
Arousal, Processing, and Risk Taking: Consequences of Intergroup Anger

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Intergroup emotions theory (IET) posits that when social categorization is salient, individuals feel the same emotions as others who share their group membership. Extensive research supporting this proposition has relied heavily on self-reports of group-based emotions. In three experiments, the authors provide converging evidence that group-based anger has subtle and less explicitly controlled consequences for information processing, using measures that do not rely on self-reported emotional experience. Specifically, the authors show that intergroup anger involves arousal (Experiment 1), reduces systematic processing of persuasive messages (Experiment 2), is moderated by group identification (Experiment 2, posttest), and compared to intergroup fear, increases risk taking (Experiment 3). These findings provide converging evidence that consistent with IET, emotions triggered by social categorization have psychologically consequential effects and are not evident solely in self-reports.

Keywords: *intergroup emotion; anger; arousal; persuasion; risk taking*

Whether people feel angry, sad, happy, or afraid can often be influenced by the experiences of other people with whom they are affiliated. Various psychological mechanisms like contagion (Wheeler & Smith, 1967), empathy (Batson, 2006), sympathy (Feather & Sherman, 2002), and basking in reflected glory (Cialdini et al., 1976) can help transmit the emotions triggered by some people's tragedies and triumphs to others around them. Such transmission of emotion is important not only for intragroup phenomena (see Kelly & Spoor, 2006) but intergroup phenomena as well (see Mackie, Silver, & Smith, 2004).

We have also proposed, however, that membership in a group is itself sufficient to determine emotional

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experience. Intergroup emotion theory (IET; Mackie et al., 2004; Smith, 1993; see also Dumont, Yzerbyt, Wigboldus, & Gordijn, 2003; Yzerbyt, Dumont, Wigboldus, & Gordijn, 2003) argues that when people define themselves as group members, rather than as unique individuals, entities and events are appraised from a group rather than a personal perspective. Those specific group-based appraisals in turn dictate the experience of specific group-based emotions. Severe versus weak harm from a weak versus a strong outgroup produces more outgroup-directed anger (Mackie, Devos, & Smith, 2000), for example, whereas severe, unjustified harm done by the ingroup invokes more guilt and less satisfaction than less severe and less justifiable action (Branscombe & Miron, 2004; Iyer, Leach, & Crosby, 2003; Schmitt, Behner, Montada, Muller, & Muller-Fohrbrodt, 2000).

Moreover, we have demonstrated that the mere activation of group membership produces convergence of emotional experience, without the explicit presence of a precipitating event or object (Moons, Leonard, Mackie, & Smith, 2007; Smith, Seger, & Mackie, 2007). So, for example, individuals who are asked to think about themselves as women, say, or as Americans, show far more similarity in the specific emotions they report experiencing than they do when explicitly asked to think about themselves as unique individuals. In both cases, whether group-based emotions are chronic and general or acute and event specific, group members more highly identified with the group show such effects more strongly than those less identified with the group (e.g., Maitner, Mackie, & Smith, 2007; Smith et al., 2007).

Group members' reports of such group-based emotional experiences have important consequences for their reported intentions regarding interaction with outgroups (Dumont et al., 2003; Mackie et al., 2000; Maitner et al., 2006; Yzerbyt et al., 2003). For example, the experience of intergroup anger predicts a desire to harm the offending group (Mackie et al., 2000; Yzerbyt et al., 2003) and motivates actions to right perceived wrongs (Maitner et al., 2006). Reported intergroup fear leads to a desire to avoid the outgroup, help victims, or seek relevant information (Dumont et al., 2003). The experience of collective guilt motivates a desire to compensate the harmed outgroup or avoid similar behavior in the future (Doosje, Branscombe, Spears, & Manstead, 1998). Finally, satisfaction with an action taken toward another group motivates a desire to engage in similar behavior in the future (Maitner et al., 2007). Thus, a range of intergroup emotions has been shown to motivate the desire for specific intergroup behaviors.

Despite the accumulation of evidence supportive of IET's ability to predict the occurrence of group-based emotions and their impact on intergroup behavioral

intentions, almost all of the evidence for such group-based emotion, from our own and others' work, relies on deliberative self-report of emotional experience. Over and above any general concerns that such homogeneity in methods might raise, the exclusive use of self-report also gives rise to concerns that participants' responses in these studies might reflect at worst experimental demand and at best a more cognitive and reflective type of emotion rather than a true "gut feeling." For example, rather than actually experiencing group-based emotion, participants might report feeling the emotions that they believe they "ought" to for a particular group, relying on lay theories of appropriate emotional response, group loyalty, and so forth.

Our goal in these studies was to show that intergroup emotion, even when induced in the laboratory, has subtle effects on downstream processes that are unlikely to occur as result of demand or of intentional application of lay theories about emotion. Thus, the current research focused on the impact of intergroup emotions on psychological constructs and processes known to be impacted in a nondeliberative manner by individual emotions. If intergroup emotions show the same subtle effects as individual emotions typically do under these circumstances, such convergent evidence generalizes evidence for the validity of intergroup emotions beyond self-report measures.

We focused on demonstrating these effects with intergroup anger for two reasons. First, intergroup anger is repeatedly and reliably predictive of intergroup behavioral intentions directed both at the outgroup and ingroup. Outgroup-directed anger predicts the desire to confront the outgroup in various ways (Mackie et al., 2000; Maitner et al., 2007; Smith et al., 2007). Ingroup-directed anger predicts the desire to have the ingroup right a perceived wrong (Maitner et al., 2007; van Zomeren, Spears, Fischer, & Leach, 2004). Thus, intergroup anger has proven to be a particularly potent and ubiquitous predictor of the desire to take actions with intergroup consequences.

Second, individually experienced anger has been established as having several reliable effects on various aspects of information processing. Anger is typically defined as having arousal properties (Berkowitz, 1990; Feldman, 1995; Henry, 1986). Perhaps because of such properties (Walley & Weiden, 1973), or because of the appraisals of certainty that anger entails (Tiedens & Linton, 2001), anger has been shown to curtail analytic processing and enhance the use of heuristics. For example, Bodenhausen, Shepard, and Kramer (1994) showed that angry people were influenced by heuristic cues more than sad or neutral people (see also Forgas, 1995; Lerner, Goldberg, & Tetlock, 1998; Ric, 2004; Russell, 2003; Tiedens & Linton, 2001; cf. Moons &

Mackie, 2007). In addition, anger reliably increases judgment of risk: Angry people choose riskier strategies and objectives (Fischhoff, Gonzalez, Lerner, & Small, 2005; Lerner & Keltner, 2001).

Given the theoretically important status of intergroup anger and anger's well-known psychological consequences at the individual level, our strategy was to show that intergroup anger, anger aroused by a threat or insult to the ingroup but not to the self as a unique individual, had consequences for arousal, information processing, and judgment of risk that parallel those previously established as unintentional consequences of individually experienced anger.

EXPERIMENT 1

The role of arousal in emotion has been examined in detail since the pioneering research of Schacter and Singer (1962). In most current theories of emotion, arousal marks the activation of the nervous system, which in conjunction with (not necessarily conscious) appraisals of situational factors is necessary for the experience of a distinct emotion (see Barrett, 2006). As a consequence, dissociating the arousal from interpreted situational cues either eliminates or reduces the intensity of the emotional experience (Mandler, 1975). Such misattribution manipulations are typically achieved by providing an extraneous but plausible source for experienced arousal that successfully reduces or eliminates the experienced emotion. If emotion is eliminated or reduced by a misattribution manipulation, it can be assumed that arousal is indeed an inherent component of the emotional state. Such logic was used, for example, in demonstrating the negative arousing properties of dissonance (Zanna & Cooper, 1974).

In Experiment 1, we used this strategy to demonstrate that the experience of intergroup anger involved the experience of arousal. To do so, we exposed some participants to an insult to their ingroup, a stimulus intended to trigger intergroup anger, whereas other participants received praise, a stimulus that was not expected to elicit intergroup anger. In addition, we also provided some participants a plausible cause for any emotions they might feel. Those in the misattribution condition were told that other people had found the small experimental room to elicit arousal, whereas those in the control condition were not. All participants then reported their emotional experience. If intergroup anger, like individual anger, has inherent arousal properties, we expected reduced reports of anger in response to a threat to the ingroup when participants were given the opportunity to misattribute their arousal to the room in which they were completing the experiment.

Method

Participants and Design

The participants were 97 students at the University of California, Santa Barbara (UCSB), who participated for partial course credit. Participants were randomly assigned to a 2 (intergroup threat or praise) \times 2 (misattribution or control condition) between-subjects factorial.

Procedure

Each participant sat separately in a small computer testing room with the door closed. Participants were given instructions on the computer that provided the rationale and cover story for the study. Specifically, participants were told, "Today you will be helping us to test some materials we are planning to use in a future study. You will be asked to read an essay written by a foreign exchange student who lived in the United States while attending school. The student was instructed to write about his or her impressions of Americans and America as a nation while he or she was in this country."

Manipulation of intergroup insult or praise. Participants were randomly assigned to receive an essay that either praised or insulted their ingroup. In the ingroup praise essay, the visitor provided support for the values and actions of the participant's ingroup (American), designed to evoke positive intergroup emotions. Specifically, the essay commented on positive aspects about being an American citizen, and it included statements like "I greatly enjoyed my year in the United States" and "I have nothing but respect for American people and the values they hold as a society." In contrast, the group insult essay provided information that was threatening and insulting to the values and actions of the participant's ingroup, designed to evoke intergroup anger. The essay mentioned several negative aspects about being an American and included statements like "I did not enjoy my year in the United States at all" and "I have very little respect for American people and the values they hold as a society." Both essays were approximately equal in length and contained the same number of sentences on similar topics.

Misattribution manipulation. Before reading the essay, half of the participants received the misattribution manipulation. These participants were told that we were also interested in studying how the physical setting of the experiment (the computer testing room they were seated in) might affect their emotional responses. Participants in the misattribution condition were given different descriptions of the impact of the physical setting based on whether their group was insulted or

praised. Those in the insulted condition were always told, "Some previous participants have complained about working in the cubicles. In general, they have felt isolated and shut off in these cubicles and thought the overhead lights were too dim. This environment made them feel tense and irritable during the study." Those in the praised condition were always told, "Actually, some previous participants have mentioned that they enjoyed working in the cubicles. In general, they liked the quietness and serenity of these cubicles and thought the overhead lights were soothing. This environment made them feel content and pleased during the study." Those in the no misattribution condition were not given information about the testing rooms.¹

Intergroup anger. Participants were then asked to report their emotions. They were told: "After having read the essay, please use the following scales to tell us how you feel as an American" (wording following Smith et al., 2007). Each scale was marked 1 (*not at all*) at the low end and 9 (*extremely*) at the high end. Participants responded to 13 emotion-related items. Our theoretical interest was in responses to the two items designed to assess intergroup anger: angry and irritated ($\alpha = .86$).

Intergroup threat or praise manipulation check. After completing the emotion scales, participants responded to three items that served as manipulation checks for the content of the essay: (1) The content of the essay about Americans and America as a nation was, 1 (*insulting*) to 9 (*praising*); (2) The person who wrote the essay probably has what type of opinion about Americans and America as a nation, 1 (*negative*) to 9 (*positive*); and (3) How likeable is the person who wrote the essay, 1 (*not at all likeable*) to 9 (*extremely likeable*). These items were also highly intercorrelated ($\alpha = .93$) and combined to form a measure of essay positivity.

Results and Discussion

Manipulation check. To examine the impact of our praise-insult manipulation, a 2 (intergroup threat or praise) \times 2 (misattribution or control) between-subjects ANOVA was conducted on essay positivity. The results showed only a main effect of group essay type, $F(1, 93) = 927.79, p < .001$. As expected, those in the positive group essay type evaluated the essay more positively ($M = 8.30$) than those in the negative group essay condition ($M = 2.16$). No other effects were significant.

Intergroup anger. To examine the impact of negative arousal on intergroup anger, a 2 (group essay type) \times 2

(misattribution) between-subjects ANOVA was conducted on the measure of anger. A main effect of group essay type showed that participants felt more anger after reading the negative ($M = 5.45$) than after reading the positive ($M = 1.82$) essay, $F(1, 93) = 84.10, p < .001$. More important, this effect was qualified by a marginally significant predicted two-way interaction, $F(1, 93) = 3.32, p = .07$.

To examine this interaction in more detail, we explored the simple effects of misattribution for the negative and positive group essay types for anger separately. As the key test of our prediction, the simple effect of misattribution in the negative group essay condition was significant on the anger measure, $F(1, 93) = 4.14, p = .04$. Specifically, participants were more angry in the control condition ($M = 5.94$) than in the misattribution condition ($M = 4.97$). The simple effect of misattribution on anger was not significant in the positive group essay condition, where no arousal was theoretically expected to be present, $F(1, 93) = .56, p = .46$ (control $M = 1.58$, misattribution $M = 2.06$).²

Consistent with the prediction that intergroup anger entails arousal, reported anger was reduced in response to an insulting essay about one's ingroup when arousal could be misattributed to an external source (e.g., the small room) compared to when it could not. It is important to note that these findings are unlikely to be the result of demand-driven self-report as all participants in the threat condition received and recognized the group-based insult for what it was (and thus all "should" have reported anger). Thus, intergroup anger—anger reflecting an insult to one's group but not to the self as a unique individual—appears to have arousal properties, just like individual anger.

EXPERIMENT 2

Experiment 2 examined the information processing consequences of intergroup anger using a persuasion paradigm. Researchers have established that people evaluating persuasive messages can engage, to varying degrees, in thorough, resource-intensive, systematic processing of the messages (Chaiken, Liberman, & Eagly, 1989; Petty & Cacioppo, 1986). These processing differences are most clearly evidenced by investigating between-subjects the extent to which participants were persuaded by strong, compelling arguments as opposed to rejecting weak and specious arguments (see Petty & Cacioppo, 1986, chapter 2). Such a difference indexes systematic processing because it is resource-intensive elaboration of their content that causes strong arguments to be persuasive and weak arguments to be rejected. Thus, recipients who are more persuaded by

strong than weak arguments are assumed to be processed systematically, compared to experimental conditions in which recipients are not differentially persuaded by strong and weak arguments.

Anger has been found to impact the extent to which people process persuasive messages systematically. Specifically, people who are angry are less apt to utilize argument quality in assessing the quality of persuasive appeals (e.g., Bodenhausen et al., 1994; Levine, 1997). Bodenhausen et al. (1994), for example, conducted three experiments showing that compared to those feeling sad or neutral, angry information processors were more influenced by heuristic cues than information content. Tiedens and Linton (2001) also argued that anger reduced resource-intensive processing and thus increased reliance on cues rather than content. Finally, Levine (1997) showed that angry participants were less likely to differentiate between strong and weak arguments in response to persuasive appeals than those in a neutral or sad mood. Thus, it seems that angry people are likely to use nonsystematic processing when making social judgments rather than utilizing systematic processing and attending to message content.

Such effects are likely to be especially obvious when anger includes arousal (indeed, Moons & Mackie, 2007, recently argued and demonstrated that mild and nonarousing anger did not disrupt systematic processing). Physiological arousal disrupts attempts to systematically process information due to inhibiting cortical functioning (Walley & Weiden, 1973), diverting attention to physiological symptoms (Mandler, 1975), or utilizing cognitive resources for appraisal (Schacter & Singer, 1962). Thus, if arousal is inherent in the emotional reaction to an anger-evoking event, then anger should reduce systematic processing of persuasive messages (as seen in Bodenhausen et al., 1994; Tiedens & Linton, 2001). Because Experiment 1 showed that arousal was indeed evoked in response to the group insult manipulation, we expected anger to reduce the amount of systematic processing in Experiment 2. That is, because the current experiment uses the same arousing, anger-inducing group insult manipulation as Experiment 1, it should have physiological consequences that inhibit systematic processing of the message presented.

Therefore, we expected intergroup anger to have the same impact on information processing as individual anger has in many situations (e.g., Bodenhausen et al., 1994): reduced systematic processing of information. Thus, in Experiment 2, we had participants read an essay, presumably written by an outgroup member, that either insulted the participants' group or was neutral with regard to their group. Next, participants read a strong or a weak version of a message about students' financial habits and, finally, reported their agreement with the message. We expected participants experiencing

intergroup anger to process subsequent information less systematically (i.e., not differentiating between strong and weak arguments) than participants in a neutral emotional state.

Method

Participants and Design

Participants were 118 students at UCSB, who participated for partial course credit. They were randomly assigned to a 2 (intergroup threat or neutral control) \times 2 (argument strength: strong, weak) between-subjects factorial.

Procedure

Participants believed that they would be participating in a number of unrelated studies on the computer. In fact, the "first" task served as the induction of intergroup emotion and the "second" task was the assessment of information processing.

Group threat manipulation. First, participants were asked to evaluate a message ostensibly written by a foreign exchange student about his stay in America. Participants in the intergroup threat condition read the same insulting essay described in Experiment 1. In contrast, participants in the neutral condition read an essay about an exchange student's stay in America that was devoid of any valenced judgments (e.g., the essay concluded, "The family took me back to the airport and I boarded the plane. That pretty much sums up my trip to America."). Participants were then asked how much they perceived the student had enjoyed his stay in the United States.

Argument strength manipulation. Participants were told that for the second task, the experimenters simply needed feedback on some materials. Participants read a message stating that college students are quite financially responsible (Moons & Mackie, 2007). One version of the essay was made up of weak and specious arguments (i.e., "There really doesn't seem to be a very strong relationship between financial habits and age in today's society."), whereas the other version was made up of strong and compelling arguments (i.e., "Studies performed at Princeton University have shown that spending habits are completely unrelated to age, therefore youth does not predict financial responsibility.>").

Message agreement. Next, participants were asked to evaluate the message. We asked them how much they agreed with the arguments, how valid the arguments

were, and how convincing the message was. These three items comprised our measure of message agreement ($\alpha = .88$). Participants responded using 7-point scales with greater scores indicating greater message agreement.

Intergroup emotions manipulation check. Finally, participants were asked how they felt while reading the message from the foreign exchange student. They indicated how angry (angry, frustrated, irritated, $\alpha = .89$) they felt on scales ranging from 1 (*not at all*) to 7 (*very*).

Results and Discussion

Intergroup Anger Manipulation Check

We submitted participants' anger reports to a 2 (group threat) \times 2 (argument strength) ANOVA. We found the predicted main effect of group threat, $F(1, 113) = 62.71, p < .001$. Overall, participants in the insulting condition experienced significantly more anger ($M = 4.28$) than participants in the neutral condition ($M = 2.16$). There was also an unexpected two-way interaction with argument strength, $F(1, 113) = 10.68, p = .001$. Importantly, participants in both message strength conditions felt more anger in the group insult than neutral condition. When arguments were strong, insulted participants felt more anger ($M = 3.99$) than did participants in the neutral condition ($M = 2.75$), $F(1, 113) = 10.72, p < .001$. When arguments were weak, this significant effect was even stronger, $M_{\text{insult}} = 4.57, M_{\text{neutral}} = 1.59; F(1, 113) = 63.14, p < .001$. We have no explanation for this unpredicted pattern on the manipulation check, but it does not qualify our main findings in this study.

Message agreement. To examine the impact of intergroup emotions on information processing, we subjected participants' message agreement scores to a 2 (group threat) \times 2 (argument strength) ANOVA. This analysis revealed a main effect of message strength, $F(1, 113) = 6.12, p = .02$. Overall, participants agreed more with the strong ($M = 4.29$) than with the weak ($M = 3.74$) message. However, this main effect was qualified by the predicted two-way interaction, $F(1, 113) = 7.92, p = .006$. As can be seen in Figure 1, participants in the neutral condition agreed more with strong than with the weak message, $F(1, 113) = 10.75, p < .001$, whereas participants in the angry condition agreed equally with the strong and weak messages, $F(1, 113) = 0.13, p = .91$. Whereas recipients in a neutral state appeared to differentiate between the content of the various versions of the message, no such differentiation was obvious in the responses of those experiencing intergroup anger.

This experiment extends findings from Bodenhausen et al. (1994) and Levine (1997) by demonstrating that much like individual anger, intergroup anger reduces

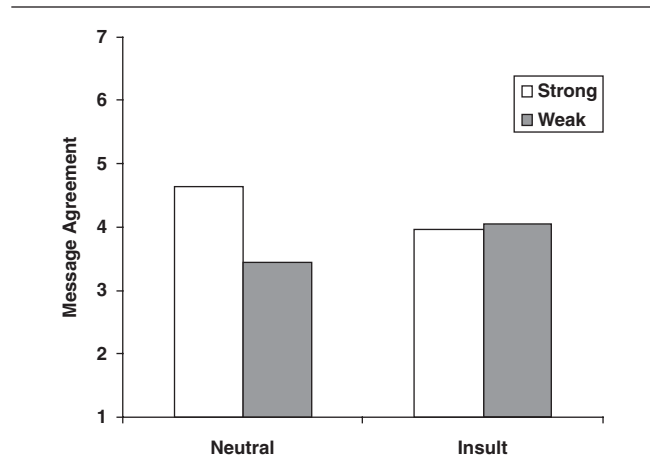


Figure 1 Message agreement as a function of group essay type and argument strength in Experiment 2.

systematic information processing. Given the two-experiment ruse used and the fact that the group mentioned in the persuasive message was unrelated to the group who might have induced the anger (making it hard to imagine a lay theory of ingroup support or retribution that could have produced the effects), we believe it implausible that demand provides a comprehensive explanation of the findings. Instead, these findings suggest that intergroup anger has the same information processing impact as individual anger.

A POSTSCRIPT TO EXPERIMENTS 1 AND 2: ARE GROUP-LEVEL EMOTIONS EVOKED BY GROUP INSULTS?

It could be argued that interpreting the findings of Experiments 1 and 2 in terms of group-level emotions is premature. How do we know that people were not simply personally upset by receiving an insult about a group (Americans) to which they belong? That is, did people simply take these group-level insults as personal insults? This is especially important to consider because even though the manipulations of intergroup anger were phrased at the group level in Experiments 1 and 2, the manipulation may also imply personally held values and beliefs. For example, McGregor et al. (1998) used a similar manipulation (i.e., providing disparaging information about one's political group) as a threat to people's personal worldviews. Furthermore, McGregor et al. found that these types of threats lead to greater retribution (i.e., allocating more hot sauce to be eaten) against a person who held an inconsistent worldview when participants were under conditions of mortality salience, implying strong personal reactions when one's personal beliefs are being challenged. Importantly, McGregor et al.'s results can be explained without reference to group-level

emotions (indeed, their measures of affect showed no impact of the manipulations) but instead with the defensive reaction to an important personally held belief. Because this worldview defense is always occurring at the level of beliefs, many similar research programs have shown that worldview threatening information does not have affective consequences (see also Simon et al., 1997).

Given these findings and to assuage any concerns about whether or not emotions were group based in the first two experiments, we sought to provide additional empirical evidence that the anger reported in Experiments 1 and 2 was indeed group based. The strategy employed to determine this was to examine the extent to which anger in response to a group insult was moderated by group identification. This strategy is based on recent research by Smith et al. (2007) delineating criteria that distinguish individual from intergroup emotions. According to Smith et al., "Thinking of oneself as a group member is the starting point for group emotions because it is the process that imbues the group with properties of the psychological self, including affective significance" (p. 432). Following Smith et al., if group identification interacts with the group insult manipulation to impact the level of anger reported, then we can be more certain that anger in these experiments was group based as opposed to individually held. Specifically, if anger is individually held we should only see a main effect of insult manipulation because if the insult is to the self (a personal insult), then group identification should not impact emotional responses. That is, if the group insult is really implicating only the self, then people who are insulted should be angry regardless of how strongly identified they are with the group. But, if the anger experienced is group based, then the level of anger felt in response to group insults should be positively related to how identified people are to their ingroup.

To examine this issue, we collected data from a sample of 37 participants (none of whom participated in Experiments 1 or 2). We assessed these participants' level of identification with the group American using a four-item group identification scale modeled after Schmader (2002), $\alpha = .87$, and randomly assigned them to receive either the control condition essay or the group insult condition essay from Experiment 2. Finally, we measured participants' level of anger with a four-item scale asking how angry, frustrated, irritated, and upset participants felt in response to the essay ($\alpha = .97$).

To examine if group identification moderated the impact of the group insult manipulation, anger was regressed on ratings of group identification, the group insult manipulation (comparing the group insult condition, coded +1, and control condition, coded -1), and the interaction (product) of these two variables. Although

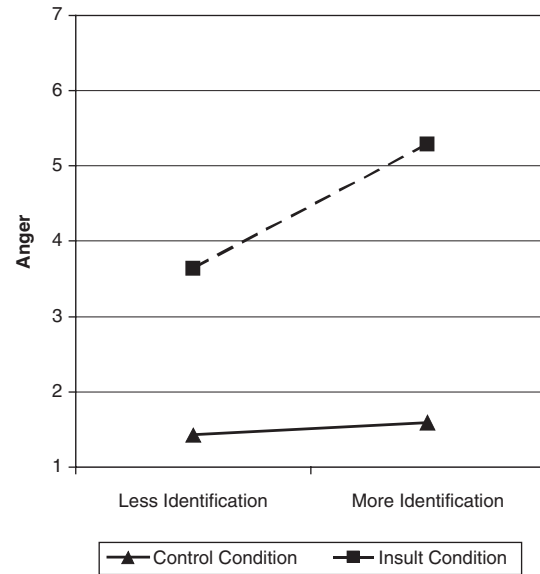


Figure 2 The relation between group identification (plotted at ± 1 SD from the mean, x-axis) and anger (y-axis) as a function of group insult condition (different lines) in the empirical postscript to Experiments 1 and 2.

there was a main effect of the insult manipulation, $\beta = .77$, $p < .001$, and a main effect of group identification, $\beta = .25$, $p = .02$, these effects were qualified by the significant two-way interaction, $\beta = .59$, $p = .047$ (see Figure 2). This interaction revealed that group identification and anger were positively related when the group insult essay was given, $r = .54$, $p = .02$, whereas there was a nonsignificant relation between group identification and anger when the control essay was given, $r = .12$, $p = .63$. Thus, the relation between group identification and anger varied as a function of whether the essay insulted or did not insult one's group. More important, participants whose group was insulted showed much more anger when they were highly identified with the group than when they were less identified with the group, as would be expected if these emotional reactions were group-based (Smith et al., 2007).

These results provide clear evidence that the manipulation used to evoke intergroup anger in Experiments 1 and 2 impacted group-level emotions (as opposed to individual emotions) because group identification moderated the extent to which participants were angered by group insults. Specifically, the more participants identified with being American, the more angered they were by the insulting essay. If these insults were simply an insult to the self, there should have been no impact of group identification. However, group identification was important in accounting for when people felt anger in response to a group insult. This pattern of results supports our contention that group-based anger was induced in Experiments 1 and 2.

EXPERIMENT 3

Having demonstrated that intergroup anger had both arousal and processing consequences and was moderated by group identification, we also wished to demonstrate its impact on judgment. Focusing on interpersonally experienced emotions, Lerner and Keltner (2001) showed that different emotional experiences impact the extent to which people make risky decisions. Specifically, they showed that individual anger led to more risky judgments or decisions than did individual fear. In the context of the classic “Asian disease problem” (Tversky & Kahneman, 1981), in which participants choose how to deal with the outbreak of a fictitious disease, participants who were induced to feel angry were likely to prefer a riskier course of action than participants induced to feel fear (Lerner & Keltner, 2001). Assuming that emotions induced at the intergroup level would have the same impact, we predicted that intergroup anger, like individual anger, would facilitate risky decisions and intergroup fear, like individual fear, would facilitate relatively more conservative decisions.

We also extended our findings from Experiments 1 and 2 by using a different means of inducing intergroup emotions and comparing the effect of intergroup with individual emotions directly. In Experiment 3, we had participants write about a time when they felt either angry or afraid because of an event that happened to them personally (individual emotion) or an event that happened to their ingroup (group emotion). These manipulations were intended to induce emotions at either the individual or intergroup level. Next, participants completed an Asian disease problem by indicating their preference for a non-risky as opposed to a risky course of action for treating the disease. We expected participants who were angry (either on an individual or intergroup level) to make more risky decisions than participants who were afraid (either on an individual or intergroup level).

Method

Participants and Design

Participants were 69 students at UCSB, who participated for partial course credit. They were randomly assigned to a 2 (emotion level: individual, group) \times 2 (emotion: anger, fear) between-subjects factorial.

Procedure

Manipulation of emotion level and emotion type. Participants in the individual emotion condition were asked to recall and write about a time when they personally experienced either anger or fear, depending on random assignment. Participants in the group emotion

condition were asked to write about a time when they experienced either anger or fear, depending on random assignment, because of the action that a group they did not belong to took against a group or member of a group that they did belong to. The instructions in the group emotion condition made it clear that participants were to write about an intergroup event that did not involve them personally.

Risk taking. Next, participants were asked to complete the well-established Asian disease problem measure of risk (Tversky & Kahneman, 1981). Participants read: “Imagine that the United States is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed.” They then read about two alternatives with Program B always being more risky than Program A. They were asked to indicate their relative preference for a program on a 9-point scale ranging from 1 (*Program A*) to 9 (*Program B*). Thus, higher scores indicated greater risk taking. Participants completed this Asian disease problem twice, once in a gain frame and once in a loss frame (see Tversky & Kahneman, 1981).

In the gain frame, Program A was “If Program A is adopted, 200 people will be saved” and Program B was “If Program B is adopted, there is a one-third probability that 600 people will be saved and a two-thirds probability that no people will be saved.” In the loss frame, Program A was “If Program A is adopted, 400 people will die” and Program B was “If Program B is adopted, there is a one-third probability that nobody will die and a two-thirds probability that 600 people will die.” The order of these frames was randomly presented, and as in Lerner and Keltner (2001), framing did not qualify the results. Therefore, participants’ average score from both framing types was used in all analyses.

Check on the effectiveness of emotion level and emotion type manipulations. Participants then indicated on 9-point scales ranging from 1 (*not at all*) to 9 (*extremely*) the extent to which they felt anger (angry, irritated, displeased, frustrated, $\alpha = .91$) and fear (fear, anxious, worry, afraid, $\alpha = .88$) at the individual level as well as the extent to which they felt anger and fear in response to the actions of an outgroup (outgroup anger, $\alpha = .88$; outgroup fear, $\alpha = .89$). Those in the group emotion condition were told to rate their group-based anger and fear while thinking about the group they wrote about earlier and those in the individual emotion condition were told to make the ratings while thinking about a competing outgroup. Thus, these four manipulation check scales form a 2 \times 2 (anger/fear at the individual/intergroup level).

TABLE 1: Means of Risk Taking and Emotion as a Function of Level and Emotion in Experiment 3

	<i>Individual Anger</i>	<i>Group Anger</i>	<i>Individual Fear</i>	<i>Group Fear</i>
Asian disease problem	4.38 _a	4.29 _a	3.00 _b	2.94 _b
Individual anger	5.96 _a	4.09 _b	3.85 _b	4.17 _b
Individual fear	3.72 _a	4.04 _a	5.91 _b	4.19 _a
Anger at outgroup	3.97 _a	5.99 _b	3.87 _a	3.63 _a
Fear of outgroup	3.68 _a	2.25 _b	3.18 _a	4.30 _c

NOTE: Means in a row with different subscripts differ significantly ($p < .05$).

Results and Discussion

Effectiveness of Level and Type of Emotion Induced

To examine the emotional reactions to the writing exercise, four separate 2 (emotion level) \times 2 (emotion type) between-subjects ANOVAs were conducted on the emotional reaction scales (see Table 1). For individual anger, the expected two-way interaction obtained $F(1, 65) = 4.38$, $p = .04$. As expected, those in the individual anger condition experienced greater levels of personal anger than did participants in any other group. For individual fear, again, the expected two-way interaction obtained $F(1, 65) = 3.99$, $p = .05$. As expected, those in the individual fear condition experienced greater levels of personal fear than did participants in any other condition. For outgroup anger, the expected two-way interaction obtained $F(1, 65) = 5.25$, $p = .03$. As expected, those in the group anger condition experienced greater levels of outgroup anger than did participants in any other condition. For outgroup fear, the expected two-way interaction obtained $F(1, 65) = 7.27$, $p = .01$. As expected, those in the group fear condition experienced greater levels of outgroup fear than did participants in any other condition. Thus, the ratings of emotional experience nicely reflected the level (individual vs. group) and the emotional tenor of the manipulations, supporting the strength and specificity of the manipulations.³

Risk taking

A 2 (emotion level) \times 2 (emotion type) between-subjects ANOVA was conducted on the judgments from the Asian disease problem (see Table 1). Responses to the Asian disease problem showed only a main effect of emotion, $F(1, 65) = 19.82$, $p < .001$, with those in the anger conditions exhibiting more risky judgments than those in the fear conditions. Thus, regardless of whether the anger-producing or fear-evoking event was individual or intergroup, those who were angry took more risk than those who were afraid, consistent with our predictions. Extending our findings to another intergroup emotion, it is also clear that just like intergroup anger in relation to individual anger, intergroup fear induced a pattern of cautious decision making parallel to that

induced by individual fear. These results showed that emotion induced by recalling an intergroup experience had the same impact on risk judgments as emotion induced by recalling individual experience.

Correlational Analyses

Because we measured anger and fear at both the individual level and the intergroup level, we were able to test more nuanced predictions regarding how emotion is related to risk. Specifically, we expected that as participants felt more anger they would be more risky and as they felt more fear they would be less risky. In addition, however, we wanted to see if individual or intergroup emotion was most predictive of risky decisions. To examine this issue we assessed the correlations between risky judgments and emotions in each of the four conditions in the experimental design. As shown in Table 2, those in the individual anger condition showed the expected significant positive correlation only with individual anger and those in the individual fear condition showed the expected significant negative correlation only with individual fear. On the other hand, those in the intergroup anger condition showed a positive correlation only between risky judgments and anger at the outgroup, whereas those in the intergroup fear condition showed a negative correlation only between fear of the outgroup and risky decisions (see Table 2). Interestingly, although both intergroup and individual manipulations of anger produced more risky judgments and both intergroup and individual manipulation of fear produced less risky judgments, different patterns of correlations emerged between emotions reported for different targets and risk taking. Specifically, emotions targeted toward the outgroup predicted risk in the intergroup conditions and individual emotions predicted risk in the individual conditions.

Experiment 3 showed that when people are angry they are more risky than when they are afraid. This held regardless of whether the emotion was due to a personal experience or an intergroup experience. Again, intergroup emotions had clear psychological consequences on willingness to take risk, and that impact was the same as for individual emotions. In addition, this experiment showed that although individual and intergroup anger

TABLE 2: Correlations Within-Experimental Condition Between Risky Decisions and Individual and Outgroup Anger and Fear in Experiment 3

	<i>Individual Anger</i>	<i>Anger at Outgroup</i>	<i>Individual Fear</i>	<i>Fear of Outgroup</i>
Individual anger				
Risky decisions	.47*	-.13	.28	.34
Intergroup anger				
Risky decisions	-.17	.54*	-.06	-.27
Individual fear				
Risky decisions	-.04	.18	-.68**	.15
Intergroup fear				
Risky decisions	.01	.22	-.12	-.49*

* $\pi < .05$. ** $p < .01$.

lead to riskier decisions and individual and intergroup fear lead to less risky decisions, ratings of individual anger and fear were appropriately correlated to risk taking when participants wrote about personal experiences. When participants wrote about intergroup experiences of anger and fear, risk was predicted by anger and fear directed toward the outgroup. These results, at either the individual or the intergroup level, are unlikely to be produced by experimental demand.

GENERAL DISCUSSION

These studies demonstrated that intergroup anger, whether induced by an insult to the group or by recalling an incident in which an outgroup had angered the ingroup, had consequences for arousal, information processing, and judgment of risk very similar to those previously established as consequences of individually experienced anger. Experiment 1 showed that intergroup anger (similar to many studies on individual anger, e.g., Younger & Doob, 1978) was arousing because the expression of anger was reduced when arousal was misattributed to the room where the experiment was conducted. Experiment 2 showed that arousing intergroup anger, much like individual anger (see Bodenhausen et al., 1994), reduced the extent to which a subsequently presented persuasive message was systematically processed. An empirical postscript to Experiments 1 and 2 showed that anger in response to group insults was moderated by group identification, strongly suggesting that the anger reported in the first two experiments was indeed group based as opposed to personally held. Finally, in Experiment 3, intergroup anger, just like individual anger, led to more risky decisions than did either intergroup or individual fear.

Importantly, these experiments are among the first to show that intergroup emotions are not evident only on self-report measures tapping consciously experienced emotional feelings. Indeed, these experiments were specifically designed to examine the psychological con-

sequences of intergroup anger using methods that would make demand characteristics or other artifactual explanations of any effects much less viable. In Experiment 1, all participants' groups were insulted, thus a demand characteristic explanation would predict that all participants would report anger. Because the expression of anger was reduced by a misattribution manipulation apparently unrelated to the insulting message, it is unlikely that this effect was due to participants' ability to detect the hypothesis of the experiment or to respond in a socially desirable way. In Experiment 2, which used a two-experiment ruse and completely unrelated target groups, intergroup anger nevertheless completely eliminated the impact of argument quality on message agreement. The third experiment also employed a two-experiment ruse in a context in which it is unlikely that people have intuitive access to the effects of specific emotions on risk-related behavior, but the study nevertheless demonstrated an emotion-specific effect on risk taking at both the intergroup and individual level.

Although our focus in these studies was on intergroup anger, we expect that all intergroup emotions have their own specific and appropriate consequences for downstream processing. In Study 3 we showed, for example, that intergroup fear had a distinct effect on risk taking compared to intergroup anger. In Study 1 we compared the induction of intergroup anger with a condition in which the ingroup was praised and its values reaffirmed. Although we did not test the effects of this condition directly (since our interest was specifically in the arousal component of anger), the presumed group-based happiness or pride induced by such a condition led to a different pattern of results. To the extent that individual pride and satisfaction, sadness, disgust, or guilt have significant effects on subsequent processing, we expect similar outcomes for intergroup emotions.

Establishing the consequences of a clearly intergroup emotion for downstream processing provides further support for the validity of IET. The findings are consistent with one of the foundational hypotheses of IET: that individuals categorized as group members feel

emotions in response to events affecting other ingroup members as though those events were happening to them personally (see Smith, 1993). Our findings demonstrate that these intergroup emotions have the same range of consequences as individual-level emotions, rather than being just shallow self-reports of feeling emotions that are expected of a particular group. Beyond validation of the IET framework, our findings suggest ways in which intergroup emotions contribute both to the escalation of intergroup violence and to its recalcitrance to counter measures.

In and of itself, intergroup anger is a particularly potent and ubiquitous predictor of the desire to take confrontational action against offending groups (Mackie et al., 2000; Maitner et al., 2006; Smith et al., 2007; Yzerbyt et al., 2003). Given what our findings suggest, such a heightened desire to aggress in intergroup situations is not surprising. First, if intergroup anger leads to arousal, such arousal is likely to exacerbate motivational pressures to reduce this arousal by taking aggressive action in line with the emotion (Maitner et al., 2007). Such intergroup anger-induced arousal can also bias or facilitate the processing of aggression related cues (Berkowitz, 1990). Second, if intergroup anger triggers heuristic processing, it might undermine systematic processing of information that might appease anger or allay aggression, such as apologies, attributions, excuses, and justification. And, diminished ability to process information systematically means that people in intergroup conflict may be unable to thoughtfully take the other side's perspective, reconsider the situation, or think about alternatives to aggression. Groups will often attempt to reduce the chance of violence by engaging in diplomacy, and outside agencies often offer mediation to settle differences; however, if members of the offended group are not willing or able to attend such efforts they will have little effect. Third, if intergroup anger increases risk taking, such anger is likely to interfere with the calculation of cost benefit analyses that can sometimes prevent instrumental aggression. Intergroup anger spells out a powerful recipe for intergroup violence. A group that is angry, aroused, unwilling or unable to process extenuating information but more than willing to take risks seems extremely likely to both aggress and aggress extremely. At the same time, to the extent that angry group members of the offended group are able to attribute their arousal to another cause, attend to attempts at diplomacy, and inhibit risk taking, intergroup violence should be reduced. Thus, the current work shows ways in which intergroup violence can be facilitated or inhibited based on how intergroup anger is experienced, appraised, and overcome. Because arousal, heuristic processing, and risk taking are some of the

very processes that lead to intergroup conflicts to escalate and be impervious to apology, diplomacy, and mediation even when individuals are not directly involved, understanding intergroup anger can help us appreciate why some intergroup transgressions lead to the escalation of intergroup violence and other transgressions do not.

Our findings also speak to the power of social categorization and group membership. Social identity theorists have long argued that membership in a group leads members to share traits, characteristics, and attitudes (Tajfel, 1982). Our previous work has shown that social categorization also triggers emotion sharing (Smith et al., 2007). The results from the studies reported here confirm and extend this idea: Groups are so powerful that inclusion in them changes the emotional experiences of their members and by so doing influences their cognitive processing and judgmental proclivities as well. Our findings reinforce recognition of the extent to which group memberships drive very basic aspects of our psychology: our feelings, thoughts, judgments, and behaviors.

NOTES

1. Note that the misattribution manipulation was matched to the group emotion condition with those in the group insult condition being told "the room makes you tense" whereas those in the praise condition were told "the room makes you calm." Despite this methodological ambiguity, the experimental conditions crucial to a test of the hypothesis were free from confound: People receiving intergroup insults either had or did not have a viable opportunity to misattribute any intergroup anger they felt.

2. In Experiment 1, neither sadness nor fear showed the two-way interaction pattern obtained with anger, $F_s < 1$. Thus, the impact of the manipulations in this experiment is anger specific and does not impact all negative emotions in the same way.

3. In addition, the content of the essays written corresponded quite well to the instructions given. For example, people were much more likely to use first-person singular pronouns in the individual conditions than in the group conditions, $F(1, 65) = 23.98, p < .001$, and people were much more likely to use third-person singular and first-person plural pronouns in the group conditions than in the individual conditions: third-person singular, $F(1, 65) = 57.12, p < .001$, and first-person plural, $F(1, 65) = 18.18, p < .001$. This pattern of pronoun usage, coupled with the scores on the scales of intergroup and individual anger and fear, serve to validate that the guided writing technique had the intended effects.

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