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To cite this article: Sara Pabian, Gaëlle Ouvrein, Kathleen van Royen, Frans Folkvord, Karolien Poels, Heidi Vandebosch & Charlotte De Backer (2023) “Meating halfway”: Exploring the attitudes of meat eaters, veg\*ns, and occasional meat eaters toward those who eat meat and those who do not eat meat, *The Journal of Social Psychology*, 163:3, 408-424, DOI: [10.1080/00224545.2022.2074288](https://doi.org/10.1080/00224545.2022.2074288)

To link to this article: <https://doi.org/10.1080/00224545.2022.2074288>



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Published online: 10 May 2022.



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# “Meating halfway”: Exploring the attitudes of meat eaters, veg\*ns, and occasional meat eaters toward those who eat meat and those who do not eat meat

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## ABSTRACT

Empirical studies have persistently reported negative attitudes of meat eaters toward vegetarians and vegans (veg\*ns), but scant attention has been paid to veg\*ns’ attitudes toward meat eaters. We aimed to investigate the attitudes of meat eaters and veg\*ns from both perspectives. In addition, we explored the attitudes of occasional meat eaters. We performed a cross-sectional study (Study 1) among meat eaters, veg\*ns, and occasional meat eaters, as well as a content analysis of publicly available tweets (Study 2). Study 1 ( $N = 477$ ,  $M_{age} = 23.45$ ,  $SD = 5.91$ ) showed that the attitudes of veg\*ns toward meat eaters are significantly more negative compared to the attitudes of meat eaters toward veg\*ns, but both were lower than the midpoint on scales measuring negative attitudes toward the other. Study 2 showed that only a small portion (<1%) of tweets ( $N = 1,328$ ) on meat eating or veg\*nism contained signs of negative attitudes. The two studies provide little evidence of the existence of strong negative attitudes.

## ARTICLE HISTORY

Received 24 August 2021  
Accepted 20 April 2022

## KEYWORDS

Meat eaters; occasional meat eaters; attitudes; in-group bias; intergroup perception; veg\*ns

## Introduction

Food is not just fuel for the body; it is a central part of our sense of identity (C. J. S. De Backer et al., 2019; Fischler, 1988). Food choices are strongly related to an individual’s psychological and social identity (Bisogni et al., 2002; Fischler, 1988). For vegetarians, not eating meat is an expression of their life philosophy (Lindeman & Sirelius, 2001). In addition, food is an expression of identity, not only at the individual level but also at the group level (Fischler, 1988). Specifically, cultural *cuisines* refer to group practices and collective rules and norms about food (Douglas, 1972), setting guidelines that an individual can follow or resist to belong to the group or not (Fischler, 1988; Mintz & Du Bois, 2002). As a result, communities of individuals sharing the same food choice patterns emerge (Bisogni et al., 2002). Those who do not eat meat, referred to as veg\*ns (covering vegetarians and vegans), seem to distinguish themselves from those who do eat meat with their own separate mind-set (De Boer et al., 2017) and group identity (Rosenfeld et al., 2020).

Recently, scholars have also pointed in this direction, as the results of multiple studies have indicated that meat eaters hold negative attitudes toward veg\*ns (Judge & Wilson, 2019; Verdonk, 2019), feel cognitive dissonance when they are confronted with veg\*ns (Rothgerber, 2014, 2020), and even display negative (aggressive) behavior toward veg\*ns (LeRette, 2014). Similarly, but less substantiated, researchers have shown that veg\*ns tend to avoid meat eaters, especially when it concerns intimate relations (Nezlek et al., 2020; Potts & White, 2007). Although veg\*ns’ attitudes toward meat (Kenyon & Barker, 1998) or their perceptions of veg\*ns (Romo & Donovan-Kicken,

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2012) have been investigated, little is known about their attitudes toward meat eaters. Thus, the first aim of this study is to empirically investigate attitudes about and toward meat eaters and veg\*ns from both perspectives.

Next, meat eating is often not a binary choice of eating or not eating meat but can best be considered a continuum (Rosenfeld et al., 2020). On one hand, some abstain from any animal consumption (veganism), and at the other end of the spectrum, carnivores cannot imagine a life without eating meat (Graça et al., 2015), with a growing group of people reducing their meat intake in the middle (De Backer & Hudders, 2014; Dagevos, 2021). This group of occasional meat eaters, including reductarians and flexitarians, still eats meat but cannot be considered similar to meat eaters who do not reduce their meat intake or veg\*ns who fully abstain from meat (De Backer & Hudders, 2014). Little is known about occasional meat eaters' attitudes toward veg\*ns who do not eat meat and meat eaters who do not reduce their meat intake. Therefore, the second general aim of this study is to explore the attitudes of occasional meat eaters toward meat eaters and veg\*ns.

Gaining more knowledge of negative attitudes toward meat eaters and veg\*ns is necessary to understand whether and how a context of discrimination and violent reactions toward those who do or do not eat meat has emerged (Cole & Morgan, 2011). Furthermore, friction between those who do and do not eat meat seems to function as a barrier to trying out veg\*n food styles (Markowski & Roxburgh, 2019) and constrains avid meat eaters from reducing their meat intake, despite the known health benefits (Nakagawa & Hart, 2019).

### **(Social) identity**

Negative attitudes toward those who have dietary choices other than your own can be an outcome of processes of self-categorization and social comparison. According to (social) identity theory, individuals are perceived as being reflexive and able to categorize themselves in particular ways in relation to other social categories (Stets & Burke, 2000; Turner et al., 1987). This helps form an identity. A social identity is a person's knowledge that one belongs to a social category or group, who holds common ideas about their own social category and identity, but also about other social categories and their identities (and how they differ from these; Hogg & Abrams, 1988; Tajfel, 1974).

Through social comparison, where one looks for real or imagined similarities and differences, others who are perceived as similar to the self (within one's social group) are categorized as the in-group; others who differ from the self (group) are categorized as the out-group (Hegel, 1977; Staszak, 2009; Stets & Burke, 2000). An outcome of the process of self-categorization and social comparison is an accentuation of the perceived similarities between members of the in-group and an accentuation of the perceived differences between the self/in-group and out-group members (Stets & Burke, 2000). In particular, similarities and differences are accentuated that lead the in-group to be judged positively and the out-group to be judged negatively. These processes can lead to negative attitudes and behaviors toward the out-group, including discrimination (Staszak, 2009) and polarization (Greeg & Jewkes, 2005).

Multiple researchers have indicated that food choices, and specifically, the choice to eat or to not eat meat, (partly) determine one's identity and the groups to which one belongs and does not belong (De Boer et al., 2017; Fischler, 1988; Mintz & Du Bois, 2002; Nguyen & Platow, 2021; Rosenfeld et al., 2020; Thürmer et al., 2022). Studies have indicated that individuals accentuate certain characteristics of veg\*ns and meat eaters when they are asked to describe or rate veg\*ns and meat eaters. Veg\*ism is associated with being different based on negative traits (Branković & Budžak, 2021; Plante et al., 2019; Rosenfeld & Burrow, 2017), including, for instance, being soft or weak, being female, being sensitive, being a hipster or hippie-ish, being annoying, being unhealthy, lacking warmth, being a disruptive party, and being unsuccessful in socializing (Burgess et al., 2014; Chuck et al., 2016; Cole & Morgan, 2011; De Groeve et al., 2021; Hultman & Pulé, 2018; MacInnis & Hodson, 2017; Markowski & Roxburgh, 2019; Potts & Parry, 2010; Verdonk, 2019). Only a small number of these studies have

investigated these associations while taking into account the diet of the respondents (Chuck et al., 2016; MacInnis & Hodson, 2017; Markowski & Roxburgh, 2019). In other words, it could also be the case that veg\*ns perceive themselves as such.

Not much is known about how meat eaters are perceived. In a small-scale study ( $N = 45$ ) among college students, meat eaters were associated with being less healthy, being normal, being ignorant, and being masculine (Burgess et al., 2014). The authors did not take into account the dietary choice of those who attributed these characteristics to meat eaters, and the majority of the participants identified themselves as omnivores or carnivores. Thus, it cannot be excluded that meat eaters perceive themselves as such.

## Attitudes toward those who follow another meat diet

In addition to ascribing negative traits to those who have another dietary choice, there is initial evidence of holding negative attitudes toward the out-group. There is evidence in the literature that meat eaters have less positive attitudes toward veg\*ns, who are considered minority groups in most Western populations (Judge & Wilson, 2019; Verdonk, 2019). In this regard, several researchers have pointed to the fact that veg\*ns give meat eaters bad and uncomfortable moral feelings for eating meat (Verdonk, 2019). Especially when meat eaters are encouraged by veg\*ns to think about their choices to eat meat, they can feel very uncomfortable (Greenebaum, 2012; Rothgerber, 2014, 2020), and these feelings might sometimes escalate in real anger toward veg\*ns (Cramwinckel, 2016). Moreover, meat eaters can be confronted with inconsistencies through their contact with veg\*ns (“I eat meat, but at the same time, I don’t like to hurt animals”), aversive consequences (“I eat meat, so I also hurt animals”), or threats to their self-image (“I eat meat, but compassionate people don’t hurt animals”; Rothgerber, 2014). These incongruences, referred to as the “meat paradox” or the “meat-related cognitive dissonance,” describe the issue of loving animals and disliking causing pain to them, but also enjoying eating meat (Aaltola, 2019; Buttlar & Walther, 2019; Dowsett et al., 2018; Rothgerber, 2014, 2020; Rothgerber & Rosenfeld, 2021).

The general attitudes of veg\*ns toward meat eaters are less explored. It is known that veg\*ns have negative attitudes toward meat, but not necessarily toward meat eaters (Barnes-Holmes et al., 2010; Kenyon & Barker, 1998; Romo & Donovan-Kicken, 2012). One study indicated that veg\*ns tend to avoid meat eaters, especially when it concerns intimate relations (Potts & White, 2007). Their avoidance behavior might be determined by a general negative attitude toward meat eaters. Researchers recently provided the first evidence that (non-Western) veg\*ns also have less favorable attitudes toward meat eaters in comparison to veg\*ns’ attitudes toward veg\*ns and flexitarians (Bagci et al., 2021).

When attitudes toward meat eaters and veg\*ns are investigated, gender might be an important factor to include. Researchers have indicated that meat eating is associated with masculinity (Burgess et al., 2014), and therefore, male meat eaters might have different attitudes toward veg\*ns than female meat eaters. Moreover, Judge and Wilson (2019) showed in a study of 1,326 New Zealand non-vegetarians that men have a less favorable attitude toward veg\*ns than women (Judge & Wilson, 2019). To our knowledge, it is not yet clear whether there are also gender differences among veg\*ns regarding their attitude toward meat eaters.

## The present study

The goal of the present study is to further explore attitudes toward meat eaters and veg\*ns. First, we administered a cross-sectional survey among meat eaters, veg\*ns, and occasional meat eaters (Study 1). Study 1 provides novel perspectives as we considered dietary choice when assessing attitudes and therefore, investigated attitudes of meat eaters toward veg\*ns and attitudes of veg\*ns toward meat eaters, which is in contrast with most of the previous studies that did not control for dietary identity. Moreover, we also investigated the attitudes of occasional meat eaters, a group that has been excluded in previous

research. In a study of intergroup attitudes between meat eaters and meat avoiders, Bagci et al. (2021) also controlled for dietary identity, including occasional meat eaters, when examining attitudes. Although similar in many ways to the study of Bagci et al. (2021), Study 1 was conducted in Belgium whereas the study of Bagci et al. (2021) was conducted in Turkey. The roles meat plays in the two cultures are different (Altaş, 2017), and meat is a more central part of the Turkish diet than it is of the Belgian diet. Given this, we were not confident that the results of Bagci et al. (2021) would generalize to a Belgian sample. Second, the present study also aims to contribute to the literature in this field by exploring whether attitudes are expressed on online public platforms (Study 2).

## Study 1

From the overall overview, and Burgess et al.'s (2014) study specifically, it may be predicted that meat eaters have negative attitudes toward veg\*ns (*Hypothesis 1*), and veg\*ns have negative attitudes toward meat eaters (*Hypothesis 2*), where attitudes of veg\*ns toward meat eaters are more negative than the attitudes of meat eaters toward veg\*ns (*Hypothesis 3*). In addition, we further explore whether occasional meat eaters have negative or positive attitudes toward meat eaters and veg\*ns. Based on the gender differences Judge and Wilson (2019) found regarding attitudes toward veg\*ns, we expect the following: Attitudes of male meat eaters toward veg\*ns are more negative compared to attitudes of female meat eaters toward veg\*ns (*Hypotheses 4*). We explore whether there are gender differences among veg\*ns regarding their general attitudes toward meat eaters, as well as potential gender differences among occasional meat eaters.

## Materials and methods

### Procedure

Using a convenience sample, we distributed an online survey via university mailings in Belgium and on social media between March 23 and April 6, 2020. This occurred in the early weeks of the COVID-19 pandemic and related lockdown regulations. At the time of the survey, nonessential shops, bars, and restaurants were closed in Belgium. No outbreaks occurred in any meat processing or other food companies in Belgium. Outbreaks in meat processing companies occurred in neighboring countries, but only after all the study data had been collected. Participation was fully anonymous (no IP addresses were obtained), and all respondents gave their informed consent to participate. This study was approved by the Ethics Committee for the Social Sciences and Humanities of the University of Antwerp and was part of a larger study. The data reported here focus only on the first part of the survey, about attitudes toward meat eaters and veg\*ns. The second part of the study focused on attitudes toward meat and veg\*n products and is not reported here.

A total of 478 respondents completed the survey. One person entered an incorrect value for age and was excluded. Thus, the final data set consisted of 477 respondents, of whom the majority (77.6%) were women. Ages ranged from 18 to 60 years, with a mean of 23.45 ( $SD = 5.91$ ). The majority (59.3%) had at least a professional bachelor's degree. Most of the respondents still lived with one or two parents (72.5%). Three of four participants ate meat (78.4%), and 21.6% never ate meat. In terms of socio-demographics, we found no differences with regard to age ( $F(2,419) = .927, p = .396$ ) between those identified in the sample as meat eaters, veg\*ns, or occasional meat eaters. However, in terms of gender ( $\chi^2(2) = 28.97, p < .001$ ), educational level ( $\chi^2(2) = 6.28, p < .05$ ), and living with parents ( $\chi^2(2) = 16.64, p < .001$ ), we did find some differences showing unequal distributions of the different categories of these variables across the three dietary identities. In terms of gender, more males than females (60.0% versus 30.9%) identified themselves as meat eaters, whereas more females than males identified themselves as veg\*ns (20.8% versus 6.3%) and occasional meat eaters (48.3% versus 33.7%). For educational level, a lower percentage of meat eaters was found among those with an educational degree equal or higher as a professional bachelor compared to those with a lower degree (32.5% versus 44.3%), whereas a higher percentage of veg\*ns (18.3% versus 16.5%) and occasional meat eaters (49.2%

versus 39.2%) was found among those who have an educational degree equal or higher as a professional bachelor compared to those who have a lower degree. Finally, in terms of living alone or with parents, a higher percentage of meat eaters was found among those who live with their parents compared to those who do not live with their parents (42.4% versus 23.9%), whereas a higher percentage of veg\*ns (27.4% versus 13.9%) and occasional meat eaters (48.7% versus 43.7%) was found among those who do not live with their parents compared to those who do.

### Measures

Survey started with questions about demographics followed by questions about meat consumption, dietary identity, attitudes toward those who do and do not eat meat, and interpersonal interaction, which were presented in the order discussed here.

**Meat intake.** Four separate questions captured respondents' actual meat intake for breakfast, lunch, dinner, and snacking on a 0 (*never*) to 7 (*every day*) scale. The questions were taken from a recent study (C. De Backer et al., 2020) that recommended measuring meat intake with separate questions for each of these four options.

**Diet-based identity.** Respondents were asked about which diet they self-identified with. The option "I do not identify with any diet" was given, along with a wide range of different meat and meatless diet categories. Table 1 provides an overview of all response options. About one-third of the respondents (30.8%) identified as omnivore ("I eat everything"). The second largest group (17.8%) identified as reductarian ("I consciously reduce my meat intake"). For a complete overview of all options and frequencies, see, Table 1. For analyses, these groups were regrouped as a new variable "dietary identity" into "meat eaters" (omnivores and carnivores, 34.1%), "occasional meat eaters" (everyone who eats meat on occasion: reductarians, semi-vegetarians, pollo-vegetarians, and pesca-vegetarians, 41.0%), and "veg\*ns" (16%, everyone who does not eat meat; the different types of vegetarianism that exclude all meat and fish and vegans; see, Table 1).

Next, all respondents had to identify with being either a meat eater or a veg\*n in a forced dichotomous variable. This variable was used to direct respondents to *either* the Attitudes Toward Veg\*ns or the Attitudes Toward Meat Eaters scale. Respondents completed only one of these scales – the one about the group they did *not* identify with. That is, everyone who identified as a veg\*n (34.6%) completed the Attitude Toward Meat Eaters scale, while everyone who identified as a meat eater (65.4%) completed the Attitude Toward Veg\*ns scale. Respondents were also instructed that the rest of

**Table 1.** Diet-based identities, definitions, and frequencies.

Categories (Definitions used in the survey)	Fre-quency	Valid Percent
Omnivore (I eat everything)	147	30.8
Reductarian (I consciously reduce my meat intake)	85	17.8
Semi-vegetarian (I do not eat a lot of meat, but this is not a conscious decision)	72	15.1
I do not identify myself based on what I eat	41	8.6
Lacto-ovo vegetarian (I do not eat meat, but I eat eggs and dairy)	40	8.4
Pescotarian (I do not eat meat, but I eat fish)	26	5.5
Other	14	2.9
Vegetarian (I eat no animal products)	12	2.5
Vegan (I do not consume any animal products; not as food, not for clothing or other consumption)	11	2.3
Carnivore (I am a true meat eater)	11	2.3
Ovo vegetarian (I do not eat meat and dairy, but I eat eggs)	8	1.7
Pollo-vegetarian (I do not eat red meat, but I eat poultry)	7	1.5
Lacto-vegetarian (I do not eat meat and eggs, but I eat dairy)	3	.6
<b>Total</b>	<b>477</b>	<b>100.0</b>

the survey would focus on this choice; therefore, they had to make deliberate decisions. Especially for the group that occasionally ate meat, it was important for us to let them choose between identifying with either meat eaters or veg\*ns.

In the forced dichotomous dietary identity choice, all carnivore and omnivore ( $n = 158$ ) respondents self-identified as meat eaters, and respondents who did not consume any meat ( $n = 74$ ) identified as veg\*ns. However, occasional meat eaters ( $n = 190$ ) had to choose sides. The majority of this group ( $n = 116$ ) self-identified as meat eaters in the dichotomous forced choice, but a considerable group ( $n = 74$ ) chose to identify as veg\*n.

**Negative attitudes toward veg\*ns scale.** For respondents who identified as meat eaters, their negative attitudes toward veg\*ns were assessed with the 21-item Attitudes Toward Vegetarians Scale (ATVS; Chin et al., 2002). This scale consists of 21 items about vegetarians that all concern negative thoughts, such as “vegetarians preach too much about their beliefs and eating habits” or “vegetarians are too idealistic” (see Appendix A). In the original form, the scale uses the terms “vegetarian” or “people who refuse to eat meat.” These terms were omitted in the present study by always using “people who do not eat meat.” Other than that, the 21 items were kept as they were in the original scale. Agreement with each statement was indicated on a 7-point Likert response scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Seven items were reverse scored, as instructed by the scale authors, resulting in a 21-item scale with good internal consistency ( $\alpha = .879$ ). An averaged sum score ranging from 1 to 7 was computed. Although high scores on this scale clearly indicate negative attitudes about vegetarians, low scores should not be equal to positive attitudes. Some items need to be reversed to calculate the sum score. However, they do not really include positive thoughts about vegetarians, but instead, statements such as “it is acceptable for individuals to refuse to eat meat that they have been served” or “I would approve if my children turned out to be vegetarian.” High scores indicate clear negative attitudes, while low scores indicate an absence of negative attitudes.

**Negative attitudes toward meat eaters scale.** The attitudes of respondents who identified as veg\*ns toward meat eaters were assessed with the same 21 items, where “people who do not eat meat” was replaced with “people who eat meat” (see Appendix A). Similar response options were used. Again, seven items were reverse scored, resulting in a 21-item scale with good internal consistency ( $\alpha = .860$ ). An averaged sum score ranging from 1 to 7 was computed. Higher scores again indicate a *negative* attitude toward meat eaters, while lower scores indicate an absence of such negative attitudes but cannot be equal to having positive attitudes.

Taken together, respondents had an averaged sum score on either the Negative Attitudes Toward Veg\*ns Scale or the Negative Attitudes Toward Meat Eaters Scale. Moreover, for additional analyses, these scores were recoded into one variable (Negative Dietary Attitude Score) that presented the negative attitude toward others with another dietary identity. The response options for this variable also ranged on a scale from 1 to 7, with low scores indicating positive attitudes and higher scores indicating negative attitudes.

**Veg\*n and meat eaters and their close friends' scores.** The last questions of the survey started with registering the number of close friends of each respondent. They had to give the exact number of people they considered their close friends. They were then asked (a) how many of these close friends they knew for sure were (a) meat eaters and (b) veg\*n. Based on these answers, a percentage score was calculated to get an indication of which percentage of their close friends were meat eaters and veg\*ns. For some, the sum of the two scores was lower than 100%; this was the case if they did not know whether some of their close friends were meat eaters or veg\*ns. This variable provides insights into how often people have contact with people from the other group.

## Analyses

To test the hypotheses, descriptive statistics and (M)ANCOVAs were performed.

## Results

The descriptive results show that the respondents' attitudes toward veg\*ns and meat eaters are not negative ( $M_{\text{meat eaters toward veg*ns}} = 2.32$ ,  $SD = .66$ ,  $M_{\text{veg*ns toward meat eaters}} = 2.96$ ,  $SD = .72$ ), measured on 1- to 7-point Likert scales with higher scores equaling more negative attitudes. Both scores were significantly lower than the midpoint of the scale,  $t(311) = -44.77$ ,  $p < .001$ , Cohen's  $d = 0.93$ , for attitudes toward veg\*ns and  $t(164) = -18.47$ ,  $p < .001$ , Cohen's  $d = 0.82$ , for attitudes toward meat eaters. The Cohen's  $d$  values indicated large effect sizes (small  $\geq 0.20$ ; medium  $\geq 0.50$ ; large  $\geq 0.80$ ; Cohen, 1988). Note that the occasional meat eaters were included, depending on their answer to the dichotomous forced choice (whether they identified the most with meat eaters or veg\*ns).

In the next step, an ANCOVA was performed with the Negative Dietary Attitude Score (attitudes toward meat eaters and veg\*ns merged in one variable) as dependent, diet-based identity (veg\*n vs. occasional meat eater vs. meat eater) and gender as fixed factors, and age, education, and percentage scores of meat-eating and veg\*n close friends as covariates. The model was significant,  $F(9, 407) = 10.45$ ,  $p < .001$ ,  $\eta^2 = .189$ . There was a significant effect of diet-based identity on attitudes toward those with another diet-based identity,  $F(1, 407) = 12.23$ ,  $p < .001$ ,  $\eta^2 = .057$ . Veg\*ns had the highest score and thus the least favorable attitude toward those who are on the other side of the diet-based identity spectrum (i.e., meat eaters;  $M_{\text{veg*ns toward meat eaters}} = 3.14$ ,  $SD = .70$ ). Bonferroni pairwise comparisons indicated that their score differed significantly from meat eaters' attitudes toward veg\*ns ( $p < .001$ ;  $M_{\text{meat eaters toward veg*ns}} = 2.46$ ,  $SD = .71$ ), and occasional meat eaters' attitudes ( $p < .001$ ;  $M_{\text{occasional meat eaters toward veg*ns or meat eaters}} = 2.35$ ,  $SD = .61$ ). The scores of occasional meat eaters could be about meat eaters or veg\*ns. There was no main effect of gender and no effect for the covariates age and education. However, we found a significant effect for the percentage of veg\*ns and meat eaters in the respondents' circle of close friends, respectively,  $F(1, 407) = 4.80$ ,  $p < .05$ ,  $\eta^2 = .012$ , and  $F(1, 407) = 4.17$ ,  $p < .05$ ,  $\eta^2 = .01$ . Parameter estimates showed that having more veg\*n or meat eating friends is positively related to diet-based attitude scores (both  $B = +.01$ ).

Finally, we found a significant interaction effect between diet-based identity (meat eaters vs. occasional meat eaters vs. veg\*ns) and gender,  $F(1, 407) = 4.62$ ,  $p = .01$ ,  $\eta^2 = .022$ . Among meat eaters, the most negative scores toward veg\*ns came from men ( $M_{\text{male meat eaters toward veg*ns}} = 2.64$ ,  $SD = .64$ ;  $M_{\text{female meat eaters toward veg*ns}} = 2.36$ ,  $SD = .73$ ). Among veg\*ns, the most negative attitude scores toward meat eaters came from women ( $M_{\text{female veg*ns toward meat eaters}} = 3.15$ ,  $SD = .71$ ;  $M_{\text{male veg*ns toward meat eaters}} = 2.98$ ,  $SD = .49$ ), and among occasional meat eaters, women's scores were more negative than men's ( $M_{\text{female occasional meat eaters toward veg*ns or meat eaters}} = 2.38$ ,  $SD = .61$ ;  $M_{\text{male occasional meat eaters toward veg*ns or meat eaters}} = 2.15$ ,  $SD = .59$ ). In other words, the least favorable attitude scores were found among female veg\*ns toward meat eaters, and their scores differed significantly from those of the others (all  $p < .001$ ), except for the attitudes of male veg\*ns toward meat eaters.

To further investigate whether the attitudes of occasional meat eaters who self-identify the most with veg\*ns toward meat eaters differ from the attitudes of occasional meat eaters who self-identify the most with meat eaters toward veg\*ns, a separate ANCOVA was performed on the subsample of occasional meat eaters ( $N = 190$ ). The Negative Dietary Attitude Score (attitudes toward meat eaters and veg\*ns merged in one variable) was entered as the dependent variable, the forced choice dichotomous dietary self-identification (veg\*n vs. meat eater) and gender as fixed factors, and age, education, and percentage scores of meat eating and veg\*n close friends as covariates. The model was significant,  $F(7, 180) = 8.67$ ,  $p < .001$ ,  $\eta^2 = .251$ . Occasional meat eaters who self-identified with veg\*ns have significant  $F(1, 180) = 18.88$ ,  $p < .001$ ,  $\eta^2 = .095$  less positive attitudes toward meat eaters ( $M_{\text{occasional meat eaters who self-identified with veg*ns toward meat eaters}} = 2.70$ ,  $SD = .59$ ) compared to occasional meat eaters who self-identified with meat eaters' attitudes toward veg\*ns ( $M_{\text{occasional meat eaters who self-identified with meat eaters toward veg*ns}} = 2.12$ ,  $SD =$



.51). There was no main effect of gender and no effect of the covariates age, education, and the percentage of meat eaters or veg\*ns in the respondents' circle of close friends. There was also no significant interaction between the forced dichotomous diet identity (veg\*n vs. meat eater) and gender.

## Discussion

The survey results show first that meat eaters and veg\*ns do not have negative attitudes toward each other. These results are not in line with previous findings of negative attitudes toward veg\*ns (Burgess et al., 2014; Cole & Morgan, 2011; Potts & Parry, 2010; Verdonk, 2019). The results further showed that having more veg\*n and meat-eating friends contributes to the findings, and this finding is in line with previous findings that the more heterogeneous one's social circle is in terms of veg\*ns and meat eaters, the lower the vegaphobia scores tend to be (Ge et al., 2021; Vandermoere et al., 2019). This is important to keep in mind in future research on this topic. Next, although the attitudes of veg\*ns toward meat eaters were not negative, they were significantly more negative compared to the attitudes of meat eaters toward veg\*ns, as expected (Burgess et al., 2014) and in line with recent research (Bagci et al., 2021). Among the occasional meat eaters, the attitudes of those who self-identified with veg\*ns toward meat eaters were significantly less favorable than the attitudes of those who self-identified with meat eaters toward veg\*ns. It has been suggested that occasional meat eating or reductarianism can be a transgression phase from eating meat to not eating meat (Verain et al., 2015). This could explain why occasional meat eaters may have less negative perceptions of veg\*ns. Taken together, thus far, most researchers have focused exclusively on negative attitudes toward veg\*ns; however, we urge researchers to examine attitudes toward meat eaters and to further test the present findings.

In addition, we advise researchers to take the gender of the respondents into consideration. The present results suggest that, in line with Judge and Wilson's (2019) study findings the attitudes of male meat eaters toward veg\*ns are more negative compared to the attitudes of female meat eaters toward veg\*ns. We also found gender differences among veg\*ns. Veg\*n women have the least favorable attitudes toward meat eaters compared to male veg\*ns. In addition, the attitudes of female veg\*ns toward meat eaters were the most negative compared to male and female meat eaters toward veg\*ns and male and female occasional meat eaters toward veg\*ns or meat eaters.

To corroborate the findings of Study 1, we ran an additional explorative study, in which we investigated expressions of attitudes with analyzed messages about meat eaters and veg\*ns on Twitter. If negative attitudes are present among meat eaters and veg\*ns, the expression of those negative attitudes can be expected to be found in online environments. People tend to act more negatively online because they cannot see the impact and consequences of their behavior (cfr. the online disinhibition effect; Suler, 2004). In the next section, we present the procedure, results, and discussion of Study 2.

## Study 2

Twitter is a social media platform that allows users to tweet or post status updates. Although Twitter discourages harmful and hateful content (Twitter has a "hateful conduct policy" and has co created and assigned the EU Code of conduct on countering illegal hate speech), abusive and harmful content toward a person or a group based on stereotypes (e.g., based on food choices) can be found on the platform (Sanguinetti et al., 2018). Previous researchers have indicated the importance of Twitter as a data collection tool for researchers who are interested in investigating the expression of negative attitudes and stereotypes among populations and toward persons or groups who differ from one's in-group (Chaudhry, 2015). However, to our knowledge, no study has explored negative attitude expressions in the discourse of individuals who prefer a certain diet (veg\*ns vs. meat eaters). There are numerous examples available of Twitter discussions on meat-free eating that have resulted in widespread attention. For instance, when

Greggs, one of the largest bakery chains in the United Kingdom, launched a Quorn-based vegan sausage roll, Piers Morgan, a British broadcaster, journalist, writer, and television personality, tweeted the following message: “Nobody was waiting for a vegan bloody sausage, you PC-ravaged clowns.” The tweet resulted in a pro-Piers Morgan camp and an anti-Piers Morgan camp, and several vegans posited the question, “Why do people hate us?” (Williams, 2019), suggesting the existence of negative attitudes based on diet-based identity. There are also first indications in the literature that negative attitudes toward veg\*ns have been expressed online. Guy and Shapira (2018) found that veg\*ism is the second most common topic of question trolling on Q&A websites and platforms.

## Materials and methods

### Materials

To explore public expression of negative attitudes, we performed a content analysis on a corpus of tweets. In accordance with previous content analyses of Twitter data (Chew et al., 2010), including content analyses in which certain persons or groups were negatively targeted (Awan, 2014), we used hashtags to select tweets. To select hashtags, we consulted the website hashtagify.me. The website allows users to investigate the use and popularity of hashtags. We performed a search inquiry on the website to select the 16 most popular hashtags related to meat eating, vegetarianism, and veganism (#antivegan, #novegan, #yes2meat, #carnicore, #veganjoke, #eatmeat, #meatlover, #meateater, #vegan, #govegan, #veganism, #veggie, #plantbased, #veganfood, #healthyfood, and #vegetarian). We entered these hashtags into Twitter’s advanced search. The time frame used for the advanced search was two recent randomly selected weeks, (a) February 18, 2019, to February 24, 2019, and (b) September 9, 2019, to September 15, 2019. Only tweets in English were selected. This resulted in a total of 1,328 tweets, 670 for Week 1 and 658 for Week 2. All selected tweets were publicly available; therefore, no interaction with the human subjects who posted the tweets online was required. Thus, this type of research can be considered observational rather than human subjects research and is therefore exempted from an Institutional Review Board review (Moreno et al., 2013).

### Coding procedure

In the first step, 130 tweets (about 10% of the sample) were randomly selected for preliminary open coding. Two independent coders categorized the selected tweets into descriptive categories related to the research aims. Next, the coders compared, combined, and refined their coding schemes to create

**Table 2.** Coding scheme stereotype topics.

Level 1	Level 2	Number of tweets (n)	Number of tweets with negative attitude expressions toward veg*ns (n)	Number of tweets with negative attitude expressions toward meat eaters (n)
Stereotype topics	Focus on animal rights and suffering	98	1	0
	Focus on climate change	40	1	0
	Race	1	0	1
	Gender	2	2	0
	Weight and body size	6	1	0
	Sensitiveness	1	0	0
	Annoying	1	1	0
	Cult	2	1	1
	Political preferences	4	0	4
	Health	5	2	0
<b>Total</b>		<b>160</b>	<b>9</b>	<b>6</b>

one coding scheme. Subsequently, the two coders recoded the 130 tweets. To calculate coder agreement, a coding comparison query was executed. The average Cohen's kappa coefficient across all nodes was 0.67, which indicated fair to good agreement. Disagreements were discussed until consensus was reached, and the coding scheme was finalized (see, Table 2). In the final step, the coders independently coded the remaining tweets. Tweets consisting of elements other than text were included, but only the textual parts were coded. A tweet was coded as containing a specific stereotype topic or not. For those tweets that contained a stereotype topic, the coders indicated whether a negative attitude was expressed toward veg\*ns, a negative attitude was expressed toward meat eaters, or no negative attitude was expressed.

## Results

Of the total sample of 1,328 tweets, 12.05% was coded as containing a stereotype topic ( $n = 160$ ). Ten different topics were distinguished (see, Table 2). The most common was "focus on animal rights and suffering" ( $n = 98$ ). Tweets regarding this topic contained, for instance, descriptions of animal suffering during the meat production process and comparisons between human rights and animal rights. It seemed that all these tweets came from veg\*ns and/or were tweeted to promote veg\*ism (considering the hashtags used); however, none of these tweets was negative toward meat eaters. One tweet was found in which somebody (presumably a meat eater) expressed that vegans kill more animals than carnivores.

The second most common topic discerned in the Twitter discourse was "focus on climate change" ( $n = 40$ ). These tweets highlighted the polluting aspects of meat production and consumption. Again, it seemed that all the tweets, except for one, related to this stereotype topic came from veg\*ns and/or were tweeted to promote veg\*nism. One tweet regarding climate change had a hostile undertone toward veg\*ns and claimed that the polluting aspect of fruit transportation was much larger than that of meat transportation.

Other stereotype topics found in the data were "race," "gender," "weight and body size," "sensitiveness," "annoying," "cult," "political preferences," and "health." Although many of these stereotype topics were also characteristics of veg\*ns that were accentuated in previous research (Burgess et al., 2014; Cole & Morgan, 2011; Potts & Parry, 2010; Verdonk, 2019), the present data showed that many of these stereotype topics are also used to refer to meat eaters. Regarding race, we found one tweet that referred to meat eaters as being White and well-off. We did not find tweets that referred to veg\*ns and race. For gender, we found two tweets in which veg\*ns were referred to as female. We did not find any tweets that referred to meat eaters and gender. Regarding weight and body size, we found five tweets in which veg\*ns showed their muscles or body size to prove that veg\*ns are not thin and weak. We found one tweet in which, presumably, a meat eater referred to vegetarians as weak. For sensitiveness, we found one tweet in which veg\*nism was linked to sensitivity. This tweet came from a vegetarian, who wanted to advocate that being sensitive and kind is not a weakness but a strength. Regarding the stereotype topic "annoying," we found one tweet in which vegans were addressed as being annoying. This tweet came from a celebrity who had recently quit his vegan diet. We found two tweets in which diets were linked to being a cult. One of the tweets stereotyped meat eaters as members of a cult, whereas the other tweet stereotyped veg\*ns as members of a cult. We found four tweets regarding political preferences; these tweets were directed at meat eaters and the meat industry supporting the capitalist system. Finally, veg\*ns used the health topic to show how healthy a meat-free diet is ( $n = 3$ ), whereas veg\*ns were also accused in two tweets of being unhealthy.

## Discussion

The goal of Study 2 was to further substantiate whether any signs of negative attitudes could be found in online messages about meat eaters and veg\*ns. Results of a content analysis of 1328 tweets indicated that negative attitudes and feelings toward veg\*ns and meat eaters are expressed on Twitter; however,

only a very small portion of tweets involving meat eating or veg\*nsism contained such a negative attitude ( $n_{toward\ veg*ns} = 9, 0.68\%$ ;  $n_{toward\ meat\ eater} = 6, 0.45\%$ ). The seven different stereotype topics present in the negative tweets toward veg\*ns were similar to those found in previous research (Burgess et al., 2014; Cole & Morgan, 2011; Hultman & Pulé, 2018; Potts & Parry, 2010). Regarding polarized tweets toward meat eaters, three stereotype topics were present: race, cult, and political preferences.

The take-home message of this study is that it seems that negative attitudes toward veg\*ns and meat eaters are publicly expressed on Twitter, although limited. Given the nature of the data and publicly available tweets, it was not possible to code the diet of the person making the claim. This information could be helpful in understanding whether negative attitudes between an in-group and an out-group are present, in line with the design of Study 1.

## General discussion

Assumptions have been made that meat eaters and veg\*ns think and feel negatively about and toward each other (C. J. S. De Backer et al., 2019; Vandermoere et al., 2019). This study is the first to empirically explore attitudes toward meat eaters and veg\*ns considering one's dietary identity and taking the perspective of the growing group of occasional meat eaters separately. This was done with (a) a classic cross-sectional survey and (b) observations of negative attitude expressions in an online environment where expressions of negative thoughts and feelings are expected to be amplified (Suler, 2004). Results of both studies provide little evidence of the existence of strong negative attitudes toward an out-group with a different dietary identity in a Western sociocultural context (Belgium). As described in the discussion of Study 1, we urge future researchers to further investigate this, and we emphasize that researchers should take variables such as gender (identity) and the number of meat eating and veg\*n friends into consideration, which has been highlighted by other researchers (Vandermoere et al., 2019).

An important strength of the present study is the combination of survey research and a content analysis of actual expressions of negative attitudes. In this way, we approached the study aims from insider (i.e., survey research among participants who answer the questions guided by their own predispositions) and outsider (i.e., objective analysis of content) perspectives. In addition, online environments are often considered to amplify negative thoughts, feelings, and behaviors (Suler, 2004), while self-report measures may underrepresent negative thoughts and feelings due to social desirability (Van de Mortel, 2008). The combination of survey research and online observations allowed us to corroborate the findings that were in line with each other.

The outcomes of this study have important implications for (health) policy makers who aim to reduce meat consumption and media producers who report on meat eaters or veg\*ns. First, it has been suggested that negative attitudes toward veg\*nsism and veg\*ns may constrain avid meat eaters, and particularly men, from switching to healthier meat-reduced diets (C. De Backer et al., 2020; Nakagawa & Hart, 2019). Yet the results of this study show little evidence that meat eaters have such a negative view of people who do not eat meat. We suggest intervention programs targeted at promoting meat-reduced diets to control for the dietary identity and attitudes toward veg\*ns of their target population. Second, some scholars have suggested that media reports on relations between meat eaters and veg\*ns tend to portray these relations as hostile, emphasizing thoughts of “vega-phobia,” and point to these media misrepresentations as sources of real-life stereotyping (see, for instance, Cole & Morgan, 2011). Cole and Morgan (2011) conducted their study in a different time period (about 10 years ago) in the United Kingdom, where the reporting style of journalists is often entertainment oriented (Van Dalen et al., 2011). Whether and how mass media (mis)represent relations between meat eaters and veg\*ns in different cultural contexts and in the recent past must be explored further. For now, we carefully suggest journalists and any media producers remain critical when reporting about relations between those who do and do not eat meat, not jumping to conclusions or amplifying reality too quickly.

In addition to the insights provided by the two studies, the studies have several limitations. An important limitation of both studies was the non-representative nature of the data. The cross-sectional convenience sample was, for instance, skewed in terms of gender and contained only a very small number of avid meat eaters and vegans. Future researchers should aim for a more heterogeneous sample, including older adults, and a more representative gender, educational level, and living situation distribution. Although the use of hashtags is a common method to compose a corpus of tweets (e.g., Chew et al., 2010), only the 16 most popular hashtags related to meat eating, vegetarianism, and veganism were used, and in this way, we might have missed some of the discussions on meat eaters and veg\*ns. Specifically, we might have missed tweets that did not contain hashtags and tweets that used hashtags other than those included in our search (e.g., less popular hashtags). Future researchers might want to combine (a more elaborate list of) hashtags and specific keywords.

A second limitation is that in Study 1 only a limited number of background characteristics were controlled for and in Study 2 none were included. For instance, we did not control for motives to eat or not to eat meat, which would be an interesting factor to add to future designs. It is known, for instance, that motives to not eat meat can lead to friction among veg\*ns. Veg\*ns who ban meat from their diet because of moral motives related to animal well-being have negative attitudes toward veg\*ns who ban meat because of personal health concerns (Cramwinckel, 2016; Rothgerber, 2014). In addition to motives, it would be interesting to investigate (expressions of) attitudes toward male, female, or non-binary veg\*ns and meat eaters. For instance, numerous studies have indicated that a meat-rich diet is associated with masculinity (Love & Sulikowski, 2018; Nakagawa & Hart, 2019; Rothgerber, 2013; Rozin et al., 2012). Based on these studies, it can be expected that attitudes are more negative toward men who do not follow this kind of diet.

Finally, we want to emphasize a specific limitation of Study 1. The validity of the Negative Attitudes Toward Meat Eaters Scale can be questioned, as the items were based on Chin et al.'s (2002) Attitudes Toward Vegetarians Scale (ATVS) that was designed to tap attitudes toward vegetarians. Future researchers might want to include attitude scales that include specific stereotypes of meat eaters and veg\*ns or bipolar adjective scales. The content analysis (see the Results section for Study 2) might provide inspiration regarding the stereotypes that can be included. Another type of measurement that can be used is asking respondents to rate a list of positive and negative traits for people with the same dietary identity and for people with a different dietary identity, a measurement that has been used in previous research to measure in-group bias (Castano et al., 2002).

## Data availability statement

The data described in this article are openly available in the Open Science Framework at <https://osf.io/3ve74>.

## Open scholarship



This article has earned the Center for Open Science badges for Open Data and Open Materials through Open Practices Disclosure. The data and materials are openly accessible at <https://osf.io/3ve74>

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Funding

This work was supported by VLAIO (Flanders Innovation & Entrepreneurship) and Flanders' FOOD as it is part of the InFLOOD study (Influence of Food Media on Food Consumption Patterns in Flanders; Grant number: HBC.2018.0397).

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## Appendix A

Items used to measure negative attitudes toward veg\*ns and negative attitudes toward meat eaters

	Negative Attitudes Toward Veg*ns Scale	Negative Attitudes Toward Meat Eaters Scale
1.	Vegetarians preach too much about their beliefs and eating habits.	Meat eaters preach too much about their beliefs and eating habits.
2.	Vegetarians should not try to hide their eating habits.	Meat eaters should not try to hide their eating habits.
3.	Vegetarian eating habits are harmful to the traditions of this country.	Meat eaters' eating habits are harmful to the traditions of this country.
4.	Individuals who don't eat meat are "wimpier" than individuals who do eat meat.	Individuals who do eat meat are "wimpier" than individuals who don't eat meat.
5.	You can eat a balanced diet without meat.	You can eat a balanced diet with meat.
6.	Vegetarians are overly concerned about gaining weight.	Meat eaters are overly concerned about gaining weight.
7.	Vegetarians are psychologically unhealthy.	Meat eaters are psychologically unhealthy.
8.	It's not O.K. to tease someone for being vegetarian.	It's not O.K. to tease someone for being a meat eater.
9.	Refusing to eat meat is just a phase.	Refusing to eat veg*n is just a phase.
10.	There are some good reasons not to eat meat.	There are some good reasons to eat meat.
11.	Vegetarians are too idealistic.	Meat eaters are too idealistic.
12.	I would approve if my children turned out to be vegetarians.	I would approve if my children turned out to be meat eaters.
13.	It is acceptable for individuals to refuse to eat meat that they have been served.	It is acceptable for individuals to refuse to vegetarian food that they have been served.
14.	Vegetarians respect the rights of others who choose to eat meat.	Meat eaters respect the rights of others who choose not to eat meat.
15.	Vegetarians use their eating habits to attract attention to themselves.	Meat eaters use their eating habits to attract attention to themselves.
16.	People who order vegetarian food often just are being cheap.	People who order meat often just are being cheap.
17.	Many vegetarians secretly eat meat in private.	Many meat eaters secretly eat veg*n food in private.
18.	I avoid interacting with vegetarians whenever possible.	I avoid interacting with meat eaters whenever possible.
19.	Vegetarians believe that they are better than others.	Meat eaters believe that they are better than others are.
20.	People who refuse to eat meat are childish and immature.	People who refuse to eat veg*n food are childish and immature.
21.	Vegetarians often appear sickly and unhealthy.	Meat eaters often appear sickly and unhealthy.