<br>n | 0,053                                       | 1        |           |           |        |                 |                               |         |
|                                                    | Sig. (2-<br>tailed)        | 0,554                                       |          |           |           |        |                 |                               |         |
| Processed                                          | Pearson<br>Correlatio<br>n | 0,094                                       | ,459**   | 1         |           |        |                 |                               |         |
|                                                    | Sig. (2-<br>tailed)        | 0,290                                       | 0,000    |           |           |        |                 |                               |         |
| Tastiness                                          | Pearson<br>Correlatio<br>n | ,385**                                      | ,189*    | 0,138     | 1         |        |                 |                               |         |
|                                                    | Sig. (2-<br>tailed)        | 0,000                                       | 0,032    | 0,118     |           |        |                 |                               |         |
| Price                                              | Pearson<br>Correlatio<br>n | -0,112                                      | 0,013    | 0,036     | -0,101    | 1      |                 |                               |         |
|                                                    | Sig. (2-<br>tailed)        | 0,206                                       | 0,885    | 0,683     | 0,254     |        |                 |                               |         |
| Healthines<br>s                                    | Pearson<br>Correlatio<br>n | 0,060                                       | -,318**  | -,271**   | 0,057     | -0,035 | 1               |                               |         |
|                                                    | Sig. (2-<br>tailed)        | 0,498                                       | 0,000    | 0,002     | 0,525     | 0,694  |                 |                               |         |
| Environme<br>ntal<br>Friendly                      | Pearson<br>Correlatio<br>n | ,201*                                       | -0,074   | -0,130    | ,278**    | -0,022 | ,339**          | 1                             |         |
|                                                    | Sig. (2-<br>tailed)        | 0,022                                       | 0,407    | 0,142     | 0,001     | 0,805  | 0,000           |                               |         |
| Ethical                                            | Pearson<br>Correlatio<br>n | ,251**                                      | -0,015   | -0,046    | ,343**    | -0,041 | ,266**          | ,621**                        | 1       |
|                                                    | Sig. (2-<br>tailed)        | 0,004                                       | 0,870    | 0,606     | 0,000     | 0,648  | 0,002           | 0,000                         |         |

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

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

## **5.6 Correlation of the proportion of plant-based meal choice with the frequency of consumption of different types of food**

As expected, the proportion of choice of plant-based meals is also negatively correlated with the frequency of consumption of red meat,  $r(129) = -0.49, p < .001$ , white meat,  $r(129) = -0.56, p < .001$ . and fish and seafood  $r(129) = -0.32, p < .001$ . When people choose more plant-based meal options, they also report to consume red meat, white meat and fish and seafood less frequently. In a similar perspective, people who have chosen more plant-based meals, also reported eating more legumes frequently,  $r(129) = 0.29, p = .001$ , vegetarian products alternative to meat (soy, tofu, etc.)  $r(129) = 0.51, p < .001$ , lactose-alternative products (soy drinks, vegetable cheese, etc.)  $r(129) = 0.37, p < .001$ .

Table 2.

*Correlation of the proportion of plant-based meal choice with the frequency of consumption of different types of food*

|                                                                    |                     | Proportion of<br>plant-based<br>meal choice | Frequency of<br>consumption of<br>red meat | Frequency of<br>consumption of<br>white meat | Frequency of<br>consumption of<br>fish and seafood | Frequency of<br>consumption of<br>fruits and<br>vegetables | Frequency of<br>consumption<br>of legumes | Frequency of<br>consumption of<br>vegetable products<br>alternative to meat | Frequency of<br>consumption of<br>products<br>alternative to dairy |
|--------------------------------------------------------------------|---------------------|---------------------------------------------|--------------------------------------------|----------------------------------------------|----------------------------------------------------|------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------|
| Proportion of plant-based meal choice                              | Pearson Correlation | 1                                           |                                            |                                              |                                                    |                                                            |                                           |                                                                             |                                                                    |
|                                                                    | Sig. (2-tailed)     |                                             |                                            |                                              |                                                    |                                                            |                                           |                                                                             |                                                                    |
| Frequency of consumption of red meat                               | Pearson Correlation | -,486**                                     | 1                                          |                                              |                                                    |                                                            |                                           |                                                                             |                                                                    |
|                                                                    | Sig. (2-tailed)     | 0,000                                       |                                            |                                              |                                                    |                                                            |                                           |                                                                             |                                                                    |
| Frequency of consumption of white meat                             | Pearson Correlation | -,559**                                     | ,659**                                     | 1                                            |                                                    |                                                            |                                           |                                                                             |                                                                    |
|                                                                    | Sig. (2-tailed)     | 0,000                                       | 0,000                                      |                                              |                                                    |                                                            |                                           |                                                                             |                                                                    |
| Frequency of consumption of fish and seafood                       | Pearson Correlation | -,315**                                     | 0,103                                      | ,362**                                       | 1                                                  |                                                            |                                           |                                                                             |                                                                    |
|                                                                    | Sig. (2-tailed)     | 0,000                                       | 0,246                                      | 0,000                                        |                                                    |                                                            |                                           |                                                                             |                                                                    |
| Frequency of consumption of fruits and vegetables                  | Pearson Correlation | 0,170                                       | -,327**                                    | -0,147                                       | ,193*                                              | 1                                                          |                                           |                                                                             |                                                                    |
|                                                                    | Sig. (2-tailed)     | 0,053                                       | 0,000                                      | 0,096                                        | 0,028                                              |                                                            |                                           |                                                                             |                                                                    |
| Frequency of consumption of legumes                                | Pearson Correlation | ,290**                                      | -,236**                                    | -,265**                                      | 0,018                                              | ,455**                                                     | 1                                         |                                                                             |                                                                    |
|                                                                    | Sig. (2-tailed)     | 0,001                                       | 0,007                                      | 0,002                                        | 0,844                                              | 0,000                                                      |                                           |                                                                             |                                                                    |
| Frequency of consumption of vegetable products alternative to meat | Pearson Correlation | ,505**                                      | -,474**                                    | -,570**                                      | -,377**                                            | ,319**                                                     | ,433**                                    | 1                                                                           |                                                                    |
|                                                                    | Sig. (2-tailed)     | 0,000                                       | 0,000                                      | 0,000                                        | 0,000                                              | 0,000                                                      | 0,000                                     |                                                                             |                                                                    |
| Frequency of consumption of products alternative to dairy          | Pearson Correlation | ,365**                                      | -,319**                                    | -,316**                                      | -0,129                                             | ,230**                                                     | ,236**                                    | ,453**                                                                      | 1                                                                  |
|                                                                    | Sig. (2-tailed)     | 0,000                                       | 0,000                                      | 0,000                                        | 0,144                                              | 0,009                                                      | 0,007                                     | 0,000                                                                       |                                                                    |

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

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

## Chapter 6

### Discussion

In the present work, we aimed to explore whether the combined use of the default effect and cuteness via anthropomorphism would lead to a higher selection of plant-based meals. The results did not allow us to confirm this or any of the other proposed hypotheses.

The default effect is studied across many subjects particularly in the context of food. It was found that if the plant-based meal is set as the default option, that leads to a higher choosing of this type of meal when compared to meat-based meals. This is transversal to different contexts namely real environments (Boronowsky et al., 2022; Hansen et al., 2021; Hielkema et al., 2022; Taufik et al., 2022), in online conditions (Taufik et al., 2022) and also in specific buffet settings (Friis et al., 2017).

In the particular contexts of novel foods (specifically insect food), Bruckdorfer and Büttner (2022), found no significant effect of the manipulation of cuteness on people's interest relating to insect food. These authors reasoned that this may be since people's intent to try this food was already high in the beginning and some people did not show interest in trying this food due to allergies.

In turn, cuteness leads to a lower choice of meat meals when animals are perceived as having cute features (Zickfeld et al., 2018) and also when they are anthropomorphised (Mishra & Mehta, 2023; Niemyjska et al., 2018).

Thus, considering the existing literature, we expected to find significant effects of the manipulation of the default effect and cuteness via anthropomorphism in the choosing of plant-based meals. According to Broers and colleagues (2017), the use of combined nudges (changing properties and position of objects) and the alternation of position of objects leads to higher choosing of fruit and vegetables.

However, the literature is still contradictory when it comes to understanding if the use of combined nudges has a cumulative effect in comparison to the use of each nudge in an individual manner. There is literature that points to the opposite direction and that find no combined effect of the application of two types of nudging (Broers et al., 2019; den Dekker, 2023; Di Matola, 2020; Starke et al., 2021).

Namely, Di Matola (2020), found no combined effects of priming and salience nudges, in a context of an environment that had green plant-based characteristics. Starke and colleagues

(2021), were not able to conclude combined effects of a nudge that influenced the position of recipes and a nudge that altered the visual appeal of images of meals in the context of healthy food choices. According to Broers and colleagues (2019), the use of messages regarding healthiness of different types of food and the manipulation of food position did not lead to a higher selection of prebiotic vegetables when compared to vegetables, in a real buffet context. In the context of an online supermarket website, the use of decoy effect and the alteration of visual characteristics of the product combined did not lead to healthier food choices. Contrary to this findings there are studies that find a combined effect of the use of two nudges (Coucke et al., 2019, 2022; Huitink et al., 2020; Kurz, 2018; Qi et al., 2022; Zheng et al., 2023). These contradictory results occur in different types of nudging strategies which could indicate that the effect of the combined nudges depends on the nudges that are being used. Building on this, future literature should help clarify if there is an effect of combined nudges or not and in which type of nudges.

In the present study, we found that the nudging strategies used did not influence choices of plant-based foods or meat. We only observe that women tended to choose more plant-based meals than man. This finding aligns with existing literature, which indicates that women generally consume less meat than man (Daniel et al., 2011; Fessler et al., 2003; Prattala et al., 2007). Furthermore, women are more likely to become vegetarian than men (Worsley & Skrzpiec, 1998). Women typically show a lower tendency to consume meat after thinking about animals in an anthropomorphised way. In contrast, men have demonstrated a greater tendency to eat meat products after anthropomorphising animals (Johnson et al., 2021).

Another aspect that could have contribute to the results found is food neophobia. This concept entails an aversion to try/consume novel foods (Faria & Kang, 2022; Pliner & Hobden, 1992) . When people are in a new context, they show an aversion to try and to eat food that they are not familiar with (Pliner & Hobden, 1992). In our experiment this factor could have influenced people's willingness to choose plant-based alternatives once we did not describe the ingredients of the plant based option, choosing only one image that illustrated both the plant based meal and the meat meal. Because of the fact that people were not familiar with the ingredients of the plant-based meals, they could have choose less plant-based alternatives considering the influence of food neophobia in this context. We can also argue that people, in general, are less familiar with plant based meal options than with meat meal options which could lead to higher novelty in this types of meal. The fact that the presented images where all

much alike to meat-based meals than to plant-based meals, could have also influenced the results obtained.

This study was accomplished in an online context, and as a result, we can consider that participants may have faced distractions in the environment, which could have influenced their attention to the task. We can also consider that the instructions were not prominently highlighted, which may have caused participants to pay less attention to them. Additionally, the instructions were only presented at the beginning of the experiment, which may have led participants to forget the task they were supposed to perform.

Another aspect that some participants reported in the end of the experimental task was the fact that they thought that the goal was to select the options that appeared to correspond to the image presented. This was not the goal of the study so we can deliberate that some people misinterpreted the task in which may have contributed to the results obtained.

In the cuteness manipulation, although we conducted a pretest before the experiment – selecting one image from 20 options that was rated as the cutest by 20 participants – we cannot be certain that the participants in the main experiment also considered found the image cute. Additionally, the participants in the pretest were of a highly homogeneous age group, which contrasts with the more heterogeneous age range of participants in the main experimental task. It is also possible that the stimulus we used was too small to be noticed and to have the intended impact.

Considering the possible reasons for our results, in the experimental task, we could have used a non-random sampling method, asking participants at the end of the experimental task to describe what they thought they were supposed to do in the experiment. We could have also shown the instructions more than once, for example, in the middle of the presentation of the images. Lastly, we could have asked participants to classify the level of cuteness of the image we used to signalize the plant-based meal option.

In terms of methodological alternatives, we could have presented the stimulus on a different way. The use of meal images, could have led to confusion because some participants might think they had to select the option that appeared on the image instead of the option they preferred. Because of this, we could have opted to not present any image, to avoid the confusion. We could have also presented the instructions in a highlight way, which would have forced participants to pay more attention to what was being asked in order to minimize misinterpretation of the goal of the task. We could have also asked participants to indicate what

they interpreted as being the goal of the experiment to understand if they did what were supposed to do. We could have also used different types of nudging strategies.

In terms of future studies, it becomes important to explore the use of combined nudges in order to clarify its impact on the choosing of plant-based meals. It is important to conduct studies in a real contexts, for example in canteens, restaurants. It is also important to do this studies with different types of food. In our case we opted to only present hedonic food but, in the future it's important to explore the impact of nudges in different types of food. Further studies need to add manipulation checks in order to guarantee that the manipulation is having an impact in people's choices, as intended.

Several factors may help explain the lack of findings in our study Firstly, we used a convenience sample, a type of nonprobability methodology that consists in the use of participants that are accessible and easy to recruit. Normally, in psychological studies the use of this type of sampling is common, once the students are the participants because they are more available to participate in these studies in the academic context. The main problem that arises duo to the use of this type of sampling method is the impossibility of generalizing the results obtained. As so, this studies do not have ecological validity once we cannot generalize the results obtained to different setting or contexts (Christensen et al., 2012).

In psychological studies it is important to have a sample that mirrors the general population. Thus, it is relevant to have people in our sample that have similar characteristics to the population in general, namely, in terms of age and sex (Christensen et al., 2012). In our case, this did not happen once we had participants with a minimum of age of 19 and a maximum age of 65 years, and in terms of sex, we had a total of 129 participants, 106 were women and only 23 were man. This can be considered a biased sample since it does not represent a known population (Christensen et al., 2012).

## Chapter 7

### **Conclusion**

In this study, our goal was to understand if the use of nudging strategies, cuteness via anthropomorphism and the default effect, would lead to a higher choice of plant-based meals in comparison to meat-based meals.

Our results found no significant difference in the use of this two nudging strategies, both in an individual and combined level. We found that women tend to choose more plant-based meal options than men and that the perception of calories differed in the cuteness via anthropomorphism condition.

The use of nudging strategies is a topic of high relevance once this strategies allow us to shift people's choices and ultimately their actions. Because of this, public policies as well as marketing strategies can implement this knowledge in order to shift people towards more sustainable food choices, such as plant-based options. Given the importance of nudging, more literature needs to further clarify the impact of different types of nudges and of combined nudges in the adoption of plant-based meals. In particular, considering that few studies explore the effect of combined nudges and the existent literature points to contradictory results, more studies need to focus on this topic.



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## Appendix A

### *Images used in the pre test*



1



2



3



4



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## Appendix B

### *Mean scores of the images used in the pre-test*

| Image | Cuteness of the<br>symbol | Valence of the<br>image | Suitability of<br>the image for<br>signaling<br>vegetarian<br>meals | Familiarity of<br>the image |
|-------|---------------------------|-------------------------|---------------------------------------------------------------------|-----------------------------|
| 1     | 5,3                       | 5,7                     | 3,9                                                                 | 3,8                         |
| 2     | 4,4                       | 4,5                     | 3,4                                                                 | 3,3                         |
| 3     | 4,8                       | 5,3                     | 4,3                                                                 | 3,8                         |
| 4     | 4,8                       | 4,8                     | 3,8                                                                 | 3,8                         |
| 5     | 4,3                       | 4,4                     | 3,6                                                                 | 3,4                         |
| 6     | 4,4                       | 4,3                     | 3,5                                                                 | 3,3                         |
| 7     | 4,5                       | 4,9                     | 3,8                                                                 | 2,8                         |
| 8     | 4,4                       | 4,8                     | 3,5                                                                 | 3,1                         |
| 9     | 3,8                       | 4,4                     | 3,2                                                                 | 3,2                         |
| 10    | 3,9                       | 4,8                     | 3,4                                                                 | 2,9                         |
| 11    | 5,0                       | 5,4                     | 4,2                                                                 | 3,6                         |
| 12    | 4,1                       | 4,8                     | 3,6                                                                 | 3,2                         |
| 13    | 4,3                       | 5,1                     | 3,6                                                                 | 3,1                         |
| 14    | 4,3                       | 5,0                     | 3,8                                                                 | 3,4                         |
| 15    | 4,9                       | 5,2                     | 4,0                                                                 | 3,6                         |
| 16    | 4,6                       | 5,2                     | 4,4                                                                 | 3,5                         |
| 17    | 4,2                       | 4,6                     | 3,4                                                                 | 3,5                         |
| 18    | 3,9                       | 4,3                     | 3,2                                                                 | 2,9                         |
| 19    | 5,3                       | 5,3                     | 4,2                                                                 | 3,3                         |
| 20    | 5,6                       | 5,5                     | 4,1                                                                 | 3,6                         |

## Appendix C

### *Descriptive statistics and frequencies*

#### *Sex of participants*

|         |        | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|--------|-----------|---------|---------------|--------------------|
| Valid   | Women  | 106       | 79,7    | 82,2          | 82,2               |
|         | Man    | 23        | 17,3    | 17,8          | 100,0              |
|         | Total  | 129       | 97,0    | 100,0         |                    |
| Missing | System | 4         | 3,0     |               |                    |
| Total   |        | 133       | 100,0   |               |                    |

#### *Descriptive Statistics*

|                     | N   | Minimum | Maximum | Mean  | Std. Deviation |
|---------------------|-----|---------|---------|-------|----------------|
| Age of participants | 129 | 19      | 65      | 32,53 | 10,835         |
| Valid N (listwise)  | 129 |         |         |       |                |

## Appendix D

### *Two Way ANOVA with all participants*

#### *Between-Subjects Factors*

|                            |   | N  |
|----------------------------|---|----|
| Default                    | 0 | 62 |
|                            | 1 | 67 |
| Cute antropomorphised leaf | 0 | 63 |
|                            | 1 | 66 |

#### *Tests of Between-Subjects Effects*

Dependent Variable: Proportion of plant-based meal choice

| Source          | Type III<br>Sum of<br>Squares | df  | Mean<br>Square | F       | Sig. |
|-----------------|-------------------------------|-----|----------------|---------|------|
| Corrected Model | ,277 <sup>a</sup>             | 3   | ,092           | ,923    | ,432 |
| Intercept       | 21,426                        | 1   | 21,426         | 213,940 | ,000 |
| Default         | ,008                          | 1   | ,008           | ,076    | ,784 |
| Folha           | ,131                          | 1   | ,131           | 1,305   | ,256 |
| Default * Folha | ,124                          | 1   | ,124           | 1,237   | ,268 |
| Error           | 12,519                        | 125 | ,100           |         |      |
| Total           | 34,613                        | 129 |                |         |      |
| Corrected Total | 12,796                        | 128 |                |         |      |

a. R Squared = ,022 (Adjusted R Squared = -,002)

## Appendix E

### *Two Way ANOVA without vegetarian participants*

#### *Between-Subjects Factors*

|                             |   | N  |
|-----------------------------|---|----|
| Default                     | 0 | 58 |
|                             | 1 | 57 |
| Cute anthropomorphised leaf | 0 | 58 |
|                             | 1 | 57 |

#### *Tests of Between-Subjects Effects*

Dependent Variable: Proportion of plant-based meal choice

| Source                                | Type III Sum of Squares | df  | Mean Square | F       | Sig. |
|---------------------------------------|-------------------------|-----|-------------|---------|------|
| Corrected Model                       | ,249 <sup>a</sup>       | 3   | ,083        | 1,056   | ,371 |
| Intercept                             | 14,448                  | 1   | 14,448      | 183,953 | ,000 |
| Default                               | ,003                    | 1   | ,003        | ,035    | ,853 |
| Cute anthropomorphised leaf           | ,122                    | 1   | ,122        | 1,558   | ,215 |
| Default * Cute anthropomorphised leaf | ,126                    | 1   | ,126        | 1,609   | ,207 |
| Error                                 | 8,718                   | 111 | ,079        |         |      |
| Total                                 | 23,478                  | 115 |             |         |      |
| Corrected Total                       | 8,967                   | 114 |             |         |      |

a. R Squared = ,028 (Adjusted R Squared = ,001)

## Appendix F

### *t-test gender and proportion of vegetarian plant-based meal choices*

#### *Group Statistics*

|                                       | Sex   | N   | Mean  | Std. Deviation | Std. Error Mean |
|---------------------------------------|-------|-----|-------|----------------|-----------------|
| Proportion of plant-based meal choice | Women | 106 | ,4401 | ,32089         | ,03117          |
|                                       | Man   | 23  | ,2783 | ,26017         | ,05425          |

#### *Independent Samples Test*

|                                       |                             | Levene's Test for Equality of Variances |      | t-test for Equality of Means |        |                 |                 |                       |  | 95% Confidence Interval of the Difference |        |
|---------------------------------------|-----------------------------|-----------------------------------------|------|------------------------------|--------|-----------------|-----------------|-----------------------|--|-------------------------------------------|--------|
|                                       |                             | F                                       | Sig. | t                            | df     | Sig. (2-tailed) | Mean Difference | Std. Error Difference |  | Lower                                     | Upper  |
| Proportion of plant-based meal choice | Equal variances assumed     | 2,272                                   | ,134 | 2,261                        | 127    | ,025            | ,16183          | ,07159                |  | ,02017                                    | ,30350 |
|                                       | Equal variances not assumed |                                         |      | 2,587                        | 38,052 | ,014            | ,16183          | ,06257                |  | ,03518                                    | ,28848 |

## Appendix G

### *Pilot Study*

#### **Consentimento informado**

Obrigada, desde já, pelo interesse em colaborar nesta investigação desenvolvida no âmbito de uma dissertação de mestrado em Psicologia Social e das Organizações.

Este estudo pretende explorar a adequabilidade de determinados símbolos que pretendem sinalizar refeições vegetarianas. Estes símbolos poderão ser encontrados, por exemplo, em embalagens de refeições vegetarianas, em menus de restaurantes, etc. Iremos apresentar alguns símbolos e, posteriormente, solicitamos que responda a algumas questões. O tempo estimado do estudo é de 10 minutos.

As suas respostas a este questionário serão confidenciais. Note ainda que não existem respostas certas ou erradas, uma vez que apenas pretendemos compreender a sua opinião face a estes símbolos. A sua participação é voluntária e as suas respostas serão anónimas. Caso decida terminar a sua participação antes de concluir o questionário, basta fechar a janela do seu browser e as suas respostas não serão gravadas. Este questionário destina-se a cidadãos de nacionalidade portuguesa ou que residam em Portugal há, pelo menos, 5 anos. De acordo com as normas da Comissão de Proteção de Dados, os dados recolhidos são anónimos e a sua eventual publicação só poderá ter lugar em revistas da especialidade. Pedimos-lhe que responda a este questionário de uma só vez, sem interrupções.

Antes de iniciar, por favor confirme a seguinte informação:

1. Estou consciente de que a minha participação é voluntária e posso interromper em qualquer momento, simplesmente fechando a página;
2. As minhas respostas serão anónimas e ninguém poderá aceder à minha identidade;
3. As minhas respostas serão utilizadas exclusivamente para investigação e cedidas apenas pelos investigadores envolvidos no projeto;
4. Sou maior de idade.

☐ Aceito participar neste estudo

☐ Não aceito participar neste estudo



Gênero

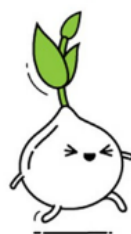
☐ Feminino

☐ Masculino

☐ Outro

☐ Prefiro não responder

Por favor, indique a sua idade



Na minha opinião, este símbolo é:

Pouco giro

☐ ☐ ☐ ☐ ☐ ☐ ☐

Muito giro

Pouco positivo

☐ ☐ ☐ ☐ ☐ ☐ ☐

Muito positivo

Pouco adequado à  
sinalização de refeições  
vegetarianas

☐ ☐ ☐ ☐ ☐ ☐ ☐

Muito adequado à  
sinalização de refeições  
vegetarianas

Pouco familiar

☐ ☐ ☐ ☐ ☐ ☐ ☐

Muito familiar





Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                           |                                                              |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |



Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                           |                                                              |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |





Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                                                 |                                                              |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |



Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                                                 |                                                              |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |





Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                                                 |                                                              |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |



Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                                                 |                                                              |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |





Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                           |                                                              |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |



Na minha opinião, este símbolo é:

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|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |





Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                           |                                                              |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |



Na minha opinião, este símbolo é:

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|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |





Na minha opinião, este símbolo é:

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|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |



Na minha opinião, este símbolo é:

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|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |





Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                                                 |                                                              |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |



Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                                                 |                                                              |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |





Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                           |                                                              |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |



Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                           |                                                              |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |





Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                                                 |                                                              |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |



Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                                                 |                                                              |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |





Na minha opinião, este símbolo é:

|                                                              |                                                                                                                                                                                 |                                                              |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Pouco giro                                                   | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito giro                                                   |
| Pouco positivo                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito positivo                                               |
| Pouco adequado à<br>sinalização de refeições<br>vegetarianas | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito adequado à<br>sinalização de refeições<br>vegetarianas |
| Pouco familiar                                               | <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> | Muito familiar                                               |



Segue alguma dieta específica?

- ☐ Não
- ☐ Vegetariana ou vegana
- ☐ Perda de peso
- ☐ Ganho de peso
- ☐ Sem glúten
- ☐ Outra



Obrigada pela sua participação!

## Appendix H

### Experiment

#### Consentimento Informado

Obrigada, desde já, pelo interesse em colaborar nesta investigação desenvolvida no âmbito de uma dissertação de mestrado em Psicologia Social e das Organizações no Iscte.

Este estudo pretende explorar a seleção de refeições de origem animal e vegetal. A sua participação tem um tempo estimado de 10 minutos.

Note que não existem respostas certas ou erradas, uma vez que apenas pretendemos compreender a sua opinião face às refeições apresentadas. A sua participação é voluntária e as suas respostas serão anónimas. Caso decida terminar a sua participação antes de concluir o questionário, basta fechar a janela do seu browser e as suas respostas não serão gravadas.

Este questionário destina-se a cidadãos de nacionalidade portuguesa ou que residam em Portugal há, pelo menos, 5 anos. De acordo com as normas da Comissão de Proteção de Dados, os dados recolhidos são anónimos e a sua eventual publicação só poderá ter lugar em revistas da especialidade. Pedimos-lhe que responda a este questionário de uma só vez, sem interrupções.

Antes de iniciar, por favor confirme a seguinte informação:

1. Estou consciente de que a minha participação é voluntária e posso interromper em qualquer momento, simplesmente fechando a página;
2. As minhas respostas serão anónimas e ninguém poderá aceder à minha identidade;
3. As minhas respostas serão utilizadas exclusivamente para investigação e acedidos apenas pelos investigadores envolvidos no projeto;
4. Sou maior de idade.

☐ Aceito participar neste estudo

☐ Não aceito participar neste estudo



#### Género

☐ Feminino

☐ Masculino

☐ Outro

☐ Prefiro não responder

#### Idade



De seguida, iremos apresentar-lhe várias opções de refeições, sendo que poderá optar entre uma opção de origem animal e uma opção de origem vegetal que será identificada com o seguinte símbolo: 🌱. Será apresentada uma imagem ilustrativa que representa ambas as opções.



☐ Bolonhesa

☒ Bolonhesa 🌱





☒ Sandes com batatas fritas 🍔

☐ Sandes com batatas fritas



☐ Sandes com batatas fritas

☒ Sandes com batatas fritas 🍔





☒ Pizza 🍕

☐ Pizza



☐ Hambürger

☒ Hambürger 🍔





☒ Hambúrguer 🍔

☐ Hambúrguer

1



☐ Nuggets com batatas fritas e salada

☒ Nuggets com batatas fritas e salada 🍗

2



☐ Cachorro com batatas fritas

☒ Cachorro com batatas fritas 🍴



☐ Francesinha com batatas fritas

☒ Francesinha com batatas fritas 🍴





☒ Bitoque 🍴

☐ Bitoque



☒ Bitoque 🍴

☐ Bitoque





☐ Lasanha

☒ Lasanha 🍴



☐ Francesinha

☒ Francesinha 🍴





☐ Strogonoff

☒ Strogonoff 🍴



☒ Wrap 🍴

☐ Wrap





☐ Cachorro

☒ Cachorro 🤩



☐ Wrap

☒ Wrap 🤩





☐ Pizza

☒ Pizza 🍕



☒ Nuggets com batatas fritas e salada 🍗

☐ Nuggets com batatas fritas e salada





☐ Lasanha

☒ Lasanha 🍴



Obrigada pela sua participação!

Para qualquer questão relativamente ao estudo, por favor contacte a aluna responsável, Francisca Botelho, através do seguinte e-mail: [afrcb@iscte-iul.pt](mailto:afrcb@iscte-iul.pt)