Effects of intergroup threat on mind, brain, and behavior

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Intergroup threat is one catalyst that shifts us from out-group disregard to out-group hostility. We review recent interdisciplinary research that explores the effects of intergroup threat on mind, brain, and behavior. A rapidly growing literature indicates that several types of intergroup threat — for example, realistic threats such as competition and resource scarcity — have significant effects on empathy toward, perceptual judgments of, and cognitive representations of out-group members. We also briefly consider the emerging research assessing biological markers of intergroup threat sensitivity. Converging evidence from psychology and neuroscience may help to elucidate the precise pathways by which intergroup threat creates subtle discrimination as well as overt conflict.

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Introduction

Stereotypes and attitudes toward all social groups change over time — for better and for worse [1]. Much of the research on intergroup bias focuses on the primacy of in-group favoritism as a motivating force of intergroup bias in behavior and evaluation [2–4]. However, not all out-groups are equivalent, therefore this approach cannot predict how we respond to distinct out-groups. Intergroup threat predicts which groups become targets of indifference versus overt antagonism [5]: that is, threat is one catalyst that shifts us from out-group disregard to out-group hostility [6,7]. Of course, several other factors predict hostility — dislike, a history of conflict — however, we focus on intergroup threat here in order to highlight recent advances examining the effects of threat on mind, brain, and behavior.

Intergroup threat stems from many distinct sources, including the most basic form of threat, physical harm. For the last 50 years, social psychologists have explored more abstract and nuanced forms of threat that arise in intergroup contexts

and by virtue of one's social identity. The foundational Realistic Group Conflict Theory (RGCT) proposed that competition for access to limited resources engenders conflict between groups [8,9]. RGCT has been extended to emphasize that *perception* of threat (in addition to actual threat) is sufficient to ignite and sustain conflict [10]. Even more recent research reveals that threat does not even need to be linked to social identity or groups per se to have significant consequences for intergroup dynamics. Instead, threat can be a feature of the environment (e.g., resource scarcity), which then impacts perceptions of out-groups and their members. In complement, Symbolic Threat Theory [11] posits that intergroup conflict results from conflicting values and beliefs rather than from competition over resources. Thus, groups who consume resources or threaten one's general welfare pose realistic threats whereas groups whose values and ideologies are at odds with our own pose symbolic threats. Social Identity Theory [12] predicts yet another class of threats driven by group membership: being lumped in with a group against one's will, one's group being denied distinctiveness or value, and one's status in a group being questioned [13]. Here we review recent research examining the impact of a subset of the threats outlined above: specifically, realistic threats including competition and resource scarcity.

As soon as a person or group is seen as threatening a distinct suite of motivations, emotions, and behaviors are initiated. But which mediating processes best explain the relationship between threat and intergroup hostility? The bulk of past theorizing and research on intergroup threat has focused on negative attitudes toward, and assessments of minority group members ([10] for a meta-analysis see [14]). However, negative appraisals — both explicit attitudes and implicit associations — are not always highly correlated with discriminatory behavior [15,16]. Thus, intergroup threat researchers have recently expanded their investigations to include emotion, perceptual judgments, and cognitive representation as processes through which intergroup threat exacerbates intergroup discrimination and hostility.

Empathy

Across racial, political, and minimal group boundaries, people feel less empathy for threatening out-groups relative to neutral out-groups and in-group targets [17,18,19••]: we term this difference the 'intergroup empathy bias.' This is evidenced in physiological indicators as well as self-report. For example, participants exhibited sensorimotor contagion (indexed by evoked motor potentials in participants' hand muscles) when watching a racial in-group member's hand — even a *purple hand* — being

pricked by a pin. However, this response was absent when they saw a racial out-group members' hand being pricked [20]. In another example, Israelis and Arabs reported feeling similar degrees of compassion for in-group members and South Americans experiencing emotional and physical suffering, but markedly less compassion for members of their respective conflict out-group [21]. Note in both cases, that the empathy bias emerges only in response to threatening out-groups.

In addition to reductions in empathy, people also express counter-empathy (e.g., pleasure in response to out-group misfortune) when out-groups are threatening [18]. Building on RGCT and the Stereotype Content Model [5], we tested whether overt competition between teams as a form of threat is sufficient to generate both empathic and counter-empathic intergroup bias. Indeed, fans from rival baseball teams (Boston Red Sox and New York Yankees) reported pleasure and exhibited activity in the ventral striatum (a region associated with unexpected reward registration) when watching their own teams do well and their rivals fail [22]. This increased ventral striatum response to a rival's suffering was associated with an increased desire to harm rival team fans. In another fMRI study we found that participants exhibited greater activation of anterior insula in response to stereotypically competitive, high-status group members' good fortunes (e.g., a picture of an investment banker/business woman/Asian man accompanied by the event 'won $5'). Increased anterior insula activity is typically associated with experiencing and perceiving others' *pain* in empathy studies, thus one interpretation is that this signal represents a counter-empathic response. Indeed, increased anterior insula in response to positive events correlated with a willingness to harm those same competitive, high-status targets [23]. Finally, using facial electromyography, we have found that participants smiled more when negative events happened to stereotypically competitive, high-status group members relative to other targets [24]. These findings suggest that explicit competition, but also stereotypes that merely include attributions of competitiveness are sufficient to generate threat and to moderate empathic responding in intergroup contexts.

The intergroup empathy bias persists among arbitrary groups created in the lab, so long as the groups are in competition. Moments after being randomly assigned to teams, participants exhibited greater Schadenfreude (pleasure in response to others' bad fortunes) and Glückschmerz (displeasure in response to others' good fortune) toward out-group members as compared to in-group members when their respective groups were in competition for a $1 bonus [25•]. This difference was significantly attenuated, however, when the groups' outcomes were independent (i.e., each group could earn the bonus).

This intergroup empathy bias is consequential because it predicts hostility as well as decreases in pro-social behavior [26]. We have found, for example, that the larger American participants' empathy gap between American and Arab targets, the lower their donations to Arab charities [27]. Moreover, intergroup empathy bias predicted donation behaviors a week later, above and beyond group identification, highlighting the importance of empathy as a proximal motivator of helping behavior (or the absence thereof). Though intergroup empathy research has garnered a great deal of interest as of late, there are several lower-level processes that operate completely outside of perceivers' awareness which are nevertheless subject to the moderating influence of intergroup threat, to which we turn now.

Representation and perceptual judgments

Group categorization typically unfolds quickly and effortlessly. However, as proposed by Self Categorization Theory, categorization can shift dynamically as a function of bottom-up sensory information and top-down social goals and motivations [28,29]. That is, rather than social goals merely dictating how members of groups are treated, a growing body of research suggests that social goals can alter whether people categorize targets as belonging to one social category versus another — even social categories that are visually identifiable and typically regarded as fixed (e.g., gender and race).

In the case of realistic threats, group-protection and self-protection goals can shift decision makers' group boundaries to become more circumscribed: that is, to exclude higher proportions of ambiguous targets from the in-group. For example, when economic resources are threatened, non-Black decision makers are more likely to categorize mixed-race targets as Black than White [30,31••]. Using a psychophysical measure of subjective race perception (i.e., point of subjective equality), we found that subjects' race categorization threshold was lowered to include more mixed-race faces in the category Black when (i) participants reported greater concern about economic competition between Blacks and Whites and (ii) participants were non-consciously primed with scarcity (vs. neutral or negative concepts) [31••]. Similarly, threats of physical danger (e.g., facial expressions of anger, movement toward participants) make decision makers more likely to categorize ambiguous targets as out-group members in both racial and minimal group contexts [32]. Threatening, racially ambiguous figures are also more likely to be denied in-group characteristics (e.g., 'whiteness' for White participants; [33••]). Importantly, these effects are amplified to the extent that perceivers are sensitive to such threats or exhibit greater concern with enforcing status boundaries (we return to this moderator below). Thus, threat can exacerbate discrimination and inequality indirectly by increasing the number of targets who are categorized as out-group.

In addition to altering *who* is seen as an in-group or out-group member, intergroup threat can also shift *how* we