Understanding climate polarization: Identification with and discrimination between climate policy opinion groups

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Abstract

While climate change requires decisive and rapid action, public discourse on the appropriateness of climate policies has intensified in many countries. Based on a quota-representative sample from Germany ($N = 1,014$), we show that people form groups based on their climate policy opinions, and that identification with these groups relates to different aspects of societal polarization and conflict. Specifically, more strongly identified individuals were more likely to surround themselves with like-minded people, discriminate against people with different opinions, and support extreme behaviors of opinion-congruent activist groups. Identification was further related to individual climate behavior. The results indicate that climate policy polarization has the potential to fuel conflicts between different opinion-based groups and may impede political negotiation as well as compromise processes and peaceful societal change.

Introduction

Public discourse on the appropriateness of climate policies to implement mitigation and adaptation measures against climate change has intensified (1, 2). For instance, in Germany, while both climate activist groups and their actions have become bigger and more extreme in recent years, demonstrations of those demanding less restrictive climate policies have also intensified (3, 4). At the same time, some people are satisfied with current climate policies or do not care about them at all.

Research on opinion-based groups shows that social identities can form around shared attitudes (5, 6). According to social identity theory, group memberships affect how people define themselves (their self-concept), what they think, and how they behave (7). As people tend to view their own social groups (ingroups) as distinctive and superior to other groups (outgroups), they engage in behaviors that confirm this belief. Thus, strong group identification in groups holding opposing opinions can fuel intergroup conflict and polarization (8).

Based on this theoretical foundation, we explored how identification with different climate policy opinion groups relates to biased perceptions and discriminatory behaviors among these groups. Using data from a quota-representative German sample ($N = 1,014$), we documented the existence of identification in the climate policy context, providing evidence of its relevance in understanding the current societal polarization of climate policies.

Identification with and perception of climate policy opinion groups

As shown in Figure 1A, a majority of participants self-assigned to one of two large oppositional groups: those who believe current climate policies go too far (38%, *do-less* group) and those who believe such policies do not go far enough (38%, *do-more* group). Only 19% believed that the current climate policies were exactly right (*alright* group), while 5% indicated that they did not care about the topic at all (*don't-care* group). Substantial shares of members reported high levels of group identification (average of > 4); that is, 63% in the do-less, 53% in the do-more, 61% in the alright, and 35% in the don't-care groups were highly identified. Thus, climate policy opinions are well described as social group memberships, with variations in the level of group identification, both within and between groups.

Further analyses showed that perceptions regarding the sizes of the groups and ingroups were biased. This matters, as perceived group size can affect how much people comply with the behaviors shown by the group (9). As shown in Figure 1B, participants in all groups tended to underestimate the actual size of the do-more group (estimated: 17% to 35%; actual: 38%), while they overestimated the size of the don't-care group (estimated: 15% to 27%; actual: 5%). Furthermore, participants estimated the size of their respective ingroup as

larger compared to participants of the other groups. For instance, while members of the do-less group assumed that, on average, 54% of the German population shared their opinion, participants of the other groups estimated lower shares for this position (estimated: 28% to 36%; actual: 38%).

Importantly, participants with higher levels of group identification estimated larger ingroup shares in the do-less ($r = .20$, $p < .001$) and do-more ($r = .20$, $p < .001$) groups. The correlations were not significant for the other two groups (both $ps > .119$), which may have been due to the smaller group sizes. Interestingly, those in the do-less group estimated a smaller size of the oppositional do-more group with increasing group identification ($r = -.17$, $p < .001$), while identification did not significantly affect those in the do-more group in estimating the share of the do-less group ($r = -.06$, $p = .224$). Overall, these results indicate that identification with climate policy opinion groups is systematically related to estimations of ingroup and outgroup sizes. These effects may occur because highly identified people are more likely to interact with people in the same opinion-based group (10, 11).
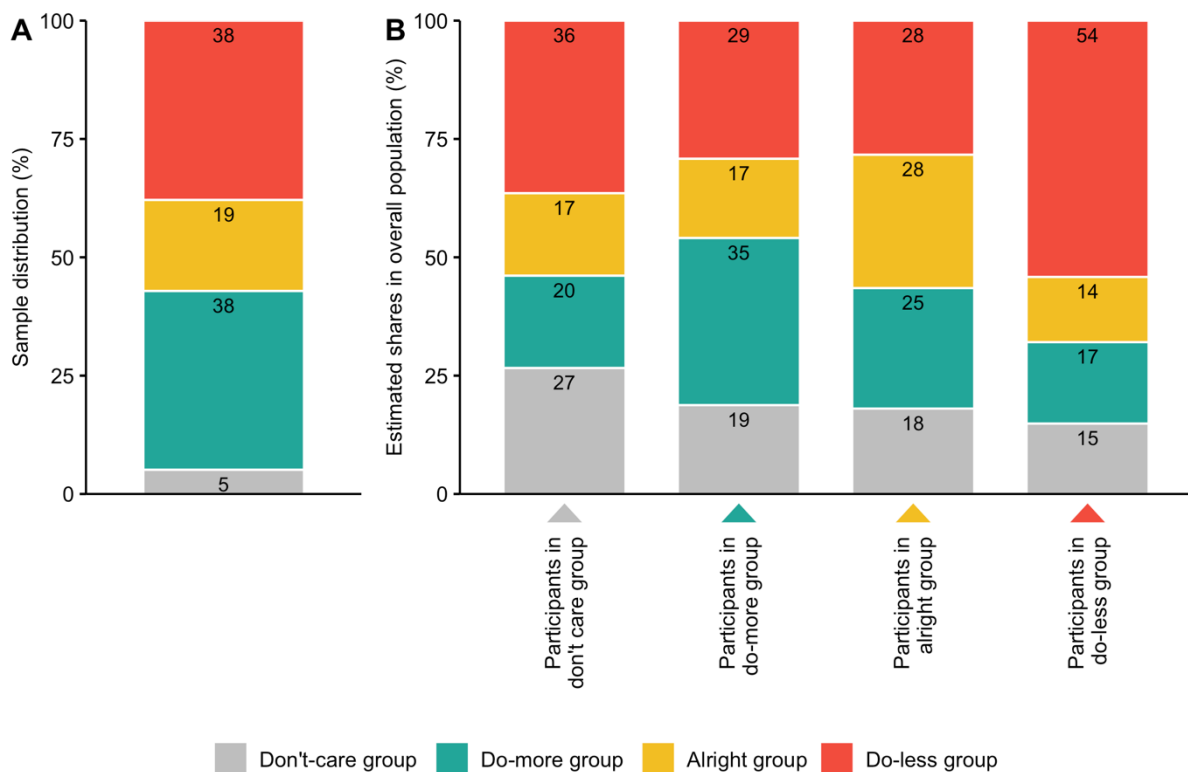

Figure 1. Actual and perceived sizes of climate policy opinion groups

Note: In a survey of $N = 1,014$ German participants, (A) most participants perceived the government's climate policy as going too far (do-less group) or not going far enough (do-more group), while smaller shares perceived it as just right (alright group) or did not care about climate policy at all (don't-care group). Depending on their own group membership, the participants differed in how they estimated (B) the shares of the respective opinion groups in the overall population.

Outgroup discrimination among opinion groups

To investigate preferences for and potential discrimination between different climate policy opinion groups, we utilized an incentivized behavioral measure. Specifically, in four incentivized dictator games, participants allocated 100 Euro between themselves and another person belonging to one of the four groups (in random order). On average, participants of all groups assigned more money to an ingroup member ($M = 45.95$ Euro, $SD = 25.39$ Euro) than to outgroup members (pooled $M = 24.44$ Euro, $SD = 20.08$ Euro, $d = 0.94$). The differences between ingroup and outgroup allocations constitute intergroup bias, as shown in Figure 2. Pooled intergroup bias varied among the four groups; discrimination against other groups was rather low in the don't-care group (pooled $M = -4.86$ Euro, $SD = 24.37$ Euro) and increased in the alright (pooled $M = -15.78$ Euro, $SD = 22.66$ Euro, $d = 0.47$), do-more (pooled $M = -22.00$ Euro, $SD = 26.83$ Euro, $d = 0.67$), and do-less (pooled $M = -26.20$ Euro, $SD = 30.71$ Euro, $d = 0.77$) groups. Participants in the do-more and alright groups showed relatively little discrimination against each other, suggesting that these groups were psychologically closer to each other than to the do-less group. Interestingly, people in the don't-care group were similarly discriminated against by the do-more and do-less groups. On average, people discriminated more against outgroup members the more they identified with the do-less ($r = -.36$, $p < .001$) or do-more groups ($r = -.28$, $p < .001$), but this relationship was not found among members of the other two groups (both ps $> .36$).
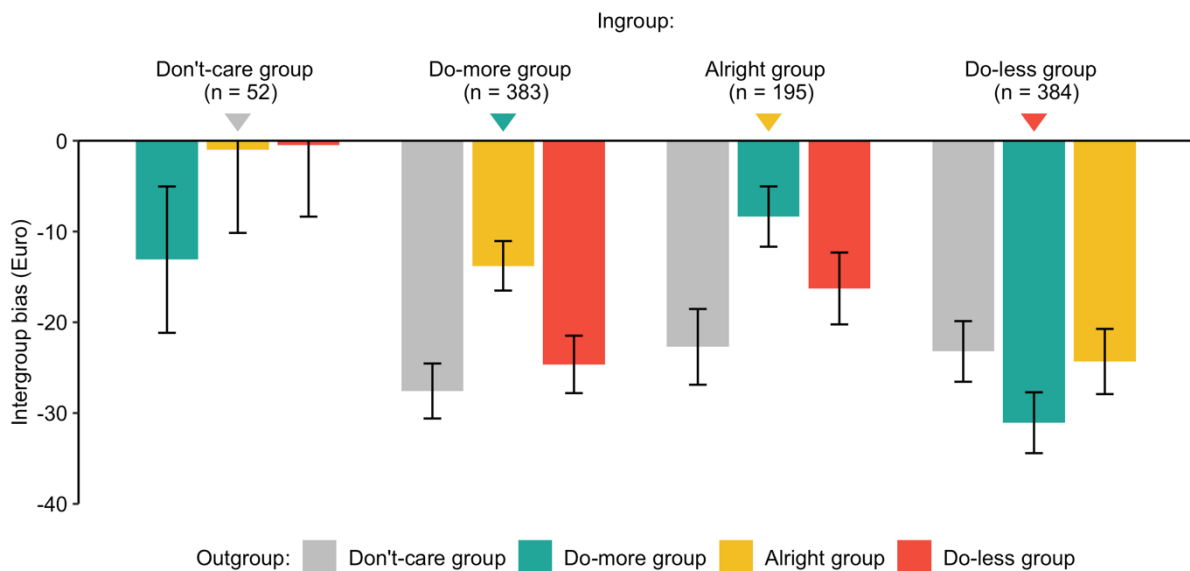

Figure 2. Intergroup discrimination in dictator games

Note: Each bar depicts how much money participants from the four climate policy opinion groups assigned to a member of a specific outgroup compared to an ingroup member. Larger bars show greater discrimination (intergroup bias; difference score). Bars denote mean values, and whiskers visualize 95% confidence intervals.

Given the observed strong intergroup biases, we tested whether group identification also affects support for extreme ingroup behaviors, e.g., for protests or more extreme forms of activism aiming at changing current climate policy in either direction. Therefore, participants in the do-more and do-less groups received a description of an extreme subgroup pursuing group-consistent goals in a rather radical manner (e.g., by road blocking). About 17% of those in the do-more group (22% of the do-less group) showed increased levels of support for the extreme subgroup, 8% (11%) were (rather) willing to join a demonstration organized by the subgroup, and 8% (10%) were (rather) willing to donate money to the defense of a subgroup member. Regression analyses of group membership (comparing do-less with do-more participants), group identification, and their interaction revealed significant main effects of participants' group identification on subgroup support ($\beta = 0.41$, 95% CI = 0.26–0.57), willingness to demonstrate ($\beta = 0.37$, 95% CI = 0.23–0.51), and donate ($\beta = 0.34$, 95% CI = 0.20–0.48). Group identification thus helps explain differences in support of extreme behaviors supporting one's own opinion: the more people identify with their group, the greater their emotional, behavioral, and financial support for activist groups.

Voluntary climate protection

To investigate whether the four groups differed in voluntary climate protection intentions, participants were given a hypothetical amount of 180 Euro and told that this amount was sufficient to compensate for the annual CO_2 emissions of an average German citizen if donated to a specific carbon offset project. They were then asked to distribute the amount between themselves and a donation to the project. Participants in the do-more ($M = 111.51$ Euro, $SD = 54.22$ Euro) and alright ($M = 95.36$ Euro, $SD = 51.27$ Euro) groups donated higher amounts than those in the don't-care ($M = 61.07$ Euro, $SD = 53.61$ Euro) and do-less ($M = 61.05$ Euro, $SD = 57.23$ Euro) groups. As shown in Figure 3, these differences intensified the more participants identified with their ingroup.
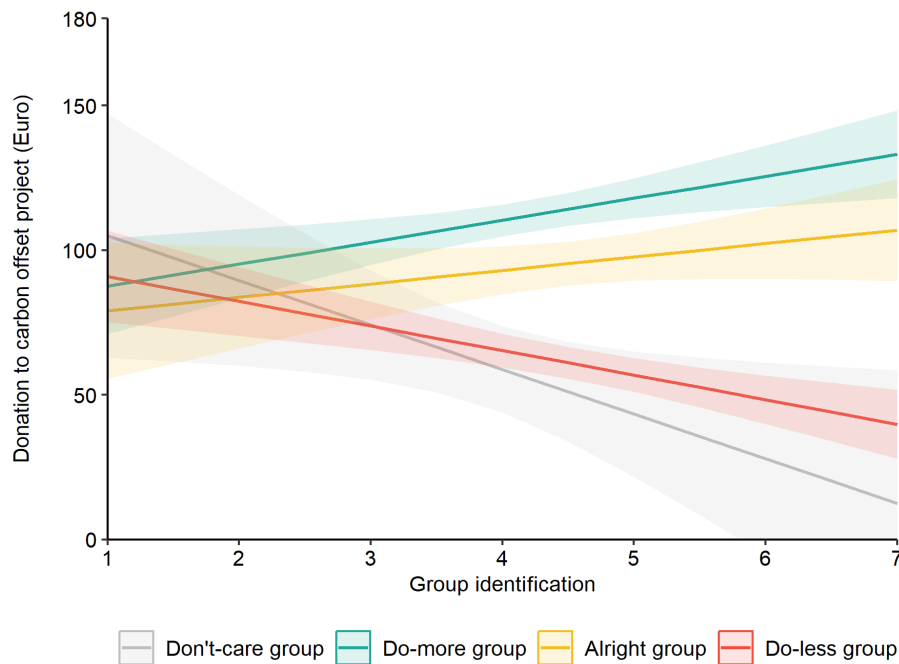
Figure 3. Donations to CO$_2$ compensation project

Note: Results from a multiple linear regression of climate policy opinion group, group identification, and the interaction predicting the amount of money that participants were willing to donate to a carbon offset project if they had 180 Euro (R^2 = .176). The ribbons visualize 95% confidence intervals.

Discussion

The findings indicate that people form groups based on their climate policy opinion and that the level of identification with their group is associated with several outcomes that foster societal polarization. In line with previous research from other domains, the results show that more strongly identified individuals are more likely to surround themselves with like-minded people (12), tend to overestimate the size of their own group (10), discriminate against people with different opinions (13), and support extreme behaviors by opinion-congruent subgroups (14). Identification was further related to individual climate behavior: while it increased the willingness to donate to carbon offsetting in people demanding stricter climate policies, it considerably reduced donations from those favoring less strict policies and those who did not care.

This study has some limitations. Its design was correlational and prohibited causal interpretations; therefore, future work must investigate causal pathways in the relationship between group identification and discriminatory behavior in the domain of climate policy opinions. Furthermore, all variables were self-reported and may differ from actual behaviors. For instance, respondents may have exaggerated their support for extreme activist groups. However, most of the observed effects were strong and therefore likely to reflect the real world.

Overall, this research highlights the potential negative consequences of strongly identifying with one's opinion on climate policy. Besides being associated with polarization and potential conflicts between different opinion-based groups, it may impede political negotiation as well as compromise processes and peaceful societal transformation. As climate change requires decisive and rapid action, wide support for adaptation and mitigation measures is necessary. To mitigate negative intergroup attitudes and behaviors, previous research on intergroup conflict suggests that climate policymakers can reduce the salience of intergroup boundaries by emphasizing commonalities among different groups (15, 16).

Methods

Participants

Participants were surveyed in August 2023 and recruited from a non-probabilistic German sample ($N = 1,014$), which was quota representative for age × gender, and federal state with regard to the German adult population (17). The participants were 51% male (49% female) and aged 18 to 74 years ($M = 45.47$, $SD = 15.90$).

Measures

Opinion on climate policy and group identification

Participants were asked to state their position on the German federal government's climate policy by selecting whether it was (i) going too far (do-less group), (ii) not going far enough (do-more group), (iii) exactly right (alright group), or (iv) not of interest to the participant (don't-care group). Identification with the respective group was assessed using the 5-item measure adapted from Henkel et al. (13) (sample item: "I am proud to belong to the group of people for whom the federal government's climate policy is going too far/does not go far enough/is just right/who don't care about the federal government's climate policy", measured on a 7-point scale from "do not agree at all" to "very much agree", Cronbach's α = .73).

Population estimates of climate policy support

Participants were asked to estimate how many people in Germany belonged to each of the four opinion groups. For each group, participants entered a percentage from 0 to 100 under the condition that the sum of all percentages equal 100.

Intergroup bias in dictator games

In four games, participants were asked to distribute 100 Euro between themselves and a person believing that the German government's climate policy is (i) going too far, (ii) not going far enough, (iii) exactly right, or (iv) not of interest. The games were presented in random order and incentivized by the random selection of one decision by one participant for payout (in case the participant had assigned money to another person, this person was also

selected randomly for payout). Intergroup bias was measured as the difference between the amounts distributed to outgroup and ingroup members.

Voluntary climate protection intention

Participants were asked to imagine distributing 180 Euro between themselves and a donation to atmosfair, a charitable organization that engages in CO_2 emission offsetting (18). They were told that the amount of 180 Euro was sufficient to offset the annual CO_2 emissions of an average German, based on the World Bank estimate of Germany for the year 2019 (19).

Support for radical subgroups

The do-less and do-more participants were presented with a five-sentence description of a hypothetical subgroup. The do-less participants received a description of the "freedom fighters," who sought the continued use of fossil fuels and demanded that citizens freely decide how they travel, heat, and eat. The do-more participants received a description of the "climate fighters," who sought an immediate phase-out of fossil fuel use and demanded environmentally friendly travel, heating, and eating. Both subgroups were described as drawing attention to their causes by organizing demonstrations in many cities, damaging party buildings, and blocking roads to the German parliament.

After reading the respective subgroups' descriptions, the participants were asked to assess the subgroup's position on climate policy. They were then asked how much they supported the actions of the presented subgroup (on a 7-point scale ranging from "I completely reject it" to "I strongly endorse it"), how likely it was that they would join a demonstration organized by the subgroup in the upcoming weeks, and how likely it was that they would donate money to help fund the legal defense of a subgroup member who was recently arrested and charged with criminal damage (these two items were assessed on a 7-point scale ranging from "not at all" to "definitely").

Participants in the alright and don't care groups did not receive descriptions or answer questions.

Ethics

The study was conducted in accordance with German Psychological Association guidelines. Ethical clearance was obtained from the University of Erfurt's institutional review board (#20220525), and all participants provided informed consent to use and share their data for scientific purposes without disclosure of their identities. Participants were compensated for their participation by the panel provider.

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Data availability

Data and analysis scripts are available at https://osf.io/uykng/

Author contributions

All authors designed the research. PS and LH performed the data analysis. PS created the first manuscript draft which was revised by all authors.

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Competing interests

The authors declare no competing interests.