

## **How can we spread the idea of meat-free diets?**

Inês Carvalho

S5210968

Department of Psychology, University of Groningen

PSB3E-BT15: Bachelor Thesis

Group number 05

Supervisor: Dr. Elliot Sharpe

Second evaluator: Isabel Pacheco

In collaboration with: Lucía Fernandez, Hanna Meijer, Kristel Raspe, Kevin Potgieter and  
Lisa Wünscher

February 9, 2025

*A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate, but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned.*

### **Abstract**

Climate change is a serious threat to the planet and to humans. Additionally, plant-based proteins are considerably more environment-friendly than meat. Vegans and vegetarians (veg\*ans) are a minority but we need them to stand-up and spread awareness for these kinds of diets so they influence other people to adopt them as well, helping mitigate climate change. The present study proposed that self-esteem and moral convictions, separately, explained speaking-up and going against the norm, and that moral convictions would be more strongly related with that behavior. The dependent variable standing-up was represented by the signing of a petition that was known to have none or small signatories, implying that signing it would mean adopting a minority position. There were two studies conducted: Study 1 was in the lab and was based on the study by Bolderdijk & Cornelissen (2022) but it was unsuccessful due to a small sample size and the fact that all participants signed the petition, not allowing the performance of statistical analyzes. Study 2 was a replication of the first, but online. This study did not have significant statistical results, thus none of our hypotheses relating self-esteem and moral convictions with advocacy behaviors was supported. However, an important finding was that nearly every participant signed the petition, showing that they were willing to stand-by their moral beliefs. In sum, it could be easier than we predicted to find, for example, spokespersons that are willing to spread the idea and benefits of plant-based diets.

*Keywords:* self-esteem, moral convictions, speak-up, veg\*ans, (non)conformity

### **How can we spread the idea of meat-free diets?**

Climate change presents an enormous risk for the planet we live in and, consequently, for us (IPCC, 2023). It is a very serious threat that compromises the safety and health of human beings. The production of meat, compared to plant-based proteins, is more harmful to the environment. The meat industry uses more land and water, causes more pollution and greenhouse gas emissions, leading to deforestation and biodiversity loss (McClements, 2023). Due to the continuous rise in world's population, this issue will get increasingly dangerous since the planet's resources are limited. If more people start decreasing their meat consumption and start opting for plant-based proteins, this will have a positive impact on the environment, helping mitigate climate change. Nevertheless, it is considerably difficult to change people's minds about eating meat, especially when it has been the norm for so long.

One way of starting to change people's minds and get them to be more mindful of the positive impacts that a diet without meat has on earth and, therefore, on us, is through social influence. We know that there are people that already adopted dietary choices that do not include the consumption of animal derived proteins (vegans and vegetarians) and, in this way, are helping mitigate climate change. Even though the number of vegans and vegetarians is increasing, it is still considered the exception to the norm. Severijns et al. (2023) conducted a study where they found that social influence created awareness and the spread of information, leading to an increased intention to reduce animal protein consumption on the participants. This tells us that we need vegetarians and vegans to stand-up and create awareness about their eating habits so they can influence more people to adopt them as well. Standing-up is defined throughout the paper as expressing your opinions and values as well as advocating for your moral beliefs, even when you are a minority in a social group. In this study, these beliefs relate to vegan and vegetarian individuals' dietary choices and their behavior when they are in a context where the majority of people eats meat.

However, vegans and vegetarians are still a minority, so they have difficulties in standing-up and sharing their views since they are afraid of, for example, being cast out, (Bolderdijk & Cornelissen, 2022), even though Cramwinckel et al. (2021) found that standing-up was not evaluated negatively but positively. Notwithstanding, the fear of negative repercussions leads these people to remain silent so no change occurs. In the study by Bolderdijk & Cornelissen (2022), in a setting similar to Asch (1956), they found that the presence of an “ally” led more veg\*ans (vegetarians and vegans) to stand-up against the social norm and be open about their eating habits, but 52,3% did so without an ally. On the present study we will focus on these 52,3% and understand what makes these people stand-up when they are “alone”. In short, we know what makes individuals conform with the majority, but we want to understand what leads someone to stay true to their beliefs and speak-up when they are in a group of people with different principles.

One reason that could cause someone to stand-up as a minority for their beliefs is self-esteem. Self-esteem is the perception that an individual has of their self-worth (Heatherton & Wyland, 2003). People with high self-esteem will tend to have more security in themselves and for that reason have less fear of rejection or social exclusion, leading to less public self-consciousness (Heatherton & Wyland, 2003). The research connecting self-esteem and conformity is rather limited but based on it, we could argue that if individuals with higher self-esteem have less fear of social rejection, it is logical that they show less reluctance in standing-up. Hence, it would be expected that these individuals would show less conformity to the group and would stand-up for themselves and their beliefs, even when they are a minority. Following this chain of thought, those with low-self-esteem would be expected to conform more to the group norm. As follows, vegans and vegetarians with higher self-esteem should be more likely to speak up about their minority beliefs and dietary choices, going against the norm in a group of meat-eaters that do not share the same values.

However, research has found that when people feel insecure about themselves they tend to compensate that uncertainty with strong feelings and opinions about social matters and, furthermore, tend to advocate more their beliefs (Rios et al., 2012). Thus, this would suggest that when self-esteem is low, people will stand-up for minority beliefs, as a way of compensating for their low self-esteem. Nonetheless, this study found out that people with low implicit self-esteem and high explicit self-esteem are specially more likely to adopt and express minority beliefs. In the present study we will explore explicit self-esteem, so we maintain the hypothesis that high self-esteem will lead to more advocacy behaviors, since most of the evidence is still in favor of this hypothesis.

As well as self-esteem, moral convictions about a certain value could be a predictor of one advocating their beliefs in a group of people with different opinions. We define moral convictions as the extent to which a belief or an attitude is related to one's sense of right and wrong (Skitka et al., 2005). The strength of a moral conviction is related to the extent to which an individual would be willing to take action in order to support their beliefs (Bauman & Skitka, 2009) and to how intolerant one is to different attitudes (Skitka et al., 2021). Hence, we would expect that the stronger a person's moral convictions about adopting a vegan or vegetarian diet, the more likely they are to speak-up about their moral beliefs and about what they find to be the right thing to do and act, in this case, to not eat meat.

There are two constructs being analyzed in this paper: self-esteem and moral convictions, and the aim is to find out which one is more important in explaining non-conformity behaviors, so we can use it to further help the design of interventions to spread awareness of the benefits of veg\*an diets and, hopefully, get more people to adopt them as well. On one hand, we hypothesize that self-esteem will increase the likelihood to stand-up but, on the other hand, that individuals' moral convictions will increase the likelihood of them standing-up. So, the third point of interest in this research will be to find out which one (self-

esteem or moral convictions) is the best predictor. In this way, we know what type of people would be the most desirable to help spread information and awareness of meat-free diets. This study is conducted in a context where moral beliefs and convictions play a role of extreme importance since the most significant reasons for vegans and vegetarians to abstain from meat consumption are animal rights and opposition to human supremacy beliefs (Dhont & Ioannidou, 2024). Following this reasoning, we expect that moral convictions will have a stronger relationship with standing-up than self-esteem.

In summary, in order to have more people standing-up about their choice of not eating meat and spread more awareness to help mitigate climate change, it is important to understand why those who stand-up do it. In this paper, two paths will be explored: self-esteem and moral convictions. We intend to find what is the strength of the relationship between self-esteem and standing-up and moral convictions and standing-up, meaning that we want to assess how much these two constructs increase the likelihood of one standing-up for their beliefs. Additionally, we want to investigate which of these two constructs is the one that better explains standing up for minority beliefs in a social group, so we know what it should be looked for when designing interventions that include one or more people informing and spreading messages of ways to help mitigate climate change that include the way we eat.

Therefore, in the current research, the hypotheses being tested are:

- H1.** Self-esteem increases the likelihood of standing up for oneself and expressing one's moral beliefs, as a minority.
- H2.** The stronger a person's moral convictions, the more likely they are to stand up for themselves and advocate their moral beliefs, against a majority.
- H3.** The relationship between moral convictions and standing up for oneself and going against the norm is stronger than the relationship between self-esteem and standing up for oneself.

In the present study, we will consider speaking-up as the behavior of expressing one's dietary choices when you are in the minority, more specifically, by signing a petition alluding vegan and vegetarian products that no one signed before. We conducted two studies: one in-person and one online. The online study was conducted because of the first study was unsuccessful, since we had a total of four participants and they all showed the same behavior (standing-up for their dietary choices and signing the petition). Both studies had the same aim that was finding out which of the constructs (self-esteem or moral convictions) increases more the likelihood of an individual to stand-up for themselves and their beliefs, expressing their dietary preferences, even when they are a minority. The behavior of standing-up refers to individuals expressing their dietary choices, vegan or vegetarian, while being in a group of meat-eaters, that chooses to not sign the petition.

## **Study 1**

### **Methods**

The first study was based on the study by Bolderdijk & Cornelissen (2022) that also studied conformity behaviors and if participants would be willing to sign a petition about the increase of vegan and vegetarian products in the supermarkets, even if they were the only ones in the room that were veg\*ans and after all the other “participants” looked at the petition without signing it. Since it had worked for Bolderdijk & Cornelissen (2022), we thought it would be a good design that would help answer our research question. This was conducted in person and consisted of a questionnaire, where we measured the constructs self-esteem and moral convictions as long as we collected demographic data, and a ‘discussion’ about vegan and vegetarian products.

### ***Participants***



Participants were recruited by third-year students from the Psychology bachelor's program at the University of Groningen. All participants had to be older than 18 and either vegan or vegetarian for a period before the experiment took place, since we needed participants to relate to being vegan or vegetarian and had clear the reasoning behind it. Initially, the aimed sample size was 90 as we wanted to replicate the paper of (Bolderdijk & Cornelissen, 2022), while the final sample size was four without the need to exclude participants. Within the four participants: there were two males, one female and one non-binary person; three vegetarians and one vegan; two participants were in the age bracket of 18-25 and the other two in the age bracket of 26-38; three of the participants were students. Prospective participants were made aware of the study via flyers in relevant locations such as organic food shops, vegan restaurants and higher education institutions in Groningen. We chose the previous mentioned places since we were expecting that these would be places with more vegans and vegetarians. Additionally, people were informed about this study via WhatsApp group chats. Participants did not receive any compensation for their time.

### ***Procedure***

This research was approved by the Ethics Committee of the Faculty of Behavioural and Social Sciences of the University of Groningen (Study Code: PSY-2425-S-0081). Participants were made aware that participation was voluntary and that they could stop at any moment. As data collection concluded, participants were debriefed via email. Data collection took place between the 16<sup>th</sup> and 20<sup>th</sup> of December 2024, in Groningen.

The flyers included a message saying that we were interested in hearing people's opinions about vegan and vegetarian products, and a QR code linking to a Qualtrics questionnaire. This questionnaire consisted of study information, one question confirming that they were following a vegan or vegetarian diet, to make sure we would not get non-veg\*ans to

sign up for the study, and various options of times slot so they could choose when to go to the lab. Non-ve\*gans were redirected to the end of the questionnaire and thanked for their time.

Once in the lab, participants started by completing a randomized questionnaire via Qualtrics on a computer. The questionnaire started with information about the study, followed by informed consent and demographic details (e.g. age, gender, diet, student status). The following questions measured the constructs family cohesion, moral convictions, moral identity, self-esteem, and self-identity using Likert scales. Within the research team there were different research questions and different constructs being analyzed (mentioned before) however, for the paper at hand the only constructs that will be explored are self-esteem and moral convictions.

After completing the questionnaire, the participants were led to a second room by the moderator, where three “non-veg\*an” confederates were already present. Before the ‘discussion’ was initiated, the moderator asked the partakers to sign a petition for more vegan and vegetarian products in supermarkets, measuring the dependent variable. Giving the participants the choice to sign the petition or not is a representation of “standing-up” for oneself and one’s beliefs. The participants were told that they should not feel obliged to sign the petition by the moderator (to avoid possible authority effects) and the petition was passed around in the group. The actual participant received the petition last, after all three confederates declined to sign it. The confederates declined it in order to increase the social pressure in the participants, because if they would sign it that would mean they were the only ones in the room who did it, making them the ‘minority’ and forcing them to go against the norm that was “established” (not signing the petition).

Finally, the discussion about meat alternatives took place, according to the script that can be found in the appendix (Appendix A). While measuring whether participants signed the petition or not was the dependent variable and therefore the only aim of the session in the

laboratory, the ‘discussion’ was still embarked on, to counteract any suspiciousness by the participants. A suspicion check finished the session, where the moderator asked all ‘participants’ to write down their email (for the debrief) and what they thought the experiment was about.

### ***Materials***

The participants signed-up for the study via flyers created by the students, that can be found in the appendix (Appendix B). In these flyers there was a QR code that directed them to information about the study and an online sign-up sheet. They did this on their own devices.

Once in the lab, after signing the informed consent, the participants were asked to fill out a survey with all the scales used, and this was generated using Qualtrics software. The relevant scales for this paper included in the questionnaire were the Moral Conviction Scale (Skitka & Morgan, 2014) and the Brief Rosenberg Self-esteem scale (Monteiro et al., 2021). For the main task, we used a petition taken from Bolderdijk & Cornelissen (2022) focused on the environmental and animal welfare benefits of meatless diets, where there was a picture of a pig and where it showed that no one had signed previously, this variable was measured in a dichotomous outcome of whether the participant chose to sign it or not. We used this petition since we wanted to appeal to the moral beliefs behind the decision to be veg\*an, and animal welfare tends to be the leading cause of someone to become a veg\*an (Dhont & Ioannidou, 2024). The discussion that followed was performed using the script provided by them as well with just a few differences to better accommodate our study. Both can be found in the appendix (Appendix A).

### ***Measures***

#### *Self-esteem*

Self-esteem was measured by the Brief Rosenberg Self-esteem scale (Monteiro et al., 2021), and aims to assess the participant’s self-esteem. This scale contained five items like:

“At times I think I am no good at all.” or “On the whole, I am satisfied with myself.”.

Participants could choose to answer with strongly disagree, disagree, agree or strongly agree, scored from one to four.

The mean of self-esteem was 2.8, standard deviation 0.28 and Cronbach’s alpha 0.21. The mean shows a slightly over average self-esteem in the participants a really small standard deviation, showing that the results are very closely positioned to the mean. The Cronbach’s alpha value is considerably low but it is likely due to the very low number of participants.

### *Moral convictions*

Moral convictions were measured with the Moral Conviction Scale (Skitka & Morgan, 2014), and its purpose is to estimate the extent to which participants see being vegan or vegetarian as a reflection of their moral beliefs. This scale contained four items, two examples are: “Following a vegetarian or vegan diet is a reflection of my core moral beliefs and convictions.” and “Following a vegetarian or vegan diet is connected to my beliefs about fundamental right and wrong.”. Participants could answer with not at all, slightly, moderately, much or very much, and this was score from one to five.

The mean of moral convictions was 4.75, standard deviation 0.5 and Cronbach’s alpha 1.00. The mean shows a high level of moral convictions with a small standard deviation. The Cronbach’s alpha is 1.00 since the four participants gave the same response to all the items (within each participant).

## **Results**

Due to the extremely small sample size and the fact that the four participants signed the petition, it is not possible to further analyze the data. The considerably large mean of moral convictions might explain why all the participants signed.

## **Study 2**

Study 1 was not successful since we had a very small sample of participants and all participants signed the petition (dependent variable), so we could not compare self-esteem or moral convictions between individuals who stand up and those who do not. On an attempt to have meaningful results and more participants we decided to adapt the study to an online version. On this second study, we added an extra scale: the evaluation of a hypothetical petition that aimed to increase vegan and vegetarian products in supermarkets, to assess how the participants felt about it. This extra dependent variable also measures non-conformity behavior seeing that the participants had previous knowledge that this petition was unpopular, thus if they evaluate it positively, they are showing behavior that goes against the norm.

Furthermore, we hypothesized that the evaluation of the petition will positively correlate with moral convictions, since if one believes that being a vegan or vegetarian is the moral thing to do, they will most likely also be in favor of the petition and think it would be effective. One it comes to self-esteem the same correlation is expected considering that self-esteem is related to how one sees themselves and their worth, in this way, being more secure in oneself will be related to the extent to which one will express a minority opinion, as evaluating positively the unpopular petition is.

## **Methods**

### ***Participants***

Participants for the online study were recruited via flyers (Appendix B) that were distributed in higher education institutions in Groningen and via WhatsApp group chats.

The initial sample size was 107 but some participants were not vegan or vegetarian meaning that they were automatically excluded from the rest of the questionnaire (six participants), or they did not fill out the whole questionnaire (eighteen participants). For the analyzes we had then a final sample of 83 participants. From these 83 participants, 73.49%

were following a vegetarian diet and 26.51% were following a vegan diet. In the sample 16.88% of the people were male, 13.25% females and 2.41% non-binary. 79.52% of the participants were students and 83.13% were in the age bracket of 18-25 years old.

### ***Procedure***

This study was deemed to be low risk hence it was not formally approved by the Ethics Committee. On the basis of a set of questions developed by the Ethics Board, the study was submitted to the fast-track procedure and therefore exempt from review. Relevant research documents (research plan, data management plan, participant information form, consent form) were registered prior to the start of the study, but not reviewed. The principal investigator confirmed that the study conformed to the guidelines for conducting a low-risk study and ensured that the study was be conducted according to the relevant codes and regulations. Data collection occurred between 19<sup>th</sup> December 2024 and 10<sup>th</sup> January 2025.

After having access to the questionnaire, the participants were primarily presented with information regarding the study with the information of who the investigators and the research team were and explaining that participation is voluntary and can be stopped at any time. Following there was a brief explanation of what we intended to explore with our study (e.g. how one's moral convictions explain veg\*an's standing-up behaviors). After we explained what would be asked of them, for example, that we would ask for demographic data, as well as ask them to fill in scales measuring our different scales and finally followed by a hypothetical petition. We also informed that participation should take around ten minutes and that there were no anticipated negative consequences. Furthermore, we explained how we would treat the data and the participant's answers and information together with contact information of the principal investigator. This was followed by the informed consent for participation and for the processing of personal data. Then, the same questions from Study 1

were presented. Starting with demographics (age, gender, diet, student status) and followed by scales measuring moral convictions, moral identity, self-esteem, family cohesion and self-identity. Within the research team there were different research questions and different constructs being analyzed however, for the paper at hand, the only relevant scales are the ones measuring moral convictions and self-esteem. After these questions, the participant was presented with a hypothetical petition that had the aim to increase the number of vegetarian options in the supermarket in the Netherlands. This petition alluded to a more sustainable environment and animal welfare and participants were then asked if they would sign it or not, knowing that very few residents in the Netherlands had signed. Finally, they would be asked to evaluate the petition, answering another scale. Finally, we thanked them for their time.

### ***Materials***

The flyers made by the students and containing the QR-code that linked participants to the questionnaire can be found in Appendix B. The questionnaire was built using Qualtrics software.

The relevant scales for this paper included in the questionnaire were the Moral Conviction Scale (Skitka & Morgan, 2014), the Brief Rosenberg Self-esteem scale (Monteiro et al., 2021) and an adapted version of the Evaluation scale used by (Eriksson et al., 2008).

### ***Measures***

#### ***Self-esteem***

Self-esteem was measured by the Brief Rosenberg Self-esteem scale (P. Monteiro et al., 2021), and aims to assess the participant's self-worth. This scale contained five items like: "At times I think I am no good at all." or "On the whole, I am satisfied with myself.". Participants could choose to answer with strongly disagree, disagree, agree or strongly agree, scored from one to four.

The mean of self-esteem was 2.86, standard deviation 0.49 and Cronbach's alpha .82. The mean shows a slightly over average self-esteem in the participants a small standard deviation, showing that the self-esteem scores are very close to the mean. The Cronbach's alpha value shows that the scale has a good internal consistency.

#### *Moral convictions*

Moral convictions were measured with the Moral Conviction Scale (Skitka & Morgan, 2014), and its purpose is to estimate the extent to which participants see being vegan or vegetarian as a reflection of their moral beliefs. This scale contained four items, two examples are: "Following a vegetarian or vegan diet is a reflection of my core moral beliefs and convictions." and "Following a vegetarian or vegan diet is connected to my beliefs about fundamental right and wrong.". Participants could answer with not at all, slightly, moderately, much or very much, scoring from one to five.

The mean of moral convictions was 3.78, standard deviation 1.06 and Cronbach's alpha 0.95. The mean shows score of moral convictions above the mean point and the relatively small standard deviation tell us that the scores are fairly close to the mean. The Cronbach's alpha is high, showing that the scale has good internal consistency.

#### *Evaluation of the petition*

The evaluation of the petition was measured with an adapted scale from Eriksson et al. (2008). The aim was to investigate how the participants felt towards the petition. This scale contained four items: "The petition would be effective at reducing the amount of meat consumed in the Netherlands", "The petition would be fair to me", "The petition would be fair to other residents in the Netherlands" and "I would be in favor of this petition". There were seven options (scoring from one to seven) of answers ranging from "completely disagree" to "completely agree".



The mean of the petition's evaluation scale was 4.96, standard deviation 0.99 and Cronbach's alpha 0.71. The mean shows that the average scores were slightly more towards a positive and efficient evaluation of the petition and the standard deviation shows that the scores were somewhat close to the mean. This scale shows a satisfactory internal consistency.

## Results

All statistical analyzes were conducted using JASP. To assess the linearity assumption of the independent variables and dependent variable, we conducted a visual inspection of the plot of the independent variable against the log odds of the dependent variable (signing or not the petition), for each independent variable. The relationship was linear for both the independent variables (self-esteem and moral convictions).

From the 83 participants, only seven chose to not sign the petition (9.64%), meaning that 90.36% signed the petition. This means that the majority of participants stood-up for their moral beliefs related to their dietary choices, even when they knew that this petition was not popular amongst other residents in the Netherlands.

The first hypothesis states that self-esteem increases the likelihood to stand-up for one's moral beliefs in a minority position. In order to test this, we performed a logistic regression. The overall model was not significant  $\chi^2(81) = 0.015, p = 0.90$ . Self-esteem did not increase significantly the likelihood to stand-up,  $B = 0.09, SE = 0.77, OR = 1.10, p = 0.90$ . Based on these results, and based on it, we see that self-esteem does not significantly explain standing-up, not supporting H1.

The second hypothesis states that the stronger a person's moral convictions, the more likely they are to stand up for themselves and their moral beliefs, in a minority position. From the second logistic regression, we conclude that the overall model was not significant  $\chi^2(81) = 0.17, p = 0.68$  as well as that moral convictions do not significantly explain standing-up,  $B =$

0.14,  $SE = 0.34$ ,  $OR = 1.15$ ,  $p = 0.68$ . These results go against H2, since moral convictions did not significantly explain standing-up.

The third hypothesis says that the relationship between moral convictions and standing up for oneself is stronger than the relationship between self-esteem and standing up for oneself. Since the odds ratio of both logistic regressions were not significant, we do not have evidence that supports this hypothesis since we found no evidence that either of the constructs are related to our dependent variable, standing-up for one's moral beliefs, in a minority, by signing the petition.

Furthermore, we hypothesized that the evaluation of the petition will positively correlate with moral convictions and correlate with self-esteem. The results were again not statistically significant. The correlation between moral convictions and evaluation of the petition was  $r(1) = .18$ ,  $p = .109$  and the correlation between self-esteem and evaluation of the petition was  $r(1) = .06$ ,  $p = .62$ .

## Discussion

The aim of this study was to better understand what are the reasons that lead people to stand-up for themselves and their moral beliefs, more specifically in this paper, for their dietary choices (being vegan or vegetarian), when they are the minority in a group. There were two main constructs in this paper: self-esteem and moral convictions, and we wanted to determine which one of these increased the most the likelihood of an individual standing-up for themselves.

We conducted two studies: one in the lab and one online. The first study did not go as planned so it was not possible to draw any statistical conclusions from it. Regarding the online study, it was possible to run statistical analyzes but, these were not significant. In Study 1, all of four participants signed the petition (representing standing-up), but this is a too

small of a sample to draw significant conclusions out of it. In Study 2, 90.36% of the participants signed the petition, also representing a very large percentage of the sample. Compared to the study by (Bolderdijk & Cornelissen, 2022), in the condition of no ally and no endorsement, this was a significantly higher percentage. One reason why it might differ is because the study was conducted online, so, even though it was stated that the petition had not been signed by many people, the social pressure to conform was possibly lacking or was not as heightened as we would hope. Another reason that could have led to this outcome was that, in the Bolderdijk & Cornelissen (2022) paper, they rewarded participation in the study and we did not do that in the present study. This means that there is a chance that by not rewarding participants we are already dealing with individuals that are more motivated to participate, which we could speculate that means they feel more strongly towards the subject and would be more likely to sign the petition.

Regarding to the lack of significant results from Study 2, we can speculate that one of the reasons for this is the fact that only around 10% of the participants did not sign the petition, so it is not enough to compare if self-esteem and moral convictions, within the people who signed and the ones that did not sign it, differs. This means that it is possible that we did not have enough power to answer our research questions. Even so, according to our results, none of the constructs successfully explained standing-up, going against previous literature for both self-esteem and moral convictions in relation with non-conformity behaviors and advocacy of moral beliefs.

According to Heatherton & Wyland (2003), self-esteem is related with less fear of judgment and social exclusion, what should lead to more standing-up. This information is quite contradictory with our study. Additionally, other studies found the relationship between conformity and self-esteem to be in the opposite direction of the one in this study, they found that high conformity explained lowered self-esteem (Field et al., 2024; Wee et al., 2022).

Even so, in our study we did not find any significant results in either direction, which might be explained by the fact that our sample of participants showed a very small standard deviation of self-esteem scores, which demonstrates that there was not a lot of variance in self-esteem scores throughout the sample. Thus, it is difficult to assess the differences in standing-up in participants, according to their self-esteem scores, since the sample did not present a lot of variance in that way.

With respect to moral convictions, our results go against our hypothesis and against the principle that the strength of a moral conviction is related to the extent to which an individual would be willing to take action in order to support their beliefs, so signing the petition (Bauman & Skitka, 2009). As well as Skitka et al. (2021) that state that people with high levels of moral convictions will not conform to majority, even when there is pressure of a majority. We indeed had a majority of participants that signed the petition knowing they would be a minority (and being informed that very few people had signed it), but it was not explained by moral convictions. One possible explanation is that the petition is not an efficient way of evaluating behavior of standing-up for one's beliefs, especially when done online. This can be true because there is a chance that we could not fully replicate the same social pressure in an online study compared to the social pressure in an in-person study.

Our third main hypothesis stated that moral convictions would be more likely than self-esteem to increase the likelihood of the participants to sign the petition, taking a stance for their moral beliefs, knowing that the petition was unpopular within the Netherlands residents. We could not compare results to support this hypothesis since none of the constructs showed a significant relationship with the dependent variable. As well as the relationships of these constructs with the additional dependent variable (evaluation of the petition), that were also not significant. This might show that the explanation behind standing-up for one's moral beliefs does not lay in cognitions or personal traits, like self-esteem. The

Theory of Planned behavior states that a person's intention to perform a behavior is influenced by one's attitudes towards the behavior, subjective norms and perceived behavioral control (Ajzen, 1991). This shows that the attitudes and cognitions (moral convictions and self-esteem) behind a behavior are not the only factor that explain one's behavior of standing-up and that can be a reason for our non-significant results.

### **Implications**

The fact that nearly everyone across the two studies of this paper signed the petition, shows that it might be easier than what we thought to get vegan and vegetarians to spread awareness of the environmental benefits of a meat-free diet. In both our studies, the majority of participants signed the petition, meaning that they were willing to speak-up, while knowing that they were in a minority position, which is the case of veg\*ans compared to meat-eaters, in society.

In a possible replication of the study that results in significant statistics, those could have important implications for policy makers, for instance. This would be the case since in order to have more vegans and vegetarians speaking up about their dietary choices, we need to know how to incentivize them to do it. For example, if self-esteem would increase the likelihood of speaking-up then we could look for confident people to spread the message of the environmental benefits of meat-free diets. On the other hand, if moral convictions would explain speaking-up behavior, then an idea would be to find a way to activate moral convictions in vegan and vegetarians so that they would speak up when they are a minority, spreading information and awareness in line with research of Severijns et al. (2023).

### **Limitations and Future Research**

Firstly, on Study 1, the small sample size was the biggest limitation as well as the fact that all participants signed the petition, not allowing to draw any conclusions from the data.

Additionally, even though it is difficult to confirm, we could speculate that, since all the confederates were students and relatively young, the participants did not feel that much social pressure to conform, given that they were less worried with the repercussions of going against the social norm. With older confederates the pressure could be higher since we sometimes, out of respect, habit or maybe even somewhat fear, want to conform to older people's opinions more than younger people. Additionally, one could argue that in world's population, there are less veg\*ans in older generations and those are probably harder to get to even consider changing for a meat-free diet.

Moreover, we did not offer any reward for participation, so it could be interesting in future research to give some compensation to participants to have a more varied group of confederates, that better generalizes to the population. Rewarding participation could contribute for a more varied sample, with individuals that also felt less strongly about the matter at hand participating, resulting in more diverse scores in the constructs of moral convictions and self-esteem that could potentially change the results.

With respect to Study 2, one limitation could have been the fact that social pressure was not as salient as we would expect. Given that participants answered to the questionnaire online and that they were informed that the petition was hypothetical, it made it easier to speak up and go against the hypothetical majority, meaning that we could have not been able to impose the social pressure we aimed for.

The two independent variables (self-esteem and moral convictions) that were investigated, did not show a significant effect in increasing the likelihood of one speaking up. To this extent, future research could develop a qualitative study where the focus would be to collect the opinion of people that showed the initiative to speak up, about what lead them to

that behavior, instead of conforming. This would give more insight on the mechanisms behind this behavior of standing-up, that could be used to design interventions in the future.

Finally, the research from (Cramwinckel et al., 2021) suggests that if people witness other people standing-up for their moral beliefs that will lead other people to do the same. But it was done in the context of gay rights which is considerably different from dietary choices seeing that being gay is not a choice, as it is with being a veg\*an. Thus, it could be interesting to replicate this study but now in the context of veg\*ans. This suggests that perhaps it is relevant to investigate ways of how the behavior of standing-up for one's moral beliefs can help in the so needed change in society to mitigate climate change, instead of finding out what is behind the behavior of speaking-up for one's beliefs about meat-free diets.

### **Conclusion**

In sum, we did not find statistically significant results that could support or reject our hypotheses that self-esteem and moral convictions would explain speaking up. However, we did have some limitations that could impede this from happening. For future research, there are two possible paths: investigate with better research designs, such as qualitative research or studies with bigger and diverse sample sizes, constructs that could contribute to one standing-up for their moral beliefs about dietary choices, in a minority position; or focus on how we can take “advantage” of those who already speak-up to have a larger influence on the general population. The latter could be an interesting path since our research showed that indeed the majority of participants showed non-conformity behaviors, so it might be that we need to focus on how to use the people that speak up to influence the rest.

## References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Asch, S. E. (1956). Studies of independence and conformity: I A minority of one against a unanimous majority. *Psychological Monographs: General and Applied*, 70(9), 1–70. <https://doi.org/10.1037/h0093718>
- Bauman, C. W., & Skitka, L. J. (2009). Chapter 11 In the Mind of the Perceiver: *Psychological Implications of Moral Conviction*. 50, 339–362. [https://doi.org/10.1016/S0079-7421\(08\)00411-8](https://doi.org/10.1016/S0079-7421(08)00411-8)
- Bolderdijk, J., & Cornelissen, G. (2022). “How do you know someone’s vegan?” They won’t always tell you. An empirical test of the do-gooder’s dilemma. *Appetite*, 168, 105719. <https://doi.org/10.1016/j.appet.2021.105719>
- Cramwinckel, F. M., van den Bos, K., & van Dijk, E. (2021). Evaluating others if they stand up for their moral convictions, and evaluating ourselves if we don’t stand up. *Social Justice Research*, 34(2), 173–195. <https://doi.org/10.1007/s11211-021-00367-y>
- Dhont, K., & Ioannidou, M. (2024). Similarities and differences between vegetarians and vegans in motives for meat-free and plant-based diets. *Appetite*, 195, 1–11. <https://doi.org/10.1016/j.appet.2024.107232>
- Eriksson, L., Garvill, J., & Nordlund, A. M. (2008). Acceptability of single and combined transport policy measures: The importance of environmental and policy specific beliefs. *Transportation Research Part A: Policy and Practice*, 42(8), 1117–1128. <https://doi.org/10.1016/j.tra.2008.03.006>
- Field, N. H., Choukas-Bradley, S., Giletta, M., Telzer, E. H., Cohen, G. L., & Prinstein, M. J. (2024). Why adolescents conform to high-status peers: Associations among



conformity, identity alignment, and self-esteem. *Child Development*, 95(3), 879–894.

<https://doi.org/10.1111/cdev.14038>

Heatherton, T. F., & Wyland, C. L. (2003). Assessing self-esteem. In S. J. Lopez & C. R.

Snyder (Eds.), *Positive psychological assessment: A handbook of models and measures* (pp. 219–233). American Psychological

Association. <https://doi.org/10.1037/10612-014>

Intergovernmental Panel On Climate Change (Ipcc). (2023). *Climate Change 2022 – Impacts,*

*Adaptation and Vulnerability: Working Group II Contribution to the Sixth Assessment*

*Report of the Intergovernmental Panel on Climate Change* (1st ed.). Cambridge

University Press. <https://doi.org/10.1017/9781009325844>

McClements, D. J. (2023). *Meat Less: The Next Food Revolution*. Springer Nature

Switzerland. <https://doi.org/10.1007/978-3-031-23961-8>

P. Monteiro, R., Lins de Holanda Coelho, G., Hanel, P., Medeiros, E., & da Silva, P. (2021).

The Efficient Assessment of Self-Esteem: Proposing the Brief Rosenberg Self-Esteem Scale. *Applied Research in Quality of Life*. [https://doi.org/10.1007/s11482-021-09936-](https://doi.org/10.1007/s11482-021-09936-4)

4

Rios, K., Wheeler, S. C., & Miller, D. T. (2012). Compensatory nonconformity: Self-

uncertainty and low implicit self-esteem increase adoption and expression of minority opinions. *Journal of Experimental Social Psychology*, 48(6), 1300–1309.

<https://doi.org/10.1016/j.jesp.2012.07.005>

Severijns, R., Streukens, S., Brouwer, J., & Lizin, S. (2023). Social influence and reduction of

animal protein consumption among young adults: Insights from a socio-psychological model. *Journal of Environmental Psychology*, 90, 1–14.

<https://doi.org/10.1016/j.jenvp.2023.102094>

- Skitka, L. J., Bauman, C. W., & Sargis, E. G. (2005). Moral Conviction: Another Contributor to Attitude Strength or Something More? *Journal of Personality and Social Psychology*, 88(6), 895–917. <https://doi.org/10.1037/0022-3514.88.6.895>
- Skitka, L. J., Hanson, B. E., Morgan, G. S., & Wisneski, D. C. (2021). The psychology of moral conviction. *Annual Review of Psychology*, 72, 347–366. <https://doi.org/10.1146/annurev-psych-063020-030612>
- Skitka, L. J., & Morgan, G. S. (2014). The Social and Political Implications of Moral Conviction. *Political Psychology*, 35(S1), 95–110. <https://doi.org/10.1111/pops.12166>
- Wee, S. X. R., Cheng, C.-Y., Choi, H., & Goh, C. (2022). Toxic effect of fear of losing out on self-esteem: A moderated mediation model of conformity and need for cognitive closure in Singapore. *Asian Journal of Social Psychology*, 25(4), 773–787. <https://doi.org/10.1111/ajsp.12534>



### Script for moderator and confederates

The moderator gets one participant from the waiting area and brings him/her to the survey room, and tells the participant:

*“Welcome to my study on vegetarian and vegan products! In this study you are going to join a short group discussion together with other participants. Before the discussion starts, I need you to fill in some preliminary background questions at the computer. Once you have finished answering the questionnaire, you will see a message asking for a p-number. I will fill that in so let me know.*

The participant starts the survey and then he/she will be asked to join a group for the discussion. The participant finishes and calls for the **moderator**, who says:

*“We have one spot left for a group discussion in another room. Please come with me to fill up the group and join the discussion.”*

The moderator takes the participant to the discussion room. Here are three other ‘participants’ (confederates) waiting for the group to be completed in order to get the discussion started. The **moderator** makes the participant sit down at the end of the row and introduces the next part of the experiment:

*“Okay, thank you all for coming, and thank you guys for waiting (towards the confederates). We had a low number of vegan/vegetarian responses, so can I know who here eats meat, please?” (Confederates raise their hands)*

Before the discussion actually starts, the **moderator** informs the group of a petition (which is placed on the desk behind the moderator) on getting more veggie alternatives in the assortment of supermarkets:

*“Before we start the discussion, I would like to ask you to take a look at this petition. It’s a petition of a friend of mine who wants to get more vegetarian and vegan alternatives in the assortment of supermarkets, because he thinks it’s the ethically right thing to do regarding animal rights and environmental issues. I promised to ask you, but don’t feel obliged to sign it. I didn’t sign it either. Here, have a look.”*

The moderator gives the petition to confederate number 1, who will pass it on to number 2, who will subsequently pass it on to number 3, who eventually passes it on to the participant. All confederates look at, but do not sign the petition.

The discussion starts when the participant hands over the petition to the moderator, who places the petition behind them on the table. The **moderator** starts the discussion by saying:

*“Okay, I would like to talk with you about your experiences with vegetarian/vegan alternatives. During the last couple of years, you probably realized that the availability of vegetarian and vegan alternatives increased considerably. One large ‘trend’ are vegetarian and vegan meat substitutes, like tofu burgers, vegetarian shoarma, whatsoever. Can anyone tell me about personal experiences you had with these kinds of substitutes? Or what do you think of the taste in general?”*

**Confederate 1** will say:

*“Well, last summer I was organizing a barbecue with a friend of mine. We were in the supermarket buying all the stuff for the barbecue, including different kinds of meat. And we came across this new product, a shaslick or however you call it. So we saw this new product and just took it. In the evening we had a nice barbeque and after trying the new product, we looked at each other and my friend asked me whether I thought it tasted funny or not. I told him I was thinking the same, so we went through the garbage to look for the packaging, we found it and it turned out to be some vegetarian meat replacement. But it tasted quite good to be honest.”*

**Confederate 2** will say:

*“Ah, in my case, I occasionally eat a veggie burger when I go out to eat, but only for a change, not on like a daily or even regular basis. I did realise that more places do have meat-free options now. It tastes a bit funny indeed, but only at the beginning. I think it’s something you get used to with time. Regardless, I would never cook it myself. I would be too scared to cook it wrong.”*

Then the last confederate and the participant share their experience shortly.

**Confederate 3** will say:

*“Oh! I actually really like falafel. I eat it with my flatmates and it’s always great fun.”*

After that, the moderator will tell the group she has enough information and thanks the participants.

The moderator ends the experiment for the majority of the group:

*“Well that was it already, Before you 9leave, I wanted to ask you one more thing. For the debrief of this study, I need to collect your email address. Could you please write this down on this piece of paper, together with what you think the study was about?”*

*Thank you so much. I don’t want to keep you guys here longer than necessary. Thank you so much for your input and participation.”*

The confederates stand up to put on their jackets and wish the moderator good luck on her research.

The moderator writes on the participant’s paper their participant number from the screen in the other room.

## Appendix B:

### Flyers

#### Flyer of Study 1



**Flyer of Study 2**

# **Are you a vegan or vegetarian?**

## **Please share your perspective!**

We are conducting a study to understand the values, habits and traits of people living a vegan or vegetarian lifestyle. If you are interested in participating in this study, please fill in this brief questionnaire through this QR code! The survey is available in the second week of January 2025.

