



## Why should I? How victim sensitivity affects pro-environmental engagement

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### ABSTRACT

Perceiving injustice is a reliable predictor of pro-environmental engagement; however, research on the relation between justice-related personality facets and pro-environmental engagement is scarce. Based on theoretical considerations and prior research, we suggest that victim sensitivity – the sensitivity to self-related injustice – triggers two distinct psychological processes that can promote or impede pro-environmental engagement. Studies 1 ( $N = 386$ ) and 2 ( $N = 617$ ) tested the hypothesis that people high in victim sensitivity show increased pro-environmental engagement when they feel personally disadvantaged by climate change consequences. Study 3 ( $N = 278$ ) tested the hypothesis that victim-sensitive individuals show decreased pro-environmental engagement due to a heightened fear of being exploited. The results of these three studies do, by and large, not support our theoretical reasoning. We discuss challenges in experimentally scrutinizing the psychological processes, theoretical and methodological insights, and possible avenues for future research.

### 1. Introduction

The climate crisis stands as one of the most urgent global challenges of our time. Abundant evidence underscores the need for decisive action to curtail the far-reaching impacts of climate change. Since human actions constitute the primary driver of this crisis, addressing it demands a profound shift in human behaviours on a large scale (Intergovernmental Panel on Climate Change [IPCC], 2023). Thus, comprehending the psychological underpinnings of pro-environmental behaviours in our daily lives, encompassing consumption and mobility, as well as inclinations toward pro-environmental policy support and active engagement, becomes pivotal.

Beyond its environmental consequences, climate change is increasingly recognized as a matter of (in)justice. Due to its multi-faceted impacts on our social life, politics, and the natural environment, climate change is associated with various justice principles. This includes cost and benefit allocations, for instance between the global North and the global South (distributive justice), opportunities for participation and raising “voice” in political decision-making processes (procedural justice), or the adherence to proper codes of conduct when communicating with other parties, for instance, across cultures (interactional injustice)

(see IPCC, 2023). The climate crisis has also sparked questions of intergenerational justice. Younger generations perceive injustice as their lives will be more strongly affected by climate change consequences than those of older generations — this feeling is exacerbated by the perception that older generations bear more responsibility for climate change than younger generations (e.g., Knappe & Renn, 2022; Reese & Jacob, 2015). Movements around the world indicate that restoring “climate justice” — an umbrella term for the justice-related challenges posed by climate change — has become one of the main motives for political engagement. For instance, in its official declaration, “Fridays for Future”,<sup>1</sup> presently one of the largest pro-environmental movements worldwide, calls for “climate justice and equity” (Fridays for Future, 2023).

Research on collective action supports the idea that perceived injustice drives political engagement. Specifically, the Social Identity Model of Collective Action (SIMCA; e.g., van Zomeren, Postmes, & Spears, 2008, 2011) postulates that perceived injustice, group identification, and efficacy beliefs represent the key correlates of collective action, including protest behaviour as well as supporting initiatives and policies (e.g., Agostini & van Zomeren, 2021; Thomas, Zubielevitch, Sibley, & Osborne, 2020). SIMCA conceptualizes injustice in terms of

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<sup>1</sup> Fridays for Future is a youth-led and organised global climate strike movement that started in 2018, when Greta Thunberg began a school strike for climate.

group-based deprivation (GBD; Pettigrew et al., 2008; Cook, Crosby, & Hennigan, 1977; Guimond & Dubé-Simard, 1983)—the perception that one's in-group is unfairly deprived of essential (material or symbolic) resources compared to other groups. Next to objective criteria, such as inequalities and structural disadvantages (see also Kawakami & Dion, 1993; Leach, 2002) group identification is suggested as one of the main drivers of GBD (e.g., Thomas, Baumert, & Schmitt, 2012). For instance, in the context of climate activism, it was shown that the identification with the "Extinction Rebellion" movement mediated the relationship between perceived injustice and collective environmental action and intentions (Furlong & Vignoles, 2021).

Notably, research in the social justice domain has shown that individuals reliably differ in their sensitivity to perceived injustice (Schmitt, Gollwitzer, Maes, & Arbach, 2005), and empirical insights indicate that these differences can either promote or impede political engagement (Rothmund, Baumert, & Zinkernagel, 2014; Traut-Mattausch, Guter, Zanna, Jonas, & Frey, 2011). A closer look at justice sensitivity should therefore provide novel insights regarding the association between perceived injustice and pro-environmental engagement.

### 1.1. Justice Sensitivity

Justice sensitivity (JS) is a personality construct, which describes individual differences in how sensitively individuals react to (potential) injustice (Baumert & Schmitt, 2016). While some people frequently perceive injustice in their environment and react more strongly to it, others are less concerned. Interindividual differences in JS are relatively stable across time, situational contexts, and across different principles of injustice, including distributive, retributive, and procedural injustice (see Schmitt et al., 2005). Importantly, people can be sensitive to injustice from four different perspectives (Schmitt, Baumert, Gollwitzer, & Maes, 2010): from the perspective of a victim (victim sensitivity), a neutral observer (observer sensitivity), an active perpetrator (perpetrator sensitivity), or a passive beneficiary of injustice (beneficiary sensitivity).

Various studies have shown that the three "other-oriented" JS facets—observer, beneficiary, and perpetrator sensitivity—are positively intercorrelated, but that they are only weakly correlated with victim sensitivity (VS)—the most "self-oriented" JS facet (e.g., Schmitt et al., 2005; Thomas et al., 2011). Indeed, studies found that the other-oriented JS facets are correlated with pro-social dispositions, including role-taking, empathy, and social responsibility. Victim sensitivity, on the other hand, is associated with self-related concerns, including paranoia, suspiciousness, and jealousy (Schmitt et al., 2005). Looking at behavioural tendencies, studies have reliably shown that the other-oriented JS facets are associated with pro-social behaviours, including solidarity with the disadvantaged and equal-split offers in economic games. Conversely, victim-sensitive individuals show anti-social behavioural tendencies, including egoistic choices in social dilemmas and even delinquent behaviour (Fetchenhauer & Huang, 2004; Gollwitzer, Schmitt, Schalke, Maes, & Baer, 2005). Taken together, these findings indicate that whereas the other-oriented JS perspectives represent a genuine and principled concern for justice, victim sensitivity reflects a more self-oriented justice concern (Gollwitzer, Rothmund, & Süssenbach, 2013).

## 2. Victim sensitivity and political engagement

Victim Sensitivity can be described as a dispositional sensitivity to being disadvantaged (Gollwitzer et al., 2013). When people high in VS perceive that they have been (or might be) disadvantaged, they react defensively and uncooperatively. The social-cognitive and motivational processes underlying VS can be seen as self-protective tendencies to avoid victimization (Gollwitzer & Rothmund, 2009). For instance, in uncertain social situations, victim-sensitive individuals attend more strongly to untrustworthiness cues than to trustworthiness cues

(Gollwitzer, Rothmund, Alt, & Jekel, 2012) and their disproportionate sensitivity to contextual cues signalling potential unjust treatment feeds into a "suspicious mindset." This social-cognitive schema consists of a strong motivation to avoid being exploited, a hostile attribution bias, and a tendency to rationalize, justify, and legitimize one's own anti-social behaviour (e.g., Gollwitzer & Rothmund, 2009; Maltese, Baumert, Schmitt, & MacLeod, 2016).

Societal crises and changes represent particularly daunting challenges for victim-sensitive individuals as victimization can occur in many ways. For instance, in the context of the "Euro crisis",<sup>2</sup> people high in VS (vs. people low in VS) were less likely to endorse financial support for more afflicted countries (by less afflicted ones) when this support was framed as "exploitative" (vs. as an act of solidarity; Rothmund, Stavrova, & Schlösser, 2017). Similarly, in the context of immigration, studies demonstrated that people high in VS (vs. people low in VS) expressed anti-social attitudes and behaviours as well as anger towards immigrants when cues suggested that immigrants might harbour exploitative intentions (Köhler & Gollwitzer, 2024; Süssenbach & Gollwitzer, 2015). Additionally, in the context of a health care reform, physicians high in VS showed increased reactance and a stronger inclination to block the policy compared to physicians low in VS after they were asked to think about the personal consequences of this reform (Traut-Mattausch et al., 2011, Study 1). Research on the link between VS and political engagement further support these findings. For instance, in the concrete case of a political decision regarding the public transport project "Stuttgart 21" in Germany, VS negatively predicted political protest (Rothmund et al., 2014). This was explained by the finding that people high in VS primarily hold self-oriented concerns and are less inclined to engage in activities that promote the benefit of others or the general public (see also Gollwitzer & Rothmund, 2011; Rothmund, Gollwitzer, & Klimmt, 2011). Findings in the context of climate action corroborate this, showing that VS was associated with moral disengagement regarding climate change consequences, which, in turn, negatively predicted pro-environmental behaviour (Nicolai, Frani-kowski, & Stoll-Kleemann, 2022).

### 2.1. Victim sensitivity and pro-environmental engagement

The findings reviewed here consistently suggest that people high in VS are less willing to engage for a collective good (such as pro-environmental engagement) than people low in VS. Yet, this does not necessarily mean that the relation between VS and pro-environmental engagement is written in stone. There may be conditions under which the negative effect of VS on pro-environmental engagement is weaker or can even become positive. Exploring these conditions is the aim of the current research. More precisely, we will discuss two potential "pathways of self-protection," which may explain the psychological processes that promote or impede (pro-environmental) collective engagement among victim-sensitive individuals. The first pathway, which we refer to as the "active protection pathway," pertains to perceived *direct* victimization. Based on the idea that victim-sensitive individuals are particularly vigilant towards personal losses or disadvantages (e.g., Schmitt & Mohiyeddini, 1996), a perception that can trigger collective action (e.g., Furlong & Vignoles, 2021; Keshavarzi, McGarty, & Khajehnoori, 2021; Nguyen, Nguyen, & V. Nguyen, 2021; Traut-Mattausch et al., 2011), people high in VS should be inclined to *actively* protect themselves against personal disadvantages. Importantly, this also means that people high (vs. low) in VS should only be motivated to act against the climate crisis when the consequences of that crisis are perceived as self-relevant.

<sup>2</sup> The "Euro Crisis" was a debt crisis in the European Union (EU) from 2009 until 2014, during which several member states were unable to repay or refinance their government debt or to bail out over-indebted banks without the assistance of other member states, the European Central Bank or the International Monetary Fund.

Thus, becoming active to protect oneself from a possible disadvantage due to the climate crisis can, for instance, include engaging in pro-environmental policy support and protest behaviour aimed at mitigating climate change consequences.

Secondly, we can identify a “passive protection pathway.” Collective engagement can be seen as a social dilemma, in which political action is a form of investment into the public good (e.g., Heckathorn, 1996; Irwin & Simpson, 2013; Raub & Snijders, 1997). As explained earlier, individuals high in VS are specifically sensitive to social exchange scenarios as they harbour a dispositional fear of being exploited by others, and thus, tend to behave “pre-emptively selfish” (Gollwitzer & Rothmund, 2009; Gollwitzer et al., 2013; Gollwitzer et al., 2020). This psychological process can explain why studies found disengaging tendencies of people high in VS (Nicolai et al., 2022; Rothmund et al., 2014). This means that, by being passive, high-VS individuals seek to protect themselves against exploitation. Considering this theoretical reasoning, we assume that high-VS individuals will show *decreased* pro-environmental engagement when cues of exploitation by others are present (“passive protection”).

## 2.2. The present research

In the current research project, we aimed to investigate the two proposed “pathways of self-protection” as underlying processes explaining the effects of VS on pro-environmental engagement. In the first two studies, we examined the “active protection pathway”: We predicted a positive effect of VS on pro-environmental engagement (policy support and protest behaviour) when consequences of climate change are framed as self-relevant (vs. non-self-relevant). In Study 3, we examined the “passive protection pathway”: We predicted a negative effect of VS on pro-environmental engagement when cues of exploitation by others are present (and not invalidated). We predicted that this negative effect should be diminished (or even reversed) when the fear of exploitation has been (experimentally) removed. For all three studies, the anonymized data, codebooks, analysis scripts, and study materials are available in the supplementary online material (“SOM”; <https://osf.io/hmc5s>).

## 3. Study 1

“In Study 1, we hypothesized that the effect of VS on participants’ support for a pro-environmental policy aimed at mitigating climate change consequences is positive when these consequences are self-relevant.” To this end, we used data from a vignette study, which originally aimed at testing the effects of topic-related framings of a climate change policy on policy support (see SOM, “Study 1”). We used these experimental variations to test the effect of a self-relevance (vs. no self-relevance) framing. We expected a positive interaction effect between VS and the framing manipulation.

### 3.1. Methods

#### 3.1.1. Sample

Participants were invited to participate in an online survey using university mailing lists and online sampling portals. Participation requirements were a minimum age of 16 years and a good proficiency of the German language. Age ranged from 16 to 83 years ( $M = 36.95$ ,  $SD = 15.77$ ). Among those participants who responded to this particular question, 45% said they were employed, 15% were unemployed, and 40% were students. For the current study, a sensitivity power analysis was performed using G\*Power (Faul, Erdfelder, Lang, & Buchner, 2007) to estimate the minimum detectable effect size with the current sample size ( $N = 386$ ). Assuming an alpha of 0.05 and a power of 0.90, the population effect must be  $f^2 \geq 0.03$  to be detected with this sample size. Past research, which also tested an interaction effect between VS and a news media framing manipulation found a small to moderate effect ( $f^2$

= 0.06; Rothmund et al., 2017). Therefore, we considered our sample size to be sufficient to detect a reasonable effect.

#### 3.1.2. Procedure

At the start of the online study, all participants were introduced to a fictitious political initiative that aimed at promoting a pro-environmental policy. In an introductory text, the pro-environmental initiative “Urban Climate” called for implementing a mandatory “environmental service day,” at which citizens work for projects aimed at urban sustainability and climate neutrality at least one day a year. The introductory text ended by stating that a flyer advocating for this policy would follow on the next page. Participants were randomly assigned to one of three versions of the flyer (see SOM, “Study 1”). In all three conditions, the flyer was titled “A day for the climate—We demand mandatory pro-environmental action!” In the *ecological* condition ( $n = 126$ ), the flyer continued by stating that climate change was a big ecological challenge and that collective action was necessary to prevent negative consequences for biodiversity. In the *economic* condition ( $n = 129$ ), the flyer continued by stating that climate change was a big economic challenge and that collective action was necessary to prevent negative consequences for the economy. In the *social justice* condition ( $n = 131$ ), the flyer continued by stating that climate change was a big challenge for social justice and that collective action was necessary to prevent unjust consequences for the inhabitants “of our city.” The crucial difference between the three conditions was that only the latter (“social justice”) implied that consequences were “self-relevant” in the sense that these consequences affected all citizens, including (allegedly) participants. The two former conditions (“ecological,” “economic”) did not mention such consequences. After reading the flyer, participants were asked to complete a comprehension check and to answer a battery of questions.

#### 3.1.3. Materials

Descriptive statistics and reliability estimates are reported in Table 1. We only report measures that are directly relevant for the present manuscript. For a complete overview of the study material, see Supplementary Online Material (“Study 1”).

*Justice Sensitivity.* The four justice sensitivity perspectives (victim, observer, beneficiary, and perpetrator sensitivity) were assessed using the 8-item Justice Sensitivity short scale (Baumert et al., 2014). Example items include, “It makes me angry when others are undeservingly better off than me” (victim), “I am upset when someone is undeservingly worse off than others” (observer), “I feel guilty when I am better off than others for no reason” (beneficiary) and “I feel guilty when I enrich myself at the cost of others” (perpetrator). Items were rated on a 6-point response scale ranging from 1 = not at all true to 6 = absolutely true.

*Pro-Environmental Attitudes.* To capture general pro-environmental attitudes, we used the 15-item “New Environmental Paradigm Scale” (NEP; Dunlap et al., 2000; Van Liere, Mertig, & Jones, 2000; Schleyer-Lindenmann, Ittner, Dauvier, & Piolat, 2018). Example items read, “Plants and animals have as much right as humans to exist,” “Humans are severely abusing the environment,” or “When humans interfere with

**Table 1**  
Descriptive statistics and reliability measures of the study variables (study 1).

Study variables	N	Min.	Max.	M	SD	$\alpha$
Victim Sensitivity	386	1	6	3.32	1.37	0.85
Observer Sensitivity	386	1	6	4.26	1.12	0.80
Perpetrator Sensitivity	386	1	6	5.03	1.12	0.84
Beneficiary Sensitivity	386	1	6	3.38	1.36	0.87
Pro-Environmental Attitudes	386	2	6	4.75	0.69	0.82
Pro-Environmental Behaviour	386	1	5	4.36	0.55	0.80
Pro-Environmental Policy Support	386	1	6	4.29	1.41	0.96
Political Orientation	385	1	5	2.50	0.86	–

*Note.* Response scales vary across measures. Political orientation was rated on a 5-point response scale ranging from 1 = left-wing to 5 = right-wing.

nature, it often produces disastrous consequences.” Items were rated on a 6-point response scale ranging from 1 = strongly disagree to 6 = strongly agree.

**Pro-Environmental Behaviour.** We used the 32-item General Ecological Behaviour Scale (GEB; Kaiser, 2020) to capture pro-environmental behaviour. Example items include “I contribute financially to environmental organizations,” “I buy meat and produce with eco-labels,” or “During winter, I turn down the heating when I leave my apartment for more than 4 h” Items were rated on a 6-point response scale ranging from 1 = never to 6 = very often.

**Pro-Environmental Policy Support.** To assess participants’ support for the policy, we adapted the 10-item policy acceptance scale (PytlikZillig, Hutchens, Muhlberger, Gonzalez, & Tomkins, 2018) including the items “The demands of the campaign are reasonable” and “I would support the policy being implemented in my city.” Items were rated on a response scale ranging from 1 = strongly disagree to 6 = strongly agree.

**Political Orientation.** We used a single item to assess political orientation (Heywood, 2015) in order to control for political attitudes in our analyses. The prompt read as follows: “Regarding your political orientation, where would you place yourself on the following continuum?”. The item was rated on a 5-point response scale ranging from 1 = left to 5 = right.

### 3.1.4. Results and discussion

We report zero-order correlations between study variables in Table 2. The experimental conditions did not differ significantly with regard to political orientation, pro-environmental attitudes, or past pro-environmental behaviour. We collapsed the economic and ecological condition into a control condition, “no self-relevance”.<sup>3</sup> The social justice condition represented the experimental condition, “self-relevance.” In order to test whether VS predicts pro-environmental policy support when climate change consequences are framed in self-relevant terms (vs. non-self-relevant terms) we conducted multiple linear regressions (Table 3). We included a dummy variable (no self-relevance = 0, self-relevance = 1) to test the hypothesized VS x self-relevance interaction effect. VS was standardized to facilitate the interpretation of the regression weights. The other-oriented JS facets (also standardized) were included as covariates. VS was negatively related to policy support in the no self-relevance condition,  $\beta = -0.25$  ( $SE = 0.14$ ),  $t(380) = -3.28$ ,  $p < 0.001$ , 95% CI [-0.40, -0.10]. In other words, the more victim-sensitive participants are, the less they are willing to support the pro-environmental policy when the consequences of climate change are framed in non-self-relevant terms (i.e., ecological, economic). Contrary to our prediction, the hypothesized interaction effect (VS x self-relevance) was non-significant,  $\beta = 0.22$  ( $SE = 0.14$ ),  $t(379) = 1.53$ ,  $p = 0.13$ , 95% CI [-0.02, 0.17],  $\Delta R^2 = 0.005$ . Thus, framing climate change consequences in self-relevant terms (vs. non-self-relevant terms) did not motivate victim-sensitive individuals to support a pro-environmental policy aimed at mitigating climate change consequences.

Taken together, in Study 1, we did not find evidence for our “active protection pathway” hypothesis. This may either suggest that this hypothesis is wrong, or it may suggest that we were unable to find evidence for it given the following drawbacks in the design of Study 1: First, climate change was framed using different topics (i.e., social justice, economy, environment), which could have influenced participants’ inclination to support the environmental policy. Second, victim-

<sup>3</sup> This research project included hypotheses, irrelevant to the current study, which specifically focused on the effect of topic-related climate change framings on policy support. For the purposes of the current manuscript, which focused on the comparison between “non-self-relevant” framing and “self-relevant” framing, we collapsed the two conditions, economic and ecological into on baseline condition: no self-relevance. The two conditions did not differ significantly with regard to the relevant DV (i.e., policy support),  $t(252.93) = -0.56$ ,  $p = 0.29$ .

sensitive individuals tend to suspect that policy makers harbour ulterior motives (Agroskin, Jonas, & Traut-Mattausch, 2015), which might have distorted the results. Third, the “self-relevant” condition focused on the group and not on the individual. However, victim-sensitive individuals may be more likely to engage in collective action when they perceive (a) either *personal* disadvantage (Traut-Mattausch et al., 2011) or (b) group-based disadvantage—but only if they highly identify with this group (Baumert, Adra, & Li, 2022). Fourth, the study did not include a manipulation check to assess whether participants in the “self-relevance” condition indeed perceived climate change consequences as more self-relevant than participants in the “non-self-relevant” condition. We address these shortcomings in Study 2.

## 4. Study 2

Study 2 was designed to address the aforementioned shortcomings and test the “active protection pathway” hypothesis more rigidly (the effect of VS on participants’ pro-environmental engagement is positive when these consequences are self-relevant). To do so, the design of Study 2 differs from the design of Study 1 in several aspects: First, we used a new context, in which an expert instead of a (political) initiative introduced the topic of unjust climate consequences; in addition, we kept the content-related focus of the climate change consequences constant across conditions. Second, we included a condition in which the climate change consequences were framed as relevant for the individual and another condition in which the consequences were framed as group-relevant. In addition, we captured group identification to account for the assumption that VS predicts collective action when group identification is high (Baumert et al., 2022). Third, we included a manipulation check to assess whether participants in the self- and group-relevant conditions actually perceived the climate change consequences as more self-relevant than participants in the non-self-relevant condition. Furthermore, we extended the dependent variable “pro-environmental engagement.” Next to supporting a political initiative (akin to Study 1), we included protest behaviour and signing a petition to combat the climate change consequences as behavioural consequences. Finally, we included control variables that have been shown to reliably predict pro-environmental engagement, including political orientation, social dominance orientation, right-wing authoritarianism, belief in climate change, knowledge on climate change, perceived efficacy, and trust in the information source (e.g., Almassi, 2012; Doherty & Webler, 2016; Stanley & Wilson, 2019; Wong-Parodi & Berlin Rubin, 2022).

### 4.1. Methods

#### 4.1.1. Sample

We hypothesized that (1) a personal-relevance (vs. no self-relevance) framing of climate change consequences should increase the effect of VS on pro-environmental engagement, (2) a group-relevance (vs. no self-relevance) framing of climate change consequences should increase the effect of VS on pro-environmental engagement, and (3) in-group identification should amplify the effect specified in Hypothesis 2. The latter hypothesis implies a three-way interaction effect (victim sensitivity x group identification x group-relevance vs. no self-relevance framing).

To determine the necessary sample size to detect this interaction effect, we again built upon previous research that found small to moderate effect sizes for a VS x framing interaction (Rothmund et al., 2017). Given that higher-order interactions are usually smaller than lower-order interactions, we assumed the population effect size to be small ( $\Delta R^2 = 0.03$ ). Assuming an alpha of 0.05 and a power of 0.90,  $N = 617$  participants are necessary to detect such an effect. We recruited 669 participants to account for dropouts and exclusions. Our final sample size includes 617 participants. We recruited participants via university mailing lists, the authors’ personal network, and online sampling

**Table 2**

Zero-order correlations of the study variables and control variables (study 1).

Study Variables		A	B	C	D	E	F	G	H
Victim Sensitivity	(A)	1							
Observer Sensitivity	(B)	0.38**	1						
Beneficiary Sensitivity	(C)	0.35**	0.52**	1					
Perpetrator Sensitivity	(D)	0.05	0.34**	0.36**	1				
Political Orientation	(E)	-0.07	-0.32**	-0.19**	-0.19**	1			
Pro-Environmental Attitudes	(F)	0.04	0.29**	0.28**	0.20**	-0.36**	1		
Pro-Environmental Behaviour	(G)	-0.03	0.25**	0.29**	0.24**	-0.28**	0.42**	1	
Pro-Environmental Policy Support	(H)	-0.01	0.30**	0.23**	0.13*	-0.23**	0.44**	0.32**	1

Note. N = 386. Political orientation was rated on a 5-point response scale ranging from 1 = left-wing to 5 = right-wing.

**Table 3**

Moderated regression model predicting effects of victim sensitivity and self-relevance framings on pro-environmental policy support (study 1).

Predictors	Estimate	SE	t	p
Observer Sensitivity	0.41	0.08	4.919	<0.001
Beneficiary Sensitivity	0.21	0.08	2.446	0.02
Perpetrator Sensitivity	-0.03	0.08	-0.367	0.86
Victim Sensitivity	-0.25	0.14	-3.28	<0.001
Dummy: No Self-Relevance vs. Self-Relevance	-0.23	0.14	-1.589	0.11
Victim Sensitivity x Dummy	0.22	0.14	1.526	0.13

Note. N = 386. Study variables were standardized. Dummy: No Self-Relevance = 0, Self-Relevance = 1.

portals. Participation requirements were a minimum age of 18 years and a good proficiency of the German language. In the final sample, 61% identified as female, 38% as male, and 1% as non-binary including an age range from 18 to 85 years ( $M = 35.71$ ,  $SD = 16.27$ ). Among all participants, 44.3% were employed, 13.3% were unemployed and 40.4% were students.

**4.1.2. Procedure**

At the start of the study, all participants read a vignette, in which participants were asked to imagine that they attended an information event on the “multi-dimensional consequences of climate change” (see SOM, “Study 2”). The introductory text elaborated that politicians, economists, as well as climate change experts were invited to give talks at the event. Participants were asked to imagine that they attended a talk by an expert on climate change consequences. We presented the following excerpt of the expert’s address to all participants: “Current evidence suggests that society’s approach to climate change will lead to unjust consequences. Disadvantages will occur in different areas of life. This concerns, for example, our living space, health, mobility, working life, and access to important resources.” Participants were then randomly assigned to one of three experimental conditions. In the *control* condition (no self-relevance) ( $n = 199$ ), the text did not continue. In the *individual relevance* condition ( $n = 205$ ), the expert’s address ended with the following statement: “You will *personally* feel these consequences.” In the *group relevance* condition ( $n = 213$ ), the expert’s address ended with the following statement: “*Germans* will feel these consequences” (note: we conducted the study in Germany). After reading the vignette, participants were asked to complete a comprehension check and to answer a battery of questions capturing constructs relevant for our hypotheses, control variables, and demographics (see below).

**4.1.3. Materials**

Descriptive statistics and reliability estimates are reported in Table 4 (for a complete overview of the study material, see SOM, “Study 2”). We had additionally intended to assess non-normative pro-environmental engagement. We decided to omit this variable due to low internal consistency ( $\alpha = 0.33$ ). If not stated otherwise, all items were rated on 6-point response scales ranging from 1 = not at all true to 6 = absolutely true.

**Table 4**

Descriptive statistics and reliability measures of the study variables (study 2).

Study variables	N	Min.	Max.	M	SD	$\alpha$
Victim Sensitivity	617	1	6	3.93	0.94	0.88
Observer Sensitivity	617	1	6	4.01	0.93	0.90
Beneficiary Sensitivity	617	1	6	3.88	0.99	0.90
Perpetrator Sensitivity	617	1	6	4.76	0.85	0.90
Group Identification	617	1	6	3.16	0.93	0.91
Social Dominance Orientation	617	1	6	2.37	1.04	0.61
Right-Wing Authoritarianism	617	1	6	2.52	0.85	0.83
Political Orientation	615	1	6	3.08	1.15	-
Self-Efficacy	617	1	6	3.53	1.34	-
Self-Reported Knowledge	617	1	6	4.30	1.13	-
Trust in Source	617	1	6	4.46	1.13	-
Pro-Environmental Engagement	617	1	3	1.80	0.56	0.75

Note. Response scale for pro-environmental engagement ranged from 1 to 3. The remaining scales ranged from 1 to 6.

*Justice Sensitivity.* Victim, observer, beneficiary, and perpetrator sensitivity were measured using 10 items per facet (Justice Sensitivity Inventory; Schmitt et al., 2010). Example items can be found in the Materials section for Study 1.

*Group Identification.* We adapted the 14-item in-group identification scale (Leach et al., 2008). Example items read, “I feel a bond with Germans,” “I am glad to be German,” and “I often think about the fact that I am German.”

*Right-Wing Authoritarianism.* We used the 9-item KSA-3 scale by Beierlein, Asbrock, Kauff, & Schmidt (2014). Example items are “We should take strong action against misfits and slackers in society,” “People should leave important decisions in society to their leaders,” and “Traditions should definitely be carried on and kept alive.” Items were rated on a 6-point response scale ranging from 1 = strongly disagree to 6 = strongly agree.

*Social Dominance Orientation.* We used the 3-item short SDO scale (Six, Wolfrath, & Zick, 2001), consisting of the following items: “An ideal society requires some groups to be on top and others to be on the bottom,” “Group equality should be our primary goal” (reverse coded), and “It is unjust to try to make all social groups equal.”

*Political Orientation.* We used a single item to assess political orientation (Süssenbach & Gollwitzer, 2015). The prompt read as follows: “In politics people often talk about the ‘left’ and the ‘right’. Where would you place yourself on the following continuum?” The item was rated on a 7-point response scale ranging from 1 = left to 7 = right.

*Belief in Climate Change.* Participants’ towards climate change were assessed using three items (European Social Survey, 2018). The items read: “In my opinion, the climate is changing” (Response options: “Definitely no,” “Maybe,” “Definitely yes”); “In my opinion, the causes of climate change are:” (Response options: “Primarily natural processes,” “Combination of natural and human-caused causes,” “Primarily human-caused”), and “In my opinion, the consequences of climate change for people worldwide are:” (Response options: “Positive,” “Ambiguous,” “Negative”).

*Self-efficacy.* We used a single self-generated item to assess self-

efficacy: “I can do something about the unjust consequences of climate change.”

**Self-Reported Knowledge about Climate Change.** We used a single self-generated item to capture self-reported knowledge about climate change: “I am well-informed on the topic of ‘climate change.’”

**Trust in Source.** We used a single self-generated item to capture trust in the information source: “I perceived the expert as trustworthy.”

**Pro-Environmental Engagement.** We assessed pro-environmental engagement by adapting a 3-item political engagement measure (Rothmund et al., 2014). Participants were asked whether (and to what extent) they would (a) sign a petition (a) participate in a lawful protest and (c) participate in a local initiative to combat the consequences of climate change. Items were rated on a 3-point response scale with the response options 1 = never, 2 = once in a while, and 3 = regularly.

#### 4.1.4. Results and discussion

We report zero-order correlations between study variables in Table 5. First, we tested whether participants’ perception that climate change consequences affected them personally would differ between experimental conditions. On average, participants in the *individual* ( $M = 4.96$ ,  $SD = 1.09$ ) and *group* relevance condition ( $M = 4.89$ ,  $SD = 1.21$ ) agreed more strongly that climate change consequences would affect them personally than participants in the *control* condition ( $M = 4.34$ ,  $SD = 1.33$ ),  $F(2, 614) = 15.84$ ,  $p < 0.001$ ,  $\eta^2 = 0.05$ . Post-hoc comparisons using the Tukey HSD test indicated that mean scores of perceived self-relevance were significantly higher in the individual ( $p < 0.01$ ) and group relevance condition ( $p < 0.01$ ) compared to the control condition. The mean difference between the individual and group relevance conditions was not significant ( $p = 0.83$ ).

To test whether VS predicts pro-environmental policy support when climate change consequences are framed in self-relevant terms (vs. non-self-relevant terms) we conducted a multiple linear regression, which included two dummy-coded variables; Dummy 1: control condition = 0, individual relevance = 1, group relevance = 0; Dummy 2: control condition = 0, individual relevance = 0, group relevance = 1, VS (standardized), interaction terms (VS x Dummy 1; VS x Dummy 2) as well as the other-oriented JS facets (standardized) as covariates (see Table 6). VS was again negatively related to pro-environmental engagement in the control condition (i.e., non-self-relevant consequences of climate change),  $\beta = -0.15$  ( $SE = 0.04$ ),  $t(565) = -3.36$ ,  $p < 0.01$ , 95% CI  $[-0.23, -0.06]$ . This effect persisted when including covariates. Contrary to Hypothesis 1, the focal interaction term (VS x Dummy 1) was non-significant,  $\beta = -0.13$  ( $SE = 0.10$ ),  $t(563) = -1.40$ ,  $p = 0.16$ , 95% CI  $[-0.32, 0.05]$ ,  $\Delta R^2 = 0.003$ . Thus, framing climate change consequences in individually relevant terms (vs. non-self-relevant terms) did not motivate victim-sensitive individuals to show pro-environmental engagement. Also, the VS x Dummy 2 interaction specified in Hypothesis 2 was non-significant,  $\beta = -0.03$  ( $SE = 0.09$ ),  $t(563) = -0.27$ ,  $p = 0.80$ , 95% CI  $[-0.21, 0.16]$ ,  $\Delta R^2 = 0.000$ . In other words, framing climate change consequences in group-relevant terms (vs. non-self-relevant terms) did also not motivate victim-sensitive individuals to show pro-environmental engagement.

Finally, we tested whether in-group identification amplifies the interaction effect of group-relevance vs. no relevance framing x VS (Hypothesis 3). We conducted multiple linear regressions to test this hypothesis (Table 7). We included both Dummy variables as well as VS and group identification (both standardized) and all relevant interaction terms. The other-oriented JS facets (standardized) were again included as covariates. Contrary to our prediction, the focal interaction term (VS x Dummy 2 x group identification) was non-significant,  $\beta = -0.02$  ( $SE = 0.08$ ),  $t(559) = -0.29$ ,  $p = 0.77$ , 95% CI  $[-0.18, 0.13]$ ,  $\Delta R^2 = 0.000$ . Thus, in-group identification did not make high-VS participants more willing to support pro-environmental policies if climate change consequences are framed in group-relevant terms. Taken together, the results of Study 1 and 2 do not support the active protection pathway.

Our failed attempts to find support for our hypothesis can have

methodological and theoretical reasons. Methodologically, the stimuli might not have been strong enough to elicit a feeling of victimization among high-VS individuals. Theoretically, the studies suggest that their underlying fear of exploitation, which comes along with a suspicious mindset and self-protective tendencies (“passive protection”) trumped the “active protection pathway.” The finding that VS negatively predicted pro-environmental engagement in Studies 1 and 2 supports this idea.

## 5. Study 3

In Study 3, we examined the “passive protection pathway,” predicting that VS is negatively related to pro-environmental engagement when a fear of exploitation is elicited (and not invalidated), but that this effect is diminished (or even reversed) when the fear of exploitation has been removed. In order to remove participants’ fear of being exploited, we use a paradigm that had been used in previous research (Gollwitzer, Rothmund, Pfeiffer, & Ensenbach, 2009). In this study, participants played an online version of a (step-level) public goods game with three other participants. Before doing so, they saw four “sample rounds” of the game (ostensibly in order to make them familiar with the structure of the game). In these sample rounds, participants either witnessed no instance of free-riding among other players (i.e., all players always cooperated in their games), some instances of free-riding (i.e., 3 players behave egoistically), or many instances of free-riding (i.e., 6 players behave egoistically). While VS was negatively related to cooperation in the “some free-riding” and the “many free-riding” conditions, this effect was diminished in the “no free-riding” condition. In other words, suggesting that the descriptive norm is to cooperate diminished the effect of VS on participants’ own willingness to cooperate.

We adapted this descriptive norm manipulation for the present study. Specifically, we informed participants about a campaign aimed at mitigating climate change consequences, and we manipulated fear of exploitation by providing information that either indicated that only few citizens (low descriptive norm) or many citizens (high descriptive norm) have shown cooperative intentions in the context of similar campaigns in the past. We expected a negative effect of VS on policy support in the “low descriptive norm” condition, but not in the “high descriptive norm” condition. We again extended the dependent variable “pro-environmental engagement,” now including both general policy support and adherence to measures proposed by the policy on the one hand (henceforth referred to as “policy support”), and protest behaviour on the other hand.

### 5.1. Methods

#### 5.1.1. Sample

Based on prior research examining the interaction effect between VS and the fear of exploitation (Süssenbach & Gollwitzer, 2015; Study 2), we assumed a medium-size population effect ( $\Delta R^2 = 0.06$ ). Assuming an alpha of 0.05 and a power of 0.90,  $N = 241$  are necessary to detect such an effect. We recruited 303 participants to account for dropouts and exclusions. Our final sample includes 278 participants. As in the previous studies, we recruited participants via university mailing lists, the authors’ personal network, and online sampling portals. Participation requirements were a minimum age of 18 years and a good proficiency of the German language. In the final sample, 62% identified as female, 37% as male, and 1% as diverse. Age ranged from 18 to 82 years ( $M = 40.10$ ,  $SD = 16.27$ ). Among all participants who responded to this question, 51.6% said they were employed, 17.7% were unemployed, and 30.3% were students.

#### 5.1.2. Procedure

Participants were informed that they would read two short texts and answer a set of questions regarding climate change (for a detailed overview of the study material, see SOM, “Study 3”). The first text

**Table 5**  
Zero-order correlations of the study variables and control variables (study 2).

Study Variables	A	B	C	D	E	F	G	H	I	J	K	L
Victim Sensitivity (A)	1											
Observer Sensitivity (B)	0.47**	1										
Beneficiary Sensitivity (C)	0.22**	0.64**	1									
Perpetrator Sensitivity (D)	0.08*	0.51**	0.70**	1								
Group Identification (E)	0.08	-0.09*	-0.04	-0.08	1							
Social Dominance Orientation (F)	-0.03	-0.33**	-0.30**	-0.32**	0.23**	1						
Right-Wing Authoritarianism (G)	0.11**	-0.20**	-0.13**	-0.22**	0.44**	0.49**	1					
Political Orientation (H)	0.03	-0.23**	-0.19**	-0.16**	0.30**	0.54**	0.48**	1				
Self-Efficacy (I)	-0.07	0.18**	0.20**	0.20**	0.06	-0.08*	-0.09*	-0.16**	1			
Self-Reported Knowledge (J)	-0.04	0.14**	0.09*	0.15**	-10*	-0.17*	-0.17**	-0.16**	0.17**	1		
Trust in Source (K)	0.07	0.27**	0.26**	0.22**	0.01	-28**	-0.16**	-0.23**	0.15**	0.15**	1	
Pro-Environmental Engagement (L)	0.01	0.35**	0.27**	0.25**	-0.18*	-0.44**	-0.34**	-0.48**	0.31**	0.32**	0.27**	1

Note.  $N = 617$ . \*\* $p < 0.01$ ; \* $p < 0.05$ .

**Table 6**  
Moderated regression model predicting effects of victim sensitivity and self-relevance framing on pro-environmental engagement (study 2).

Predictors	Estimate	SE	t	p
Observer Sensitivity	0.40	0.06	7.070	<0.001
Beneficiary Sensitivity	0.02	0.06	0.387	0.70
Perpetrator Sensitivity	0.03	0.06	0.548	0.58
Victim Sensitivity	-0.15	0.04	-3.356	<0.001
Dummy 1: Control vs. Individual Relevance	0.15	0.10	1.584	0.11
Dummy 2: Control vs. Group Relevance	0.04	0.10	0.463	0.64
Victim Sensitivity x Dummy 1	-0.13	0.10	-1.401	0.16
Victim Sensitivity x Dummy 2	-0.03	0.09	-0.269	0.80

Note.  $N = 617$ . Study variables were standardized. Dummy 1 (Control = 0, Individual Relevance = 1, Group Relevance = 0), Dummy 2 (Control = 0, Individual Relevance = 0, Group Relevance = 1).

**Table 7**  
Moderated regression model predicting effects of victim sensitivity, group relevance framing, and group identification on pro-environmental engagement (study 2).

Predictors	Estimate	SE	t	p
Observer Sensitivity	0.38	0.06	6.740	<0.001
Beneficiary Sensitivity	0.03	0.06	0.592	0.59
Perpetrator Sensitivity	0.02	0.06	0.437	0.66
Victim Sensitivity	-0.13	0.04	-2.949	<0.01
Group Identification	-0.13	0.04	-3.265	<0.01
Dummy 1: Control vs. Individual Relevance	0.12	0.10	1.262	0.21
Dummy 2: Control vs. Group Relevance	0.02	0.09	0.249	0.80
Victim Sensitivity x Dummy 1	-0.12	0.09	-1.232	0.22
Victim Sensitivity x Dummy 2	-0.03	0.09	-0.344	0.73
Victim Sensitivity x Group Identification	0.06	0.04	1.536	0.13
Group Identification x Dummy 2	0.09	0.08	1.156	0.25
Victim Sensitivity x Dummy 2 x Group Identification	-0.02	0.08	-0.290	0.77

Note.  $N = 617$ . Study variables were standardized. Dummy 1 (Control = 0, Individual Relevance = 1, Group Relevance = 0), Dummy 2 (Control = 0, Individual Relevance = 0, Group Relevance = 1).

introduced a political campaign that aimed at saving water in private households. Participants were then randomly assigned to one of two experimental conditions: In the *low descriptive* norm condition ( $n = 138$ ), participants read the following text:

“‘Save water for our climate!’ – With this slogan, your city is currently promoting a campaign to reduce monthly water consumption in private households by one third. An analysis of a past campaign in the area of energy consumption showed that 32 percent of citizens in your city contributed to reducing energy consumption. On the following page, you can read an excerpt from a press release on the current campaign.”

In the *high descriptive* norm condition ( $n = 140$ ), participants read a similar text; however, in this condition, participants read that 93 percent<sup>4</sup> of citizens in their city contributed to reducing energy consumption.

On the next page, all participants read the following text—ostensibly a press release about the current campaign:

“In order to reduce water consumption in private households by one third, citizens must adapt their habits with immediate effect. The use of dishwashers and washing machines must be significantly reduced, gardens may only be watered with rainwater, water-saving showerheads must be installed, citizens should not take baths and showers may be taken for a maximum of 5 min”

After reading the texts, participants were asked to complete a comprehension check and to answer a battery of questions capturing constructs relevant for our hypotheses, control variables, and demographics (see below).

### 5.1.3. Materials

Justice sensitivity as well as control variables<sup>5</sup> were measured in an identical fashion as in Study 2 (for a complete overview of the study material, see SOM, “Study 3”). If not stated otherwise, all items were rated on 6-point response scales ranging from 1 = strongly disagree to 6 = strongly agree. Descriptive statistics and reliability estimates are reported in Table 8.

*Perceived exploitation.* We developed three items to capture perceived

**Table 8**  
Descriptive statistics and reliability measures of the study variables (study 3).

Study variables	N	Min.	Max.	M	SD	$\alpha$
Victim Sensitivity	278	1	6	3.90	0.92	0.88
Observer Sensitivity	278	1	6	4.17	0.96	0.92
Beneficiary Sensitivity	278	1	6	3.98	1.09	0.93
Perpetrator Sensitivity	277	1	6	4.77	1.00	0.90
Perceived Exploitation	278	1	6	3.91	1.06	0.75
Self-Efficacy	278	1	6	4.64	1.27	0.84
Group-Efficacy	278	1	6	4.10	1.37	0.91
Right-Wing Authoritarianism	276	1	6	2.55	0.88	0.82
Social Dominance Orientation	278	1	6	2.39	1.97	0.64
Political Orientation	277	1	6	3.13	1.12	–
Pro-Environmental Policy Support	278	1	6	4.12	1.13	0.84
Pro-Environmental Protest Behaviour	278	1	6	2.59	1.37	0.84

Note. All response scales ranged from 1 to 6.

<sup>4</sup> Percentages reflecting “high” and “low” descriptive norms adapted from Schultz, Khazian, & Zaleski, 2008.

<sup>5</sup> Self-efficacy was measured using a new measure to control for both self- and group-efficacy (cf. Hoppe et al., 2023).

exploitation: “I believe that most citizens in my city would exploit the fact that other citizens take action to conserve water;” “I believe that most citizens in my city would not conserve water because of laziness;” and “I believe that most citizens in my city would adjust their habits to save water” (reverse coded).

**Self-efficacy.** We adapted two items from previous research to capture self-efficacy (Hoppe, Fritsche, & Chokrai, 2023): “I can personally contribute to saving one third of the monthly water consumption of private households in my city” and “I believe that I can personally contribute to saving one third of the monthly water consumption of private households in my city.”

**Group-efficacy.** We adapted two items to capture group-efficacy from previous research (Hoppe et al., 2023): “We, the citizens of my city, are able to save one third of the monthly water consumption of private households in our city.” and “I believe that we, the citizens of my city, together are able to save one third of the monthly water consumption of private households in our city.”

**Pro-Environmental Policy Support.** We generated four items to capture pro-environmental policy support (e.g., “I would implement all measures suggested in the press release in order to save water;” “I would drastically adjust my habits to save water starting immediately”).

**Pro-Environmental Protest Behaviour.** We assessed protest behaviour by adapting a 3-item political engagement measure (Rothmund et al., 2014): “I would sign a petition to support the campaign,” “I would participate in a lawful protest to support the campaign,” and “I would participate in a citizens’ action group to support the campaign”.

5.1.4. Results and discussion

We report zero-order correlations between study variables in Table 9. To test our hypotheses that (1) victim sensitivity negatively predicts pro-environmental engagement in the low descriptive norm condition and (2) this effect is diminished (or even reversed) in the high descriptive norm condition, we specified two moderated regression models predicting pro-environmental policy support and protest (see Table 10). We entered a dummy variable (low descriptive norm condition = 0, high descriptive norm condition = 1), VS (standardized), and the Dummy × VS interaction effect into the model. The other-oriented JS facets (standardized) were included as covariates. As expected, the results showed a negative conditional effect of VS on pro-environmental policy support,  $\beta = -0.25$  ( $SE = 0.07$ ),  $t(271) = -3.80$ ,  $p < 0.01$ , 95% CI [-0.38, -0.12], and protest behaviour,  $\beta = -0.29$  ( $SE = 0.07$ ),  $t(271) = -4.49$ ,  $p < 0.01$ , 95% CI [-0.42, -0.17] in the low descriptive norm condition. Contrary to our prediction, the hypothesized interaction effect (Dummy × VS) on pro-environmental policy support did not reach statistical significance,  $\beta = -0.22$  ( $SE = 0.11$ ),  $t(270) = -1.97$ ,  $p = 0.05$ , 95% CI [-0.45, 0.00],  $\Delta R^2 = 0.012$ , and the same interaction effect on pro-environmental protest was non-significant,  $\beta = -0.15$  ( $SE = 0.11$ ),  $t(270) = -1.36$ ,  $p = 0.18$ , 95% CI [-0.37, 0.07],  $\Delta R^2 = 0.006$ .

Follow-up tests showed that, in the high descriptive norm condition, VS still negatively predicted both pro-environmental protest behaviour

**Table 9**  
Zero-order correlations of the study variables and control variables (study 3).

Study Variables	A	B	C	D	E	F	G	H	I	J	K	L
Victim Sensitivity (A)	1											
Observer Sensitivity (B)	0.46**	1										
Beneficiary Sensitivity (C)	0.26**	0.76**	1									
Perpetrator Sensitivity (D)	0.15*	0.68**	0.77**	1								
Perceived Exploitation (E)	0.22**	0.05	0.05	0.05	1							
Self-Efficacy (F)	-0.07	0.15*	0.22**	0.18**	-0.17**	1						
Group-Efficacy (G)	0.00	0.20**	0.23**	0.21**	-0.18**	0.56**	1					
Right-Wing Authoritarianism (H)	0.16**	-0.09	-0.14*	-0.20**	0.09	-0.10	-0.15*	1				
Social Dominance Orientation (I)	0.10	-0.23**	-0.23**	-0.24**	0.04	-0.17**	-0.11*	0.47**	1			
Political Orientation (J)	0.10	-0.29**	-0.34**	-0.27**	0.01	-0.23**	-0.26**	0.49**	0.52**	1		
Pro-Environmental Policy Support (K)	-0.09	0.27**	0.30**	0.25**	-0.14*	0.52**	0.49**	-0.08	-0.22**	-0.35**	1	
Pro-Environmental Protest (L)	-0.08	0.29**	0.26**	0.16**	-0.12*	0.44**	0.37**	-0.08	-0.19**	-0.34	0.65**	1

Note. N = 278. \*\*p < 0.01; \*p < 0.05.

**Table 10**  
Moderated regression model predicting effects of victim sensitivity and descriptive norm framings on pro-environmental engagement (study 3).

Predictors	Support	Protest
Observer Sensitivity	0.25* (0.09)	0.45** (0.10)
Beneficiary Sensitivity	0.18† (0.10)	0.16 (0.10)
Perpetrator Sensitivity	-0.02 (0.09)	-0.22* (0.09)
Victim Sensitivity	-0.25** (0.07)	-0.29** (0.07)
Dummy 1: Low Descriptive Norm vs. High Descriptive Norm	0.05 (0.12)	0.00 (0.11)
Victim Sensitivity x Dummy 1	-0.22† (0.11)	-0.15 (0.11)

Note. N = 278. Study variables were standardized. Values are regression weights. Standard errors in parentheses. Dummy 1: Low descriptive norm condition = 0, High descriptive norm condition = 1. \*\*p < 0.01; \*p < 0.05; † < 0.10.

and policy support: In models without covariates, the effects of VS in this conditions were  $\beta = -0.45$  ( $SE = 0.14$ ),  $t(135) = -3.33$ ,  $p < 0.01$  on pro-environmental protest behaviour and  $\beta = -0.43$  ( $SE = 0.11$ ),  $t(135) = -3.74$ ,  $p < 0.01$  on policy support. With covariates included, the effects on protest behaviour,  $\beta = -0.33$  ( $SE = 0.14$ ),  $t(118) = -2.36$ ,  $p = 0.02$  and policy support,  $\beta = -0.27$  ( $SE = 0.10$ ),  $t(118) = -2.71$ ,  $p < 0.01$  persisted. In other words, the perception of a “high descriptive norm” did not motivate victim-sensitive individuals to show pro-environmental engagement.

In order to examine whether the failure to motivate individuals high in VS to show pro-environmental engagement could be due to a failure to invalidate victim-sensitives’ fear of exploitation by providing information on others’ cooperative intentions (i.e., high descriptive norm), we conducted a moderated regression analysis predicting fear of exploitation. In this regression model, we entered a dummy variable (low descriptive norm condition = 0, high descriptive norm condition = 1), VS (standardized), the Dummy × VS interaction, as well as the other JS facets as covariates. As expected, the results showed a positive conditional effect of VS on fear of exploitation in the low descriptive norm condition,  $\beta = 0.27$  ( $SE = 0.07$ ),  $t(271) = 3.93$ ,  $p < 0.01$ . Contrary to our prediction, the interaction effect (Dummy × VS) on fear of exploitation was non-significant,  $\beta = -0.16$  ( $SE = 0.12$ ),  $t(270) = -1.30$ ,  $p = 0.20$ ,  $\Delta R^2 = 0.006$ . In other words, our attempt to invalidate victim sensitives’ fear of exploitation using a “high descriptive norm” manipulation was unsuccessful.

We identify four explanations for this finding, all of which support the notion of the “passive protection pathway.” The first explanation refers to the tendency of victim-sensitive people to attribute ulterior motives to policy makers, which has shown to be associated with the rejection of political reforms (Agroskin et al., 2015). In the case of our manipulation, an initiative was promoted by providing people with information on the percentage of citizens who participated in a similar initiative (92%). Individuals high in VS might have perceived this



percentage as unrealistically high and thus as a dishonest ruse to gain support for the initiative. The second explanation pertains to the finding that consensus communications about climate change and its consequences can elicit reactance (including decreased support for mitigation policies) due to the perception that one's freedom is thwarted (Chinn & Hart, 2023). Past research showed that VS-high individuals are prone to engage in reactance behaviour (Traut-Mattausch et al., 2011) and the current findings further corroborate this. The third explanation pertains to the notion that people generally tend to perceive non-normative behaviour by minority groups as more malicious than non-normative behaviour by majority groups (King & Wheelock, 2007). It might be that especially people high in VS perceived the behaviour by the non-cooperative minority as more malicious than the non-cooperative behaviour of the majority, which in turn elicited "passive protection" behaviour even in the high descriptive norm condition. The fourth explanation relates to the finding that high-VS individuals tend to avoid investing in the public interest (Rothmund et al., 2014). The combination that (a) the manipulation did not make the self-relevance of the negative consequences of not saving water explicit (a circumstance under which high-VS individuals seem to disengage, as Studies 1 and 2 show) and (b) a large cooperative majority is likely to secure the "public interest" (saving water), high-VS individuals might not have felt the need to contribute to the public interest themselves.

## 6. General discussion

The current research project examined how interindividual differences in justice perceptions can affect people's tendency to engage in pro-environmental action. While past research on collective environmental action mainly focused on motivational or attitudinal antecedents, such as identity concerns, moral convictions, and self- or group-efficacy beliefs (e.g., Fritsche & Masson, 2021; Furlong & Vignoles, 2021; Jugert et al., 2016; Wallis & Loy, 2021), the present project investigated how justice-related personality differences can affect environmental action and policy support. Specifically, research on justice sensitivity has shown that a dispositional sensitivity to being disadvantaged (i.e., victim sensitivity) can promote or impede collective action (Rothmund et al., 2014; Traut-Mattausch et al., 2011). Based on theoretical considerations and first empirical findings, we identified two "pathways of self-protection," representing psychological processes inherent to victim sensitivity, which can either foster or hinder pro-environmental engagement.

The first two studies examined the "active protection pathway," which postulates that individuals high in VS should be more likely to support or even engage in pro-environmental action when they perceive that they might be directly disadvantaged by climate change consequences. Taken together, the results from Studies 1 and 2 do not provide support for this hypothesis. Both studies showed that framing climate change consequences in self-relevant terms did not motivate high-VS participants to show pro-environmental policy support or engage in pro-environmental protest. On the one hand, this may be due to methodological reasons. We attempted to manipulate perceived victimization by framing climate change consequences in self-relevant terms (vs. non-self-relevant terms). It is possible that this manipulation was too abstract. Past research showed that victim-sensitive individuals showed political engagement when they were asked to reflect about how a political reform will have negative consequences for them personally (Traut-Mattausch et al., 2011). Thus, future research could examine whether high-VS individuals engage in climate action when they are prompted to reflect explicitly about how exactly climate change will lead to negative personal consequences. Given that the negative consequences of climate change are unequally distributed across the world, with the "global south" suffering much more than the "global north" (e.g., Eriksen et al., 2021), from which our participants came, it is likely that even though participants regarded climate change consequences as self-relevant, they perceived themselves in an advantaged position

relative to other groups. In an advantaged position, people high in VS tend to show less solidarity and less motivation to redress injustices inflicted upon others (Baumert et al., 2022).

Another theoretical explanation for the finding that perceived self-relevance did not motivate victim-sensitive individuals to show pro-environmental engagement is the "passive protection pathway." In Studies 1 and 2, we found a negative relationship between VS and pro-environmental engagement when climate change consequences were framed in non-self-relevant terms. As previously noted, political engagement scenarios can be viewed as social dilemma situations, in which in-group members can exploit one's efforts (e.g., Heckathorn, 1996). Based on abundant evidence showing that VS is related to mistrust and antisocial behaviour in social dilemmas (e.g., Gollwitzer et al., 2009; Rothmund et al., 2011; Tham, Hashimoto, & Karasawa, 2019), it is plausible that this "passive protective" tendency outweighed the "active protection pathway."

Study 3 examined the "passive protection pathway" more closely. According to our theoretical reasoning, victim-sensitive individuals should be less likely to engage in pro-environmental action when there is reason to believe that they are being exploited (e.g., by "social loafers" who do not engage in collective environmental protection). Crucially, this effect should be diminished (or even reversed) when the fear of exploitation has been alleviated (e.g., Gollwitzer et al., 2009). Akin to the first two studies, VS negatively predicted pro-environmental engagement in the baseline condition over and above political orientation and ideology, attitudes towards climate change, self-efficacy beliefs, and demographic variables. However, our attempt to remove high-VS participants' fear of being exploited by suggesting a high base-rate of cooperation (i.e., a high descriptive norm) was unsuccessful. This finding – together with the results of the first two studies – suggest that VS is a robust psychological hindrance for collective pro-environmental engagement. The failure to alleviate any fear of exploitation among victim-sensitive individuals and subsequently the antisocial tendency indicates that the psychological process underlying VS is not easily altered.

The Sensitivity to Mean Intentions model (Gollwitzer et al., 2013) offers various explanations as to why it might be difficult to manipulate victim sensitives' fear of exploitation and their antisocial tendencies in the context of collective action. First, people high in VS weigh untrustworthiness cues more strongly than trustworthiness cues. Thus, victim-sensitive individuals might prioritize information alluding possible exploitation (e.g., "low descriptive norms") in the context of political engagement more strongly than information signalling collective cooperation (e.g., "high descriptive norms"). In addition, it was found that even slight untrustworthiness cues elicit a suspicious mindset among victim-sensitive people. This cognitive scheme includes a tendency to insinuate hostile intentions, an inclination to behave antisocially and uncooperatively as well as a propensity to legitimize those behavioural tendencies (Gollwitzer et al., 2013). Victim sensitives' suspicious mindset could impede attempts to manipulate the psychological process because people high in VS might perceive others' cooperative behaviour as dishonest. Diminishing victim sensitives' antisocial behaviour in the context of climate action might also be difficult because people high in VS have shown to refrain from pro-environmental behaviour as they morally disengage, which is in line with the assumptions of the suspicious mindset hypothesis (Gollwitzer et al., 2013; Nicolai et al., 2022). Thus, victim-sensitive individuals might disengage from pro-environmental engagement because they maintain legitimization strategies, such as decreasing (moral) responsibility.

The current empirical insights and theoretical considerations offer various avenues for future research. In order to examine the "active protection pathway," studies should examine the effects of VS on collective engagement among individuals in disadvantaged groups. In the climate action context, it would be possible to conduct research projects similar to Studies 1 and 2 to investigate whether VS predicts collective action intentions among disadvantaged. In addition, studies

investigating the “passive protection pathway” should experimentally test possibilities of diminishing the fear of exploitation among victim-sensitive individuals. For instance, rather than invalidating the fear of exploitation by using descriptive norms, studies could provide participants with information of the cooperative intentions of fellow citizens. Based on the Sensitivity to Mean Intentions model, which assumes that victim-sensitive individuals are particularly vigilant towards mean intentions (i.e., exploitation), manipulations that focus specifically on other people’s intentions are relevant to illuminate the psychological process. Lastly, even though past research has shown that there is no considerable difference between hypothetical studies and real-life studies regarding effects of VS (e.g., Bondü & Krahe, 2015; Fetchenhauer & Huang, 2004) future research should investigate whether the current findings regarding the “active” and “passive self-protection pathways” can be replicated in real-life scenarios of collective action.

Regarding practical implications, we believe that the research presented here offers some new insights. While most intervention research in the area of environmental psychology and behaviour has focused on situational factors (e.g., Byerly et al., 2018; de Groot & Schuitema, 2012; Nyborg, 2018), the current findings suggest that interindividual differences – people’s personality – predicts their inclination to engage in or refrain from pro-environmental action. Practitioners can benefit from the current insights as the present findings suggest that commonly known and widely applied pro-environmental interventions focusing on making the issue (i.e., climate change) personally relevant (e.g., Whitmarsh & O’Neill, 2010) or emphasizing the engagement of fellow citizens (e.g., Farrow, Grolleau, & Ibanez, 2017) might not work for people high in victim sensitivity. The present insights on the effect of VS on pro-environmental engagement suggest that interventions should target people’s fear of being the “sucker” who engages in collective action while others sit back whilst unilaterally profiting from the group’s engagement for our climate. To this end, practitioners could develop freely accessible platforms that provide information on fellow citizen’s cooperative intentions in the context of pro-environmental behaviour as well as training programs, in which people learn to cooperate and trust team members to achieve a common goal.

## 7. Conclusion

Climate change is a global crisis that affects people in various ways. Therefore, we need insights from different (sub-) disciplines in order to understand why people are inclined to engage in or refrain from pro-environmental action. While research on collective action has shown that perceived injustice represents a key indicator of collective pro-environmental action (e.g., Furlong & Vignoles, 2021), the current research project suggests that we need to consider individual differences when examining the relationship between perceived injustice and climate action. The present findings indicate that a dispositional tendency to perceive oneself as a victim of injustice represents a robust obstacle for pro-environmental engagement. With the current theoretical and empirical insights regarding the pathways of “active” and the “passive self-protection,” we provide an important foundation to further our understanding of victim sensitivity and its consequences for pro-environmental action.

## CRedit authorship contribution statement

**Lucas John Emmanuel Köhler:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Visualization, Writing – original draft, Writing – review & editing. **Konstantin Luca Strieder:** Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Resources, Writing – review & editing. **Marlene Sophie Altenmüller:** Conceptualization, Data curation, Methodology, Project administration, Resources, Supervision, Writing – review & editing. **Mario Gollwitzer:** Conceptualization, Methodology, Resources, Supervision, Writing –

review & editing.

## Declaration of competing interest

There is no actual or potential conflict of interest including any financial, personal, or other relationships with other people organizations whatsoever.

The data collected for this research project are available at: <https://osf.io/hmc5s>.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jenvp.2024.102276>.

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