



The Role of Perceived Remedial Responsibility When Supporting Meat Curtailment Policies.

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Abstract

A sustainable protein transition refers to the societal movement away from animal proteins towards vegetarian and novel protein sources. This transition could significantly reduce harmful emissions due to reduced animal agriculture. As responsibility attributions have been shown to predict pro-environmental behaviour, this study looked at perceived remedial responsibility across actor groups in relation to support for meat curtailment policies, to understand how to encourage a sustainable protein shift. This paper looked at the consumers' perspective of their ingroup and outgroups, namely, farmers, bankers, policymakers, and food companies. After distributing a survey, a correlational and t-test study ($N = 126$) showed support for most of our hypotheses. Results showed that the more consumers perceived their ingroup as remedially responsible, the more they supported gain and loss-framed policies affecting consumer behaviour. Additionally, the more consumers felt their outgroups were responsible, the more they supported policies concerning the outgroups behavioural change, for both gain and loss-framed policies. On average, consumers showed more support for gain-framed policies, regardless of the group being targeted. These results suggest that individuals with higher remedial responsibility of their ingroup or outgroups may be more supportive of policies aiming to reduce meat consumption within these respective groups, however, this needs further experimental testing to clarify. Policy support may be further encouraged by framing policy descriptions as something people can benefit from.

Keywords: perceived remedial responsibility, consumers, policy support, environment, vegan

The Role of Perceived Remedial Responsibility When Supporting Meat Curtailment Policies.

Overall meat consumption has quadrupled since 1961, with a growing human population (Whitton et al., 2021). The most recent IPCC report has warned that methane emissions are continuing to increase and contribute to climate change (AR6 Climate Change, 2022). Agriculture emits around 40% of these emissions, making it the highest emitting sector of methane (Climate & Clean Air Coalition, 2022). This is largely due to ruminant digestion within livestock such as cattle and sheep (Chang et al., 2019). Although meat only accounts for 18% of the world's food supply, livestock manages to use 77% of all agricultural land (Whitton et al., 2021). Diets high in animal protein cause land to be used inefficiently, which negatively affects biodiversity and the environment (IPCC, 2022).

The food system needs to become more efficient for it to be more sustainable (Tziva et al., 2020). One way of doing this is to shift towards diets with reduced meat intake, or no meat at all, such as a vegetarian or vegan diet (Judge et al., 2022; Michel et al., 2021). Plant-based meats are becoming increasingly available as a substitute to make this transition possible (The Good Food Institute, 2022), which are similar to meat products in appearance, texture, and taste (Tziva et al., 2020). Research indicates that a vegan lifestyle is more sustainable than an omnivore or carnivore diet in terms of animal welfare, environment, and health outcomes (Chai et al., 2019; Craig, 2009). Therefore, a protein transition would be a hopeful strategy for a more sustainable future.

A sustainable protein transition refers to the societal movement away from animal proteins towards vegetarian and novel protein sources (Wageningen University & Research, 2022). The implementation of this transition has the potential to mitigate harmful emissions by 14-20% (The Good Food Institute, 2022). Additionally, plant-based meats use significantly less land than meat products, and therefore, this transition could allow spare land to restore

and protect its biodiversity, and reduce deforestation (The Good Food Institute, 2022).

Evidently, a societal transition towards sustainable proteins and a reduction in meat-heavy diets could decrease greenhouse gas emissions and help protect our environment from climate change consequences.

However, with systemic environmental problems like the climate crisis, it can often be difficult to determine who is responsible for remedying the problem, yet it is important to clarify this perceived responsibility for behavioural change. According to the norm activation model, the ascription of responsibility is one predictive variable of pro-environmental behaviour (Benyamin et al., 2018; de Groot & Steg, 2009; Schwartz, 1977). Research has shown that individuals lower in responsibility were less likely to recycle in comparison to those higher in responsibility, suggesting that participants must feel higher in responsibility to feel morally obliged to behave desirably, and these increased feelings can lead to intentions to behave (de Groot & Steg, 2009). This was also shown when participants with a higher sense of personal responsibility were more likely to support taxes on fossil fuels to reduce emissions (Bouman et al., 2020). This indicates that the more people feel responsible, the more action they take, as suggested by the norm activation model (Schwartz, 1977). Hence, how responsible people perceive themselves for acting sustainably may be associated with how much they engage in pro-environmental behaviour.

When looking separately at the responsibility of others, people may perceive other individuals who caused the outcome to be the ones responsible for rectifying it (Gantman et al., 2020), or, people may perceive other resourceful groups as increasingly responsible for remedying climate change effects, as they are capable of effective change (Fahlquist, 2009). For example, consumers may perceive the government as powerful and responsible for reducing climate change impacts (Fahlquist, 2009), and consequently, they may feel that the government should be taking more pro-environmental action. With this in mind, it may be

that the more people feel others are responsible for reducing the negative impacts of climate change, the more they support the pro-environmental behaviour of others. Yet, when looking at the responsibility of others and related attitudes towards their behavioural obligations, there is inadequate literature available in comparison to research on individual responsibility that suggests heightened personal responsibility can be predictive of pro-environmental behaviour (Bouman et al., 2020; de Groot & Steg, 2009; Ebreo et al., 2003).

Hence, an aspect of this paper is to explore if people's perception of others' responsibility for reducing climate change consequences would affect their own engagement in sustainable protein transition behaviours, such as showing support for meat curtailment policies. *Meat curtailment policies* are governmental measures that aim to reduce the consumption of meat (Michielsen & van der Horst, 2022), for example by promoting vegan diets. However, it could still be that individuals simultaneously feel responsible for their ingroup, so we will consider these relationships separately.

As such, this paper aims to explore the relationship between people's perceptions of remedial responsibility across groups with support for meat curtailment policies that target different groups' behaviour. *Perceived remedial responsibility* is one's perspective on the responsibility for reducing climate change effects of animal agriculture (Haugestad et al., 2021). Several stakeholder groups are involved in the progression of this sustainable transition, however, we chose to include consumers, farmers, bankers, policymakers, and food companies, as we consider them to be the most influential on the supply and demand of animal products in the food industry. For example, food companies decide what animal proteins and alternative vegan proteins are available in supermarkets, whereas policymakers can influence the production of products through policies that incentivize or penalize many individuals' diet choices (Fahlquist, 2009). Therefore, it is expected that policies will be more supported when they target groups that are perceived as higher in remedial responsibility.

In addition, this paper will investigate the effect of gain and loss-framed policies to see if individuals are more or less willing to support policies based on how it is affectively evaluated and perceived. It has been shown that writing policies as a gain-frame can increase support from consumers (Carvalho et al., 2022), as individuals tend to experience a loss as more devastating than an equivalent gain is satisfying, known as loss aversion (Steg & de Groot, 2018), according to the prospect theory (Kahneman & Tversky, 1979). A sense of perceived personal cost from a loss-framed description may cause people not to support meat curtailment policies, discouraging the transition towards plant proteins (Graça et al., 2020).

Hence, it is expected that for ingroup-related policies, people will show more support for gain over loss-framed policies, as they may be in favour of protecting their group. This can be partly explained by ingroup favouritism, which suggests people tend to support their ingroup members over members of other groups (Everett et al., 2015). However, for outgroup-related policies, it is expected that people will show more support for loss over gain-framed policies, as they may feel more comfortable punishing others rather than themselves. Halabi et al. (2015) showed support for this as when participants were recommending punishments based on responsibility for the same accident, they attributed more blame and severe punishment to the outgroup over their ingroup.

With this in mind, four hypotheses were formulated to explore the role of perceived remedial responsibility between groups when supporting meat curtailment policies. Overall, the results could help encourage a societal shift away from dominant animal protein diets towards more sustainable protein diets, through more accepted and supported policies. This could lead to significant positive impacts on our environment and its trajectory. The hypotheses are as follows:

Hypothesis 1. Higher perceived remedial responsibility of the ingroup will be associated with stronger support for ingroup-related policies, for both gain and loss-framed policies.

Hypothesis 2. Higher perceived remedial responsibility of the outgroups will be associated with stronger support for outgroup-related policies, for both gain and loss-framed policies.

Hypothesis 3. Support will be higher for gain-framed policies than loss-framed policies when the ingroup is targeted.

Hypothesis 4. Support will be higher for loss-framed policies than gain-framed policies when the outgroup is targeted.

Method

Participants

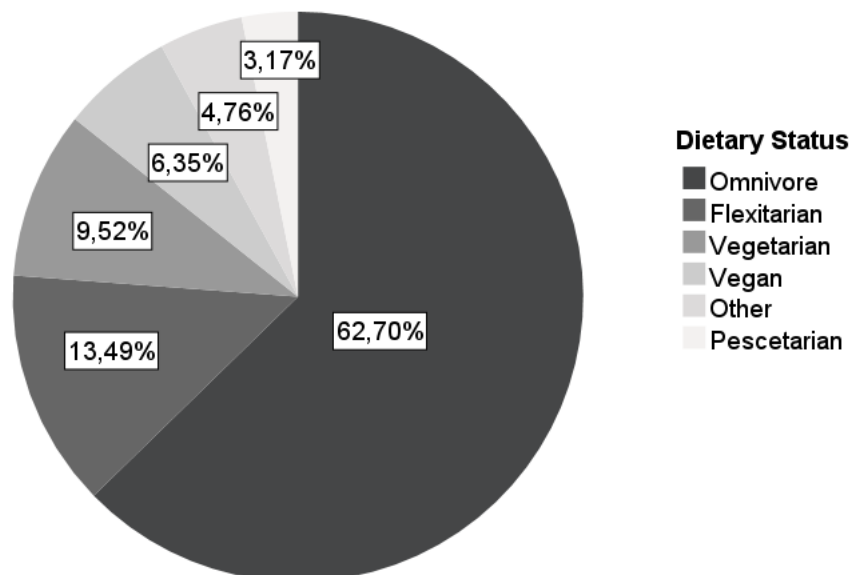
We aimed for an effect size of $r = 0.30$, as this is considered a small to medium effect size (Cohen, 1992). Based from this, an a priori power analysis was conducted using G*Power (Faul et al., 2007), and it was calculated that for a correlational analysis, 82 participants were required to achieve 80% power, $\alpha < .05$. A convenience sample was used to recruit participants from my personal network ($n = 61$) and the Prolific panel ($n = 65$). After removing those who met the exclusion criteria (which is described in detail in the procedure), a total of 126 participants remained (69 female, 55 male, 1 non-binary, and 1 preferred not to answer). The ages ranged between 18 to 66 ($M = 32.00$, $SD = 13.01$).

The survey was distributed through Prolific (www.prolific.co) and social media. The platforms used were Instagram, WhatsApp, and Facebook, where an anonymized link to the survey was provided. Participants were told they could further share the survey within their social network if they desired, additionally making it a snowball sample. Compensation was not provided for participants of the personal network. However, Prolific participants were

given £1.50 (€1.74) for completing the survey. The combined sample included 24 nationalities which were predominantly Irish ($n = 36$). Other frequent nationalities included Polish, South African, and German. Table 1 lists all nationalities of participants. Dietary status was also recorded, as shown in Figure 1.

Figure 1

Pie Chart of Participants' Dietary Status



Procedure

The study was approved by the ethics committee of the University of Groningen. The survey was created through Qualtrics (www.qualtrics.com). First, participants were given an information form that briefed them on the research, survey duration, contact information, required personal information, and how they could stop at any time. If someone did not give their consent, they were asked if they were sure about leaving, and then were redirected to the end of the survey. If active consent was given, they were directed to the beginning of the survey.

Items were ordered in a manner such that the purpose of the study was not clearly given away at the start, however, it was important to ensure participants shared a mutual understanding of the groups as they were referred to throughout the study. Hence, a short text was provided explaining the environmental harm of meat consumption and the benefits of plant-based diets, followed by a short description of each stakeholder group and their role (see Appendix for text given in survey). Then, participants were asked which group they felt is most responsible for causing and reducing the negative climate change effects of animal agriculture. Next, participants were asked to select one of the groups that they most identified with. Their response was then piped through Qualtrics, so whenever ingroup and outgroups were mentioned in items, participants were reminded of their chosen ingroup and their relevant outgroups, to ensure they understood their position among the groups.

Participants were then asked to indicate their level of agreement on statements about perceived remedial responsibility of the self, their ingroup, and their relevant outgroups. Next, support for ten policy items was measured. Only meat curtailment policies were included in the study as they relate to a sustainable protein transition. Other variables were then measured that were not needed for the purposes of this research. Lastly, personal data was asked, as we wanted participants' full attention for the previous items. This included age, nationality, residency, gender, and dietary status. Additional comments could be added by participants. The approximate time to complete the survey was 10 minutes.

Data was collected over the duration of two weeks (the 26th of September until the 10th of October). Once the study stopped running, the two separate datasets from Prolific and my social network were merged, and participants were removed from the study if their responses met *at least two* of the following exclusion criteria: failing the attention check item ($n = 14$), not giving consent ($n = 0$), or being under 18 ($n = 0$). Participants sometimes fail attention check items since they don't understand why it's there, not because they aren't paying

attention, so participants had to meet at least two of the exclusion criteria before being removed. The attention check item was “Please choose ‘Somewhat Disagree’ here”, and those who clicked anything but ‘Somewhat Disagree’ were at risk of being removed. Those who did not fully complete the survey ($n = 40$) were removed regardless, as only completed surveys were wanted. As nobody failed two or more of the criteria, a total of 40 participants were removed from the combined dataset, resulting in 126 participants.

Design

After collecting quantitative data through a survey, a correlational study was used to measure the strength and direction of the relationship between the variables within H1 and H2 separately. The independent variable for H1 was perceived remedial responsibility of one’s ingroup, and the dependent variable was support gain-framed and loss-framed ingroup policies, respectively. For H2, the independent variable was perceived remedial responsibility of the outgroups, and the dependent variable was gain-framed and loss-framed outgroup policies, respectively.

For H3 and H4, a t-test was used to compare mean differences between variables. For H3, the mean for gain-framed ingroup policy support was compared to the mean for loss-framed ingroup policy support. For H4, the mean for loss-framed outgroup policy support was compared with the mean for gain-framed outgroup policy support.

Materials

Group identification position. A single-choice measure was used to answer, “If you had to pick one, which of the following groups/stakeholders do you associate yourself with the most in the context of food production?”. The answer options were consumers ($n = 109$), farmers ($n = 11$), policymakers ($n = 0$), bankers/financers ($n = 1$), and food companies ($n = 5$). Their chosen answer would filter how the rest of the questions were framed, so when “my group/ingroup” was mentioned in an item, participants were reminded of their chosen

ingroup. When “other groups/outgroup” was mentioned, the groups that they did not choose to identify with were listed, so participants clearly understood who their associated outgroup was in response to their chosen ingroup.

Perceived remedial responsibility of ingroup. This scale was constructed by calculating the mean of the following three items, which were adapted from Fang et al., (2019): “I feel my group has a responsibility to take action to reduce the environmental problems caused by the food sector.”, “I feel my group has the responsibility to work with/influence others in government agencies to help improve or solve the surrounding environmental problems regarding food sustainability.”, and “I feel it is my groups’ responsibility to help prevent the harmful emissions produced by the meat industry by changing our behaviour.”. A 5-point Likert scale was used (1 = *Strongly disagree*, 5 = *Strongly agree*). Internal reliability for these items was good ($M = 3.80$, $SD = 0.86$, $\alpha = .71$).

Perceived remedial responsibility of outgroups. The scale was created by calculating the mean of three items that were adapted from Fang et al., (2019): “I feel other groups have a responsibility to take action to reduce the environmental problems caused by the food sector.”, “I feel other groups have the responsibility to work with/influence others in government agencies to help improve or solve the surrounding environmental problems regarding food sustainability.”, and “I feel it is other groups responsibility to help prevent the harmful emissions produced by the meat industry by changing their behaviour.”. A 5-point Likert scale was used (1 = *Strongly disagree*, 5 = *Strongly agree*). Internal reliability was moderate for these items ($M = 4.36$, $SD = 0.63$, $\alpha = .66$).

Policy Support. Participants were asked to what extent they support 10 hypothetical climate change policies implemented by the government. As Table 2 shows, each group had two policies targeting their group: one gain-framed and one loss-framed. The items were answered using a 5-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*), and were

created by the researchers for the purpose of this study. For the loss-framed ingroup policy item, the score chosen by the participant was their actual item score, as it was a single-item measure ($M = 3.01$, $SD = 1.46$). This was also the case for the gain-framed ingroup policy item ($M = 4.25$, $SD = 1.06$). For loss-framed outgroup policy items, the mean of the 4 loss-framed outgroup policy items was calculated and used to create a new scale. The outgroups used for this scale were farmers, bankers, policymakers, and food companies, as consumers were the only group with sufficient power to analyze, which is further explained in the results section. Internal reliability for this item was good ($M = 3.72$, $SD = 0.88$, $\alpha = .77$). For gain-framed outgroup policy items, the mean of the 4 gain-framed outgroup policy items was calculated for a new scale. Internal reliability was also good ($M = 4.21$, $SD = 0.72$, $\alpha = .73$).

Multiple variables were included in the survey, several of which were not relevant to the current study and therefore won't be included in this paper. The variables not included were intentions to reduce meat consumption, the extent of identification with all groups, feelings towards all groups, political ideology, and country of residence.

Results

Although 126 valid responses were collected, there was an insufficient number of participants per group, making all groups underpowered except for the consumer group ($N = 109$). This meant meaningful statistical comparisons could not be made between groups as initially planned. Due to this, the analyses had to be carried out using only participants who chose "consumers" as their identified group. Thus, we will only report and discuss the output of the consumer participants, and for the remainder of this paper, the ingroup will refer to consumers while outgroups will refer to farmers, bankers, policymakers, and food companies.

For the first two hypotheses, a Pearson's correlation was used. For H1, we hypothesised that higher perceived remedial responsibility of the ingroup would be associated with stronger support for gain and loss-framed policies that target the ingroup. A weak

positive correlation showed that perceived remedial responsibility of the ingroup was significantly related to gain-framed ingroup policies, $r(107) = .30, p < .001$. This suggests that the higher consumers perceived themselves as responsible for reducing the negative climate change effects of animal agriculture, the higher they supported policies that offer benefits for behaving in a way that reduces meat consumption. In this case, the policy referred to making plant-based food cheaper with subsidies, which assists consumers in transitioning towards more sustainable proteins.

Additionally, there was a significant relationship between perceived remedial responsibility of the ingroup and loss-framed ingroup policies, showing a moderate positive correlation, $r(107) = .56, p < .001$. This suggests that the more consumers felt responsible for remedying the climate change effects of animal agriculture, the more they supported meat-curtailment policies that would tax consumers for eating meat. Interestingly, the correlation between perceived remedial responsibility and policy support was stronger for loss-framed policies than gain-framed policies when targeting consumer behaviour.

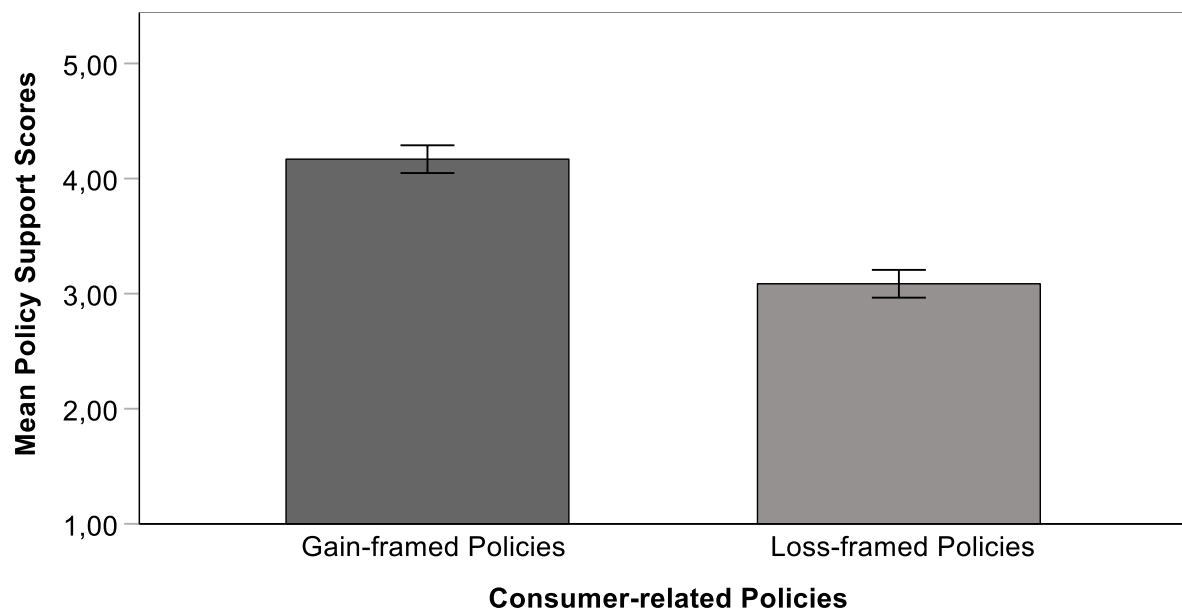
For H2, we hypothesised that higher perceived remedial responsibility of outgroups would be associated with stronger support for both gain and loss-framed outgroup policies. There was a significant relationship between perceived remedial responsibility of outgroups and gain-framed outgroup policies, showing a moderate positive correlation, $r(107) = .62, p < .001$. These results imply that the higher consumers perceived the outgroups as responsible for remedying negative climate change impacts of animal agriculture, the higher consumers showed support for policies that would assist those outgroups in reducing their meat consumption.

Additionally, we found that perceived remedial responsibility of outgroups was significantly related to loss-framed outgroup policies, showing a moderate positive correlation, $r(107) = .61, p < .001$. In other words, the higher consumers perceived outgroups

as responsible for reducing the negative climate change impacts of animal agriculture, the higher consumers supported policies that would put the outgroups at a disadvantage when encouraging a sustainable protein transition. These relationships were similar in strength for both gain and loss-framed outgroup policies.

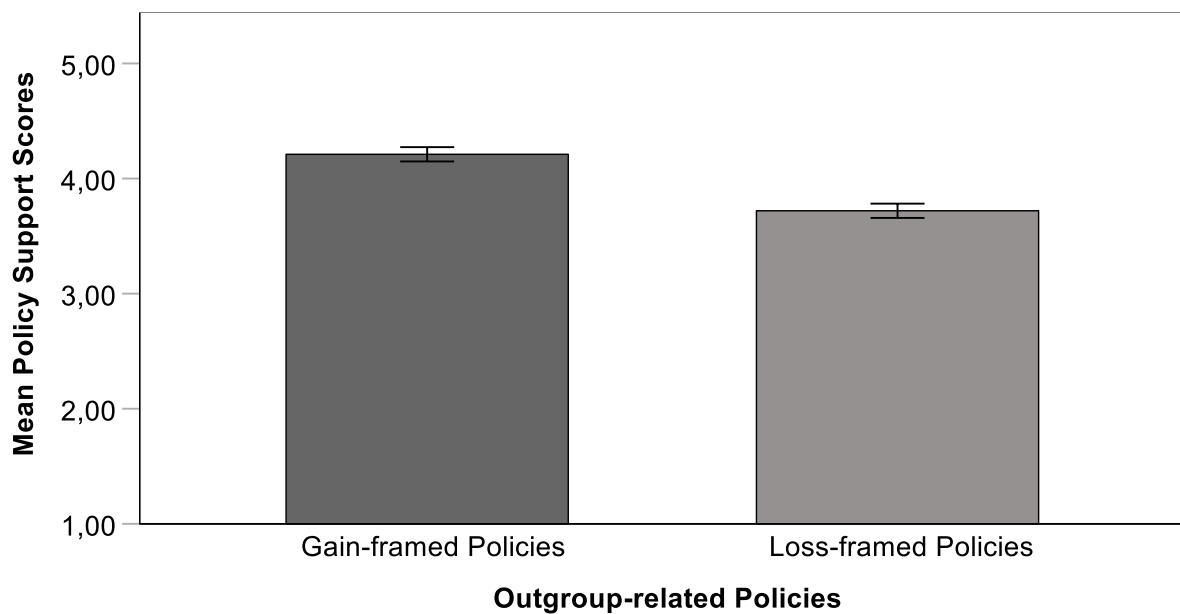
For H3 and H4, the sample contained a continuous dependent variable, independent observations, no outliers, and an approximately normal distribution for the differences in the dependent variable between groups. Therefore, all four assumptions were met, and a dependent t-test was carried out for both hypotheses.

For H3, we predicted that people would support gain-framed policies more than loss-framed policies when targeting the ingroup. As shown in Figure 2, on average, support for gain-framed ingroup policies ($M = 4.24$, $SD = 1.11$) was significantly greater than support for loss-framed ingroup policies ($M = 3.16$, $SD = 1.45$), $t(108) = -8.90$, $p < .001$, $d = 0.85$. Cohen's d showed a large effect size indicating a large difference between the means. Overall, this suggests that people were significantly more supportive of gain over loss-framed policies, when looking at policies that target change in their ingroups behaviour. The 95% confidence interval for the mean difference, $M = -1.08$, was between -1.32 and -0.84 .

Figure 2*Policy Support for Gain versus Loss-Framed Consumer Policies**Error Bars: 95% CI*

Note. This bar chart displays the results of a dependent t-test for consumer participants only.

For H4, we hypothesised that support would be higher for loss-framed policies than for gain-framed policies when they targeted the outgroup. As shown in Figure 3, on average, support for gain-framed outgroup policies ($M = 4.23$, $SD = 0.72$) was significantly greater than support for loss-framed outgroup policies ($M = 3.74$, $SD = 0.88$), $t(108) = 7.83$, $p < .001$, $d = 0.75$. Cohen's d showed a medium effect size indicating a medium difference between the means. In other words, it is concluded that people were more supportive of gain-framed policies over loss-framed policies, when considering policies that relate to the outgroups behaviour. The 95% confidence interval for the mean difference, $M = 0.49$, was between 0.37 and 0.62.

Figure 3*Policy Support for Gain versus Loss-Framed Outgroup Policies*

Error Bars: 95% CI

Note. This bar chart displays the results of a dependent t-test for consumer participants only.

Discussion

A sustainable protein transition on a societal level is essential for mitigating further damage to our planet, caused by the high demand for animal protein consumption and the negative effects of animal agriculture (Tseng, 2020). This dietary shift would reduce the dangerously increasing levels of greenhouse gas emissions, providing not only environmental and animal welfare benefits (de Boer & Aiking, 2021; Salonen & Helne, 2012), but also human health benefits, such as reducing the risk of cancers and diseases through consuming fruit and vegetables enriched with protective nutrients (Sabaté, 2003; Salonen & Helne, 2012). For these reasons, it is important to understand what encourages support for policies that favour this protein transition by reducing meat consumption, which we aimed to further understand in this paper.

To investigate this, we hypothesised that if perceived remedial responsibility of the ingroup increases, then support for gain-framed policies and loss-framed policies that target the ingroup will increase (H1). We found support for this, meaning the more consumers felt their ingroup was responsible for reducing the climate change effects of animal agriculture, the more they supported meat curtailment policies that require consumers to shift their behaviour in support of a sustainable protein transition. This was the case whether the policy encouraged behaviour change in a way that either increased or reduced consumer costs. Therefore, it seems that a higher sense of ingroup remedial responsibility may encourage consumers to support meat curtailment policies, that either make sustainable protein products cheaper or tax them for their meat consumption. These results support those of other papers, showing that heightened consumer responsibility can motivate them to carry out more pro-environmental behaviours (Bouman et al., 2020; de Groot & Steg, 2009; Wells et al., 2011; Wu & Yang, 2018). Furthermore, these results indicate that policy support could be one of those pro-environmental behaviours.

Although higher ingroup remedial responsibility related to higher support for both types of ingroup policies, the relationship was stronger for loss-framed policies than gain-framed policies. This may partly be explained by biased systematic processing, which suggests that “threatening information is processed more critically than reassuring information” (Liberian & Chaiken, 1992). This involves deeper and more effortful processing of information when the message is relevant (Chen et al., 1999). In this research, loss-framed policy descriptions may have been perceived as strongly relevant since the ingroup was targeted, making consumers feel more personally responsible for reducing the negative impacts of animal agriculture on climate change. This is consistent with the findings from Rickard et al. (2014), who showed that when individuals perceived themselves as responsible, they processed relevant information more systematically and thoroughly.

Additionally, Armbruster et al. (2022) showed that consumer policy support was greatest after reading fearful loss-framed messages through deeper processing of the information, however, perceived efficacy was also necessary for this effect. Evidently, it may be that loss-framed policies are more strongly associated with ingroup remedial responsibility, as consumers may process threatening information more attentively and thoroughly when ingroup responsibility is higher and the policy negatively relates to the self, potentially making it feel more personally relevant.

Conversely, gain-framed policies may not have been perceived as worrisome, or crucial for serious consideration, as these policies will not have negative impacts on the self. Therefore, an explanation for gain-framed policies being weakly related to remedial responsibility may be that since they are reassuring and non-threatening policies, they are perceived as less relevant (Liberian & Chaiken, 1992) or impactful, and hence are only briefly evaluated and cognitively processed. This may explain the sizable difference in strength for gain and loss-framed ingroup policies. However, we do not propose that deeper processing leads to higher support for loss-framed policies, only that more personal relevance due to higher ingroup responsibility and perceived costs of loss-framed policies may be seen as more detrimental to individuals, making this relationship stronger. Nevertheless, this requires further testing.

Secondly, we hypothesised that if perceived remedial responsibility of the outgroup increases, then support will be higher for gain-framed policies and loss-framed policies, that target the outgroup (H2). Since research has shown that self-attributed responsibility can encourage pro-environmental behaviour (Bouman et al., 2020; de Groot & Steg, 2009; Wells et al., 2011; Wu & Yang, 2018), we expected that a similar effect would occur when exclusively attributing responsibility to others, where the outgroups pro-environmental behaviour is more supported. Both hypotheses were supported meaning when consumers felt

farmers, policymakers, bankers, and food companies were more responsible for reducing climate change effects of animal agriculture, they more strongly supported meat curtailment policies that affect those groups. This close association indicates that increasing people's remedial responsibility for outgroups could theoretically increase support for policies related to those outgroups, however, experimental testing is necessary to check this. It seems reasonable that the more individuals consider other groups as responsible, the more they are in favour of that group acting for their supposed responsibilities, in the same way that if personal responsibility is higher, one's own willingness to act may also be higher, potentially due to moral obligation (de Groot & Steg, 2009).

In addition to this, the strength of the relationships was found to be very similar for loss and gain-framed outgroup policies when looking at perceived outgroup remedial responsibility. This may indicate that consumers reported somewhat consistent processing towards policy support when considering the outgroup's responsibility, despite the differences in framing. It may be that ingroup members do not consider the opposing implications of a policy on outgroup members in the same way that they assess policies targeting their ingroup. This could possibly be due to less personal responsibility and relevance to the outgroup-related policies and hence, less systematic processing (Chen et al., 1999; Liberman & Chaiken, 1992). Consumers may feel more distant from the effects of gain and loss-framed policies on the outgroup, and therefore show similar strengths for the association between the remedial responsibility of others and differently framed outgroup policies.

Since consumers more strongly supported policies related to their ingroup and outgroup when the respective groups were deemed as more responsible, it may be that there are perceptions of joint responsibility within consumers. This would make sense as Bichard and Kazmierczak (2012) showed that many people perceive a shared responsibility between the individual and government when considering adaptive climate change measures.

Therefore, it may be considerate to not target one group for behaviour change but emphasize the necessity of a shared contribution from all groups working together. Even Rabobank has expressed their scepticism for agricultural policies in the Netherlands and were concerned about the procedural fairness of the system, specifically for farmers (NL Times, 2022).

Rabobank recommended that farmers, consumers, policymakers, and banks themselves, agree to work together to achieve a fair and sustainable balance of supply and demand (NL Times, 2022). Hence, a potential strategy for promoting a sustainable protein transition could be to increase the awareness of responsibility within all groups, as theoretically, it may increase policy support across groups.

Next, we hypothesised that for ingroup-related policies, people would show higher support for gain-framed over loss-framed ingroup policies (H3). We found support for this as on average, consumers supported gain-framed policies more than loss-framed policies when concerning consumer behaviour. This is what was expected in accordance with the prospect theory, which suggests people prefer gain-framed messages due to loss aversion (Kahneman & Tversky, 1979). It also builds on the results of similar studies that showed how loss-frame descriptions influenced people to not support meat curtailment policies (Carvalho et al., 2022; Graça et al., 2020). This suggests that consumers are more attracted to and acceptive of policies that are perceived as providing some advantage, rather than those implying that they will be deprived of something. This may be because when individuals have a choice, they will favour the option that they can benefit from and feel good about, rather than choosing the option that would require more personal costs from them.

Lastly, we hypothesised that for outgroup-related policies, people would show higher support for loss-framed over gain-framed outgroup policies (H4). We did not find support for this, as we found that consumers showed higher support for gain-framed outgroup policies. The former was expected as consumers may prefer to support policies that advance their

ingroup, whereas for the outgroup, they may prefer to support policies that penalise the outgroup since consumers will not be experiencing those consequences. Halabi et al., (2015) demonstrated this as individuals recommended more harsh punishments to outgroup members rather than ingroup members, when they had the same level of responsibility for the same accident. Yet this effect was not found in this research, although we did not account for perceived remedial responsibility within this test.

Generally, it seems that no matter the group, people are more willing to accept and support policies that people can profit from rather than those that negatively affect them. This may be because people wish to allocate outcomes in a way that is fair and justifiable, which is known as distributive fairness (Steg & de Groot, 2018; Tyler, 2000). The acceptability of policies can be influenced by this as people tend to consider the dispersal of costs and benefits among groups (Tobler et al., 2012). If groups are put at a disadvantage, distributive fairness can be improved by compensating those groups with other benefits (Perlaviciute & Steg 2014; Zaal et al. 2014). This could partially explain our findings as people may prefer to support policies that are fair in distribution across groups, potentially increasing policy acceptance and support regardless of which group is targeted.

Limitations and Future Directions

One limitation of this study was the lack of representation for bankers, farmers, policymakers, and food companies among participants. We had hoped to get enough participants per group to reach sufficient power and make meaningful comparisons on perceived remedial responsibility between groups. Unfortunately, this was not the case as most participants picked consumers, while the remaining minority picked other groups, making these groups underpowered. The inclusion of these groups may have demonstrated how perceived remedial responsibility and policy support are associated in different or similar directions and strengths when looking at its effects within various groups.

It could have been that the more some groups perceive themselves as remedially responsible for reducing meat intake, the less they supported policies affecting their ingroups meat consumption behaviours, providing more insight into the role of perceived remedial responsibility for promoting meat reduction behaviours. Additionally, it may have been that some groups showed more support for loss-framed policies over gain-framed ones when looking at outgroup-related policies. This would have better indicated if some groups prefer to penalise or assist other groups when encouraging a sustainable protein transition, and which groups this effect occurs in if any. Thus, it may have been more clearly understood if gain-framed meat curtailment policies are generally more supported, or if loss-framed policies are more accepted in some cases. Future research could run this study again and ensure that enough participants per group are recruited to investigate these relationships.

Nonetheless, consumers can provide valuable insight into this research, as they are asked or encouraged to make more environmentally friendly decisions almost daily (Paço & Gouveia Rodrigues, 2016), whether it's buying green products, reducing energy consumption, or taking political action. Hence, consumers are considered both part of the problem and solution to many environmental issues we face (Jackson, 2005). Almost everyone can be considered a consumer in some way, and therefore, the consumer perspective on these hypotheses still contributes towards a broadened understanding of what encourages individuals to support policies in favour of sustainable protein transitions.

In addition, the study's ecological validity was also limited as the policy items were not based on existing policies. We developed policy items for the purposes of this study to fit our needs, namely, a gain and loss-framed policy item for each group. This in turn may have affected the generalizability of the results for policy support, as it might not have reflected support for actual policies. This is important to consider as future research could improve items by basing them on real-life policies or validated items, ensuring that each policy clearly

distinguishes between the targeted groups and the associated gain or loss frame. This could result in a better representation of an individual's actual policy support in relation to different groups.

Theoretical and Practical implications

Jang (2013) found that ascribing responsibility to oneself can lead to defensiveness, provoking them to blame climate change on natural causes. Moreover, this responsibility attribution to nature was negatively related to supportive attitudes towards policies that mitigate climate change (Jang, 2013). However, we found that pre-existing levels of responsibility may be a good indicator of policy support, providing additional support for responsibility as a predictor of pro-environmental behaviour (Benyamin et al., 2018; Bouman et al., 2020; de Groot & Steg, 2009; Wells et al., 2011; Wu & Yang, 2018). These contrasting results have significant theoretical implications as it expands our comprehension of the effects of perceived responsibility within groups, implying that perceived ingroup responsibility is a sensitive and wavering variable in relation to pro-environmental behaviours.

Furthermore, since it was found that perceived remedial responsibility and policy support were related, a recommended practical strategy for reducing meat consumption in consumers could be to increase their perceptions of ingroup remedial responsibility, as this may lead to more support for policies concerning their group's meat consumption. The remedial responsibility of other groups could also be heightened to encourage support for policies targeting those groups. Yet, it is crucial to acknowledge that our results only show the positive relationship between these variables, and do not imply that increased responsibility causes increased policy support. Therefore, we recommend future research further tests these variables in experimental conditions to clarify this relationship, so the results can potentially be applied in practicality.

Additional practical implications are offered from the results of the gain and loss-framed hypotheses, as framing messages in a way that is congruent with what people want to hear could increase effective communication (Toll et al., 2007), and lead to more willingness to support those meat curtailment policies. In this research, gain-framed policies were more supported on average than loss-framed policies, suggesting that regardless of the group being targeted, we should be careful with our policy descriptions, and frame them as beneficial so they are perceived as more attractive and consistent with people's attitudes.

Conclusion

To conclude, as over half of our participants reported eating meat within their diets, our results seem promising for encouraging the trend away from animal proteins towards sustainable protein diets. Overall, it was found that perceptions of remedial responsibility for both the ingroup and outgroups were related to more policy support when the respective group was targeted for reducing their meat consumption. This relationship was stronger for loss-framed ingroup policies and ingroup remedial responsibility, suggesting responsibility is more important when encouraging support for personally costly policies. A potential intervention could aim to increase perceptions of remedial responsibility of a target group, as it may increase individuals' support for policies aiming to reduce meat consumption within that group. Although, causal effects were not tested so further experimental tests are required to support these recommendations. We also encourage policies to be gain-framed as consumers showed more support for policies that offered benefits rather than penalties, regardless of which group was targeted. Ultimately, increased meat curtailment policy support could significantly help reduce greenhouse gas emissions caused by the agricultural sector, by changing animal protein availability and consumption on a larger scale, thus contributing towards a healthier and more protected environment for people to live sustainably in.

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Table 1*Nationalities of Participants*

Nationalities	<i>n</i>
Irish	37
Polish	18
South African	11
Portuguese	8
German	7
English	6
Dutch	5
American	4
Mexican	4
Czech	3
Egyptian	3
Estonian	3
French	2
Hungarian	2
Italian	2
Swiss	2
Zimbabwean	2
Canadian	2
Chilean	1
Croatian	1
Israeli	1
Mauritian	1
Finnish	1

Table 2*Policy Item Descriptions and Associated Target Group*

Which actor group is targeted?	How was the policy framed?	Policy description given to participants.	M	SD
Consumers	Loss	I support the increase of tax on meat for consumers.	3.01	1.46
Consumers	Gain	I support subsidies from the government that make plant-based food options cheaper.	4.25	1.06
Policymakers	Loss	I would vote against a politician who is not taking action on environmental agricultural issues.	3.73	1.13
Policymakers	Gain	I would vote for a politician who is going to take action on environmental agricultural issues.	4.13	1.05
Farmers	Loss	I support limiting greenhouse gas emissions caused by animal agriculture by adding financial penalties for excessive emissions.	3.93	1.12
Farmers	Gain	I support subsidies that invest in sustainable agriculture, such as	4.29	0.89

		improved management of methane.		
Bankers	Loss	I think banks should divest in non-sustainable food companies/distributors, despite losing profits.	3.66	1.10
Bankers	Gain	I think the government should provide support for banks to incentivize farmers to engage in sustainable agriculture.	4.13	0.98
Food companies	Loss	I support government policies that would penalize food companies for producing unsustainable food options.	3.55	1.24
Food companies	Gain	I support government policy that would encourage food companies to produce plant-based food options.	4.30	0.91

Appendix

Please read the passage below before answering the next questions:

The food sector contributes to **approximately 23% of global greenhouse gas emissions** (IPCC, 2019) and encompasses many practices which are unsustainable. Consequently, some experts have suggested that, as a society, we should move away from diets high in animal products, and more towards plant-based diets, also known as a protein transition. In a protein transition, behavioural change is needed from all groups that affect the demand for animal products. These actor groups include consumers, policymakers, farmers, food companies and bankers, all of which play different roles that are listed below.

Consumers: pays something to consume goods and services produced. They decide what they want to buy and support using their own money. These choices impact the success/failure of businesses.

Policymakers: creates ideas and plans that are usually proposed to and carried out by a business or government. Policies that are implemented are followed by the government, and therefore policies impact individuals of the population under the government's control.

Farmers: manages and supervises agricultural production and livestock. Creates and supplies goods and services for utilisation/selling.

Food companies: transforms livestock and agricultural produce into products for consumption. They decide what products to make and sell to supermarkets and restaurants.

Banks: financial institutions licensed to receive deposits and make loans. They can impact environmental issues by deciding which organisations/operations get funding to help them succeed.