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Preference for hierarchy is associated with reduced empathy and increased counter-empathy towards others, especially out-group targets

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Highlights

- SDO predicted decreased empathy and increased counter-empathy in general.

- Higher SDO scores were associated with greater intergroup empathy bias.

- SDO scores also correlated with greater *counter*-empathy bias when groups

  competed.

Abstract

The capacity to empathize with others facilitates prosocial behavior. People's willingness and capacity to empathize, however, is often contingent upon the target's group membership – people are less empathic towards those they categorize as out-group members. In competitive or threatening intergroup contexts, people may even   feel pleasure (counter-empathy) in response to out-group members' misfortunes. Social dominance orientation (SDO), or the extent to which people prefer and promote group-based inequalities, is an ideological variable that is associated with a competitive view of the world, increased prejudicial attitudes, and decreased empathy. Thus, higher levels of SDO should be associated with reduced empathy and increased counter-empathy in general, but especially towards those whose subjugation maintains group inequalities. Across three studies we show that among White individuals, higher SDO levels are associated with less empathy, and more counter-empathy in response to others' good and bad fortunes. More importantly, these reductions in empathy and increases in schadenfreude as a function of SDO were significantly stronger for Asian and Black targets than for in-group White targets when group boundaries were made salient prior to the empathy ratings. Finally, in a fourth study we show that this phenomenon is not dependent upon a history of status differences: higher SDO scores were associated with decreased empathy and increased counter-empathy for competitive out-group (relative to in-group) targets in a novel group setting. We discuss implications of these effects for hierarchy maintenance.

Keywords: social dominance orientation; race; empathy; schadenfreude

Preference for hierarchy is associated with reduced empathy and increased counter-

empathy towards others, especially out-group targets

Adults, children, and even rats engage in costly helping (Bartal, Decety, &

Mason, 2011; Batson, 2011). This capacity for altruism is driven by a wide variety of

factors, but one well-studied, intuitive driver of helping is empathy. Of course, just

because people *can* empathize does not mean they always do. One widespread

boundary condition on the experience of empathy is when people interact with out-

group members, especially those that are threatening to the in-group's standing (Cikara,

Bruneau, & Saxe, 2011). Yet another (relatively under-explored) boundary condition on

empathy is an individuals' tendency to see the social world composed of hierarchies in

which groups at the bottom are clamoring to increase their status and groups at the top

are fighting to maintain their advantage (Ho et al., 2015). Here we test how individuals'

preference for hierarchy interacts with target group membership and functional relations

between groups to predict to what extent people feel empathy (and its opposite,

counter-empathy) in response to others' (mis)fortunes.

Social Dominance Orientation

Social dominance theory (SDT) offers an explanation as to why hierarchies

emerge and remain remarkably stable in human societies (Sidanius, Cotterill, Sheehy-

Skeffington, Kteily, & Carvacho, 2017; Sidanius & Pratto, 1999). A key ideological

variable in the SDT framework is social dominance orientation (SDO), which measures

the extent to which people accept and promote group-based inequality (Ho et al., 2015).

People with relatively higher levels of SDO – referred to as social dominants[1]

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[1] We are using the term social dominants to refer to people with *relatively* higher levels of SDO. We are not referencing any particular point on the scale as a threshold for designating someone a social

henceforth – care about maintaining the current social hierarchy and believe that some

social groups should be at the top of the hierarchy and others at the bottom. Social

dominants are also likely to endorse a wide range of hierarchy-enhancing attitudes,

behaviors, and social policies, from xenophobia, sexism, and generalized prejudice

(Pratto, Sidanius, Stallworth, & Malle, 1994; Sibley, Wilson, & Duckitt, 2007; Thomsen

et al., 2010) to support for anti-immigration policies as well as the withholding of

charitable support to ethnic minorities (Freeman, Aquino, & McFerran, 2009; Lindén,

Björklund, & Bäckström, 2016; Thomsen, Green, & Sidanius, 2008).

Despite the wealth of research on the attitudinal and behavioral implications of

being a social dominant, there is relatively little work concerning the relationship

between social dominance and emotion (see Ratcliff, Bernstein, Cundiff, & Vescio, 2012

for an exception). Emotions are a powerful motivators of intergroup attitudes and

behaviors (Cuddy, Fiske, & Glick, 2008; Mackie, Devos, & Smith, 2000) and likely play a

role in explaining why social dominants tend to be prejudiced towards out-groups and

low status groups (Miller, Smith, & Mackie, 2004; Van Hiel & Kossowska, 2006).

Empathy, in particular, has been highlighted as an important emotion in intergroup

conflict and resolution (Cikara et al., 2011; Halpern & Weinstein, 2004). Just as political

ideology is associated with motivation to empathize and a tendency to feel distress over

others' suffering (Feldman, Huddy, Wronski, & Lown, 2015; Hasson, Tamir, Brahms,

Cohrs, & Halperin, 2018; Jost, Badaan, Goudarzi, Hoffarth, & Mogami, 2019; Jost &

Hunyady, 2003; Pliskin, Halperin, Bar-Tal, & Sheppes, 2018) so should it be the case

with SDO.

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dominant. Given that the mean SDO score in a given sample is usually below the midpoint of the scale, the use of the term "social dominant" is admittedly a misnomer.

Relationships between SDO, empathy, and counter-empathy.

There are many definitions of empathy (Batson, 2009). Here we define empathy as the congruent emotional reaction a person feels in response to the assumed emotional state of others (Cikara, Bruneau, Van Bavel, & Saxe, 2014). Adopting this definition, empathy can be positive or negative (Table 1); empathy is not only how bad people feel when *negative* events befall others (i.e., negative empathy), but also how good they feel when others experience *positive* events (i.e., positive empathy; Cikara et al., 2014; Morelli, Lieberman, & Zaki, 2015). When a person has an emotional reaction that is *incongruent* with (and often opposite of) the assumed emotional state of another, they are feeling *counter*-empathy. This includes *schadenfreude*, or feeling pleasure at another person's pain, and *gluckschmerz*, or feeling pain at another person's pleasure (Table 1).

Schadenfreude in particular is a hostile emotion, and often directed at competitive or threatening out-group targets such as rival sports teams or political groups (Leach, Spears, Branscombe, & Doosje, 2003; Ouwerkerk, van Dijk, Vonkeman, & Spears, 2018), novel but competitive groups (Cikara et al., 2014), as well as targets who are merely stereotyped as competent and cold (Cikara & Fiske, 2013). Furthermore, emotions like schadenfreude are likely better predictors of group-based aggression and conflict than the absence of empathy alone (Cikara, 2015; Leach & Spears, 2008; Vachon et al., 2013), underscoring the importance of investigating empathy and counter-empathy simultaneously in intergroup relations.

Table 1: *Matrix of perceiver emotional feelings in response to the emotional feelings of an experiencer. Positive and negative empathy are the two kinds of empathy, while schadenfreude and gluckschmerz are the two kinds of counter-empathy.*

	Experiencer's Emotion: Positive	**Experiencer's Emotion:** Negative
Perceiver's Emotion: Positive	Positive Empathy	Schadenfreude
Perceiver's Emotion: Negative	Gluckschmerz	Negative Empathy

A survey of the current work on SDO and empathy indicates that social dominants tend to have lower trait empathy scores, or reduced tendencies to take other's perspectives and experience empathic concern (Davis, 1983). For example, in two longitudinal studies with nearly 5,000 participants, SDO at time 1 negatively predicted individual differences in empathic concern at time 2, controlling for SDO levels at time 2 (Sidanius et al., 2013). In other studies using structural equation modeling, trait empathy and SDO were negatively correlated, $r = -.49$ (Bäckström & Björklund, 2007). A composite measure of perspective-taking and empathic concern also mediated the relationship between SDO and sexism, implying that the role that SDO plays in maintaining patriarchy is accounted for, in part, by a reduced ability to understand the emotional states of others (Nicol & Rounding, 2013). We know of only one experiment that examined *state* empathic concern and SDO. In response to people portrayed in neutral or painful scenes, participants' level of SDO was negatively associated with (negative) empathy for the target in the scene. SDO was also negatively associated with the differences in activation between the neutral and painful scenes in the left anterior insula and anterior cingulate cortices, both of which are implicated in the subjective experience of empathy (Chiao, Mathur, Harada, & Lipke, 2009).

Although this literature illustrates a clear negative relationship between SDO and

trait empathy, almost no work to date has examined how SDO modulates affective state

empathy—the immediate affective response felt for a specific target in a specific

context—regardless of one's overall tendency to feel, or not feel, empathy (for

differentiation between trait and state empathy in intergroup settings see Bruneau,

Cikara, & Saxe, 2017). There is also no work on SDO's relationship with counter-

empathy in general, let alone as a function of intergroup relations. Incorporating group

dynamics into research on SDO and empathy is particularly important because group

processes impact outcomes related to both SDO and empathy. In the latter case,

individuals tend to be biased in their experiences of empathy, feeling less empathy and

more counter-empathy in response to competitive or threatening out-group members'

experiences relative to in-group members' experiences (Cikara et al., 2011; Han,

2018)[2].

This *intergroup empathy bias has* implications for both the willingness and

capacity to engage with out-group members. For example, people reported reduced

empathy in response to a person's distress if the person was not from their university

(Tarrant, Dazeley, & Cottom, 2009), political group (Pliskin et al., 2018; Porat, Halperin,

& Tamir, 2016), or country (Bruneau et al., 2017), and this led them to be less willing to

help those in need. These biases even appear with novel groups: people who were

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[2] There is still an open question as to whether intergroup empathy bias is a broad and stable
phenomenon (and thus might be better termed as *trait* intergroup empathy or trait parochialism) or
context-dependent (i.e. *state* intergroup empathy). There is evidence for both formulations. For example,
liberals and conservatives report feeling less empathy for political out-group in general, without
referencing a particular target or event (Hasson et al., 2018). This suggests that individuals might be
predisposed to feel reduced empathy towards out-group targets in general. However, other work shows
that the intergroup empathy gap is modulated by the context. For example, intergroup empathy gaps
emerge when groups are competing but not when they're cooperating (Cikara et al., 2014). We reserve
this discussion for future research, but acknowledge the importance of the distinction.

randomly assigned to competitive teams showed more empathy and less counter-empathy towards their in-group than the out-group (Cikara et al., 2014).

With its focus on societal forces that shape both anti-egalitarian and pro-dominance motives, SDT is well suited to predict when (counter-)empathy is modulated by group dynamics (Sidanius & Pratto, 1999). Specifically, SDT explicitly incorporates competition as an inherent property of hierarchies, modeling when and how out-group aggression and hostility will arise. When individuals care about maintaining a current hierarchy where some people are at the top and others at the bottom, feeling reduced empathy and increased counter-empathy in general, but specifically towards out-group targets, should facilitate hierarchy-maintenance. Reduced empathy creates separation between the self and others who might be suffering under the current social hierarchy[3] (Nicol & Rounding, 2013), while increased counter-empathy makes the current social hierarchy more enjoyable to reinforce.

Support for SDO's positive relationship with counter-empathy is augmented by the fact that feeling schadenfreude is often triggered within contexts of zero-sum intergroup competition (Cikara & Fiske, 2013; Hoogland et al., 2015; Leach & Spears, 2008), and that SDO reflects a competitive view of the world (Duckitt & Sibley, 2010). Furthermore, social dominants are willing to incur costs to the in-group in order to make the out-group suffer to a greater degree (Sidanius, Haley, Molina, & Pratto, 2007) and also favor policies that are designed to actively harm out-groups (Lindén et al., 2016).

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[3] We are not arguing that social dominants deliberately employ motivated cognition strategies to feel certain emotions that can best justify their actions and beliefs, although this might be the case. For example, both liberals and conservatives actually want to feel less empathy for out-group members (Hasson et al., 2018), suggesting that there could be a motivational component to our phenomenon.

These findings suggest that social dominants might be more prone to feeling malicious emotions like spite and schadenfreude towards members of out-groups.

Overview of studies and hypotheses

In sum, past work investigating the relationship between SDO and empathy has primarily focused on examining trait empathy rather than state empathy (i.e., how good or bad people feel in response to particular individuals' experiences). Furthermore, there has been no work of which we are aware examining SDO and empathy in an explicitly intergroup context nor the relationship between SDO and counter-empathic emotions in any context.

Across four studies we address this gap in the literature. Study 1 examines the moderating role of SDO on empathic and counter-empathic responses to racial in-group and out-group members without explicitly referencing group dynamics while studies 2a and 2b test whether SDO's moderation of empathy and counter-empathy depends on the salience of group boundaries and intergroup threat. Specifically, in Study 2a, we highlight participants' own race identity, creating a situation where group-related cognitions are activated in a relatively non-threatening manner. In Study 2b we instead highlight the competitive nature of group relations, creating a situation where participants are not only reminded of group boundaries but also out-group threat. Finally, Study 3 tests the generalizability of our findings by moving into the realm of novel groups – which are divorced from stereotypes, familiarity, and historical context. We tested whether SDO predicts decreased empathy and increased counter-empathy towards all targets, but especially out-group members. We additionally manipulated functional relations between the groups to test whether a competitive lens is necessary

to show group-based differences in (counter-) empathy. In these studies, we report all

measures, manipulations and exclusions.

Study 1: SDO decreases empathic and increases counter-empathic responding towards others

The goal for Study 1 was to investigate the relationship between SDO and

empathy/counter-empathy in response to in-group and out-group (mis)fortunes. We

presented monoracial White participants with targets that varied by race (i.e. White,

Black, and Asian) and solicited their empathic and counter-empathic responses about

negative and positive events that happened to those targets. At the end of the study we

measured their SDO levels. We chose to use racial groups for these first studies

because of the substantial body of work on empathy and SDO in the realm of race-

based conflicts. SDO has been shown to moderate levels of prejudice towards ethnic

minorities (Hiel & Mervielde, 2005) and empathy gaps between Blacks and Whites have

been replicated numerous times (Chiao & Mathur, 2010; Han, 2018).

Furthermore, using racial groups allowed us to test additional predictions

regarding schadenfreude. Schadenfreude most often targets individuals and groups that

are envied (van Dijk, Ouwerkerk, Smith, & Cikara, 2015). The stereotype content model

(Fiske, Cuddy, Glick, & Xu, 2002) predicts that groups that are perceived as competent

but cold—for example, Asian-Americans—are most likely to be targets of envious

prejudice (Cikara & Fiske, 2012; Lin, Kwan, Cheung, & Fiske, 2005). Thus, we expected

that Asians would be especially likely to elicit feelings of schadenfreude relative to White

and Black targets.

Methods

Participants. We recruited 200 participants from Amazon Mechanical Turk (MTurk: Buhrmester, Kwang, & Gosling, 2011; Paolacci & Chandler, 2014) and compensated them 65 cents for their time. We excluded non-monoracial White participants from the data analysis as well as those who failed the attention check in the state empathy task described below, leaving 140 participants (75 self-identified women, M_{age} = 42.01, SD = 14.30). We determined our sample size as follows: Cikara et al., 2014 (the study from which we adapted our paradigm) recruited 100 participants per condition for a final participation number of 66 participants in each condition after attention check exclusions. Given that this study is entirely within-subjects, but we needed monoracial White participants (who account for roughly 70% of the MTurk population; Levay, Freese, & Druckman, 2016), and we are investigating four-way interactions, we doubled Cikara et al.'s sample size.

Materials and procedure. Participants provided consent, completed the state empathy task described below, warmth and competence ratings of Blacks, Whites, and Asians, and the SDO questionnaire (in that order), followed by a series of demographic questions and the debrief.

State empathy task. Participants read stories ostensibly written by other participants and rated how good and how bad they felt for the target in each story. On any given trial, participants saw a picture of a White (in-group), Black (out-group) or Asian (out-group) target, and a single sentence describing an event that happened to them (See OSF project page for materials). These stories were either mildly positive or mildly negative in valence (e.g. eating a really good sandwich or stubbing one's toe). After the story, we presented participants with two 100-point slider bars without

feedback: one that prompted them to rate how good they felt from *Not at All Good* (0) to

Extremely Good (100), and one that prompted them to rate how bad they felt from *Not*

at All Bad (0) to *Extremely Bad* (100)[4]. We counterbalanced the order of the good and

bad sliders trial by trial. There was one attention check trial in which participants had to

move both sliders all the way to the right that was randomly placed in the task.

Participants completed three randomly assigned positive and three randomly assigned

negative stories per racial target, for a total of 19 trials including the attention check.

      Face stimuli. Faces were drawn from the M2 database, a database of 74

images of men and women from White, Black, and Asian descent (Strohminger et al.,

2016). We started with a pool of eight faces per race and randomly paired six of those

faces from each race with the stories to ensure that any race effects observed were not

due to idiosyncrasies associated with any particular face. We used all male faces for our

stimuli[5]. The attention check trial always depicted a White individual, and the identity of

this individual did not differ across participants.

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[4] One concern is that asking how good and bad individuals feel in response to positive and negative events cannot fully capture the constructs "empathy" and "counter-empathy." In a pilot study (N = 353) we assessed negative empathy and schadenfreude using a multi-item scale that included the "good" and "bad" items we use here, as well as how sad/sympathetic/compassionate/concerned the participant felt (for negative empathy) and how relieved/happy/satisfied the participant felt (for schadenfreude; items taken from Leach et al., 2003; Stürmer, Snyder, Kropp, & Siem, 2006). Each subscale was reliable: negative empathy's alpha = .87 and schadenfreude's alpha = .96. We conducted an exploratory factor analysis and both eigenvalues and parallel analyses suggested a 2-factor solution that separated negative empathy and schadenfreude cleanly. More importantly, the "how good does this make you feel" and "how bad does this make you feel" items had some of the highest factor loadings on schadenfreude (range = .94 - .88) and negative empathy (range = .89 - .56), respectively, suggesting that investigating empathy and counter-empathy using these items in isolation is valid.

[5] The theory of gendered prejudice is an intersectional theory created by integrating insights from social dominance theory and parental investment theory. According to the theory of gendered prejudice (McDonald, Navarrete, & Sidanius, 2011; Sidanius, Hudson, Davis, & Bergh, 2018), coalitional violence and discrimination are fundamentally a male-on-male phenomenon. Cognitive, affective, and behavioral processes that lead to discrepancies in how members of coalitions are treated are assumed to be targeted more towards the men of the out-group than the women. For example, fear and shooter paradigms studies using race show that the reaction in question is specifically targeted towards Black men rather than Black people in general (Navarrete et al., 2009; Plant, Goplen, & Kunstman, 2011). Thus,

Warmth and competence items. Warmth and competence were measured using a single item per racial group. Participants indicated on 100-point slider scales how warm (i.e., good-natured, sincere, friendly) and competent (i.e., confident, capable, skillful) they thought Whites, Asians, and Blacks were (Fiske et al., 2002) on separate screens. Questions regarding warmth and competence were asked consecutively within racial groups and we randomized the presentation order of the racial groups.

SDO scale. The 16-item SDO_7 scale (Ho et al., 2015) measured social dominance using a 1-7 scale where 1 = *Strongly Oppose* and 7 = *Strongly Favor*. The 16 items were averaged together to give a single SDO score. Higher numbers on this scale indicates a higher acceptance of group-based hierarchy, α = .96, *M* = 2.52, *SD* = 1.45. There are two subscales within SDO: SDO-E (i.e. (anti-)egalitarianism) and SDO-D (dominance) We conducted confirmatory factor analyses and found that the data did not support a two-factor solution with SDO-E and SDO-D. Exploratory factor analysis suggested a two-factor solution that fell along positive and negative wording instead[6]. Thus, we kept the SDO_7 scale as a single-factor scale for the analyses below.

Analysis plan and hypotheses. We analyzed the data using a multilevel model in which Rating Task (i.e., judgments of how bad and how good participants felt), Event Valence (i.e., positive and negative stories), Target Race (i.e., White, Black and Asian targets) and SDO (centered) interacted to predict reported emotion ratings (on a scale from 0-100). It is important to note that any given empathic or counter-empathic emotion

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using male faces theoretically gives us the best chance of observing the moderating effect of SDO on group-based differences in empathy and counter-empathy.

[6] Across the four studies, SDO did not systematically factor into SDO-E and SDO-D, with the data supporting a single-factor solution in 3 out of 4 studies. We speculate in the discussion section how our results could be further nuanced theoretically by SDO-E and SDO-D. However, our data do not allow us to meaningfully test these speculations.

is generated by the interaction between Rating Task and Event Valence. For example, schadenfreude is operationalized as how good participants felt about a negative event happening to a target. Positive empathy occurs when Rating Task = good and the Event Valence = positive, negative empathy when Rating Task = bad and Event Valence = negative, and gluckschmerz when Rating Task = bad and Event Valence = positive.

We used a participant random intercept to account for the within-subject nature of the Rating Task, Event Valence and Target Race. Entering Story ID (i.e., the particular positive and negative story presented to participants), Face ID (i.e. the particular Black, Asian, and White face presented out of the set of 24), and Trial Order as random effects did not account for any additional variance beyond Participant ID. Thus, we included only Participant ID as a random intercept in the final model. As a robustness check, we included gender as a covariate in the analyses, which did not change our results or conclusions (see supplementary materials). We chose to remove gender as a covariate given these results for increased power and model simplicity. All statistics reported are from the fully saturated model including all main and interaction effects, with bad ratings, positive events and Whites as reference groups using effects coding. All planned comparisons between means and slopes were adjusted using the Tukey method with the *emmeans* package in *R*. All descriptive statistics, correlations, ANOVA, and regression analyses tables can be found in supplementary materials.

In this study, we hypothesized that participants will in general feel more empathy than counter-empathy as people are less willing to admit to feeling counter-empathy than empathy (Cikara & Fiske, 2012), resulting in a two-way interaction between Event Valence and Rating Task. We further predicted that participants will feel more

schadenfreude towards Asians than Whites and Blacks, resulting in a three-way

interaction between Event Valence, Rating Task, and Target Race. Finally, we

hypothesized that individuals higher in SDO would show reduced empathy and

increased counter-empathy towards all targets (i.e. a significant three-way interaction

between Event Valence, Rating Task, and SDO), but expected that the moderating

effect of SDO on empathy and counter-empathy should be particularly strong for Asian

and Black targets (i.e. a significant four-way interaction between Event Valence, Rating

Task, Target Race, and SDO).

  Finally, we used the *R* package *simr* to conduct sensitivity analysis simulations

(Green & Macleod, 2016). These simulations suggest that at an alpha value of 0.045[7]

and 80% power we could detect an effect of b = -0.78 for the interaction of Event

Valence and Rating task, effects of b = -1.12 and b = -1.16 for the interaction between

Event Valence, Rating Task, and Target Race comparing White-Asian and White-Black

respectively, an effect of b = -0.54 for the interaction between Event Valence, Rating

Task, and SDO, and effects of b = 0.78 and b = 0.76 for the interaction between Event

Valence, Rating Task, Target Race, and SDO comparing White-Asian and White-Black

respectively.

Results

  We build the model hierarchically, moving through the main effects model to the

four-way interaction model. At each step until the four-way interaction, the more

complex model was a better fit to the data. We used the 'r.squaredGLMM' function from

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[7] At the recommendation of the creators of the *simr* package, we ran our simulations at an alpha value of 0.045 to account for the slight anti-conservative bias *simr* has when running power analyses converting *t* statistics into *z* statistics. This is the equivalent of assuming infinite degrees of freedom and is much easier to compute than solving for the actual value.

the *MuMIn* package in *R* to calculate a pseudo-R^2 for multilevel models (Bartoń, 2018).

The marginal R^2 of the model, or the variance explained by fixed factors, is .505. The

conditional R^2 of the model, or the variance explained by the random and fixed factors,

is .621. Although our hypothesized four-way interaction between Event Valence, Rating

Task, Target Race, and SDO was not significant, $F(2, 4878) = 0.66$, $p = .516$, we still

reported the statistics from the saturated model.

Were participants more empathic than counter-empathic? As expected, the

two-way interaction between Event Valence and Rating Task was significant, $F(1, 4878)$

$= 6463.49$, $p < .001$. Participants felt more good than bad when positive events

happened to targets, $M_{diff} = 51.43$, $t(4878) = 64.87$, $p < .001$, $d = 1.54$, and felt more bad

than good when negative events happened to targets, $M_{diff} = 38.71$, $t(4878) = 48.83$, $p <$

.001, $d = 1.03$.

Did SDO moderate levels of empathy and counter-empathy? Participants'

basic tendency to display more empathy than counter-empathy was qualified by the

hypothesized three-way interaction between Event Valence, Rating Task, and SDO,

$F(1, 4878) = 101.43$, $p < .001$. SDO levels significantly moderated participants' levels of

empathy and counter-empathy. None of the confidence intervals for positive empathy (b

$= -1.84$, 95%CI [-3.33, -0.35]), negative empathy ($b = -2.32$, 95%CI [-3.81, -0.84]),

schadenfreude ($b = 2.12$, 95%CI [0.64, 3.61]), and gluckschmerz ($b = 1.54$, 95%CI

[0.06, 3.03]) included zero, indicating that SDO's relationships with empathy and

counter-empathy were significant (Figure 1). Furthermore, simple slope comparisons

indicated that the only slopes that were not significantly different from each other were

positive and negative empathy ($t(4878) = 0.88$, $p = .816$) as well as schadenfreude and

gluckschmerz (t(4878) = 1.05, p = .718), suggesting that SDO's impact on empathy and counter-empathy was not dependent upon the positivity or negativity of the event (all other ts ranged between 6.16 and 8.09, all ps < .001).
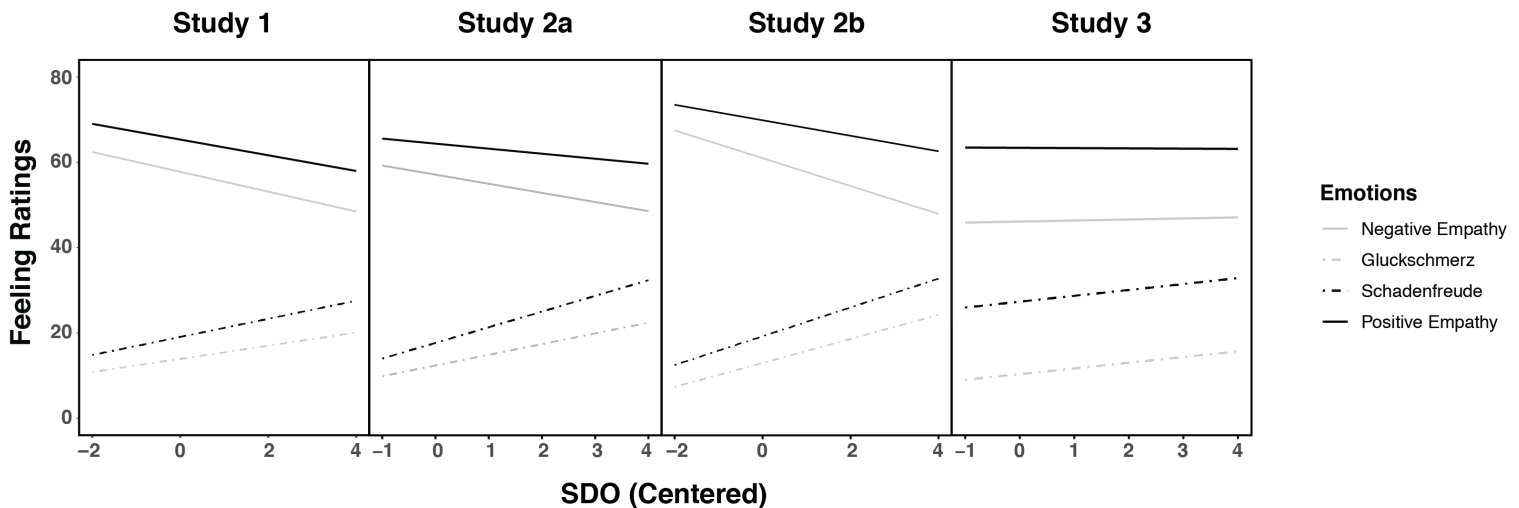
Figure 1: The relationship between SDO, Event Valence, and Rating Task on predicted feelings in all studies

Did participants feel increased levels of schadenfreude towards Asian relative to White and Black targets? We hypothesized that Asian targets would receive greater amounts of schadenfreude than White or Black targets because they are seen as competent but cold (an attribution which theoretically stems from inferences of Asians' competiveness; Cikara & Fiske, 2012; Leach & Spears, 2008; van de Ven et al., 2015). To confirm that our participants saw Asians as equally competent but colder than Whites, we analyzed the warmth and competence ratings participants reported by race. Given that participants' warmth and competence ratings were likely dependent with one another, we regressed participants' trait ratings on the interaction between Target Race (White, Black, and Asian) and Rating Type (Warmth and Competence) in a multilevel model with Participant ID as a random intercept. Participants rated Asians as

less warm than Whites, M_{diff} = -5.30, $t(695)$ = -3.08, p = .006, d = -0.28, but not more

competent, M_{diff} = 3.39, $t(695)$ = 1.97, p = .120, d = 0.21. In comparison, participants

saw Blacks as equally warm as Whites, M_{diff} = -2.39 $t(695)$ = -1.39, p = .348, d = -0.10,

but less competent, M_{diff} = -8.41, $t(695)$ = -4.89, p < .001, d = -0.37. Thus, the ratings of

Asian targets conform to the predictions laid out by the Stereotype Content Model, in

which Asians and Whites are both seen as highly competent but only Asians as

stereotyped as colder.

When we examined affective reactions, the three-way interaction between Rating

Task, Event Valence, and Target Race, $F(2, 4878)$ = 1.16, p = .312, was not significant.

Specifically, we compared participants' reported levels of empathy and counter-empathy

between target races, but there was no evidence that participants reported more

schadenfreude towards Asian targets than to White targets, M_{diff} = 0.77, $t(4878)$ = 0.56,

p = .841 or Black targets, M_{diff} = -0.06, $t(4878)$ = -0.05, p = .998 (Related analyses for

Studies 2a and 2b can be found in supplementary materials.).

Did target race influence SDO's moderation of empathy and counter-

empathy? The four-way interaction between Event Valence, Rating Task, Target Race,

and SDO was not significant, $F(2, 4878)$ = 0.66, p = .516. When conducting the planned

slope comparisons between SDO slopes predicting empathy and counter-empathy, only

the amount of positive empathy felt varied by race. Specifically, as SDO increased,

participants felt less positive empathy for Black targets compared to White targets,

$t(4878)$ = 2.53, p = .030.

Discussion

In Study 1, participants indicated how much empathy and counter-empathy they experienced in reaction to positive and negative events happening to in-group (i.e., White) and out-group (i.e., Black and Asian) individuals. In line with our predictions, participants felt more empathy than counter-empathy. More important, as SDO increased, participants felt less empathy and more counter-empathy towards all targets. This finding dovetails with work indicating that individuals high in SDO chronically see the world in competitive terms (Duckitt & Sibley, 2010). Contrary to expectations, participants did not show increased schadenfreude on average towards Asians relative to Whites and Blacks, and SDO's relationships with empathy and counter-empathy were not significantly moderated by the race of the target.

One reason why we might not have found a significant four-way interaction between Event Valence, Rating Task, SDO, and Target Race is that in Study 1, we did not draw participants attention to group boundaries before they completed the state empathy task. In Studies 2a and 2b, we increased the salience of group dynamics by priming in-group and out-group related cognitions, respectively.

Studies 2a and 2b: Focusing on group boundaries leads individuals high in SDO to show less empathy and increased counter-empathy towards out-groups

The goals for Studies 2a and 2b were to replicate the findings in Study 1 and extend them by creating conditions under which SDO should moderate empathy and counter-empathy based on the target's group membership. Building on past research using scales a way to prime group-related cognition (Ho, Sidanius, Cuddy, & Banaji, 2013), we had participants fill out a measure of racial identification in Study 2a and a

measure of symbolic threat in Study 2b before the empathy task[8]. Racial identification is

an ideal prime to test whether the mere activation of group boundaries without threat

can lead to gaps in counter-empathy as it focuses solely on the values and virtues of

the in-group rather than any threat from the out-group. Our expectation is that by

making participants' racial identity salient before the empathy task, participants will see

the targets in the task through a group lens and for those with high levels of SDO, they

will show decreased empathy towards out-group members.

An outstanding question is whether group salience without threat will be enough

to promote increased levels of counter-empathy in participants with high levels of SDO.

We hypothesize that priming group boundaries without threat will not be enough to

increase levels of counter-empathy among social dominants, because SDO is

particularly sensitive to competition and out-group hostility which requires more than just

making groups salient. Study 2b addresses this hypothesis; we use symbolic threat as a

prime to reframe race relations in a competitive way, reminding (White) participants that

ethnic minorities can pose a threat to their resources. If a competitive framing is

necessary for SDO to modulate expressions of counter-empathy by race, we expect to

see significant racial differences in the amount of counter-empathy expressed by social

dominants in Study 2b but not 2a.

Methods

Participants. We recruited 350 participants in Study 2a and 326 in Study 2b

from Amazon Mechanical Turk. In both studies we compensated participants 75 cents

for their time. Again, we excluded non-monoracial Whites and participants who failed

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[8] Please see supplementary materials for a replication of Study 2b using realistic threat as a prime instead of symbolic threat.

the manipulation check from the analyses, reducing the number of participants to 226

Whites (111 self-identified women), M_{age} = 38.24, SD_{age} = 11.89 in Study 2a and 210

Whites (124 self-identified women), M_{age} = 36.86, SD_{age} = 12.72 in Study 2b. We

increased the number of participants and the compensation from Study 1 to account for

the scale prime.

Materials and procedure. Studies 2a and 2b were identical to Study 1 with one

change. In Study 2a participants completed a 6-item racial identification scale (α = .83,

M = 4.12, SD = 1.21) adapted from the Multidimensional Inventory of Racial Identity

(Sellers, Smith, Shelton, Rowley, & Chavous, 1998). Sample items include "In general,

my racial group is an important part of my self-image" and "I often regret that I am a

member of my racial group" (reverse coded). In Study 2b participants filled out a 10-item

symbolic threat scale (α = .90, M = 3.12, SD = 1.17). Sample items include "Ethnic

minorities are a danger to everything that is good, normal, moral, and decent in society"

and "the values and beliefs of ethnic minorities regarding family issues and socializing

children are basically quite similar to those of most Americans" (reverse coded)

(Stephan, Ybarra, & Bachman, 1999).

The scales were not of interest outside of priming but were reliable. SDO was

also reliable in Study 2a (α = .95, M = 2.41, SD = 1.27) and in Study 2b (α = .94, M =

2.51, SD = 1.25)

Results

We analyzed the data as described in Study 1, building each model

hierarchically. At each stage the more complex models were better fits to the data. The

marginal and conditional R^2 of the model in Study 2a are .523 and .656 respectively,

and .573 and .649 in Study 2b. Our predictions were also the same as in Study 1.

Again, ANOVA and regression analyses tables can be found in supplementary

materials. Sensitivity analysis simulations for Study 2a suggest that at 80% power with

an alpha level of 0.045, we can detect a minimum effect of b = -0.61 for the interaction

between Event Valence and Rating Task, an effect of b = -0.47 for the interaction

between Event Valence, Rating Task, and SDO, and effects of b = 0.68 and b = 0.66 for

the four-way interaction comparing White-Asian and White-Black respectively. These

simulations are similar for Study 2b, as we can detect a minimum effect of b = -0.63 for

the interaction between Event Valence and Rating Task, an effect of b = -0.54 for the

interaction between Event Valence, Rating Task, and SDO, and an effect of b = -0.92

for both the four-way interactions comparing White-Asian and White-Black.

Were participants more empathic than counter-empathic? Replicating Study

1, the hypothesized two-way interaction between Event Valence and Rating Task was

significant in both Study 2a, $F(1, 7888)$ = 11870.67, $p < .001$, and Study 2b, $F(1, 7328)$

= 11747.68, $p < .001$. Participants felt more good than bad when positive events

happened in Study 2a, M_{diff} = 52.03, $t(7888)$ = 87.86, $p < .001$, d = 1.58, as well as in

Study 2b: M_{diff} = 56.91, $t(7328)$ = 88.41, $p < .001$, d = 1.72. They also felt more bad than

good when negative events happened in Study 2a, M_{diff} = 39.45, $t(7888)$ = 66.45, $p <$

.001, d = 1.12 and in Study 2b: M_{diff} = 41.75, $t(7328)$ = 64.87, $p < .001$, d = 1.09.

Did SDO moderate levels of empathy and counter-empathy? Participants'

(counter-)empathic responses were again qualified by the significant three-way

interaction between Event Valence, Rating Task, and SDO in both Study 2a, $F(1, 7888)$

= 206.75, $p < .001$, and Study 2b, $F(1, 7328)$ = 238.78, $p < .001$) (Figure 1). In Study 2a,

as SDO levels increased, positive empathy decreased, *b* = -1.18, 95%CI [-2.55, 0.19],

negative empathy decreased, *b* = -2.14, 95%CI [-3.51, -0.77], schadenfreude increased,

b = 3.67, 95%CI [2.30, 5.05], and gluckschmerz increased, *b* = 2.51, 95%CI [1.14,

3.88]. All slopes except for positive empathy were significantly different from zero, as

evidenced by each slope's 95% confidence intervals. The slopes relating SDO to

emotion ratings for positive and negative empathy did not differ from each other, *t*(7888)

= 2.05, *p* = .169, while the slopes for schadenfreude and gluckschmerz were marginally

different from each other *t*(7888) = 2.50, *p* = .061. All other *t*s range between 7.89 and

12.44, with their *p* values all less than .001.

The relationship between Event Valence, Rating Task, and SDO was almost

identical in Study 2b. As SDO levels increased, positive empathy decreased, *b* = -1.82,

95%CI [-3.05, -0.59], negative empathy decreased, *b* = -3.26, 95%CI [-4.50, -2.03],

schadenfreude increased, *b* = 3.38, 95%CI [2.15, 4.61], and gluckschmerz increased, *b*

= 2.81, 95%CI [1.58, 4.05]. All slopes were significantly different from zero, as

evidenced by each slope's 95% confidence intervals. Unlike Study 2a, the slopes

relating SDO to feeling ratings for positive and negative empathy differed from each

other, *t*(7328) = 2.80, *p* = .026, while the slopes for schadenfreude and gluckschmerz

were not significantly different from each other *t*(7328) = 1.10, *p* = .690. All other *t*'s

ranged between 8.97 and 12.88, with *p* values less than .001.

Did target race influence SDO's moderation of empathy and counter-

empathy? The predicted four-way interaction between Event Valence, Rating Task,

Target Race, and SDO was significant in Study 2a, *F*(2, 7888) = 9.09, *p* < .001, and

Study 2b, *F*(2, 7328) = 16.38, *p* < .001. We investigated this interaction by comparing

the strength of the relationship between SDO and the four emotions as a function of

target race (Figure 2). We consider each emotion in turn.

     Positive Empathy. As SDO increased in Study 2a, participants were less

positively empathic towards Black targets, $t(7888) = 2.89$, $p = .011$, and marginally less

positively empathic towards Asian targets, $t(7888) = 2.22$, $p = .069$, relative to White

targets. To aid in interpreting the effect of race on SDO's relationship with positive

empathy: the difference in the amount of positive empathy shown by a participant with

the lowest level of SDO and the highest level of SDO was 1.20 for White targets on a

100- point scale and 9.54 for Asian targets. This difference increased to 12.84 for Black

targets. Furthermore, the slopes for White ($b = 0.20$, 95%CI [-1.45, 1.85]) and Asian (b

$= -1.59$, 95%CI [-3.24, 0.05]) targets were not significantly different from zero while the

slope for Black targets ($b = -2.14$, 95%CI [-3.97, -0.49]) was significantly different from

zero, indicating that SDO's negative impact on positive empathy overall held only for

Black targets.

     This relationship was almost identical in Study 2b. As SDO increased in Study

2b, compared to White targets, participants were again less positively empathic towards

Black targets, $t(7328) = 3.21$, $p = .004$, and marginally less empathic towards Asian

targets, $t(7328) = 2.16$, $p = .079$. Furthermore, the slope for White targets ($b = -0.22$, [-

1.81, 1.37]) was not significantly different from zero while the slopes for Black ($b = -$

3.09, [-4.68, -1.50]) and Asian ($b = -2.15$, [-3.74, -0.55]) targets were significantly

different from zero, indicating again that SDO was not related to amount of positive

empathy participants reported for in-group targets. The difference in the amount of

positive empathy shown White targets by a participant with the lowest level of SDO and

the highest level of SDO was 1.32 on a 100-point scale. This difference increased to

12.90 for Asian targets and 18.54 for Black targets.

     Negative Empathy. In Study 2a, SDO had a stronger negative relationship with

negative empathy for Black, $t(7888) = 2.79$, $p = .015$ and Asian, $t(7888) = 2.71$, $p =$

.018, targets, relative to White targets. The slope for White targets (b = -0.65, [-2.30,

1.00]) was not significantly different from zero, unlike the slope for Black (b = -2.91, [-

4.56, -1.26]) and Asian (b = -2.85, [-4.50, -1.20]) targets. Interpreting this effect, the

difference in the amount of negative empathy shown White targets by a participant with

the lowest level of SDO and the highest level of SDO was 3.90 on a 100-point scale.

This difference increased to 17.10 for Asian targets and 17.46 for Black targets.

     In Study 2b, compared to SDO's impact on negative empathy for White targets,

SDO had a stronger negative relationship with negative empathy for Black, $t(7328) =$

2.62, $p = 0.024$ and Asian, $t(7328) = 3.56$, $p = .001$, targets. The slope for White targets

(b = -1.43, [-3.02, 0.17]) was not significantly different from zero, unlike the slope for

Black (b = -3.76, [-5.36, -2.17]) and Asian (b = -4.60, [-6.20, -3.01]) targets. Thus,

across both Studies 2a and 2b, SDO did not predict how much negative empathy

participants reported for in-group targets. The difference in the amount of negative

empathy shown targets by a participant with the lowest level of SDO and the highest

level of SDO was 8.58 for Whites on a 100-point scale, 22.56 for Black targets and

27.60 for Asian targets.
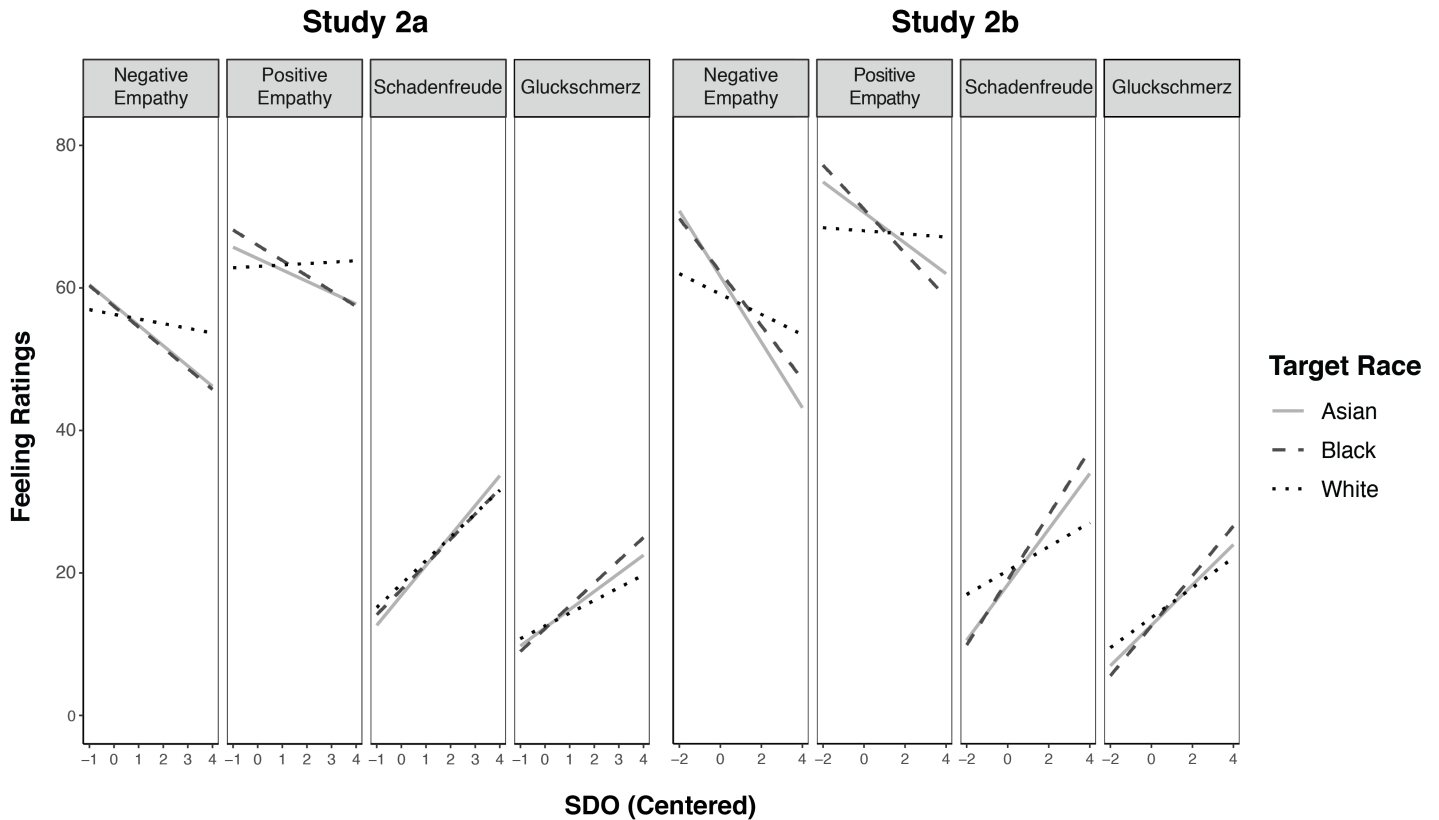
Figure 2: The relationship between Event Valence, Rating Task, Target Group, and SDO in Studies 2a and 2b

Schadenfreude. As we predicted, only following a group threat prime did slope comparisons within schadenfreude show significant modulation by race. After priming group boundaries in a non-threatening way in Study 2a, there were no significant differences in the amount of schadenfreude participant reported for White and Asian targets (t(7888) = -1.12, p = .500) or White and Black targets (t(7888) = -0.30, p = .952). However, the slopes for White (b = 3.29, 95%CI [1.64, 4.94]), Asian (b = 4.20, 95%CI [2.55, 5.85]), and Black (b = 3.53, 95%CI [1.88, 5.18]) targets were all significantly different from zero as evidenced by their 95% confidence intervals. This pattern reflects a deviation from how SDO relates to empathy. Whereas SDO was unrelated to positive and negative empathy for in-group targets, SDO was positively related to schadenfreude for *all* targets, including the in-group.

In Study 2b we primed group boundaries in a threatening way. After the prime, SDO had a stronger positive relationship with schadenfreude for Black, $t(7328) = -3.23$, $p = .004$, and Asian, $t(7328) = -2.48$, $p = .032$, targets, relative to White targets. As in Study 2a, the slope for White targets ($b = 1.68$, 95%CI [0.09, 3.27]) was significantly different from zero, as well as the slopes for Black ($b = 4.56$, 95%CI [2.97, 6.16]) and Asian ($b = 3.90$, 95%CI [2.31, 5.49) targets. However, in line with our predictions, social dominants felt the highest levels of schadenfreude for out-group members. The difference in the amount of schadenfreude reported by a participant with the lowest level of SDO versus the highest level of SDO was 8.58 on a 100-point scale for White targets, 22.56 for Asian targets, and 27.60 for Black targets.

Gluckschmerz. There were no differences across target races in terms of the relationship between SDO and gluckschmerz in either Study 2a or 2b.

Discussion

In Studies 2a and 2b, White participants were primed to think about out-groups through two framings before engaging in the state empathy task. We drew participants attention to their racial in-group by having them reflect on how much they identified with their own race (non-threatening prime) or how ethnic minorities were competing for important symbolic resources (threatening prime). We found not only a significant three-way interaction between SDO, Rating Task and Event as in Study 1, but also the significant predicted four-way interaction between SDO, Rating Task, Target Race, and Event.

In Study 2a, as SDO increased, participants were less likely to feel positive or negative empathy towards Asians and Blacks in comparison to White targets

experiencing the same event. However, participants' levels of SDO did not modulate

counter-empathy, suggesting that activation of in-group identity was not enough to

manifest differences in counter-empathy expressed towards in-group and out-group

targets by SDO levels. When we primed a competitive frame between racial groups in

Study 2b, participants' level of SDO was now also positively related to how much

schadenfreude they expressed. As SDO increased, participants were not only less likely

to feel positive or negative empathy towards Asians and Blacks, but also more likely to

feel schadenfreude in comparison to White targets experiencing the same event.

Study 3: SDO predicts empathy and counter-empathy in novel groups

One limitation of the last three studies is our exclusive reliance on target race as

a means of manipulating group membership. Race in America is a unique intergroup

dynamic with a complex history. Thus, SDO differentially impacting empathy and

counter-empathy by racial group membership might be idiosyncratic to American race

relations. To address this concern, we moved to replicate our effects in a novel groups

paradigm in Study 3. Novel groups paradigms can be considered relatively "pure"

intergroup settings, divorced from historical and status-related factors. Thus, they are

useful in understanding the boundary conditions of intergroup processes.

We also experimentally manipulated the group relationship in Study 3. Studies 1,

2a, and 2b collectively suggest that SDO's relationship with empathy and counter-

empathy is sensitive to group salience *and* competition. Thus, in Study 3 we randomly

assigned participants to teams that were cooperating or competing, with the expectation

that any modulation of SDO's relationship with empathy and schadenfreude by group

membership would only occur when the teams were competing (not cooperating).

Finally, we measured group identification separately from our manipulations and entered in-group identification as a covariate in the analyses. Group identification reliably moderates individuals' levels of empathy and counter-empathy (Bruneau et al., 2017; Hoogland et al., 2015; Ouwerkerk et al., 2018) in intergroup contexts. By including in-group identification in the analyses, we can assess whether SDO is playing a unique role in driving empathic and counter-empathic responses.

Methods

Participants. We recruited 340 participants from Amazon Mechanical Turk and compensated them $1.00 for their time. We removed participants that failed any of our attention or manipulation checks described below. 108 participants failed at least one attention or manipulation check, leaving us with a total of 232 participants in which 125 participants identified as women and 178 identified as White, M_{age} = 35.18, SD = 10.43.

Materials and procedure. We told participants that we were recruiting people to an ongoing problem-solving challenge involving two teams, the Eagles and the Rattlers. Participants filled out a bogus personality test that randomly assigned them to either the Rattlers or the Eagles teams although participants believed they were assigned that team based on their personality. Next, participants were told that they are working with, or competing against, the other team. The participants' team was always slightly behind the other team. Participants then completed group identification measures towards the Eagles and the Rattlers on 100-point sliders. They answered how much they valued, felt connected to, and liked the Eagles and Rattlers, respectively We averaged the three in-group and out-group items to create in-group identification (α = .91) and out-group identification (α = .91) indices, respectively.

Afterwards, participants completed the state empathy task as described in Study 1 with a change in how in-group and out-group membership were denoted. In each trial of the state empathy task, participants viewed a picture of either a Rattler or an Eagle logo (instead of a face) accompanied by the positive or negative story. The state empathy task again included an attention check in which participants were requested to push both sliders to one side of the scale. Next, participants completed three manipulation checks and that assessed whether they (i) knew what team they were assigned to, (ii) knew who the other team was, and (iii) remembered if the two teams were cooperating or competing. Finally, participants again completed the 16-item SDO_7 scale (α = .96, M = 2.32; SD = 1.39), brief demographic questions, and were debriefed.

Results[9].

Our study design was a mixed 2(Event Valence: Positive, Negative) x 2(Rating Task: Good, Bad) x 2(Target Group: In-group, Out-group) x 2(Group Relationship: Cooperative, Competitive) x SDO (continuous) multilevel regression predicting emotion ratings on a 1-100 scale with random intercepts for Participant ID. Group Relationship was a between-subjects variable and was effects coded along with Event Valence, Rating Task, and Target Group: with cooperation, positive events, bad ratings, and in-group, coded as -1 (reference) respectively. We also included in-group identification in the analyses as a fixed effect. Sensitivity analysis simulations suggest that at 80% power with an alpha level of 0.045, we could detect a minimum effect of b = -0.86 for the interaction between Event Valence and Rating Task, an effect of b = -0.59 for the interaction between Event Valence, Rating Task, and SDO, an effect of b = 0.58 for the

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[9] There were several significant interactions that we did not hypothesize (see table S11 in supplementary materials). We are only going to focus on the interactions we predicted.

interaction between Event Valence, Rating Task, SDO, and Target Group, and an effect

of b = 0.59 for the five-way interaction. The five-way interaction was the best fit to the

data, and the marginal and conditional R^2 of the model were .388 and .480 respectively.

Group identification. As expected, participants identified more with their in-

group (M = 76.56, SD = 18.97) than their out-group (M = 47.83, SD = 24.49), t(434.88) =

14.13, p < .001, suggesting our novel groups manipulation was successful.

Were participants more empathic than counter-empathic? Again, participants

showed higher levels of empathy than counter-empathy, F(1, 7164) = 4016.41, p < .001.

Did SDO moderate levels of empathy and counter-empathy? Although the

interaction between SDO, Event Valence, and Rating Task was significant, F(1, 7164) =

7.22, p = .007 (Figure 1), pairwise comparisons indicated that none of the slopes were

significantly different from one another and none of the slopes were significantly

different from zero: positive empathy (b = -0.11, 95%CI [-1.37, 1.14]), negative empathy

(b = 0.13, 95%CI [-1.12, 1.39]), schadenfreude (b = 1.10, 95%CI [-0.16, 2.35]), and

gluckschmerz (b = 1.12, 95%CI [-0.13, 2.37]). Furthermore, all slopes except for positive

empathy were positive, which deviates from the results of the last three studies.

However, the higher-order interactions qualify, and explain, this finding.

Did target team influence SDO's moderation of empathy and counter-

empathy? As predicted, the four-way interaction between Event Valence, Rating Task,

Target Group, and SDO was significant, F(1, 7164) = 46.02, p < .001. However, this

finding was qualified by the significant five-way interaction.

Did cooperative versus competitive relations influence SDO's moderation

of empathy and counter-empathy for in-group and out-group targets? As

predicted, the five-way interaction between Event Valence, Rating Task, Target Group, Group Relationship, and SDO was significant as hypothesized, $F(1,7164) = 4.52$, $p = .034$ (Figure 3).

Cooperative condition. Beginning with the cooperation condition, only the SDO slope for out-group negative empathy (b = -2.20, 95%CI [-4.38, -0.02]) was significantly different from zero. Every other emotion's confidence interval regardless of the target's group membership contained zero (see Table S13 in supplementary materials). This indicates that SDO was not a significant predictor of in-group or out-group (counter-) empathy when groups were cooperating.

We also directly compared the in-group and out-group slopes within each emotion. Although only the out-group negative empathy slope was significantly different than zero, as SDO increased, participants' levels of negative empathy were significantly different for the in-group (b = 1.40 , 95%CI [-0.78,3.58]) compared to the out-group, M_{diff} = -3.60, $t(7164)$ = -2.99, p = .003. Specifically, higher SDO scores were associated with more empathy for the in-group and less empathy for the out-group. Additionally, as SDO increased, participants' levels of schadenfreude were significantly different for the in-group (b = -1.46, 95%CI [-3.64, 0.72]) compared to the out-group (b = 0.94, 95%CI [-1.24, 3.12]), M_{diff} = 2.40, $t(7164)$ = 2.00, p = .046. As predicted, higher SDO scores were associated with more schadenfreude for the out-group and less schadenfreude for the in-group.
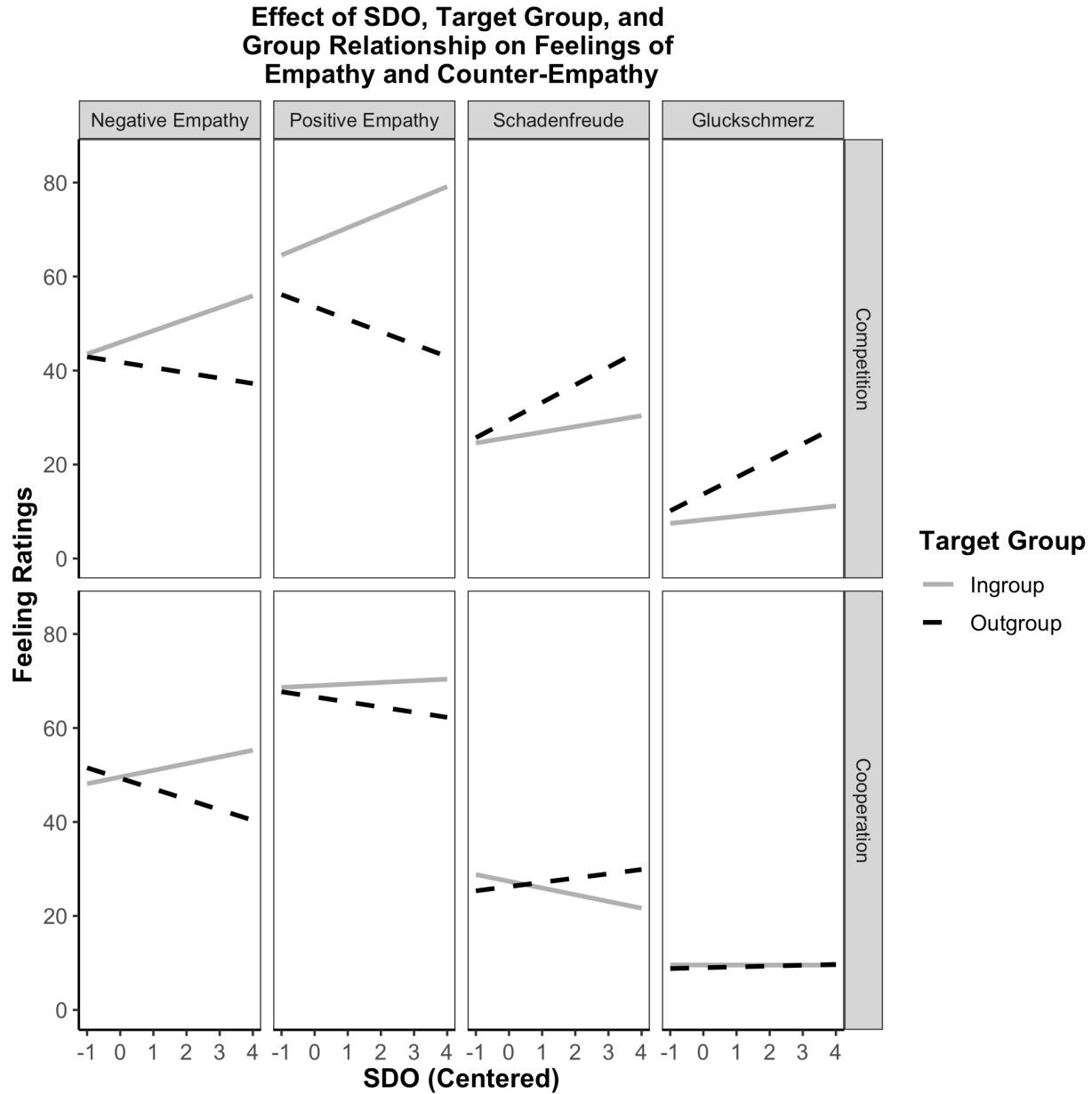
Figure 3: The relationship between SDO, empathy, counter-empathy, target group and group relationship in Study 3

Competitive condition. As predicted within the competition condition, the

relationship between SDO and positive empathy was positive for the in-group (b = 2.82,

95%CI [0.81, 4.84]) and negative for the out-group (b = -2.55, 95%CI [-4.56, -0.53]).

These two slopes were also significantly different from one another, $t(7164)$ = -4.84, p <

.001. For negative empathy, there was a positive relationship between SDO and

negative empathy for the in-group (b = 2.46, 95%CI [0.44, 4.48]) but no relationship for

the out-group (b = -1.12, 95%CI [-3.14, 0.89]). However, the difference between the two

slopes was significantly different, $t(7164)$ = -3.23, p = .001.

Examining counter-empathy, we found that the differences between the in-group

and out-group were significant for schadenfreude, $t(7164)$ = 2.36, p = .018 and

gluckschmerz, $t(7164)$ = 2.71, p = .007. That said, simple slopes analyses indicated

SDO was only significantly related to out-group (but not in-group) schadenfreude ($b_{in\text{-}group}$ = 1.15, 95%CI [-0.87, 3.17]; $b_{out\text{-}group}$ = 3.77, 95%CI [1.75, 5.78]) and gluckschmerz

($b_{in\text{-}group}$ = 0.65, 95%CI [-1.37, 2.66]; $b_{out\text{-}group}$ = 3.66, 95%CI [1.64, 5.68]). In other words,

SDO predicted participants' feelings of counter-empathy only for the out-group.

Discussion

In Study 3 we manipulated functional relations between novel groups to test the

generalizability and internal validity of our previous findings. On the whole, we replicated

our previous studies with a few exceptions (specifically examining in-group targets). We

found that the relationship between SDO and (counter-) empathy strongly depended on

group membership, with SDO positively predicting empathy and not predicting counter-

empathy for the in-group (this was not the case in Studies 1, 2a, and 2b), and negatively

predicting empathy and positively predicting counter-empathy for the out-group (this

replicated Studies 2a and 2b). This finding further suggests that status differences are

not necessary for SDO's effect on empathy and counter-empathy; group membership in

a competitive context is sufficient to activate this difference in affective responding.

Finally, the pattern described above was primarily true for participants in the

competition condition compared to the cooperation condition. Although there were

differences between the in-group and out-group slopes for schadenfreude and negative empathy within the cooperative condition, only the out-group negative empathy slope was significantly different from zero, suggesting that SDO does not moderate empathy and counter-empathy when the intergroup context is cooperative.

General Discussion

Though empathy is a potent predictor of helping behaviors towards others, people do not feel empathy towards all others in equal measure. Thus, we sought to understand the contextual and psychological moderators that impact when, and for whom, people decide to feel empathy. Previous work has focused on the fact that group dynamics alter empathic emotions: people reliably report less empathy (and more counter-empathy) towards those they deem as competitive "others". In the current work, we investigated how SDO moderates this relationship. By connecting SDO to work on intergroup empathy bias, we add to a small but growing literature on how specific emotional perceptions and responses are shaped by preferences for hierarchy and dominance (Ratcliff et al., 2012).

We hypothesized that SDO would be negatively related to state empathy and positively related to state counter-empathy, especially for threatening out-group members. Indeed, SDO was not more strongly related to negative empathy and counter-empathy towards out-groups *prima facie*. Instead, we needed to activate group boundaries and intergroup threat for SDO to moderate (counter-)empathic responses for out-group relative to in-group targets. Specifically, when we drew attention to group boundaries in a non-threatening way (Study 2a), the decrease in positive and negative empathy in participants with higher levels of SDO was more strongly directed towards

racial out-groups than racial in-group members. And when we primed a competitive

intergroup context (Study 2b), SDO *also* predicted increased schadenfreude towards

racial out-groups relative to racial in-groups. Finally, in Study 3, we replicated these

results among novel groups in competition (but not cooperation) with one another.

It is important to note that across these studies empathy and counter-empathy

changed independent of one another, highlighting that these sets of emotions are not

merely 'opposite sides of the same coin.' First, the correlations between empathy and

counter-empathy were on average rather small. More important, manipulations that

caused a decrease in empathy towards out-groups did not necessarily cause increases

in counter-empathy. These findings underscore an important point: the absence of

empathy is better characterized as apathy, rather than as antipathy. Apathy is not a

particularly potent motivator of behavior, except perhaps neglect (Cuddy et al., 2008;

Vachon, Lynam, & Johnson, 2014). Given that (i) intergroup conflict is often beset with

overt antipathy and (ii) decreased positive affect and increased negative affect towards

out-groups can be independent predictors of attitudinal outcomes (Perry, Priest,

Paradies, Barlow, & Sibley, 2018), our findings suggest the importance of studying both

empathic as well as counter-empathic emotions in groups.

Overall, these results offer an intriguing possibility that SDO's relationship with

empathy and counter-empathy might be functional. Because social dominants are

concerned with creating and maintaining hierarchy, feeling less empathy towards out-

groups may make it easier to subject them to policies and experiences that create and

reinforce their subjugation to the in-group (this is related to the ideological palliation

thesis; Goudarzi, Knowles, & Jost, 2019; Jost & Hunyady, 2003). Furthermore, Studies

2b and 3 support the idea that threat and explicit competition amongst social groups leads social dominants to further increase the gap between 'us' and 'them' by experiencing relatively greater *counter-empathy* towards out-groups. Expressing counter-empathy, and schadenfreude specifically, may motivate out-group harm (Cikara, 2015). In other words, feeling pleasure at out-group pain might make it more acceptable, even gratifying, to inflict out-group harm.

The functional role of SDO's link to empathy is speculative at this point, as we never directly manipulate hierarchy maintenance concerns nor show that the amount of empathy and counter-empathy felt towards targets mediates the relationship between SDO and hierarchy-enhancing behaviors. However, the difference in SDO's predictive power towards in-group and out-group empathy and counter-empathy in Study 3 lends support to this broad idea. SDO positively predicted empathy and negatively predicted counter-empathy for the in-group, as one would expect if the primary focus is creating a hierarchy in which one's in-group is on top.

Limitations and future research

There are several caveats to consider. First, Study 3 suggested that competitive intergroup dynamics, divorced from status and power concerns, are sufficient to lead social dominants to show differences in (counter-) empathy levels based on group membership. However, it is still an open question as to the relative impact status versus functional relations between groups play in these processes. Precursors to SDO (e.g., personality traits such as low agreeableness and open to experiences; Ekehammar, Akrami, Gylje, & Zakrisson, 2004) impact prejudice through status rather than group memberships (Bergh, Akrami, Sidanius, & Sibley, 2016). Furthermore, people higher in

SDO exhibit increased empathy towards advantaged social groups compared to

disadvantaged social groups (Lucas & Kteily, 2018). These findings suggest that status,

not intergroup relations, is the primary driver of SDO's impact on empathy. However,

the current work and Cikara et al. (2014) find that competition without status differences

between groups is sufficient to engender intergroup empathy bias. We believe that *both*

intergroup relations and status should influence the amount of empathy and counter-

empathy social dominants feel in a given situation. Indeed, the ideological asymmetry

hypothesis (Levin, Sidanius, Rabinowitz, & Federico, 1998) posits that both group status

and group affiliation determine how strongly SDO is related to hierarchy enhancing and

hierarchy attenuating attitudes and beliefs. It is also currently unclear whether other

aspects of group hierarchies like legitimacy or stability of the hierarchy, can further

mitigate or exacerbate the relationship between SDO and (counter-) empathy. Future

research should test the relative influence of these variables.

The second caveat is our narrow operationalization of empathy: the tendency for

individuals to feel congruent or incongruent emotions with another person's assumed

emotional state. Empathy is multifaceted and encompasses cognitive as well as

affective components. We do not know, for example, if SDO affects cognitive empathy

in the same way as affective empathy (in fact we have good reason to think people may

be even more likely to engage in processes like perspective-taking for threatening

targets; Morewedge, 2009; Vaish, Grossmann, & Woodward, 2008; Waytz et al., 2010).

The third caveat concerns the nature of the positive and negative stories used.

We purposefully used mild stories that had no direct impact on social hierarchy

dynamics (e.g. "George stubbed his toe"). Regardless, we still saw SDO had an impact

on the amount of empathy and counter-empathy participants reported. It is unclear

whether our effect reflects the upper or lower bound of empathic modulation. For

example, does SDO predict even greater decrements in empathy when the events that

happen to others become more extreme or hierarchically related? Or did the mild nature

of the events make it more socially acceptable for participants to express reduced

empathy and increased counter-empathy? In related experiments using more extreme

events across a variety of intergroup settings including among Americans vs. Arabs,

Hungarians vs. Muslim refugees, and Greeks vs. Germans during Greek economic

depression, people still exhibit pronounced intergroup empathy bias (Bruneau et al.,

2017). These findings tentatively suggest that our effects would replicate with more

extreme settings. Another future direction is to test whether our effects would replicate if

the events people read had direct implications for the social hierarchy (e.g. "George lost

his job", which is simultaneously more extreme and hierarchy-related). This is an

important next step as these are the kinds of events that substantively can reinforce or

dismantle ongoing social inequality.

The fourth and final caveat is our use of only male targets in the state empathy

paradigm. We chose to use only male targets for practical (i.e., design simplicity) and

theoretical (i.e., based on hypotheses from the theory of gendered prejudice) reasons.

Most of the work examining gender differences in empathy focus on the experiencer

and find that women report greater empathy than men (e.g., Christov-Moore et al.,

2014; Clarke, Marks, & Lykins, 2016). Though there is less work examining target

gender differences, what there is indicates women receive more empathy than men

(Oswald, 2000; Stuijfzand et al., 2016), in line with benevolent sexism (Glick & Fiske,

1996) and the general tendency to see women as morally superior and fundamentally pure (and perhaps therefore more deserving of empathy) than men (Eagly & Mladinic, 1994; Krys et al., 2018). Although previous research (Cikara et al., 2014) has documented intergroup (counter-) empathy bias between groups using both male and female targets, it is an open question whether SDO's modulation of these emotions will be as strong for female compared to male targets. We are currently conducting further studies to address this question.

Conclusions

We examined the interplay between individual ideology and functional relations between groups of unequal and equal status in driving emotional responses to in-group and out-group members' experiences. Understanding the role that ideology plays in expressing empathy towards targets is critical in potential efforts to mitigate intergroup conflicts. We encourage emotions researchers to consider ideology and group dynamics and ideology researchers to consider emotion in their work.

Open Practices

All study materials, data, and *R* scripts for all studies are available for download on OSF (https://osf.io/4ef6t/?view_only=b6f868173bd14b81ad8e9bb73b71014d); thus, this manuscript earned the Open Materials and Open Data badges.

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Supplementary Materials

Data and materials can be found on OSF:
https://osf.io/4ef6t/?view_only=74c7f14c82594bdda63d3cff2533122f

Supplementary Materials A: Descriptive statistics and correlation, regression, and ANOVA tables for all studies

Table S1: Descriptive statistics for Study 1

		M	*SD*	Correlations									
				1	2	3	4	5	6	7	8	9	10
1	Schadenfreude [a]	19.06	15.99										
2	Positive Empathy [a]	65.33	17.49	-0.10									
3	Negative Empathy [a]	57.78	21.48	-0.12	0.77****								
4	Gluckschmerz [a]	13.91	15.18	0.77****	0.07	0.11							
5	SDO [b]	2.52	1.45	0.19*	-0.15	-0.16	0.15						
6	Asian Warmth [a]	63.00	23.44	-0.18*	0.31***	0.33****	-0.08	-0.24**					
7	Asian Competence [a]	79.69	17.97	-0.13	0.32***	0.25**	-0.18*	-0.09	0.52****				
8	Black Warmth [a]	65.91	22.21	-0.13	0.33****	0.29***	-0.03	-0.36****	0.56****	0.46****			
9	Black Competence [a]	67.89	23.04	-0.17*	0.33****	0.28***	-0.08	-0.46****	0.58****	0.58****	0.87****		
10	White Warmth [a]	68.30	20.84	-0.12	0.29***	0.32***	-0.06	-0.03	0.63****	0.51****	0.43****	0.40****	
11	White Competence [a]	76.30	17.90	-0.25*	0.29***	0.30***	-0.15	0.02	0.38****	0.58****	0.40****	0.42****	0.73****

Notes: *p < .05, **p < .01, ***p < .001, ****p < .0001
We calculated participant scores for positive empathy, negative empathy, schadenfreude, and gluckschmerz by averaging participants responses within each emotion.
[a] Measured on a 100-point scale
[b] Measured on a 7-point scale

Table S2: Type III fixed effects for rating task, event valence, target race, and SDO predicting ratings in Study 1

Effect	Num DF	Den DF	F value	Pr > F
Event	1	4878	4.60	.0320
Rating Task	1	4878	128.60	.0000
Race	2	4878	0.01	.9902
SDO	1	138	0.03	.8538
Event Valence x Rating Task	1	4878	6463.49	.0000
Event Valence x Race	2	4878	0.05	.9538
Rating Task x Race	2	4878	0.06	.9465
Event Valence x SDO	1	4878	0.02	.9011
Rating Task x SDO	1	4878	1.87	.1719
Race x SDO	2	4878	0.36	.6944
Event Valence x Rating Task x Race	2	4878	1.16	.3120
Event Valence x Rating Task x SDO	1	4878	101.43	.0000
Event Valence x Race x SDO	2	4878	0.79	.4525
Rating Task x Race x SDO	2	4878	2.05	.1282
Event Valence x Rating Task x Race x SDO	2	4878	0.66	.5163

Table S3: Regression analyses for rating task, event, target race, and SDO predicting ratings in Study 1

Effect	b	95% CI	t value	Pr > t
(Intercept)	39.02	[37.11, 40.93]	40.06	.0000
Event Valence (Negative)	-0.60	[-1.15, -0.05]	-2.14	.0320
Rating Task (Good)	3.18	[2.63, 3.73]	11.34	.0000
Race (Asian)	-0.05	[-0.82, 0.73]	-0.12	.9024
Race (Black)	0.05	[-0.73, 0.82]	0.12	.9040
SDO (Centered)	-0.12	[-1.45, 1.2]	-0.18	.8538
Event Valence x Rating Task	-22.53	[-23.08, -21.99]	-80.40	.0000
Event Valence x Race (Asian)	0.05	[-0.72, 0.83]	0.13	.8961
Event Valence x Race (Black)	0.07	[-0.71, 0.84]	0.18	.8605
Rating Task x Race (Asian)	0.11	[-0.67, 0.88]	0.27	.7904
Rating Task x Race (Black)	-0.12	[-0.90, 0.65]	-0.30	.7605
Event Valence x SDO	0.02	[-0.36, 0.4]	0.12	.9011
Rating Task x SDO	0.27	[-0.11, 0.65]	1.37	.1719
Race (Asian) x SDO	0.14	[-0.40, 0.68]	0.50	.6139
Race (Black) x SDO	-0.23	[-0.77, 0.3]	-0.85	.3959
Event Valence x Rating Task x Race (Asian)	-0.39	[-1.16, 0.39]	-0.97	.3298
Event Valence x Rating Task x Race (Black)	-0.21	[-0.99, 0.57]	-0.53	.5961
Event Valence x Rating Task x SDO	1.96	[1.58, 2.34]	10.07	.0000
Event Valence x Race (Asian) x SDO	-0.02	[-0.55, 0.52]	-0.06	.9545
Event Valence x Race (Black) x SDO	0.31	[-0.23, 0.85]	1.12	.2635
Rating Task x Race (Asian) x SDO	-0.13	[-0.67, 0.41]	-0.47	.6385
Rating Task x Race (Black) x SDO	-0.41	[-0.90, 0.13]	-1.47	.1408
Event Valence x Rating Task x Race (Asian) x SDO	0.02	[-0.52 , 0.56]	0.06	.9492
Event Valence x Rating Task x Race (Black) x SDO	0.26	[-0.27, 0.80]	0.96	.3359

Table S4: Descriptive statistics for Study 2a

		M	*SD*	Correlations										
				1	2	3	4	5	6	7	8	9	10	11
1	Schadenfreude [a]	17.65	15.09											
2	Positive Empathy [a]	64.38	19.79	-0.02										
3	Negative Empathy [a]	57.10	22.07	-0.04	0.81****									
4	Gluckschmerz [a]	12.35	13.90	0.78****	0.00	0.12								
5	SDO [b]	2.41	1.27	0.31****	-0.08	-0.12	0.23****							
6	Asian Warmth [a]	63.82	24.64	-0.11	0.28****	0.24***	-0.07	-0.35****						
7	Asian Competence [a]	78.87	18.20	-0.04	0.20**	0.14*	-0.15	-0.06	0.49****					
8	Black Warmth [a]	64.52	22.74	-0.08	0.23***	0.14*	-0.11	-0.31****	0.66****	0.37****				
9	Black Competence [a]	68.04	23.76	-0.09	0.24***	0.19**	-0.07	-0.34****	0.65****	0.50****	0.81****			
10	White Warmth [a]	69.49	19.99	-0.04	0.24***	0.18**	-0.06	0.05	0.54****	0.60****	0.40****	0.31****		
11	White Competence [a]	76.84	18.73	0.03	0.17*	0.08	-0.06	0.02	0.44****	0.82****	0.34****	0.44****	0.75****	
12	Racial Identification [b]	4.12	1.21	0.04	0.09	0.05	0.10	0.42****	-0.16*	0.07	-0.25***	-0.26****	0.27****	0.20**

Notes: *p < .05, **p < .01, ***p < .001, ****p < .0001
We calculated participant scores for positive and negative empathy, schadenfreude, and gluckschmerz by averaging participants responses within each emotion.
[a] Measured on a 100-point scale
[b] Measured on a 7-point scale

Table S5: Type III fixed effects for Rating Task, Event Valence, Target Race, and SDO predicting ratings in Study 2a

Effect	Num DF	Den DF	*F* value	Pr > *F*
Event	1	7888	5.56	.0184
Rating Task	1	7888	224.34	.0000
Race	2	7888	1.14	.3188
SDO	1	224	1.27	.2616
Event Valence x Rating Task	1	7888	11870.67	.0000
Event Valence x Race	2	7888	0.59	.5534
Rating Task x Race	2	7888	1.05	.3501
Event Valence x SDO	1	7888	0.10	.7540
Rating Task x SDO	1	7888	10.35	.0013
Race x SDO	2	7888	1.84	.1593
Event Valence x Rating Task x Race	2	7888	3.67	.0256
Event Valence x Rating Task x SDO	1	7888	206.75	.0000
Event Valence x Race x SDO	2	7888	0.25	.7813
Rating Task x Race x SDO	2	7888	0.65	.5225
Event Valence x Rating Task x Race x SDO	2	7888	9.09	.0001

Table S6: Regression analyses for Rating Task, Event, Target Race, and SDO predicting ratings in Study 2a

Effect	*b*	95% CI	*t* value	Pr > *t*
(Intercept)	37.87	[36.28, 39.45]	46.81	.0000
Event Valence (Negative)	-0.49	[-0.91, -0.08]	-2.36	.0184
Rating Task (Good)	3.14	[2.73, 3.55]	14.98	.0000
Race (Asian)	-0.15	[-0.74, 0.43]	-0.52	.6016
Race (Black)	0.44	[-0.14, 1.02]	1.49	.1362
SDO (Centered)	0.72	[-0.53, 1.96]	1.13	.2616
Event Valence x Rating Task	-22.87	[-23.28, -22.46]	-108.95	.0000
Event Valence x Race (Asian)	0.00	[-0.58, 0.58]	0.00	.9990
Event Valence x Race (Black)	-0.28	[-0.86, 0.30]	-0.94	.3458
Rating Task x Race (Asian)	-0.38	[-0.96, 0.21]	-1.27	.2054
Rating Task x Race (Black)	0.37	[-0.21, 0.95]	1.24	.2141
Event Valence x SDO	0.05	[-0.27, 0.38]	0.31	.7540
Rating Task x SDO	0.53	[0.21, 0.85]	3.22	.0013
Race (Asian) x SDO	-0.14	[-0.60, 0.32]	-0.60	.5460
Race (Black) x SDO	-0.30	[-0.75, 0.16]	-1.27	.2028
Event Valence x Rating Task x Race (Asian)	-0.27	[-0.85, 0.31]	-0.92	.3600
Event Valence x Rating Task x Race (Black)	-0.52	[-1.10, 0.06]	-1.75	.0801
Event Valence x Rating Task x SDO	2.38	[2.05, 2.70]	14.38	.0000
Event Valence x Race (Asian) x SDO	0.05	[-0.41, 0.51]	0.20	.8380
Event Valence x Race (Black) x SDO	-0.16	[-0.62, 0.30]	-0.68	.4937
Rating Task x Race (Asian) x SDO	0.20	[-0.26, 0.65]	0.84	.4020
Rating Task x Race (Black) x SDO	-0.25	[-0.71, 0.20]	-1.09	.2768
Event Valence x Rating Task x Race (Asian) x SDO	0.42	[-0.03, 0.88]	1.81	.0703
Event Valence x Rating Task x Race (Black) x SDO	0.57	[0.11, 1.03]	2.44	.0148

Table S7: Descriptive statistics for Study 2b

		M	*SD*	Correlations										
				1	2	3	4	5	6	7	8	9	10	11
1	Schadenfreude [a]	19.21	14.06											
2	Positive Empathy [a]	69.86	17.27	-0.12										
3	Negative Empathy [a]	60.96	20.43	-0.26***	0.69****									
4	Gluckschmerz [a]	12.95	13.03	0.65****	-0.17*	0.00								
5	SDO [b]	2.51	1.25	0.30****	-0.13	-0.20**	0.27****							
6	Asian Warmth [a]	63.80	22.21	-0.10	0.20**	0.16*	-0.14*	-0.30****						
7	Asian Competence [a]	78.65	18.35	-0.05	0.19**	0.14*	-0.13	-0.14*	0.63****					
8	Black Warmth [a]	64.97	22.85	-0.16*	0.22**	0.21**	-0.14*	-0.35****	0.65****	0.54****				
9	Black Competence [a]	69.45	22.92	-0.16*	0.27****	0.29****	-0.13	-0.40****	0.61****	0.59****	0.82****			
10	White Warmth [a]	65.67	20.75	-0.04	0.26***	0.23***	0.00	-0.03	0.55****	0.46****	0.50****	0.44****		
11	White Competence [a]	72.42	19.19	-0.06	0.21**	0.18**	-0.06	0.01	0.48****	0.64****	0.48****	0.57****	0.72****	
12	Symbolic Threat [b]	3.12	1.17	0.18*	-0.16*	-0.15*	0.25***	0.57****	-0.33****	-0.19**	-0.40****	-0.39****	0.03	0.02

Notes: *p < .05, **p < .01, ***p < .001, ****p < .0001
We calculated participant scores for positive and negative empathy, schadenfreude, and gluckschmerz by averaging participants responses within each emotion.
[a] Measured on a 100-point scale
[b] Measured on a 7-point scale

Table S8: Type III fixed effects for Rating Task, Event Valence, Target Race, and SDO predicting ratings in Study 2b

Effect	Num DF	Den DF	F value	Pr > F
Event	1	7328	8.41	.0038
Rating Task	1	7328	277.12	.0000
Race	2	7328	1.34	.2615
SDO	1	208	0.26	.6079
Event Valence x Rating Task	1	7328	11747.68	.0000
Event Valence x Race	2	7328	0.12	.8843
Rating Task x Race	2	7328	0.07	.9322
Event Valence x SDO	1	7328	1.46	.2278
Rating Task x SDO	1	7328	7.62	.0058
Race x SDO	2	7328	0.73	.4796
Event Valence x Rating Task x Race	2	7328	9.32	.0001
Event Valence x Rating Task x SDO	1	7328	238.78	.0000
Event Valence x Race x SDO	2	7328	0.76	.4666
Rating Task x Race x SDO	2	7328	1.21	.2982
Event Valence x Rating Task x Race x SDO	2	7328	16.38	.0000

Table S9: Regression analyses for Rating Task, Event, Target Race, and SDO predicting ratings in Study 2b

	b	95% CI	t value	Pr > t
(Intercept)	40.74	[39.42, 42.07]	60.39	.0000
Event Valence [Negative)	-0.66	[-1.11, -0.21]	-2.90	.0038
Rating Task (Good)	3.79	[3.34, 4.23]	16.65	.0000
Race (Asian)	0.03	[-0.60, 0.66]	0.08	.9325
Race (Black)	0.44	[-0.19, 1.07]	1.37	.1694
SDO (Centered)	0.28	[-0.78, 1.34]	0.51	.6079
Event Valence x Rating Task	-24.67	[-25.11, -24.22]	-108.39	.0000
Event Valence x Race (Asian)	-0.16	[-0.79, 0.47]	-0.49	.6225
Event Valence x Race (Black)	0.06	[-0.57, 0.69]	0.20	.8449
Rating Task x Race (Asian)	-0.12	[-0.75, 0.51]	-0.36	.7182
Rating Task x Race (Black)	0.03	[-0.60, 0.66]	0.09	.9260
Event Valence x SDO	-0.22	[-0.58, 0.14]	-1.21	.2278
Rating Task x SDO	0.50	[0.15, 0.86]	2.76	.0058
Race (Asian) x SDO	-0.28	[-0.79, 0.22]	-1.10	.2733
Race (Black) x SDO	0.03	[-0.48, 0.53]	0.10	.9218
Event Valence x Rating Task x Race (Asian)	-0.63	[-1.26, 0.00]	-1.96	.0496
Event Valence x Rating Task x Race (Black)	-0.76	[-1.39, -0.13]	-2.35	.0189
Event Valence x Rating Task x SDO	2.82	[2.46, 3.18]	15.45	.0000
Event Valence x Race (Asian) x SDO	-0.13	[-0.63, 0.38]	-0.50	.6181
Event Valence x Race (Black) x SDO	0.32	[-0.19, 0.82]	1.23	.2196
Rating Task x Race (Asian) x SDO	0.38	[-0.13, 0.88]	1.46	.1438
Rating Task x Race (Black) x SDO	-0.07	[-0.57, 0.44]	-0.27	.7869
Event Valence x Rating Task x Race (Asian) x SDO	0.55	[0.05, 1.06]	2.14	.0327
Event Valence x Rating Task x Race (Black) x SDO	0.91	[0.41, 1.42]	3.53	.0004

Table S10: Descriptive statistics for Study 3

| | | *M* | *SD* | Correlations | | | | | |
				1	2	3	4	5	6
1	Schadenfreude [a]	26.98	12.91						
2	Positive Empathy [a]	63.34	19.83	0.29****					
3	Negative Empathy [a]	45.96	17.76	0.38****	0.73****				
4	Gluckschmerz [a]	10.06	11.76	0.67****	-0.02	0.18**			
5	SDO [b]	2.32	1.39	0.15*	0.04	0.06	0.16*		
6	In-group Identification [a]	76.56	18.97	0.10	0.38****	0.25****	-0.02	0.13	
7	Out-group Identification [a]	47.83	24.49	-0.02	0.26****	0.22***	-0.11	-0.03	0.29****

Notes: *p < .05, **p < .01, ***p < .001, ****p < .0001
We calculated participant scores for positive and negative empathy, schadenfreude, and gluckschmerz by averaging participants responses within each emotion.
[a] Measured on a 100-point scale
[b] Measured on a 7-point scale

Table S11: Type III fixed effects for Rating Task, Event Valence, Target Group, Group Relationship, and SDO predicting ratings in Study 3

Effect	Num DF	Den DF	*F* value	Pr > *F*
Event	1	14.65	0.04	.8423
Rating Task	1	7150.00	893.31	.0000
Relationship	1	226.97	3.02	.0838
Target	1	7154.61	8.25	.0041
SDO	1	226.97	1.11	.2930
Ingroup ID	1	226.97	18.30	.0000
Event x Rating Task	1	7150.00	4033.50	.0000
Event x Relationship	1	7150.00	0.14	.7104
Rating Task x Relationship	1	7150.00	1.34	.2476
Event x Target	1	7154.61	4.21	.0401
Rating Task x Target	1	7150.00	9.37	.0022
Relationship x Target	1	7163.38	1.00	.3171
Event x SDO	1	7150.00	0.08	.7823
Rating Task x SDO	1	7150.00	0.11	.7424
Relationship x SDO	1	226.97	2.28	.1321
Target x SDO	1	7162.61	3.73	.0535
Event x Rating Task x Relationship	1	7150.00	43.82	.0000
Event x Rating Task x Target	1	7150.00	37.41	.0000
Event x Relationship x Target	1	7163.38	1.90	.1679
Rating Task x Relationship x Target	1	7150.00	3.66	.0558
Event x Rating Task x SDO	1	7150.00	7.25	.0071
Event x Relationship x SDO	1	7150.00	0.56	.4561
Rating Task x Relationship x SDO	1	7150.00	0.00	.9586
Event x Target x SDO	1	7162.61	0.26	.6112
Rating Task x Target x SDO	1	7150.00	0.45	.5025
Relationship x Target x SDO	1	7163.09	0.13	.7210
Event x Rating Task x Relationship x Target	1	7150.00	32.74	.0000
Event x Rating Task x Relationship x SDO	1	7150.00	3.86	.0495
Event x Rating Task x Target x SDO	1	7150.00	46.22	.0000
Event x Relationship x Target x SDO	1	7163.09	0.30	.5867
Rating Task x Relationship x Target x SDO	1	7150.00	4.03	.0447
Event x Rating Task x Relationship x Target x SDO	1	7150.00	4.54	.0332

Table S12: Regression analyses for Rating Task, Event Valence, Target Group, Group Relationship, and SDO predicting ratings in Study 3

	b	95% CI	t value	Pr > t
(Intercept)	24.49	[18.58, 30.39]	8.08	.0000
Event	-0.10	[-0.67, 0.47]	-0.35	.7252
Rating Task	8.65	[8.08, 9.21]	29.82	.0000
Relationship	-1.30	[-2.75, 0.16]	-1.74	.0838
Target	-0.81	[-1.38, -0.25]	-2.80	.0051
SDO	0.56	[-0.47, 1.59]	1.05	.2930
Ingroup ID	0.16	[0.09, 0.24]	4.28	.0000
Event x Rating Task	-18.37	[-18.94, -17.8]	-63.38	.0000
Event x Relationship	0.11	[-0.46, 0.67]	0.37	.7109
Rating Task x Relationship	-0.33	[-0.90, 0.23]	-1.15	.2486
Event x Target	0.57	[0.00, 1.14]	1.96	.0501
Rating Task x Target	-0.89	[-1.45, -0.32]	-3.05	.0023
Relationship x Target	-0.30	[-0.87, 0.27]	-1.03	.3033
Event x SDO	0.06	[-0.34, 0.46]	0.28	.7827
Rating Task x SDO	-0.07	[-0.47, 0.33]	-0.33	.7429
Relationship x SDO	0.80	[-0.23, 1.82]	1.51	.1321
Target x SDO	-0.37	[-0.77, 0.03]	-1.79	.0730
Event x Rating Task x Relationship	1.91	[1.35, 2.48]	6.61	.0000
Event x Rating Task x Target	1.77	[1.20, 2.34]	6.10	.0000
Event x Relationship x Target	0.39	[-0.18, 0.96]	1.34	.1791
Rating Task x Relationship x Target	-0.55	[-1.12, 0.01]	-1.91	.0564
Event x Rating Task x SDO	0.55	[0.15, 0.95]	2.69	.0072
Event x Relationship x SDO	0.15	[-0.25, 0.55]	0.74	.4570
Rating Task x Relationship x SDO	0.01	[-0.39, 0.41]	0.05	.9587
Event x Target x SDO	0.10	[-0.30, 0.5]	0.47	.6381
Rating Task x Target x SDO	0.14	[-0.26, 0.54]	0.67	.5034
Relationship x Target x SDO	-0.05	[-0.45, 0.35]	-0.24	.8123
Event x Rating Task x Relationship x Target	1.66	[1.09, 2.22]	5.71	.0000
Event x Rating Task x Relationship x SDO	0.40	[0.00, 0.8]	1.96	.0500
Event x Rating Task x Target x SDO	1.39	[0.99, 1.79]	6.78	.0000
Event x Relationship x Target x SDO	0.08	[-0.32, 0.48]	0.38	.7046
Rating Task x Relationship x Target x SDO	-0.41	[-0.81, -0.01]	-2.00	.0452
Event x Rating Task x Relationship x Target x SDO	0.43	[0.030, 0.84]	2.13	.0336

Table S13: Estimated marginal slopes for the five-way interaction in Study 3

Emotions	Target Group	Group Relationship	SDO Slope	SE	DF	Lower CI	Upper CI
Schadenfreude	Out-group	Cooperation	0.91	1.11	921.14	-1.27	3.09
Schadenfreude	In-group	Cooperation	-1.43	1.11	921.14	-3.61	0.75
Positive Empathy	Out-group	Cooperation	-1.09	1.11	921.51	-3.27	1.09
Positive Empathy	In-group	Cooperation	0.35	1.11	921.51	-1.83	2.53
Negative Empathy	Out-group	Cooperation	-2.23	1.11	921.14	-4.41	-0.05
Negative Empathy	In-group	Cooperation	1.43	1.11	921.14	-0.75	3.60
Gluckschmerz	Out-group	Cooperation	0.18	1.11	921.51	-2.00	2.36
Gluckschmerz	In-group	Cooperation	-0.01	1.11	921.51	-2.19	2.17
Schadenfreude	Out-group	Competition	3.76	1.03	913.13	1.74	5.77
Schadenfreude	In-group	Competition	1.16	1.03	913.13	-0.85	3.18
Positive Empathy	Out-group	Competition	-2.64	1.03	913.14	-4.65	-0.63
Positive Empathy	In-group	Competition	2.92	1.03	913.14	0.90	4.93
Negative Empathy	Out-group	Competition	-1.13	1.03	913.13	-3.15	0.88
Negative Empathy	In-group	Competition	2.47	1.03	913.13	0.46	4.49
Gluckschmerz	Out-group	Competition	3.57	1.03	913.14	1.55	5.58
Gluckschmerz	In-group	Competition	0.74	1.03	913.14	-1.27	2.76

Table S14: Pairwise slope comparisons in Study 3

Comparing In-group and Out-group SDO Slopes Predicting Empathy and Counter Empathy by Group Relationship

Emotions	Contrasts	Group Relationship	Mean Slope Diff.	SE	DF	t value	p value
Schadenfreude	Outgroup - Ingroup	Cooperation	2.34	1.20	7155.89	1.95	.0513
Positive Empathy	Outgroup - Ingroup	Cooperation	-1.44	1.20	7159.13	-1.20	.2302
Negative Empathy	Outgroup - Ingroup	Cooperation	-3.66	1.20	7155.89	-3.05	.0023
Gluckschmerz	Outgroup - Ingroup	Cooperation	0.18	1.20	7159.13	0.15	.8787
Schadenfreude	Outgroup - Ingroup	Competition	2.59	1.11	7158.81	2.34	.0193
Positive Empathy	Outgroup - Ingroup	Competition	-5.56	1.11	7158.92	-5.01	.0000
Negative Empathy	Outgroup - Ingroup	Competition	-3.61	1.11	7158.81	-3.25	.0011
Gluckschmerz	Outgroup - Ingroup	Competition	2.83	1.11	7158.92	2.55	.0108

Comparing Competition and Cooperation SDO Slopes Predicting Empathy and Counter-Empathy by Target Group

Emotions	Contrasts	Target Group	Mean Slope Diff.	SE	DF	t value	p value
Schadenfreude	Cooperation - Competition	Outgroup	-2.85	1.51	923.1	-1.89	.0596
Positive Empathy	Cooperation - Competition	Outgroup	1.55	1.51	923.7	1.03	.3045
Negative Empathy	Cooperation - Competition	Outgroup	-1.10	1.51	923.1	-0.73	.4666
Gluckschmerz	Cooperation - Competition	Outgroup	-3.39	1.51	923.7	-2.25	.0250
Schadenfreude	Cooperation - Competition	Ingroup	-2.59	1.51	923.1	-1.72	.0860
Positive Empathy	Cooperation - Competition	Ingroup	-2.56	1.51	923.7	-1.70	.0897
Negative Empathy	Cooperation - Competition	Ingroup	-1.05	1.51	923.1	-0.69	.4881
Gluckschmerz	Cooperation - Competition	Ingroup	-0.75	1.51	923.7	-0.50	.6204

Supplementary Materials B: Study 2b Replication with realistic threat as a prime

In this study participants filled out a nine-item realistic threat scale (α = .95, *M* = 3.13, *SD* = 1.47). Sample items include "Ethnic minorities take more from this country than they contribute" and "It would be to our advantage for ethnic minorities to get more resources" (reverse coded) (Stephan et al., 1999). As in Study 2b, we predicted that reminding White social dominants that ethnic minorities pose a threat to their (realistic) resources would lead them to show less empathy and more counter-empathy towards Asians and Blacks compared to Whites.

We recruited 304 subjects and compensated then 75 cents. After excluding non-monoracial Whites and those who failed the empathy manipulation check, we were left with 219 (121 self-identified women) subjects, M_{age} = 39.17, SD_{age} = 13.10. As in Study 2b, the four-way interaction between Event Valence, Rating Task, Target Race, and SDO was significant, $F(2, 7627.1)$ = 17.47, p < .001. SDO slope comparisons between racial groups within emotions show that the interaction was driven by differences in the amount of positive and negative empathy expressed, as well as the amount of schadenfreude.

Descriptive statistics for Study 2b replication

		Mean	SD	Correlations			
				1	2	3	4
1	Schadenfreude [a]	16.73	15.50				
2	Positive Empathy [a]	64.08	19.10	0.02			
3	Negative Empathy [a]	57.86	20.57	-0.02	0.84****		
4	Gluckschmerz [a]	12.44	14.07	0.78****	-0.03	0.07	
5	SDO [b]	2.56	1.40	0.33****	-0.16*	-0.15*	0.30****

Notes: *p < .05, **p < .01, ***p < .001, ****p < .0001
We calculated participant scores for positive and negative empathy, schadenfreude, and gluckschmerz by averaging participants responses within each emotion.
[a] Measured on a 100-point scale
[b] Measured on a 7-point scale

Type III Fixed effects for Rating Task, Event Valence, Target Race, and SDO predicting ratings in Study 2b replication

Effect	Num DF	Den DF	*F* value	Pr > *F*
Event	1	15.99	1.55	.2318
Rating Task	1	7871.92	225.53	.0000
Race	2	7886.29	1.18	.3071
SDO	1	224.00	1.27	.2616
Event Valence x Rating Task	1	7871.92	11933.55	.0000
Event Valence x Race	2	7886.29	0.59	.5545
Rating Task x Race	2	7871.92	1.06	.3482
Event Valence x SDO	1	7871.92	0.10	.7534
Rating Task x SDO	1	7871.92	10.41	.0013
Race x SDO	2	7884.31	1.88	.1524
Event Valence x Rating Task x Race	2	7871.92	3.69	.0251
Event Valence x Rating Task x SDO	1	7871.92	207.84	.0000
Event Valence x Race x SDO	2	7884.31	0.23	.7940
Rating Task x Race x SDO	2	7871.92	0.65	.5207
Event Valence x Rating Task x Race x SDO	2	7871.92	9.14	.0001

Regression analyses for Rating Task, Event Valence, Target Race, and SDO predicting ratings in Study 2b replication

	b	95% CI	t value	Pr > t
(Intercept)	37.87	[36.16, 39.58]	43.18	.0000
Event Valence (Negative)	-0.49	[-1.29, 0.30]	-1.24	.2318
Rating Task (Good)	3.14	[2.73, 3.55]	15.02	.0000
Race (Asian)	-0.15	[-0.73, 0.43]	-0.49	.6217
Race (Black)	0.45	[-0.13, 1.03]	1.51	.1319
SDO (Centered)	0.72	[-0.53, 1.96]	1.13	.2616
Event Valence x Rating Task	-22.87	[-23.28, -22.46]	-109.24	.0000
Event Valence x Race (Asian)	0.06	[-0.53, 0.63]	0.19	.8521
Event Valence x Race (Black)	-0.30	[-0.88, 0.28]	-1.02	.3079
Rating Task x Race (Asian)	-0.38	[-0.96, 0.20]	-1.27	.2042
Rating Task x Race (Black)	0.37	[-0.21, 0.95]	1.25	.2129
Event Valence x SDO	0.05	[-0.27, 0.37]	0.31	.7534
Rating Task x SDO	0.53	[0.21, 0.85]	3.23	.0013
Race (Asian) x SDO	-0.13	[-0.59, 0.33]	-0.55	.5800
Race (Black) x SDO	-0.31	[-0.77, 0.15]	-1.33	.1824
Event Valence x Rating Task x Race (Asian)	-0.27	[-0.85, 0.31]	-0.92	.3587
Event Valence x Rating Task x Race (Black)	-0.52	[-1.10, 0.06]	-1.75	.0793
Event Valence x Rating Task x SDO	2.38	[2.05, 2.70]	14.42	.0000
Event Valence x Race (Asian) x SDO	0.05	[-0.41, 0.51]	0.21	.8357
Event Valence x Race (Black) x SDO	-0.15	[-0.61, 0.30]	-0.66	.5068
Rating Task x Race (Asian) x SDO	0.20	[-0.26, 0.65]	0.84	.4007
Rating Task x Race (Black) x SDO	-0.25	[-0.71, 0.20]	-1.09	.2756
Event Valence x Rating Task x Race (Asian) x SDO	0.42	[-0.03, 0.88]	1.81	.0696
Event Valence x Rating Task x Race (Black) x SDO	0.57	[0.11, 1.03]	2.44	.0145

Supplementary Materials C: Analyses regarding increased schadenfreude towards Asian targets

Studies 2a and 2b Schadenfreude towards Asians. Unlike in Study 1, the three-way interaction

between Event Valence, Rating Task, and Target Race was significant in Study 2a, $F(2, 7888) = 3.67$,

$p = .026$, and Study 2b, $F(2, 7328) = 9.32$, $p < .001$. Post-hoc power analyses show that we had

11.6% power (95%CI [8.93, 14.74]) in Study 2a to detect the beta coefficient of -0.27 for the

interaction between Event Valence, Rating Task, and Target Race comparing Asian targets to White

targets. We had 50.20% power (95%CI [45.73, 54.67]) in Study 2b to detect the beta coefficient of -

0.63.

    We again asked for participants' warmth and competence ratings for each racial group to

confirm that Asians are seen as cold but competent. We analyzed the warmth and competence

ratings in the same way as in Study 1. In Study 2a participants rated Asians as less warm than

Whites, $M_{diff} = -5.67$ $t(1124.99) = -4.11$, $p < .001$, $d = -0.26$ but not in Study 2b, $M_{diff} = -1.87$ $t(1045) = -$

1.39, $p = .344$, $d = -0.09$. In Study 2a participants did not rate Asians as less competent than Whites,

$M_{diff} = 2.03$, $t(1124.99) = 1.47$, $p = .305$, $d = 0.18$, but did in Study 2b, $M_{diff} = 6.23$, $t(1045) = 4.64$, $p <$

.001, $d = 0.39$. Thus, only Study 2a was in line with predictions from the SCM.

    We expected that participants would show increased levels of schadenfreude to Asians

compared to Whites and Blacks. When doing the pair-wise comparisons between races within

empathy/counter-empathy, we found that the significant three-way interaction between Event

Valence, Rating Task, and Target Race was driven by differences across Target Race in the amount

of positive empathy participants reported towards Black targets. Specifically, In Study 2a participants

reported feeling significantly more positive empathy towards Black targets ($M = 66.02$) than towards

White targets ($M = 63.05$), $t(7875.23) = -2.89$, $p = .011$, $d = 0.13$. None of the other comparisons were

significant, with p values > .15. In Study 2b, participants also reported feeling significantly more

positive empathy towards Black targets ($M = 71.02$) than they did towards White targets ($M = 67.99$),

$t(7328) = -2.72$, $p = .018$, $d = 0.13$. Participants also reported feeling marginally more positive

empathy towards Asians (*M* = 70.56) than Whites, *t*(7328) = -2.30, *p* = .055, *d* = -0.12. This pattern

repeats for negative empathy, as participants felt more negative empathy towards Blacks (*M* = 62.19)

than Whites (*M* = 59.11), *t*(7328) = -2.76, *p* = .016, *d* = 0.11, and marginally more for Asians, *t*(7328)

= -2.21, *p* = .069, *d* = -0.09. None of the other comparisons were significant, with *p* values > .15.

Although these effects were significant, the effect sizes were negligible; thus, we concluded that our

predictions regarding increased schadenfreude for Asian targets were not supported.