

**“How do you know someone’s vegan?” Just ask them, a Replication of Bolderdijk and
Cornelissen (2022) Using Time and Self-Identity as Predictors of Standing up.**

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Abstract

Climate change is a growing concern in our world. A meat-free diet could reduce the effects of humans on the planet, and yet few people seem to be adopting this habit. One potential explanation for this is that meatless eating is a minority position and those who partake in it fear the stigma that expressing their opinions during social exchanges might bring. This self-silencing might reinforce the idea that meatless diets are a minority and lead to others not making the change. We aimed to replicate a paper by Bolderdijk and Cornelissen, but we tried to discern why people stand up by measuring time since becoming a meatless eater and self-identity, and found that meatless eaters were not hesitant to express their opinions: most of them decided to sign a petition for more meatless alternatives after others had declined to do so. We strove to discover if having been a meatless eater for a long time predicted signing, if having a high meatless-eater self-identity predicted signing, if time since becoming a meatless-eater an identity were associated, and whether self-identity mediated this effect. We only found significant effects for the association between time and identity. Methodological shortcomings such as doing the study in an online setting might help explain the results. However, our study still contributes to the literature by highlighting the complexities of standing-up behavior and the factors that might contribute to predicting when it might occur.

“How do you know someone’s vegan?” Just ask Them, a Replication of Bolderdijk and Cornelissen (2022) Using Time and Self-Identity as Predictors of Standing up.

According to the report published in 2023 by the IPCC, there has been a 1.07°C increase in global surface temperature that is most likely caused by humans. The report added that climate change caused substantial damage and losses in many ecosystems around the planet. Climate change is a problem for the future of the Earth. A way of mitigating this danger could be decreasing the meat in our diets. Bolderdijk and Cornelissen (2022) cited that reducing meat consumption would improve climate stability and environmental conservation. As such, it could be beneficial if people reduce their meat consumption, so why is this not the norm?

Despite the seemingly positive implications of reducing meat consumption, not many people are willing to partake in this diet. There have been several theories as to why this might be, but the most interesting for the present research is that there seems to be a lack of appropriate exemplars— what Bolderdijk and Cornelissen called “frontrunners” in 2022. We wondered what part this minority has in the process of making meatless eating (we will consider a meat-less diet as one that contains no animal flesh regardless of what else it contains. That is, we will not distinguish between vegans and vegetarians) more widespread. Bolderdijk and Cornelissen (2022) suggest that frontrunners can change others’ opinions by speaking up, but meatless eaters remain a minority. If we follow the reasoning proposed by Bolderdijk and Cornelissen (2022), the frontrunners have to speak up to get more people to shift towards meatless eating, but if they do not speak up, then that shift does not occur, and the environment suffers it.

The most common explanation of why this phenomenon occurs is that it is difficult to speak up as part of a minority, and meat-eating remains the most popular diet (Bolderdijk & Cornelissen, 2022). When one chooses to deviate from the majority, social norms are violated

and the social backlash can be severe, even if the reasons for violating the norms were “noble” and the observers agree with them in principle (Kawamura & Kusumi, 2020). This rejection has been observed in many contexts, but more relevantly in the context proposed for this paper of individuals who rescind meat from their diets (Bolderdijk & Cornelissen, 2022). Given that framework, we will look at the factors that affect standing up for oneself as a meatless eater when surrounded by a majority of meat-eaters, specifically at how meatless eater self-identity mediates the effect of time being a meatless eater on likeliness to stand up.

We build our paper based on the notion that self-identity (understood here as the perception of one’s characteristics and attributes) can lead to behavior, and that this self-identity is constructed by repeatedly performing an action. Indeed, Van der Werff et al., (2013) found that environmental self-identity predicted pro-environmental behavior. Specifically, it has been recorded that it predicts certain categories of behaviors better than others, among which ecoshopping and eating had the strongest predictions (Whitmarsh & O’Neill, 2010). This indicates that maybe a component of self-identity focused on diet (what we call meatless eater self-identity, specifically in the context of how much one sees oneself as a person who does not eat meat) could exist. If so, then perhaps this component could increase the likeliness of carrying out actions related to meat alternatives, such as not eating meat, or supporting initiatives to add more meat substitutes to supermarkets.

Regardless of how high self-identity is, it has to be established through some route for it to be able to predict future behavior. For this purpose, we draw from self-perception theory (Bem, 1972), which states that we signal our identity to ourselves in the same way we would signal it to others: through behaviors indicative of who we are. In that case, it would make sense for the behavior to have to be repeated several times because we would have to convince ourselves, or for it to have to be difficult because we “invest” that effort into strengthening our self-identity. Indeed, the previous behavior has to happen in more than one

instance (Whitmarsh & O'Neill, 2010; Steffel & Williams, 2021) for it to properly give clues on identity, or be a hassle to perform, or be a procedure that includes many individual pro-environmental behaviors (van der Werff et al., 2014). This past behavior will then, through self-identity formation, influence behavioral intention (Whitmarsh & O'Neill, 2010).

There are two paths by which self-identity can be strengthened. Firstly, through repeatedly acting in a way congruent with one's values (Branden, 1994), but it also seems to be fostered through a process called self-signaling. This process suggests that actions might be important to reveal to us something about ourselves (our self-identity), and if so, then the longer one has performed these signaling actions, the stronger self-identity should be because we adopt as our identity what we consistently perform (Steffel & Williams, 2021). From this, we hypothesize that if someone has been consciously choosing to refuse meat for a long time, it will be a more integral part of their self-identity compared to someone who has not or has done so for a short period, due to this process of creating self-identity through action.

In support of this idea of self-signaling requiring a long time to have a proper effect, van der Weele and von Siemens (2020) concluded that for specific instances of actions, self-signaling is not used. Rather, participants chose to construct a self-serving rationalization of their actions. This means that they decided to "reason away" their behavior, and give an alternative explanation for their actions rather than to make the fact part of their self-identity. This would mean that people have to repeat the action several times so that the construct attached to it becomes part of their self-identity (Whitmarsh & O'Neill, 2010). The only way for one singular choice to become part of one's self-identity is if the choice is perceived as difficult to make and one thinks sufficient thought was put into the possible choices. (Steffel & Williams, 2021). This is a concept rooted in the idea of self-perception theory as well. We believe that meatless eaters probably had difficulty coming to the decision to stop eating meat because of family or other relationships' reactions (Markowski & Roxburgh, 2019).

A second possible path is that meatless eaters would have faced “trials” that helped them solidify their desire to continue with this diet. Bednar and Peterson (1995) propose that it might be that meatless diet self-identity is strengthened by coping with issues that provoke anxiety and is weakened by avoiding them. We can link this explanation to time since dietary change (the time since implementing the decision to not eat meat) by assuming that the longer that one has maintained a meatless diet, the more likely it is that they faced challenges against it. They might have been from family and friends (Markowski & Roxburgh, 2019), observers of their deviance from the majority (Kawamura & Kusumi, 2020), or society because of stereotypes about how one should behave (Ruby & Heine, 2011). Regardless of the reason, if they faced them, they strengthened their self-identity in the process.

Then, with that strengthened self-identity they will be more likely to face the minority. However, this will be a difficult process because speaking up with a minority point of view is difficult (Asch, 1952). Fear of judgment can lead to self-silencing from meatless eaters (Greenebaum, 2012). Even with allies, it can be complicated for them to truly support this position if the minority has radical views such as “all meat is murder” (Kurz et al., 2020), so it can be difficult to achieve societal-level shifts towards more green practices such as meatless eating if the people who are the face of the groups have very strong views (Kurz et al., 2020). A way to make standing up easier without having allies in the room would be to ask people to support a cause they feel like they are entitled to support – their psychological standing (Morrison, 2011). In that sense, we ask people if they are meatless eaters, and then we ask them to sign a petition related to this component of their identity.

Indeed, self-identity likely makes people speak up because they have already faced all the trials, have dealt with them, and came out more convinced that what they do is part of who they are, which most likely took a long time. We believe that the longer someone has followed a meat-free diet, the stronger their meatless-eater self-identity will be. In this current

research, we want to investigate the factors (meatless eater self-identity, time since the start of a meatless diet) leading to people speaking up about their diet when they are the not-meat-eating minority.

We hypothesized that 1) time will explain standing up; 2) meatless-eater self-identity will also explain standing up; 3) time and identity are positively related to each other; 4) identity mediates the relationship between time and standing up.

To emulate the position of a minority, we replicated the paper that Bolderdijk and Cornelissen published in 2022, where they used a conformity study inspired by Asch (1952), where three confederates were posing as meat-eating participants. We asked the participants if they wanted to sign a petition to promote meatless alternatives to help the environment. In the spirit of Asch's experiment, they had the option to sign after all the confederates had rejected to do so. This way we ensured that they would face a dilemma: to sign and deviate from the norm, or to follow their principles. We had two versions of the study due to time constraints (in-person, online). We chose these methods because then the participants will have to engage in a pro-environmental behavior related to meatless eating (signing a petition for more meat-free alternatives) and go against the majority, which will test how willing they are to speak up as a minority in front of the people who make up the majority.

Methods and results

Study 1: online experiment

Participants

Participants were recruited by third-year students from the Psychology bachelor's program at the University of Groningen who were writing their bachelor's theses. All participants had to be older than 18 and live most of the year in Groningen because we were originally going to invite people to an in-person study based in Groningen. The initial sample size was 107, and the final sample size was 84. In terms of gender, 80.7% were female, 16.5%

were male, and 2.8% chose to not respond. Looking at student status, 73.5% were students, whereas the rest were not. Lastly, in age, we found that 83.1% of the participants were in the age bracket of 18–25, 12.5% were between 26–38, and 3.1% were older than that. 10 participants were eliminated for responding that they were meat-eaters, and 13 were excluded for non-completion of the questionnaire.

Materials

Self-Identity Scale. We included the adapted version of the Environmental Self-identity Scale (van der Weff et al., 2013) to measure meatless eater self-identity. The following three items formed the scale: not eating meat is an important part of who I am; I am the type of person who has a meatless diet; I see myself as a person who follows a meatless diet. Respondents rated each item on a seven-point scale, ranging from *totally disagree* to *totally agree*. Cronbach's alpha for this scale was .75 ($M = 5.41$, $SD = 1.23$). The mean is higher than the center point, so we can assume that most people who responded have a high meatless eater self-identity. Furthermore, the alpha suggests that there is good internal reliability and that the responses are consistent across items.

Subjective feelings since becoming a meatless eater. The scale had one item: How long do you **feel** like you have been a vegan or vegetarian for? There were five answer options, ranging from *for almost no time* to *for a long time* ($M = 4.06$, $SD = 1.06$). The mean is higher than the center point, which leads to the conclusion that most respondents have been meatless eaters for quite a long time.

Procedure

Data collection occurred between the 16th of December 2024 and the 10th of January 2025 in Groningen. This research was submitted to the fast track of the Ethics Committee of the Faculty of Behavioural and Social Sciences of the University of Groningen (Study Code: PSY-2425-S-0081) and is 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 conducted according to the relevant codes and regulations. Prospective participants were made aware of the study via flyers, social media, and by approaching people in libraries and study spaces at the university and cafes in the city. In all those methods we provided participants with a QR code to respond to our questionnaire.

The research team asked participants to complete an online questionnaire. The questionnaire was randomized to prevent response effects and done with Qualtrics. It measured family cohesion, moral conviction, moral identity, self-esteem, subjective time since they became veg*an, self-identity, and evaluation of the online petition using Likert scales. Only the latter two will be analyzed in this thesis because they are the main focus of our hypotheses. Informed consent and demographic details (age, gender, student status) were also collected to know the sample. After filling out the scales, participants were presented with a small text that asked them to “imagine that you received this petition and imagine how you would respond” and with a petition that had two options: sign or not. Before they signed, we informed the participants that not many other residents in the Netherlands had signed the petition themselves. We did this to include the participants in the group of people who had not signed yet and to force them to go against the norm as much as possible given the circumstances.

Results

The software used for all analyses was JASP (Version 0.18.3; JASP Team, 2024). Before the analysis, we calculated the mean of the self-identity scale and checked the assumption of linearity, which we decided was sufficiently met.

For the first hypothesis, in which a longer time since being a meatless eater will increase standing-up behavior, we used logistic regression. The model has a $X^2(81, N = 84) = .152, p = .697$. This is not a significant model. The unstandardized Beta weight for the constant is $B = 1.666, SE = 1.468, Wald = 1.289, p = .256$. The unstandardized Beta weight for the predictor variable is $B = .140, SE = .353, Wald = .158, p = .691$. The estimated odds ratio favored an increase of 1.151, 95% *CI* (-.553, .833) for the likeliness of signing for every one unit increase of time. This would mean that the longer someone feels they have been a meatless eater, the more likely they are to stand up. However, the effect is not significant due to the *p*-value.

For the second hypothesis, in which stronger meatless eater self-identity will increase the likeliness of standing up, we used a logistic regression. The model has a $X^2(81, N = 84) = .823, p = .364$. This is not a significant model. The unstandardized Beta weight for the constant is $B = 0.966, SE = 1.371, Wald = .496, p = .481$. The unstandardized Beta weight for the predictor variable is $B = .243, SE = .261, Wald = .869, p = .351$. The estimated odds ratio favored an increase of 1.275, 95% *CI* (-.268, .754) for the likeliness of signing for every one unit increase of time. This would mean that the stronger the meatless-eater self-identity is, the more likely they are to stand up. However, the effect is not significant.

For the third hypothesis, where time since becoming a meatless eater and identity are positively related we chose to look at Pearson's correlation. There was a positive correlation between the two variables, $r(82) = .312, p = .004$. This correlation is significant and indicates that indeed time and self-identity are correlated.

We found no significance for our hypotheses one and two, but we have a strong suspicion that a mediation effect might be influencing the results, so we continue to the fourth hypothesis, where we examine the mediation effect of meatless eater self-identity on time since becoming a meatless eater, we used PROCESS Macro Model 4.2 (Hayes, 2022). The

overall model fit was poor (Nagelkerke's $R^2 = .021$). This value indicates that self-identity and time since becoming a meatless eater explained 2.1% of the variance in standing-up behavior. The direct effect of time since becoming a meatless eater on standing-up behavior was not significant ($b = .040, p = .916, 95\% CI [-.670, .779]$). Furthermore, the indirect effect of self-identity mediating this relationship was also not found in the sample ($b = .096, \text{Bootstrapped } 95\% CI [-.415, .449]$). We can extract this conclusion from the fact that the confidence interval contains zero.

Study 2: in-person experiment

Participants

Participants were recruited by third-year students from the Psychology bachelor's program at the University of Groningen who were writing their bachelor's theses. All participants had to be older than 18. The final sample size was 4 in terms of gender, 50.0% were female, 25.0% were male and 25.0% were non-binary. In terms of student status, 75.0% were students. Lastly, in terms of age, 50.0% were in the age bracket of 18–25, and 50.0% were in the age bracket of 26–38. No participants were eliminated.

Materials

Self-Identity Scale. We used the adapted version of the Environmental Self-identity Scale (Keizer, Steg, & van der Weff, 2013) to measure meatless eater self-identity. The following three items formed the scale: not eating meat is an important part of who I am; I am the type of person who has a meatless diet; I see myself as a person who follows a meatless diet. Respondents rated each item on a seven-point scale, ranging from totally disagree to totally agree. Cronbach's alpha for this scale was .67 ($M = 6.25, SD = .50$). The mean is higher than the center point, so we can assume that most people who responded have a high meatless

eater self-identity. Furthermore, the alpha suggests that there is adequate internal reliability and that the responses of participants are consistent across items.

Subjective feelings since becoming a vegan. The scale had one item: How long do you **feel** like you have been a vegan or vegetarian for? There were five answer options, ranging from for almost no time to for a long time. ($M = 4.25$, $SD = .5$).

For the main task, we used a petition taken from Bolderdijk & Cornelissen (2022) focused on the environmental and animal welfare benefits of meatless diets. The petition was face-down at the table before the moderator flipped it. The discussion was performed using the script provided by the same authors. Both the petition and the script can be found in Appendix A.

Procedure

Data collection occurred between the 16th of December 2024 and the 10th of January in Groningen. 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). Prospective participants were made aware of the study via flyers in relevant locations for finding meatless eaters such as vegan restaurants, organic food shops, and higher education institutions in Groningen. Additionally, people were informed about this study via WhatsApp. In these flyers, there was a QR code that directed them to information about the study: they were told that the study was to engage in a ‘discussion’ about meatless products in local supermarkets. We employed deception because we wanted them to not know the actual purpose of the study for two reasons. Firstly they would carry no biases when signing the petition, but also so they could tell their friends about the study and grow our sample without spoiling the real goal we had. After an initial screen where we asked them about their diets, the participants could book a date and time to go to the lab using Qualtrics (Version November 2024; Provo, UT). They did this on their own.

The experiment began in the lab. The moderator greeted the participant and asked them to sign the informed consent and fill out a randomized questionnaire measuring family cohesion, moral conviction, moral identity, self-esteem, subjective time since they became meatless eaters, and self-identity using Likert scales. Only the latter two will be analyzed in this thesis. Demographic details (e.g., age, gender, diet, student status) were also collected to know our sample.

After completing the questionnaire, the participants were led to another room by the moderator. In this room, three meat-eater confederates were already present. The moderator asked the participant to sit at the end of the table and asked all the people present to specify if they eat meat by raising their hands. This was done to ensure that the participant knew that they were the only meatless-eater in the group and therefore part of the minority, for the paradigm to work properly so we could extract correct conclusions.

Next, the moderator asked the partakers to sign a petition for more vegan and vegetarian products in supermarkets. The participants were told that they should not feel obliged to sign the petition to avoid any possible authority effects (this way they would not feel forced to sign just because the experimenter, in this case, the moderator, said so), but the seating made it so that the participant was the last person to receive the petition after all the confederates had declined to sign. This way we would put maximum pressure to conform in the participants and it would be hardest to break the norm and sign. We are precisely interested in who will sign under these circumstances. The moderator then noted whether the participant had signed or not.

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. When data collection

concluded, participants were debriefed via email. Participation was completely voluntary and participants did not receive any compensation for their time.

Study 2: in-person experiment

Due to the sample size being 4, we decided that conducting the analysis would not yield any relevant results and that it would have no reliability. However, we think it would be interesting to look at the means of the people given that they all signed. Time was found to have a distribution of $M = 4.25$, and $SD = .50$. This suggests that everyone had very high subjective feelings of how long they have been rejecting meat. It is relevant to mention that the maximum on the scale was 5. For the scale measuring self-identity, the distribution had a mean $M = 6.25$, and a standard deviation $SD = .50$. The maximum answer option for this scale is 7, which means that the scores in the scales were, on average, higher than the center point. This means that most people who responded have quite a high meatless eater self-identity.

Discussion

Theoretical Background

Individuals must both follow meatless diets and speak up about it since these actions lead to more people partaking in this diet, which reduces the effect of human-caused heat increase on the planet (Bolderdijk & Cornelissen, 2022). However, not many people decide to stand up for meatless diets. There are several accounts of why this could be, from the effects of being a minority (Bolderdijk & Cornelissen, 2022) to the negative force of social norms (Kawamura & Kusumi, 2020). Even so, previous research showed that standing up does happen (Bolderdijk & Cornelissen, 2022). In this paper, the focus was to use time since becoming a meatless eater to predict standing up and to check if this effect is mediated by meatless eater self-identity. In support of our reasoning, Van der Werff et al. (2013) found a positive relationship between environmental self-identity and environmental behavior, and they found that people with strong self-identities acted more in line with the construct.

Furthermore, acting a certain way for a long time increases the presence of the associated trait (being a meatless eater in this case) in the person's self-identities through self-signaling. From this, we predicted that the variable time will lead to signing, which will possibly be mediated by the variable self-identity.

Key Objectives and Findings

We had four hypotheses to attempt to explain what factors might influence standing up. For the first one, we proposed that found that time since becoming a meatless eater will be associated with standing-up behavior. We tested that and we found that the odds of standing up were higher than one when the time since becoming a meatless eater increased, but this value was not significant. This would mean that this construct is not predictive of standing-up behavior. For the second hypothesis, we proposed that meatless-eater self-identity will be associated with standing-up behavior, but when we tested it we found non-significant odds, although they were higher than one. These results suggest that our second construct is also not predictive of standing-up behavior. For the third hypothesis, we proposed that time since becoming a meatless eater and meatless-eater self-identity are positively related to each other. The test found a significant positive association of medium strength. This gives us a basis to proceed with the fourth hypothesis and suggests that while both of our constructs were not good at predicting standing-up behavior, the choice of predictive variables was accurate. Our last hypothesis proposed that meatless-eater self-identity mediates the relationship between time since becoming a meatless eater and standing up. We used PROCESS Macro Model 4.2 (Hayes, 2022) to test it and found non-significant effects for both the direct and indirect effects. This would mean that there is no mediation effect in our sample. Taking all the results together, our data points to there not being a significant relationship between being a meatless eater for a long time, and having a high meatless-eater self-identity does not predict standing-up behavior, as well as that identity does not mediate the effect. However, there seems to be a

correlation between our two predictor variables, so future studies could try to replicate the experiment in a bigger in-person sample to see if this effect exists or if it is just coincidental. Ideally, an in-person approach would be used in the future because that is how the social pressure paradigm has been established to work and we do not know exactly to what extent the paradigm exerts the same effect in an online setting.

Theoretical Contributions

The findings of the third hypothesis are in line with previous research that suggests that acting a certain way for a long time is related to one's self-identity (van der Werff et al., 2014). The literature mostly mentions environmental self-identity and eco-actions, but our results suggest that the relationship also exists for a component of environmental self-identity that we call meatless eater self-identity. This can be illustrated by a study by Randers and Thøgersen (2023) where they found that giving vegetarian meals to people before giving them the option to choose them led to higher rates of continued vegetarian diets. This is in line with our results that doing something for a long time will make that something part of one's self-identity.

Our results contradict the general notion that standing up is difficult (Asch, 1952; Bolderdijk & Cornelissen, 2022; Kawamura & Kusumi, 2020). This finding might be the result of how our sample behaved rather than a necessary expansion in the literature of the conditions under which standing up is more or less likely. It is possible that most of the respondents simply are more willing to share their opinions because of the context we created: we administered a meatless eating test in the context of a vegan study, and asked them to consider a petition to promote more vegan options. It could be that the context primed them to be more open to a positive appraisal of the petition. Research has shown that giving people messages that promote meat reduction leads to being more open to reducing the amount of meat in the diet (Wolstenholme et al., 2020). We can consider the environment in our research

as messages signaling that meatless eating is good, which might have caused the cited effect and provoked higher compliance with meatless lifestyles.

Limitations

Some factors could have affected the results. For example, there could have been an effect of internal motivation that led to high signing rates. In our experiment, we found a 100% signing rate in-person and a 91% signing rate online, both much higher than the 52.3% found by Bolderdijk and Cornelissen (2022). By internal motivation, we mean that it is a possibility that participants felt more inclined to sign the petition because we did not offer any compensation for participation. By offering no compensation, the people who showed up to the laboratory probably had their own internal reasons for being there, probably wanting to earnestly share their opinions. For instance, there was one participant who, during the discussion we embarked on to counteract suspicion, became quite exasperated and claimed that it made no sense for people to eat meat. We were not expecting to extract any fruitful information from the group discussion because it was not the aim of the study, and as such we had no systematic codes for it and no way of analyzing responses, but the reaction of this participant seems to suggest that maybe our in-person participants had strong internal reasons for volunteering.

This point can be further illustrated by the high mean scores of both time and identity in both samples. The high means (the mean for the time scale was 4.06, and the mean for the identity scale was 5.41) suggest that on average our participants were high on these traits, which could very likely mean that they have very strong opinions on who they are and what they do as a consequence of who they are. While we did not measure that, Allen and Levine, (1968) stated that when conformity research is done with opinions, dissenters have less of an impact on whether others decide to conform or not. So if we consider meatless eating as a

form of opinion, and their opinions to be strong (indicated by the high scores on self-identity), then it would make sense to have very high rates of signing.

Another factor that might have influenced the results is the extent to which we properly exerted social pressure on the participants. We assumed that it is difficult to stand up as a minority (Morrison, 2011), and yet many people did stand up and chose to sign our petition. We do know that fighting conformity happened in Asch's experiment as well (Hodges & Geyer, 2006) so some degree of nonconformity was expected. However, in our sample which included 84 people, only 8 did not sign. It might be because the experiment had to be moved to an online format due to time constraints. Since it was originally meant to be run in person, perhaps our control was not effective enough at making people conform. We do not know how the research might have turned out if we had done it in person, but the literature has shown that social pressure is lacking when we stand behind computer screens (Farmer et al., 2018), which could have further affected the amount of social pressure the participants felt to conform. So while we were expecting people to sign the petition, such a high number is over the scope of what previous literature has suggested would happen (Asch, 1952; Bolderdijk & Cornelissen, 2022; Hodges & Geyer, 2006). This effect might be because of the online nature of the experiment, and lessened social pressure.

Strengths of the Research

Firstly, we stayed close to a real-life social pressure situation as much as possible with our experimental design. For this purpose, we tried to closely follow the design created by Bolderdijk and Cornelissen (2022), who already found significant results in their in-person experiment. Because of this, our approach enhances the generalizability of our findings to the real world. That is, the situation of social pressure and need to conform was as realistic as possible in-person thanks to the replication attempt that also follows Asch's experiment. The online version was made more realistic thanks to the text we provided the participants to make

them feel included in the group of people who had not signed yet (specifically, we mention that “not many other residents in the Netherlands have signed the petition themselves”). This, and the fact that we consistently found the same response patterns for the scales in both of the experiments we did, suggests that the population of meatless eaters who live in Groningen most of the time have high self-identity and feel like they have been meatless-eaters for a long time. This also gives our data strength and yields a valid indication for the effects of time and self-identity on standing up.

Implications and Future Directions

Our research has some implications for the field. Firstly, we found odds higher than one in the results for hypotheses one and two, even if they were non-significant which raises the question of whether there might be some hidden effect there that we could not find. Future research could attempt to find other variables that might have an effect, such as belonging to the vegan or vegetarian group. Secondly, even if most of the participants signed, meatless eating still seems to be a minority, as reported by Bolderdijk and Cornelissen (2022). Perhaps, the participants thought that they could share their opinions without judgment in the environment of the study given that it was about meatless products from the beginning. It might be possible that they self-silence in their daily lives but not in this study because they assumed that those present were willing to listen and not judge. In the in-person discussion, they seemed very open to teaching others about their recipes and opinions on current substitutes for meat produce. This suggests that they are willing to talk as long as others listen: they may feel more free to express their meat-free preferences with support from others (Bolderdijk & Cornelissen, 2022). Still, there seems to be some self-silencing from meatless eaters in their daily lives (Greenebaum, 2012). We extract this conclusion from the fact that only four people signed up in person but more did online in the same period, so it is still likely that some people simply did not want to face others about their opinions.

The results here should be taken into account when developing future interventions and research. Following these results, perhaps asking people to perform a “trial run” of a target behavior could make that behavior part of their self-identity (Morrison, 2011). This behavior should be divided in steps to be more easily acquired (Kurz et al., 2020; van der Werff et al., 2014) and performed during a long time (Whitmarsh & O’Neill, 2010). This could be used to favor other ecological behaviors to further help the planet.

Conclusion

In summary, despite the lack of significant findings in hypotheses 1, 2, and 4 we found an expected positive correlation between time since becoming a meatless eater and meatless eater self-identity. This underscores the importance of repeating actions to form self-identities. Although we had sound theoretical basis, factors such as the online setting could have affected the results. By addressing this, future research could possibly deepen our knowledge of what helps a minority speak up for what they believe in.

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Appendix A

Scripts for the 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 leave, 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

Petition Used for the In-Person Study



university of
 groningen



Do the morally right thing. Sign this petition!



There should be more vegetarian and vegan alternatives in the assortment of supermarkets.

Recent studies found that vegetarians have a much lower environmental impact than meat-eaters. Plant-based diets require less energy, land and water in their production process, and therefore offer a more sustainable alternative. A plant-based diet is animal-friendly. According to various studies, vegetarian alternatives help to reduce a number of societal problems, including:

- Animal suffering
- Air and water pollution
- Erosion of soil
- Waste of energy

The aim of this petition is to give the Association of the Supermarket Sector in the Netherlands (CBL) a strong signal that many consumers would welcome more vegetarian, and thus environmentally friendly, food alternatives. Help us reach 2000 signatures before the 1st of February 2025.

So choose for a sustainable environment and animal welfare, and sign this petition!

[illegible]