Running Head: RUMINATION AND DISPLACED AGGRESSION

Lashing out after Stewing over Public Insults:

The Effects of Public Provocation, Provocation Intensity, and Rumination on Triggered Displaced Aggression

Eduardo A. Vasquez
University of Kent

William C. Pedersen
California State University, Long Beach

Brad J. Bushman
The Ohio State University & VU University, Amsterdam

Nicholas J. Kelley
California State University, Long Beach

Philippine Demeestere
California State University, Long Beach

Norman Miller
University of Southern California

Corresponding author:

Eduardo A. Vasquez, Ph.D.
University of Kent
School of Psychology
Keynes College
Canterbury, Kent
CT2 7NP, United Kingdom
e-mail: eddieavasquez@hotmail.com; E.Vasquez@kent.ac.uk
Word Count: 9,577

Abstract

Four studies present the first evidence showing that public (vs. private) provocation augments triggered displaced aggression by increasing the perceived intensity of the provocation. This effect is shown to be independent of face-saving motivation. Following a public or private provocation, Study 1 participants were induced to ruminate or were distracted for 20 minutes. They then had an opportunity to aggress against another person who either acted in a neutral or mildly annoying fashion (viz. triggering event). As expected, the magnitude of the greater displaced aggression of those who ruminated before the triggering event compared with those distracted was greater under public than private provocation. Study 2 replicated the findings of Study 1 and confirmed that public provocations are experienced as more intense. Studies 3 and 4 both manipulated provocation intensity directly to show that it mediated the moderating effect of public/private provocation found in Study 1. The greater intensity of a public provocation increases reactivity to a subsequent trigger, which in turn, augments triggered displaced aggression.

Key words: Displaced aggression, rumination, triggering event, public provocation, provocation intensity.

Lashing out after Stewing over Public Insults: The Effect of Public Provocations, Provocation Intensity, and Rumination on Triggered Displaced Aggression

Imagine walking down a hallway and noticing a stranger walking towards you. As you pass each other, the stranger bumps into your shoulder, and then insults you, calling you clumsy and stupid, and further expressing anger. The insults attract the attention of others nearby, who stop to listen to the abuse directed at you. After this tirade, the stranger quickly walks off while several bystanders continue to stare at you. For hours you fume about the incident. While driving home that evening, another car cuts in front of you. You respond uncharacteristically by blasting your horn and yelling obscenities at the driver.

Public insults, such as the one described above, are especially provoking. An insulted individual's reputation can be damaged, sometimes permanently. Public loss of face may even cause one to take out anger on others who had nothing to do with the insult. As the American Journalist Sydney J. Harris said, "The most important thing in an argument, next to being right, is to leave an escape hatch for your opponent, so that he can gracefully swing over to your side without too much apparent loss of face." Separate from loss of face, however, is the likelihood that the mere presence of an audience will augment the perceived intensity of an insult (viz., its subjective negative affect), which, as suggested, can have important implications when subsequently encountering others.

This article focuses on assessing (a) whether the presence of an audience at the time of an initial provocation augments triggered displaced aggression; (b) whether it does so because an audience increases the negative affect experienced as a result of the initial provocation, thus making public transgressions functionally equivalent to high-intensity provocations; and (c)

whether face-saving, which is commonly invoked as a key instigator of public aggression, is a necessary component of the aggression-augmenting effects of public provocations. While examining these issues, we also replicate prior research that establishes the important role of rumination in prolonging the negative affect produced by an initial provocation and thereby increasing the magnitude of displaced aggression.

In the sections below, we first discuss the triggered displaced aggression paradigm, which provides the conceptual and empirical foundation for the research to be reported. We then discuss the role of rumination in augmenting triggered displaced aggression. Finally, against this background, we present our theoretical analysis of the aggression-augmenting effects of public, as compared with private, instigations to aggress.

Triggered Displaced Aggression

Conceptually, *displaced aggression* is an aggressive action directed towards a person or object that is *not* the original source of the provocation. Of potentially greater theoretical interest, however, is *triggered displaced aggression* (Dollard, 1938), which refers to instances of displaced aggression wherein the target has emitted a second minor provocation (i.e., *a triggering event*). In the opening anecdote, although a stranger provided the initial provocation, aggression was later directed at the driver who committed a relatively minor infraction. Had you not previously been humiliated, you probably would not have reacted toward the driver. Triggered displaced aggression is of theoretical interest because an initial provocation and a subsequent triggering event synergistically interact to heighten aggressive retaliation (Miller & Marcus-Newhall, 1997; Pedersen, Gonzales, & Miller, 2000). In other words, the initial provocation and the triggering event interact such that the resulting level of aggression is greater than the aggression levels from the additive effects of the provocation or trigger alone. Using

theories based on associative network models of mood, such as the cognitive neo-associationistic theory (Berkowitz, 1990) and the general aggression model (e.g., Anderson & Bushman, 2002), it is theorized that this occurs because the initial provocation primes or activates aggression related cognition, affect, and arousal in long-term memory. This activation means that the negative features of subsequent events are likely to be made highly salient to provoked individuals relative to unprovoked individuals. For instance, participants simply primed with aggressive constructs interpret ambiguous situations in a more aggressive manner than control participants (for a review see Todorov & Bargh, 2002). As a result of the aggressive priming, provoked individuals perceive and react more negatively to subsequent negative events, thereby leading to much higher levels of displaced aggression.

Rumination and Triggered Displaced Aggression

In our anecdote, hours had passed between the stranger's insults and being cut off in traffic. For such situations, an explanatory process requires mechanisms that can function well beyond the 10-minute approximate duration of a negative affective state (Fridhandler & Averill, 1982; Tyson, 1998). In other words, how can the negative affect that motivates aggression (e.g., anger) and which lasts for only about 10 minutes, produce an aggressive response hours after that affect would normally have dissipated? Rumination, defined as self-focused attention toward one's thoughts and feelings (Lyubomirsky & Nolen-Hoeksema, 1995), provides a good explanatory process. Spreading activation or associative network theories of mood can also explain the effects of rumination on prolonged feelings of anger (e.g., Berkowitz, 1990; Bower, 1981; Collins & Loftus, 1975). These theories, including the cognitive neo-associationistic theory (Berkowitz, 1990) and the general aggression model (e.g., Anderson & Bushman, 2002) previously mentioned posit that when an emotion is experienced, activation spreads through the

associative network, leading not only to the activation of related constructs, but also prolonging the experienced emotion. Ruminating about a provoking event enhances this spreading activation, and therefore, increases angry feelings. In addition, the continuous mental processing and elaboration of the provoking incident that is inherent in rumination maintains an activation of anger and aggression-related constructs for prolonged periods of time, thereby increasing responsiveness to the irritation subsequently generated by a minor triggering event (see Bushman, Bonacci, Pedersen, Vasquez, & Miller, 2005).

Among types of rumination, one can ruminate directly about the provoking event (termed *provocation-focused rumination*) or about one's internal states (termed *self-focused rumination*). *Provocation-focused rumination* centers an individual's attention outside the self, directing it towards a provoking incident. It increases self-reported anger, an emotion that is generally associated with an *approach* motivation (Harmon-Jones, Vaughn-Scott, Mohr, Sigelman, & Harmon-Jones, 2004) because it produces a push or drive towards engaging in a behavior (in this case, aggressive retaliation). In contrast, *self-focused rumination* centers attention inward on the self, what one feels, and why one feels that way (Lyubomirsky & Nolen-Hoeksema, 1995). Self-focused rumination might augment aggressive retaliation for at least two reasons. First, it focuses attention on one's negative affect, thereby increasing and maintaining aggressive priming (see Berkowitz, 1993). Negative affect is an important motivator of aggressive behavior (Berkowitz, 1993; Anderson & Bushman, 2002), and its ensuing aggressive priming makes individuals focus on the negative characteristics of subsequent events. Consequently, aggressively primed individuals who are ruminating are more likely to react strongly to subsequent negative events such as a trigger. Second, a focus of attention towards ones negative affect is linked to an increased awareness of own bodily sensations and arousal levels (Gibbons,

1983, 1990). Thus, negative affect, coupled with an awareness of one's arousal, energizes a behavioral response -- aggressive behavior (Zillmann, 1978). Furthermore, by focusing attention onto negative events and their resulting negative affect, rumination thereby reduces effective processing of cues and cognitions that normally inhibit and mitigate negative reactions. As a result, aggressive reactions are enhanced.

Both types of rumination are interchangeably expected to maintain negative affect and have previously been shown to augment triggered displaced aggression (Bushman et al., 2005).

Public Provocations and Aggression

We have now set the stage for our theoretical analysis of the effects of public and private provocation.

A surprisingly high number of violent crimes occur in front of an audience (e.g., Luckenbill, 1977). Moreover, a public setting augments aggression in laboratory experiments (e.g., Borden, 1975; Borden & Taylor, 1973). One explanation for why an audience might augment aggression is that its presence makes it hard for the individuals to back down. If one man insults another when they are alone, the insulted fellow can sometimes shrug it off or leave. But if others are looking, he may lose face if he fails to respond. Hence, self-presentation concerns may contribute to aggressive behavior (Felson, 1982; Tedeschi & Felson, 1994). Although emotional events clearly underlie it, this face-saving explanation strongly rests on a cognitive process whereby aggressive retaliation is instrumentally emitted. Its operation consists of instrumental aggression in the service of creating an image of bravery, fearlessness, respect-worthiness, powerfulness, etc. Such cognitive activation, however, may also activate feedback loops that further raise the level of arousal and emotion already activated by the provocation. Its main distinguishing feature, however, is the instrumental purpose of the aggressive display.

An alternative explanation is that public insults produce more aggression because they are more unpleasant than private ones, and thus, produce *higher* levels of anger (see Ferguson & Rule, 1981). This latter explanation is more purely an arousal-based account than a face-saving account. The social facilitation literature, which generally proposes that the presence of others can improve performance in relatively simple tasks (for a review, see Bond & Titus, 1983), provides a mechanism for this effect. It suggests that others' presence increases arousal, which in turn, augments the performance of dominant responses (Zajonc, 1965; 1980). Thus, the aggression-augmenting effects of public provocations may be explained by the increased arousal induced by the presence of others. Additionally, beyond the anger-increasing effects of a witnessed provocation, others' presence may more strongly induce additional types of emotional arousal such as humiliation, embarrassment, guilt, or shame, thereby further augmenting negative affective reactions (Berkowitz, 1993). Moreover, consciously or not, people may assume that observers will interpret a provocateur's attack as justified. That is, they will assume that observers will agree with the inappropriately diminishing evaluation of oneself that is implicit in a provocateur's hostile attack. Such perceptions may stem from the well-established *blame the victim ideology* (Lerner & Simmons, 1966; Ryan, 1971) that is culturally normative, and hence, characterizes most people. Hence, the recipient of a public provocation quite correctly can believe that she or he is not just being negatively evaluated by the provocateur, but by observers as well (Weiss & Miller, 1971). Because both others as well as the provocateur are negatively evaluating oneself, more anger is aroused. Therefore, the provocation is experienced as stronger than when one is alone.

It is important to note that the two previous explanations for the aggression-augmenting effects of public provocations, face-saving and the experience of more intense negative affect,

are not mutually exclusive. Both can lead to higher aggression levels. Herein, however, we only explore the adequacy of this second explanation, namely, that a public provocation is perceived as stronger than a private one. We do so by constraining tests of the effect of public versus private provocation to a manipulation that creates an audience that is present only during the provocation and is absent during the triggering and measurement phases of the experiment. Consequently, one competing hypothesis is that our manipulation of audience presence will have no impact on the level of retaliatory aggression. The basis for this hypothesis is that the absence of an audience during both the triggering event and the opportunity to aggressively retaliate precludes the instigation of face saving motivation. Importantly, however, and as already indicated, we predict the opposite. Instead, we expect that constraining audience presence to the provocation alone will in fact increase triggered displaced aggression. It will do so because it augments affective reactions to the provocation, thereby heightening its perceived intensity. The four studies presented herein focus directly on the empirical confirmation of this latter process. We do not assess the presence or absence of face-saving cognitions. Nor do we explore individual difference moderators such as belief in a just world, or other potential moderators such as the number and types of emotions elicited by public versus private provocation.

Our studies make several novel theoretical contributions. Study 1 is the first to investigate the impact of public provocation in the context of either self-focused rumination or triggered displaced aggression. Study 2 examines whether public provocation does indeed elicit stronger negative affect than private provocation. It thereby experimentally tests the first step in the causal chain that links public provocation to augmented triggered displaced aggression. It additionally examines the effect of provocation-focused rumination to demonstrate its functional equivalence to that of self-focused rumination in augmenting the effect of public insult on

displaced aggression. In Studies 3 and 4 we further tested the notion that the augmented triggered displaced aggression effect seen in Study 1 is due to the perception of provocation intensity. The strongest approach to testing whether perceived provocation intensity mediates the effect of public versus private provocation is to experimentally manipulate this alleged mediator (Harrington & Miller, 1993). We therefore directly manipulate provocation intensity in Studies 3 and 4 to show that its effects on triggered displaced aggression parallel those produced by an audience in Study 1. Thus, Studies 2, 3, and 4 are the first to explore directly one process by which public provocation can augment triggered displaced aggression.

Study 1

In the first study, participants were provoked in front of an audience or no audience. Half ruminated about the provocation, whereas the other half were distracted. Participants then experienced either a minor triggering event or no triggering event. The measure of aggression was the amount of hot sauce given to the innocent (no trigger) or almost innocent (trigger) target. We predicted highest levels of aggression among participants who were provoked in front of an audience, who ruminated about the provocation, and who then experienced a minor triggering event.

Method

Participants and Design

Participants were 342 undergraduate college students (171 women, 171 men) who received extra credit in exchange for their voluntary participation. The design was a 2 (public vs. private provocation) x 2 (rumination vs. distraction) x 2 (trigger vs. no trigger) between-subjects design.

Procedure

Public/private provocation manipulation. Participants were led to believe they were participating in an impression formation study with another participant of the same sex whom they would not meet. In the *public provocation* condition, they were told that two new experimenters would be observing the study as part of their training. The experimenter explained that the video camera mounted to the computer allowed the new experimenters to view the session via closed-circuit television. In the *private provocation* condition, there was no mention of new experimenters and no video camera on the computer.

Next, participants were informed about several activities designed to enable them to form an impression of their partner even though they would never meet their partner face-to-face. One activity involved tasting food. On a "Food Preference Form" they rated how much they liked certain types of food (e.g., dairy food, spicy food) on a 21-point scale ranging from -10 (*strongly dislike*) to +10 (*strongly like*).

In the *public provocation* condition, participants heard the experimenter say via intercom, "Jennifer and Carl, the first thing we have the participant do is fill out the Food Preference Form. The other experimenter is having the other participant do the same thing." In the *private provocation* condition, nothing was said while participants completed the Food Preference Form.

Next, participants completed 15 anagrams, allegedly measuring verbal skills. Scrambled letters appeared on a computer screen for 5 seconds. After a prompt, they wrote and said the anagram if they could, or "I don't know" if not. The correct answer then appeared and they used it in a sentence. Answers were supposedly recorded in an adjacent room.

In the *public provocation* condition, participants heard the experimenter say (via intercom), "Okay, Jennifer and Carl, now we are doing the anagram task. You just heard the

instructions to give to the participant. Now, watch how I bring up the program on the screen." In the *private provocation* condition, the experimenter told the participant (via the intercom), "The anagram task will begin shortly."

In reality, the anagram task served as the context for the provocation induction. First, the experimenter played loud and distracting music during the task, ostensibly to "eliminate background noise." Second, the anagrams were difficult. Third, the experimenter insulted participants during the task. After the 4th anagram, the experimenter said: "Look, I can barely hear you. I need you to speak louder please." After the 8th anagram, the experimenter said in a louder and angrier tone: "Hey, I still need you to speak louder please!" After the 12th anagram, the experimenter said in a frustrated and exacerbated tone: "Look, this is the third time I've had to say this! Can't you follow directions? Speak louder!"

After completing the anagram task, those in the public condition heard the experimenter say (via intercom), "Okay, Jennifer and Carl, you've observed the rest of the study before. You can leave now." Jennifer said, "Okay. See you later," and Carl said, "Yeah. See you later." This precluded any inference by participants that others were observing them during the aggression opportunity. This conversation was omitted in the *private provocation* condition.

Rumination manipulation. In study 1, we manipulated self-focused rumination. The next activity allegedly involved generating creative and imaginative thoughts (Rusting & Nolen-Hoeksema, 1998). Participants received a packet with a phrase on each page and were told to think about each phrase, spend one or two minutes writing any thoughts that came to mind on a pad of paper, turn the page, and repeat this process for 20 minutes. In the *rumination* condition, the phrases were internally focused (e.g., "what kind of a person you are" and "why people treat

you the way they do"). To avoid demand characteristics, none mentioned anger. In the *distraction* group, the phrases were externally focused (e.g., "the layout of the local post office").

Trigger manipulation. Next, participants received their partner's anagram answer sheet. Based upon it, they wrote an impression of their partner's verbal skills on an evaluation form. The partner always answered three more anagrams correctly than did participants. Using a 20-point scale ranging from -10 (*Unacceptable*) to +10 (*Excellent*), participants evaluated their partner's overall performance and concentration level. They also evaluated how well their partner would do in a class requiring good verbal skills. There also was room for written comments.

The experimenter then returned to hand participants an envelope containing their partner's evaluation of their own anagram performance. In the *trigger* condition, the ratings were +1 for overall performance, +2 for concentration level, and –1 for how well the participant would do in a class requiring good verbal skills. Also, the partner wrote, "Although the task was difficult, I would have thought a college freshman (or sophomore, junior, or senior depending on the participant's class rank) would have done a better job." In the *no trigger* condition, the ratings were +5 for overall performance, +6 for concentration level, and +5 for how well the participant would do in a class requiring good verbal skills. Also, the partner wrote, "Although the task was difficult, I thought the other participant did a fairly good job for a college freshman (or sophomore, junior, or senior depending on the participant's class rank)."

Measure of aggression. Next, the experimenter returned with their partner's Food Preference Form, told participants to examine it to see what kinds of foods their partner liked, and explained that each person would sample one of the foods on the form. Partners always indicated a strong dislike (-9) of spicy foods, and wrote at the bottom of the form, "I like most of

the foods listed above but I hate spicy foods" (the word hate was underlined). The experimenter then returned with a 3.5 oz. Dixie^{tm} cup and cover, a container of Tapatio^{tm} salsa picante hot sauce, two spoons, a cup of water, and a few crackers. Participants were told that by random assignment they would eat pretzels and their partner would eat hot sauce. Participants tasted the hot sauce. Water and crackers were provided if it was too spicy. Next, the experimenter told participants to spoon into the cup as much hot sauce as they wanted their partner to consume, and put the lid on to prevent the experimenter from seeing the amount. The experimenter said that their partner would be required to eat *all* the hot sauce and then left the room.

Minutes later, the experimenter returned to collect the cup. Its weight served as a measure of aggression (Lieberman, Solomon, Greenberg, & McGregor, 1999). The experiment was then terminated and participants were debriefed.

Results

Preliminary Analyses

Tukey's (1977) box plot was used to identify extreme outliers. Because outlying observations can unduly influence least squares estimates, 32 participants with extreme aggression scores were removed from the data set (Barnett & Lewis, 1978). Fisher's exact test showed that the number of outliers deleted did not differ across groups ($p > .10$). An additional 3 participants were removed because of incomplete data, leaving a total of 307.

Primary Analyses

The data were analyzed using a 2 (public vs. private provocation) x 2 (rumination vs. distraction) x 2 (trigger vs. no trigger) between-subjects ANOVA. Analysis revealed main effects for Provocation, Rumination, and Trigger, Fs(1,298)=31.44, 31.13, and 91.23, respectively, ps<.001. There also were Provocation x Trigger, Provocation x Rumination, and Rumination x

Trigger two-way interactions, *F*s(1,298)=25.20, 4.41, and 21.49, respectively, *p*s<.05. These effects, however, were qualified by the predicted three-way Provocation x Rumination x Trigger interaction, $F(1,298)=9.84$, $p<.01$. Confirming expectations, provocation interacted with Rumination in the presence of a triggering event, $F(1,298)=13.51$, $p<.0003$ (see Figure 1), but not in its absence, $F(1,298)=0.54$, $p>.46$ (see Figure 1). In the trigger conditions, the aggressiveness of participants induced to ruminate exceeded that of distracted participants regardless of whether the provocation occurred in public or in private, $t(298)=7.71$, $p<.0001$, $d=0.89$, and $t(298)=2.46$, $p<.02$, $d=0.29$. As predicted, a Welch-Sidak linear contrast analysis (Wilcox, 1996) showed that this effect was larger in public than in private conditions, $T=2.77$, $p<.01$.

Discussion

As expected, study 1 showed that self-focused rumination elicited stronger triggered displaced aggression when the initial provocation was delivered publicly than privately. One explanation for this is that public provocations are experienced as more severe and intense than private ones, thereby prompting more triggered displaced aggression. This theorizing is consistent with the cognitive neoassociationistic theory (Berkowitz, 1990), which posits that events that produce intense levels of negative affect generate strong activation of aggression-related associative networks, prompting intense feelings of anger and aggressive inclinations.

Study 2

To assess the robustness of the effect of public provocation on aggressive behavior, Study 2 sought to replicate the findings in Study 1 using different operationalizations of rumination (i.e., provocation-focused rumination), provocation, and a different measure of aggression. Furthermore, although we did not anticipate that rumination would augment aggression in the

absence of an initial provocation, we added a no-provocation control condition to Study 2. Finally, in study 1 we argued that people experience a public provocation as more intense than when that same provocation is delivered in private, thereby leading to the greater impact of public provocations on aggression. We test this hypothesis in Study 2 by assessing the level of affective reactions to the provocations across conditions. Thus, in Study 2, participants received an initial provocation that was either in a public or private setting (or were assigned to the no provocation control condition). They were then were induced to ruminate about a provoking event or were distracted from it for 20 minutes. Finally, participants had an opportunity to aggress against another person who acted in a mildly annoying fashion. The aggression measure was the length of time that the target would hold their hand in painfully cold water.

Method

Participants and Design

Seventy-seven undergraduate college students (66 women, 11 men), who volunteered in exchange for extra course credit, participated in a 3 (public provocation vs. private provocation vs. no provocation control) x 2 (provocation-focused rumination vs. distraction) between-subjects design. The triggering event was constant across conditions in Study 2 because no effects were observed in the no-trigger condition of Study 1 (consistent with other studies; e.g., Vasquez et al., 2005).

Procedure

Provocation manipulation. Similar to Study 1, participants in the *public provocation* condition were told that to train new experimenters, Erin and John would observe the study via a video camera and an intercom system. The experimenter then spoke into the intercom asking

Erin and John if they were ready. An audio recording was then played with a male and female voice responding affirmatively. The *private provocation* condition mentioned neither observing new experimenters nor a video camera or intercom.

The context of the provocation manipulation, however, differed from Study 1. Participants were asked to solve as many anagrams as possible out of a set of 15 in five minutes. The experimenter returned after 5 minutes to collect participants' answer sheet (ostensibly to grade it), and gave them a handout showing the anagram performance of a sample of engineering students. As in Study 1, those in the provocation condition listened to irritating music and were assigned difficult anagrams. When the experimenter re-entered with their scores, participants were first told that they had scored below average compared with the engineering students. The experimenter then insulted them about their problem-solving ability and effort, stating their performance was poor and that another anagram test should be administered; adding in an exasperated and irritated tone that it would be a waste of time to rerun the session; and indicating they should just continue. In the no-provocation condition, participants listened to soothing music, solved easy anagrams, were told that they received an average score compared with engineering students, and were not insulted. In the public provocation condition, the experimenter dismissed the two new experimenters via intercom after the insult. No such communication occurred in the private provocation condition.

Rumination manipulation. Next, participants completed a 20-minute writing task that purportedly assessed effective writing ability (see Bushman et al., 2005, Study 2). Those assigned to *rumination* conditions wrote about what had occurred in the experiment up to that point, including their actions, feelings, and interactions with other individuals. *Distraction* participants wrote about the layout of their college campus.

Trigger induction. Participants were next asked to exhibit their creativity by listing six characteristics they believed were important for an astronaut. The experimenter pretended to take their answers to the bogus partner and shortly returned with bogus answers for the participant to evaluate. Thus, they were led to believe they had evaluated another person's performance and that their partner had evaluated their own performance. Conceptually paralleling the trigger condition of Study 1, triggered participants received mildly negative ratings and comments from their partner.

Aggression measure. We told participants that the final task examined how distraction affects a person's cognitive abilities, stating that they had been randomly assigned to a visual distraction (e.g., a nature video), whereas the other participant was assigned to a tactile distraction (e.g., placing their hand in painfully cold water). Participants then put their own hand in the bucket of cold water (10° C, 50° F) for 5 seconds, ostensibly to guide their decision about the length of distraction for the other participant. Next, participants received two envelopes. A form in the first instructed them to circle the duration that the other participant should be distracted by the cold water using a 9-point scale which started at "1 = no distraction at all" (0 seconds) and increased by 10-second intervals to "9 = 80 seconds/very strong distraction." This served as the dependent measure of physical aggression. The second envelope contained a modified version of the Mood Adjective Checklist (Nowlis, 1965). Participants were asked to indicate their feelings following the anagram task (viz. the manipulation of provocation). Finally, participants were debriefed.

Results

Preliminary analyses

Tukey's (1977) box plot was used to identify extreme outliers. Nine participants' whose data were identified as an extreme aggression outlier were removed. Fisher's exact test revealed that the number of outliers deleted did not differ across groups ($p > .10$).

Primary analyses

The aggression data were analyzed using a 3 (public provocation vs. private provocation vs. no provocation control) x 2 (rumination vs. distraction) between-subjects ANOVA. Analysis revealed main effects for both Provocation, $F(2,71) = 16.64$, $p<.001$, and Rumination, $F(1,71) = 33.32$, $p<.001$, which were qualified by the predicted interaction between provocation and rumination, $F(2,71) = 15.91$, $p<.001$. Replicating the findings in Study 1, simple effect analyses indicated that participants who ruminated were more aggressive than distracted participants in both the public provocation, $F(1,71) = 50.10$, $p<.001$, $d=1.68$, and private provocation, $F(1,71) = 8.79$, $p<.01$, $d=0.70$, conditions. Furthermore, a Welch-Sidak linear contrast analysis (Wilcox, 1996) showed a larger rumination effect under public compared to a private provocation, $T=2.96$, $p<.01$. Consistent with expectations, rumination did not impact aggression in the no provocation control condition, $F(1,71) = 0.26$, $p>.10$ (see Figure 2).

Negative Affect

We analyzed a composite of 6 adjectives from the modified Mood Adjective Check List that describe a negative mood -- defiant, down, hostile, sad, disgusted, and scornful (Cronbach $\alpha=.71$). As expected, induced rumination about a public provocation ($M=6.70$) produced more negative affect than rumination about a private provocation ($M=3.29$), $t(22) = 2.76$, $p<.05$, $d=1.18$. This effect was still significant even after controlling for the behavioral measure of aggression, F(1,21) 6.30, p<.05. As expected, negative affect elicited in the public and private provocation conditions did not differ under no-rumination $t(23) = 0.91$, $p=.37$.

Discussion

Study 2 replicated the findings of Study 1 using different operationalizations of key variables. More important than evidencing the robust nature of the effect, it also showed that whereas both public provocation and provocation-focused rumination increase displaced aggression, rumination does not increase aggression in unprovoked participants. Finally, Study 2 showed that provocations are more aversive when delivered in public than in private.

Study 3

Although participants in the public provocation condition of Study 2 reported more intense negative affect than those privately provoked, the best way to test whether provocation intensity mediates the effect of public versus private provocation on triggered displaced aggression is to directly manipulate it (Harrington & Miller, 1993). Thus, in Study 3 we predicted that rumination should have a stronger impact on the magnitude of triggered displaced aggression when participants receive a stronger initial provocation. In this case, the provocation differs from those in Studies 1 and 2 in that it does not induce greater negative affect by occurring in the presence of others, but rather, by involving more negative comments. This essentially serves to demonstrate the functional interchangeability of public and high-intensity provocations. In Study 3, participants experienced either a provocation of high or moderate intensity followed by a 20-minute task that either distracted them or allowed them to ruminate. Participants then had the opportunity to aggress against another person who either acted in a neutral or mildly annoying fashion (viz. triggering event). The aggression measure was the amount of hot sauce given to the target.

Method

Participants and Design

One hundred seventy two undergraduate college students (136 women, 36 men) volunteered to participate in a 2 (severe vs. moderate provocation) x 2 (rumination vs. distraction) x 2 (trigger vs. no trigger) between-subjects design in exchange for extra course credit.

Procedure

Thirty seconds after we escorted participants to the experiment, a confederate pretending to be another participant arrived. After obtaining informed consent, we told them that they would complete the study in separate rooms and instructed the confederate to report to another experimenter in a room down the hall. Next, participants were told that the experiment concerned impression formation processes, both in contexts where individuals had seen each other face-to-face and in situations where they had not, and that they were one of three people participating in the study. Although they had already seen the second participant (viz. the confederate), a third (bogus) participant, whom they would not see, was in another room. The additional bogus participant was used to keep the sources of provocation and trigger distinct.

Next participants completed "Food Preference Form" employed in Study 1, given five minutes to complete a 15-item anagram task, and told they would later exchange answers with the confederate.

Provocation manipulation. Participants were then given five minutes to write a persuasive essay on abortion, choosing and defending their preferred position. The experimenter explained that the essay would be exchanged with the (bogus) participant they had not met and that they would evaluate each other's work via intercom. After taking the participant's essay the

experimenter returned with the bogus participant's essay, which always took an opposing position. They received several minutes to read and evaluate it.

Upon returning, the experimenter said that because the study was running behind, only one of the participants would be allowed to give verbal feedback over the intercom. Through a rigged lottery, the un-met bogus partner was selected to give the feedback that constituted the manipulation of provocation intensity. In the *moderate provocation* condition, their partner's feedback indicated their abortion essay was scattered and unclear, its arguments unoriginal and unconvincing, and the writing style needed improvement. In the *severe provocation* condition, they received the same feedback, but the bogus partner used a very sarcastic and demeaning tone of voice and concluded with the exclamation, "This is one of the worst essays I have read in a long time."

Rumination manipulation. Participants were told that the next part of the study assessed their ability to write effectively. They then performed the same rumination or distraction procedures described in Study 1.

Trigger manipulation. The participants and the confederate exchanged the anagram answers completed earlier, rating their quality, effort, and overall evaluation on scales ranging from 1 (*not good at all*) to 7 (*extremely good*), with additional room for written comments. The evaluation they received constituted the trigger manipulation. In the *trigger* condition, they received ratings of 2, 1, and 1, and the written comment was: "Although the task was difficult, I thought the other participant would have done a better job." In the *no trigger* condition, ratings were 6, 5, and 5, and the written comment was: "Although the task was difficult, I thought the other participant did a fairly good job. Similar trigger operationalizations have been effectively used in previous studies (e.g., Pedersen et al., 2000).

Aggression measure. Participants then engaged in the hot sauce allocation procedure used in Study 1. The amount of hot sauce (in grams) the participant chose for the confederate to consume served as the measure of aggression.

Results

Preliminary analyses

Tukey's (1977) box plot was used to identify extreme outliers. Twenty-eight participants were identified as outliers with extreme aggression scores and removed from the data set. Fisher's exact test revealed that the number of outliers deleted did not differ across groups ($p > .10$).

Primary analyses

The amount of hot sauce (in grams) was analyzed using a 2 (severe vs. moderate provocation) x 2 (rumination vs. distraction) x 2 (trigger vs. no trigger) between-subjects ANOVA. Results revealed main effects for provocation intensity, rumination, and trigger, Fs(1,164) = 4.55, 15.19, and 15.68, respectively, ps<.05. There also were Provocation Intensity x Rumination, Provocation Intensity x Trigger, and Rumination x Trigger two-way interactions, Fs(1,164) = 4.13, 6.04, and 8.87, respectively, ps<.05. All of these effects, however, were qualified by the predicted three-way Provocation Intensity x Rumination x Trigger interaction, $F(1,164) = 4.62$, $p<.05$. As expected, for participants who experienced a triggering event, provocation intensity interacted with rumination $F(1,75) = 4.09$, $p<.05$ (see Figure 3), but not for those not triggered, $F(1,89) = 0.41$, $p>.10$ (see Figure 3). Within the trigger condition, rumination induced more aggression than did distraction, irrespective of initial provocation intensity, $F(1,33) = 6.52$, $p<.05$, $d=0.89$ and $F(1,42) = 4.19$, $p<.05$, $d=0.63$, respectively.

Consistent with public provocation's impact in Studies 1 and 2, however, a Welch-Sidak linear contrast analysis (Wilcox, 1996) showed the predicted bigger effect under severe provocation compared with moderate provocation, T=1.80, p<.05 (one-tailed).

Discussion

Studies 1 and 2 showed that a public provocation augments the impact of rumination on subsequent aggressive behavior. Additionally, the affect data from Study 2 indicated that public provocations are experienced as more intense than private ones, suggesting that provocation intensity mediates the aggression-increasing effect of a public provocation on triggered displaced aggression. To test this mediational effect we directly manipulated provocation intensity in Study 3 and showed the identical pattern of results as seen in Studies 1 and 2. Specifically, a severe provocation functioned in a manner similar to public provocations; both differentially increased ruminatively-augmented triggered displaced aggression.

Study 4

The main purpose of Study 4 was to investigate why people take out their aggressive impulses against individuals who commit a minor offense after ruminating about a public provocation. In particular, we were interested in the mediating role of negative reactions to the trigger event and to the provocation. A secondary purpose of Study 4 was to replicate the findings of Study 3 using different operationalizations of key variables. Thus, participants first received an initial provocation of either high or moderate intensity. They were subsequently either induced to ruminate (i.e., engaged in *self-focused* rumination) or were distracted for 20 minutes, and then given an opportunity to displace aggression against a competent or fumbling

confederate. The aggression measure was the degree to which participants recommended hiring the research assistant for a paid position.

Participants and Design

Eighty undergraduate college students (59 women, 21 men) voluntarily participated in a 2 (severe vs. moderate provocation) x 2 (rumination vs. distraction) x 2 (trigger vs. no trigger) between-subjects design exchange for extra course credit.

Procedure

Participants were told that the study concerned impression formation with no face-to-face interaction; hence, they would not meet their partner. A second alleged goal was to examine the impact of cognitive and imagination skills on impression formation. Initially, participants would write, exchange, and evaluate essays with their partner. Subsequently, they would complete a mental image task that measures imagination skills. Finally, they would complete a trivia game that measures cognitive skills.

Provocation manipulation. We employed the same procedure used in Study 3. Specifically, participants wrote an essay that supported a Pro-choice or a Pro-life stance on abortion, which was exchanged with their (bogus) "partner" for evaluation. We then used the same excuse of running short on time and through a rigged drawing the bogus partner was selected to give feedback to the participant. Using the same operationalization of moderate and severe provocation as in Study 3, this feedback manipulated provocation intensity.

Rumination manipulation. Participants engaged in the same rumination or distraction procedures described in Study 1, in which we manipulated self-focused rumination. Participants received a packet with a phrase on each page and were told to think about each phrase, spend one

or two minutes writing any thoughts that came to mind on a pad of paper. They repeated this process for 20 minutes. In the *rumination* condition, the phrases were internally focused (e.g., "what kind of a person you are" and "why people treat you the way they do"). In the *distraction* group, the phrases were externally focused (e.g., "the layout of the local post office").

Trigger manipulation. Participants were told that the third part of the study assessed cognitive skills. Participants watched a video of an undergraduate research assistant who stated trivia game questions aloud and displayed a card with the multiple-choice foils for each question. Participants answered the questions they could. Additionally, they were told that the research assistant on the tape had applied for a coveted position as a paid researcher in a professor's lab, and that the professor wanted participants to evaluate the applicant. After the tape, the experimenter retrieved the participant's trivia answer sheet, provided a summary sheet indicating the average score of a group of engineering students on the same trivia game, and left to score their test.

In the *trigger* condition, the research assistant read the trivia questions too quickly, mispronounced words and names, and occasionally mixed up the multiple-choice responses (e.g., presenting potential answers to question 12 after reading question 9). In addition, participants were told that they did poorly compared to the average engineering student, but they were not insulted about their performance. In the *no trigger* condition, the research assistant read the trivia questions slowly, made no pronunciation errors, and correctly matched multiple choice questions and answers. In addition, participants were told that they did as well as the engineering students.

Aggression measure and manipulation checks. Next, participants received a packet containing the aggression measure and manipulation checks. The first page contained the 5-item aggression measure. One item assessed the degree to which they recommended hiring the

research assistant. The other four items assessed the research assistant on four dimensions: likeable, friendly, competent, and intelligent. Ratings were made using an 11-point scale ranging from 1 (*strongly agree*) to 11 (*very strongly disagree*), with a described midpoint of 4 that thereby expanded the negative end of the scale.

The second page contained the 9-item trigger manipulation check. Five items assessed the participant's emotional reaction to the assistant's performance (viz., *irritated, happy, angered or upset, pleased,* and *annoyed*) whereas four assessed the assistant's task performance. Again, all items were rated on an 11-point scale ranging from 1 (*strongly agree*) to 11 (*very strongly disagree*), with an expanded high aggression portion for each scale. Thus, the described midpoint was 8 for the *irritated, annoyed,* and *angered or upset* items and 4 for the *happy, pleased,* and the four separate task performance items.

The third page contained the 8-item provocation intensity manipulation check. Four items assessed the participant's emotional reaction to the essay evaluation (viz., *happy, irritated, annoyed,* and *pleased*) on an 8-point scale ranging from 1 (*very*) to 8 (*not at all*). The other four items measured evaluative reactions to the essay feedback (viz., how *useful, meaningful, worth thinking about,* and *invalid* they found the evaluation) on 7-point scales ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). Finally, participants were debriefed.

Results

Preliminary Analyses

Statistical assumptions. Tukey's (1977) box plot was used to identify extreme outliers. Because outlying observations can unduly influence the least squares estimates, two participants with extreme aggression scores were removed from the data set. Fisher's exact tests revealed that

the number of outliers deleted did not significantly differ across groups ($p > .10$). This left 78 participants for analysis.

Trigger manipulation check. To assess the effectiveness of the trigger manipulation, participants rated their emotional response to the research assistant's performance (viz. *irritated*, *angered or upset*, *happy*, *pleased*, and *annoyed*). They also rated the research assistant's performance (viz., read the questions slowly, spoke clearly, administered the questions efficiently, and read the questions correctly). The nine items were standardized and averaged to form a composite score, with higher scores indicting more negative reactions (Cronbach α=.95). As expected, participants in the trigger condition had a more negative reaction to the research assistant's performance (M=+0.60) than did those in the no trigger condition (M=-0.60), $t(76)=8.86$, $p<.001$, d=2.01. The trigger manipulation check was still significant even after controlling for the measure of aggression, $F(1,75) = 14.78$, $p<.001$.

Provocation intensity manipulation check. Four items assessed participants' emotional reactions to the essay evaluation (viz. *happy*, *irritated*, *annoyed*, and *pleased*), and additional questions assessed their general reaction to the evaluation (viz. the evaluation was *useful*, *meaningful*, *worth thinking about*, and *invalid*). The eight items were standardized and averaged to form a composite score, with higher scores indicating a more negative reaction (Cronbach's α=.83). As expected, participants in the severe feedback condition (M=+0.21) had a stronger negative reaction to their essay evaluation than those in the moderate provocation condition (M=-0.20), $t(76)=2.78$, $p<.01$, d=0.62. The provocation intensity manipulation check was significant after controlling for aggression, $F(1,75) = 6.74$, $p<.05$.

Primary Analyses

To assess triggered displaced aggression toward the research assistant, a composite of five items (viz. recommendation for the paid assistantship position and the evaluative ratings of liking, friendliness, competence, and intelligence) were averaged to form a composite score (higher scores indicating more aggression: Cronbach's α=.91) and analyzed using a 2 (severe vs. moderate provocation) x 2 (rumination vs. distraction) x 2 (trigger vs. no trigger) between-subjects ANOVA.

Analysis revealed main effects for provocation intensity, rumination, and trigger, *F*s(1,70)=9.80, 17.86, and 105.73, respectively, *p*s<.01. There also were Provocation x Trigger and Rumination x Trigger two-way interactions, *F*s(1,70)=7.06 and 26.28, respectively, *p*s<.01. All of these effects, however, were qualified by the predicted three-way Provocation x Rumination x Trigger interaction, $F(1,70)=8.44$, $p<.01$. As expected, for participants who experienced a triggering event, provocation intensity and rumination interacted $F(1,70)=9.89$, $p<.01$ (see Figure 4), but not for those non-triggered, $F(1,35)=1.30$, $p>.10$ (see Figure 4)[1]. In the trigger conditions, participants induced to ruminate aggressed more than distracted participants, regardless of initial provocation intensity, $t(70)=6.81$, $p<.001$, $d=1.63$ and $t(70)=2.49$, $p<.05$, $d=0.59$, respectively. Consistent with Study 1, however, a Welch-Sidak linear contrast analysis (Wilcox, 1996) showed a bigger effect under severe than moderate provocation, $T=2.82$, $p<.01$.

Mediation Analyses

We also tested whether (a) negative reactions to the trigger and (b) negative reactions to the provocation mediated the effects of provocation intensity on displaced aggression for participants who were triggered. Given the interaction between provocation intensity and rumination, we controlled both for this interaction and the main effect of rumination in these analyses. This allowed us to focus solely on factors that mediated the impact of provocation

intensity on subsequent aggression. Hence, we conducted an analysis with multiple mediators using the bootstrapping macro with 5000 bootstrapping resamples (Preacher & Hayes, 2008; see Figure 5). The overall model was significant, $F(5,33) = 16.33$, $p < .001$, $R^2 = .71$. Bootstrap confidence intervals were used to assess the indirect effect of provocation intensity on aggression through each of the possible mediators. Analyses revealed that negative reactions to the trigger mediated the effect of provocation intensity on displaced aggression because its 95% confidence interval did not include zero, bootstrapped 95% CI = .06 < .26 < .55. This was not the case for reactions to the provocation, bootstrapped 95% CI = -.25 < -.06 < .01.

Discussion

Study 4 showed that negative reactions to the trigger mediated the effect of provocation intensity on displaced aggression. Although our mediation analyses in Study 4 confirmed our manipulation check data by showing that a more intense provocation was subjectively experienced as stronger, the effect of intensity on triggered displaced aggression was mediated directly through its effect on reactions to the trigger. Thus, our mediation analyses provided no support for a model wherein provocation intensity augments subjective anger, which in turn increases triggered displaced aggression by augmenting reactions to the trigger. In accord with Berkowitz's cognitive neoassociationistic theory, this suggests that the triggered displaced aggression-augmenting effect of provocation intensity is due primarily to its cognitive priming function (as opposed to its covarying augmentation of anger). Thus, when primed by a more intense provocation, the trigger is more readily noticed and interpreted as negative, resulting in stronger triggered displaced aggression. In addition, Study 4 replicated the findings of Study 3 using different operationalizations of key variables.

General Discussion

Our studies show that public provocations are experienced as more intense and increase triggered displaced aggression (Studies 1 and 2) relative to private provocations. With a direct manipulation of provocation intensity, we also showed that stronger initial provocations increase triggered displaced aggression, and that negative reactions to triggering events (Study 4) mediate this increase. We extend previous research by showing that the more severe the provocation, the more strongly rumination increased aggression against a target who committed only a minor offense. In addition, within the context of a public initial provocation, we demonstrate the interchangeability of two types of rumination in augmenting displaced aggression.

As previously stated, the primary purpose of Studies 1 and 2 was to investigate the moderating effect of a publicly delivered provocation on ruminatively-based triggered displaced aggression. The presence of an audience makes the same provocation more intense. This is likely because such instigations raise the stakes. Others presence may raise arousal (Zajonc, 1964); the insult may be more humiliating or embarrassing when witnessed by others; self-presentation concerns may increase the motivation for aggressive retaliation (Felson, 1982; Tedeschi & Felson, 1994). This suggests at least several routes by which observers may augment aggression. One route involves higher levels of negative affect producing greater activation of aggression-related constructs in memory and motivating and priming higher levels of retaliation. Another route involves aggressing in order to save face. Although these routes are not mutually exclusive, we believe that the results of Studies 1 and 2 cannot be fully understood using principles of self-presentation and face-saving alone. Though participants were provoked in the presence of others, the ostensible observers left prior to the triggering event and the aggression opportunity. Thus, there was neither implied pressure from observers to behave aggressively, nor the need to engage in self-presentation. The results of Studies 1 and 2,

however, can be better explained by the influence of higher levels of negative affect in combination with rumination. Receiving a provocation in the presence of others is likely to be more humiliating and seemingly more undeserving, and thus, is experienced as more intense (Study 2). In addition, focusing attention on the resulting negative emotions or thinking about the provoking incident maintains negative affective priming, which augments the reactions to triggering events as well as the resulting displaced aggression.

Studies 3 and 4 further investigated this hypothesis with a direct manipulation of provocation intensity. We expected a stronger initial provocation to augment ruminatively-based displaced aggression, especially in the presence of a minor triggering event.

Theoretical Implications

Our predictions were derived from the cognitive neoassociationistic model of aggression (Berkowitz, 1989, 1990, 1993). Events that result in particularly *intense* levels of negative affect will generate strong activation levels in aggressive associative networks, producing powerful feelings of anger and inclinations to aggress (Berkowitz, 1993). Rumination serves to maintain and/or increase those feelings. When a trigger is encountered, the triggering person becomes a target on which to unleash those powerful feelings for retribution.

Our findings are also consistent with the general aggression model (Anderson & Bushman, 2002), which posits that aggressive cognitions, negative affect, and arousal all contribute to the expression of aggressive behavior. In essence, provocations induce these subjective states, thereby motivating or priming aggressive responding. By activating aggression-related cognitions and constructs they also create a hostility bias whereby perceptions of subsequent aversive events are more negative. Rumination primarily prolongs this aggressive priming, which exacerbates the various reactions to subsequent triggering events by influencing

appraisals and perceptions. This effect persists long after the temporal point at which such priming would normally dissipate in the absence of ruminative thinking. Public provocations produce higher aggression levels because they induce aggressive priming more intensely, thereby presumably intensifying negative appraisal, attributions, and behavioral responses to triggering events. Further, they may induce additional cognitions and concerns regarding saving face, self-presentation, embarrassment, and social injustice, all of which may contribute to more extreme reactions.

The results of our studies also deserve discussion in the context of excitation transfer (Zillmann, 1978), which proposes that arousal from one event can be misattributed to other, irrelevant incidents. Importantly, individuals must no longer be able to correctly attribute arousal to its original source in order for excitation transfer to occur. The best opportunity for misattribution comes about when arousal levels have decreased below the threshold for conscious awareness, but have not yet completely dissipated. At that moment, physiological arousal from one event can be added to the arousal from a separate event, thereby intensifying the emotional experience, and motivating a more intense behavioral response (Zillmann, 1978). On the surface, one might interpret our findings as reflecting the process of excitation transfer. Indeed, we assume that arousal related to the initial provocation does contribute to the reactions to the trigger. Nevertheless, excitation transfer cannot be a full explanation for the increase in rumination-based triggered displaced aggression following public provocation because rumination, and in particular, provocation-focused rumination, focuses the individual's attention on the original source of the anger-related arousal. According to excitation transfer, such a situation precludes misattribution of arousal to an irrelevant source because individuals are aware of the link between the initial provocation and their own arousal. It is evident that our paradigm

is not conducive to misattribution in terms of arousal from the initial provocation being misattributed to the trigger. Thus, it is better understood in the context of the general aggression model or cognitive neoassociationistic theory. At the same time, however, if people are generally unaware that the mere presence of others induces arousal, excitation transfer may in fact contribute to experiencing the public provocation as more intense by unknowingly attributing that added arousal to the provocation. Nevertheless, as we previously pointed out, although our paradigm does not allow us to test these effects, such a process does not detract from our conclusions because they are still based on participants as having experienced the initial provocation as more intense, thereby influencing their perception of subsequent triggering events.

Practical Implications

What are some implications of our findings for understanding other aggressive phenomena in the real world? One important issue involves the ease with which even moderate aversive situations can lead to more serious retribution towards an unsuspecting individual. Thus, a provoking person who assumes he/she is within the range of norms for insulting another may inadvertently motivate much more intensely aggressive behaviors by giving the insult in the presence of others. For instance, a boss might correct an employee in front of others to set an example. The boss might feel that a scolding is justified, but in fact, he is inducing a more extreme reaction in the employee. Thus, the negative reaction from the employee is likely to be out of proportion to what would be predicted based on the content of the provocation alone. Other contexts that produce this phenomenon include provocations in restaurants, stores, sports events, or schools.

Another important point is that the type of public can play an important role in moderating aggressive responses. On the one hand, the presence of persons who favor peaceful solutions to social conflicts, such as one's friends from church or synagogue, may inhibit anger and aggression. Lower levels of negative affect should decrease the chances of engaging in displaced aggression because the cognitive/affective factors that would produce a more extreme reaction to the trigger would be weaker. On the other hand, a provocation in the presence of individuals or groups that motivate saving face or that prime aggression, such as members of one's sport's team or fellow gang members, is likely to amplify reactions to the initial provocation, and thus, augment the probability of subsequently displacing aggression to a triggering target. The effects that the type of audience can have on aggression are complex, yet important for future research to examine.

Gender Effects

Given our anecdotal example at the beginning of this paper, it may appear that we expected higher levels of aggression from males than females. We did not, in fact, find gender effects in our studies. Although three of them had unequal gender ratios, making it difficult to conduct meaningful analyses, one might not necessarily expect gender differences. This is because gender differences in aggressive behavior decrease as a function of provocation levels. For instance, a meta-analysis of gender differences in aggression found that males are indeed more aggressive than females under conditions of no provocation (Bettencourt & Miller, 1996). This difference, however, decreases for provoked participants. Thus, given that our provocation manipulations involved provocation intensity, and that our procedures ensured that participants would not fear retaliation from the target of aggression, we expected gender differences to be minimal.

Limitations

There is one issue we wish to point out regarding the assessment of negative affect after measuring aggression in Studies 2 and 4. Negative affect could have been assessed immediately after the provocation and trigger manipulations, before participants had the opportunity to aggress. However, we decided to include the affect manipulation checks (provocation and trigger) after the behavioral measures in order to keep the former from potentially influencing the aggression data. As a result, it is possible that the act of aggressing could have influenced responses to affect manipulation checks (though entering aggression as a covariate did not change significance levels for affective reactions in Studies 2 and 4). Thus, one should be cautious when considering affect following the provocation or trigger manipulations after having been offered the possibility to behave aggressively. One should also be cautious in interpreting the results of our analyses showing the mediation effects of the reactions to the trigger.

Conclusions

People frequently face provocations that make them angry. Some of them occur in public settings where others observe the event. Oftentimes, retaliation against the provocateur is not possible. How individuals focus their attention after a provocation influences how they will subsequently behave towards others. Other things being equal, if the initial provocation occurs in a public setting they have more to stew about. If they stew about a provoking incident and focus on their bad mood, they may in turn lash out against others who provide only the slightest excuse for aggressive retaliation.

References

Anderson, C. A., & Bushman, B. J. (2002). Human Aggression. *Annual Review of Psychology, 53*, 27-51. doi: 10.1146/annurev.psych.53.100901.135231.

Barnett, V., & Lewis, T. (1978). *Outliers in statistical data*. New York: Wiley.

Bentler, P. (2005). *EQS 6.1.* Encino, CA: Multivariate Software.

Berkowitz, L. (1989). Frustration-aggression hypothesis: Examination and reformulation. *Psychological Bulletin, 106,* 79-83. doi: 10.1037/0033-2909.106.1.59.

Berkowitz, L. (1990). On the formation and regulation of anger and aggression: A cognitive-neoassociationistic analysis. *American Psychologist, 45,* 494-503. doi: 10.1037/0003-066X.45.4.494.

Berkowitz, L. (1993). Aggression: Its causes, consequences, and control. New York: McGraw-Hill.

Bettencourt, B. A., & Miller, N. (1996). Gender differences in aggression as a function of Provocation: A meta-analysis. *Psychological Bulletin, 119,* 422–447. doi: 10.1037/0033-2909.119.3.422.

Bond, C. F. & Titus, L. J. (1983). Social facilitation: A meta-analysis of 241 studies. *Psychological Bulletin, 94*, 265-292.

Borden, R. J. (1975). Witnessed aggression: Influence of an oberver's sex and values on aggressive responding. *Journal of Personality and Social Psychology, 31,* 567-573. doi: 10.1037/h0076480.

Borden, R. J., & Taylor, S. P. (1973). The social instigation and control of physical aggression. *Journal of Applied Social Psychology, 3,* 354-361. DOI: 10.1111/j.1559-1816.1973.tb02402.x.

Bower, G. (1981). Mood and memory. *American Psychologist, 36*, 129-148. doi: 10.1037/0003-066X.36.2.129.

Bushman, B. J., Bonacci, A. M., Pedersen, W. C., Vasquez, E. A., & Miller, N. (2005). Chewing on it can chew you up: Effects of rumination on triggered displaced aggression. *Journal of Personality and Social Psychology*, *88,* 969-983. doi: 10.1037/0022-3514.88.6.969.

Collins, A., & Loftus, E. (1975). A spreading-activation theory of semantic memory. *Psychological Review, 82*, 407-428. doi: 10.1037/0033-295X.82.6.407.

Dollard, J. (1938). Hostility and fear in social life. *Social Forces, 17*, 15-25.

Felson, R. B. (1982). Impression management and the escalation of aggression and violence. *Social Psychology Quarterly, 45,* 245-254.

Ferguson TJ, Rule BG. 1981. An attributional perspective on anger and aggression. In R. Geen and R. E. Donnerstein (Eds.), *Perspectives on Aggression: Theoretical and Empirical Review,* (pp. 41–74). San Diego, CA: Academic.

Fridhandler, B.M., & Averill, J.R. (1982). Temporal dimensions of anger: An exploration of time and emotion. In J.R. Averill (Ed.), *Anger and aggression* (pp. 253-280). New York: Springer-Verlag.

Gibbons, F. X. (1983). Self-attention and self-report: The "veridicality" hypothesis. *Journal of Personality, 51*, 517–542. DOI: 10.1111/j.1467-6494.1983.tb00343.x

Gibbons, F. X. (1990). Self-attention and behavior: A review and theoretical update. *Advances in Experimental Social Psychology*, *23,* 249-303. doi:10.1016/S0065-2601(08)60321-4.

Harmon-Jones, E., Vaughn-Scott, K., Mohr, S., Sigelman, J., & Harmon-Jones, C. (2004). The Effect of Manipulated Sympathy and Anger on Left and Right Frontal Cortical Activity. *Emotion*, 4(1), 95-101. doi:10.1037/1528-3542.4.1.95.

Harrington, H.J. and Miller, N. (1993). Do group motives differ from individual motives? Considerations regarding process distinctiveness. In M.A. Hogg and D. Abrams (Eds.), *Group motivation*, (pp. 149-172). New York: Harvester Wheatsheaf.

Ickes, W. J., and Kidd, R. F. (Eds). *New directions in attribution research, 2,* 335-368, Erlbaum, Hillsdale, N. J.

Lerner, M. J., and Simmons, C. H. (1966). The observer's reaction to the "innocent victim": Compassion or rejection? *Journal of Personality and Social Psychology, 4,* 203–210. doi: 10.1037/h0023562.

Lieberman, J. D., Solomon, S., Greenberg, J., & McGregor, H. A. (1999). A hot new measure of aggression: Hot sauce allocation. *Aggressive Behavior, 25,* 331-348. doi: 10.1002/(SICI)1098-2337.

Luckenbill, D. (1977). Criminal homicide as a situated transaction. *Social Problems 25*, 2: 176-186.

Lyubomirsky, S., & Nolen-Hoeksema, S. (1995). Effects of self-focused rumination on negative thinking and interpersonal problem solving. *Journal of Personality and Social Psychology, 69,* 176-190. doi: 10.1037/0022-3514.69.1.176.

Miller, N., & Marcus-Newhall, A. (1997). A conceptual analysis of displaced aggression. In R. Ben-Ari & Y. Rich (Eds.), *Enhancing education in heterogeneous schools: Theory and application* (pp. 69-108). Ramat-Gan, Israel: Bar-Ilan University Press.

Nowlis, V. (1965). Research with the mood adjective checklist. In S. S. Tomkins & C. E. Izard (Eds.), *Affect,cognition, and personality* (pp.352-389). New York: Springer.

Pedersen, W. C., Bushman, B. J., Vasquez, E. A., & Miller, N. (2008). Kicking the (barking) dog effect: The moderating role of target attributes on triggered displaced aggression.

Personality and Social Psychology Bulletin, 34, 1382-1395. doi: 10.1177/0146167208321268.

Pedersen, W. C., Gonzales, C., & Miller, N. (2000). The moderating effect of trivial triggering provocation on displaced aggression. *Journal of Personality and Social Psychology, 78,* 913-927. doi: 10.1037/0022-3514.78.5.913.

Ryan, W. (1971). *Blaming the Victim.* New York: Pantheon.

Rusting, C. L., & Nolen-Hoeksema, S. (1998). Regulating responses to anger: Effects of rumination and distraction on angry mood. *Journal of Personality and Social Psychology, 74,* 790-803. doi: 10.1037/0022-3514.74.3.790.

Tedeschi, J. T., & Felson, R. B. (1994). *Violence, aggression, and coercive actions*. Washington, DC: American Psychological Association.

Tukey, J. W. (1977). *Exploratory Data Analysis.* Reading, MA: Addison-Wesley.

Tyson, P. D. (1998). Physiological arousal, reactive aggression, and the induction of an incompatible relaxation response. *Aggression and Violent Behavior, 3,* 143-158. doi:10.1016/S1359-1789(97)00002-5.

Vasquez, E. A., Denson, T. F., Pedersen, W. C., Stenstrom, D., & Miller, N. (2005). The Moderating effect of trigger intensity on triggered displaced aggression. *Journal of Experimental Social Psychology, 41,* 61-67 . doi:10.1016/j.jesp.2004.05.007.

Weiss, R. F, & Miller, F. G. The drive theory of social facilitation. *Psychological Review,78,* 44-57.

Wilcox, R (1996). *Statistics for the social sciences*. San Diego, CA: Academic Press.

Zajonc, R. B. (1965). Social facilitation. *Science,149,* 269-274.

Zajonc, R. B. (1980). In P. B. Paulus (Ed.), *Psychology of group influence.* Hillsdale, N.J.: Erlbaum.

Zillmann, D. (1978). Attribution and misattribution of excitatory reactions. In Harvey, J. H.,

Author Notes

Correspondence concerning this article should be addressed to Eduardo A. Vasquez, University of Kent, School of Psychology, Keynes College, Canterbury, Kent, CT2 7NP, U.K. Electronic mail may be sent to E.Vasquez@kent.ac.uk, wpederse@csulb.edu, bbushman@umich.edu or nmiller@usc.edu.

Footnotes

[1]The error term and its associated degrees of freedom from the overall 3-way design was not employed in the current analysis because the assumption of homogeneity of variance was violated (Keppel, 1991).

Figure Captions

Figure 1. Effects of rumination and provocation on displaced aggression in the *presence* or *absence* of a triggering event. Aggression was measured using the number of grams of hot sauce participants allocated to a partner who hates spicy food. Capped vertical bars denote 1 standard error.

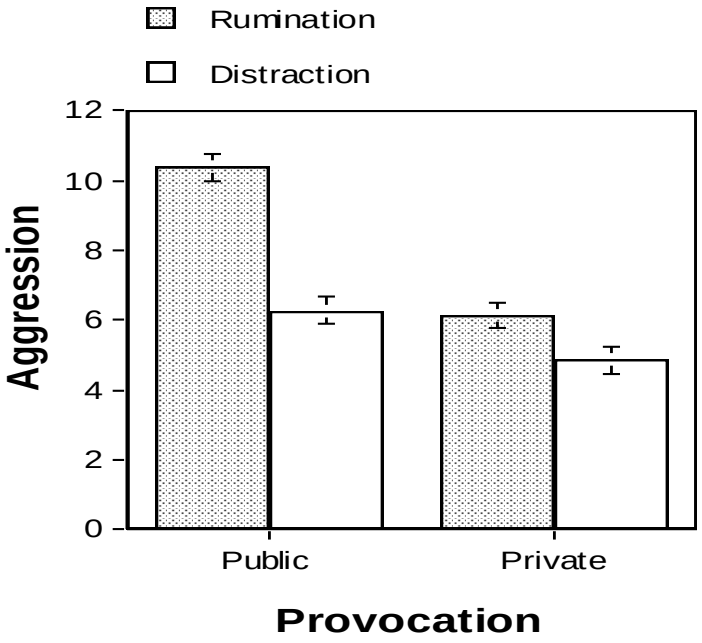
Figure 2. Effects of rumination and provocation intensity on triggered displaced aggression. Aggression was the number of seconds participants required their partner to put their hand in the bucket of cold water (10° C, 50° F). Capped vertical bars denote 1 standard error.

Figure 3. Effects of rumination and provocation intensity on displaced aggression in the *presence* or *absence* of a triggering event. Aggression was measured using the number of grams of hot sauce participants allocated to a partner who hates spicy food. Capped vertical bars denote 1 standard error.

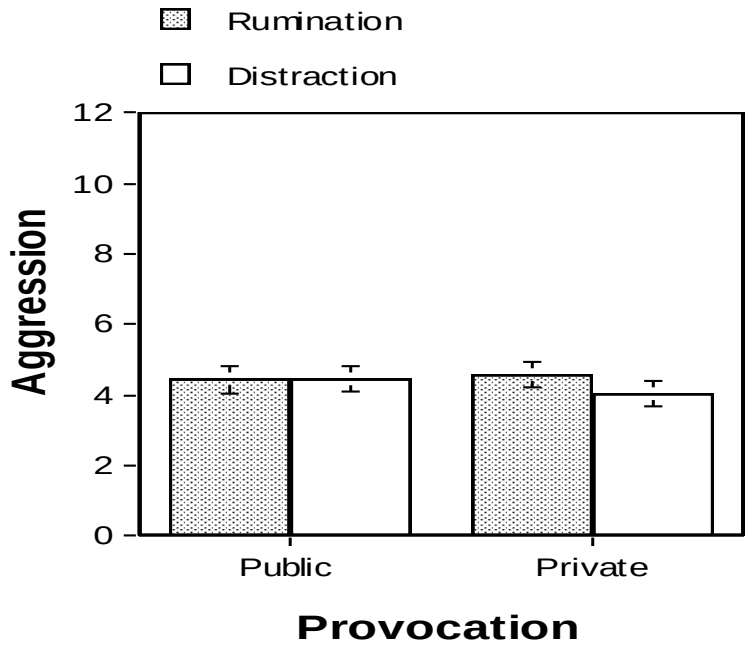
Figure 4. Effects of rumination and provocation intensity on displaced aggression in the *presence* or *absence* of a triggering event. Aggression was measured using job candidate ratings. Capped vertical bars denote 1 standard error.

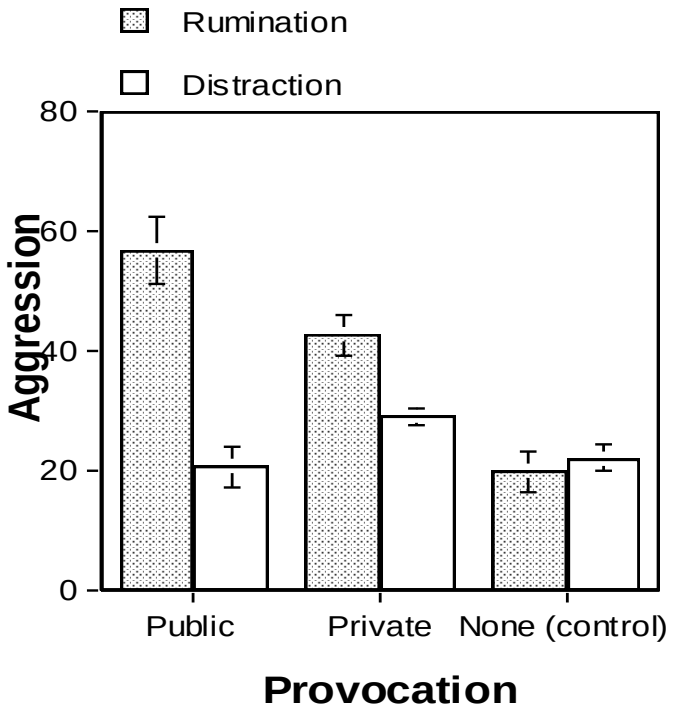
Figure 5. Path model illustrating reactions to the trigger mediating the effect of manipulated provocation intensity on displaced aggression. Both the main effect of rumination and the interaction of rumination and provocation intensity have been used as covariates in the model . The values represent standardized coefficients. * $p<.05$, ** $p<.01$

Trigger Event

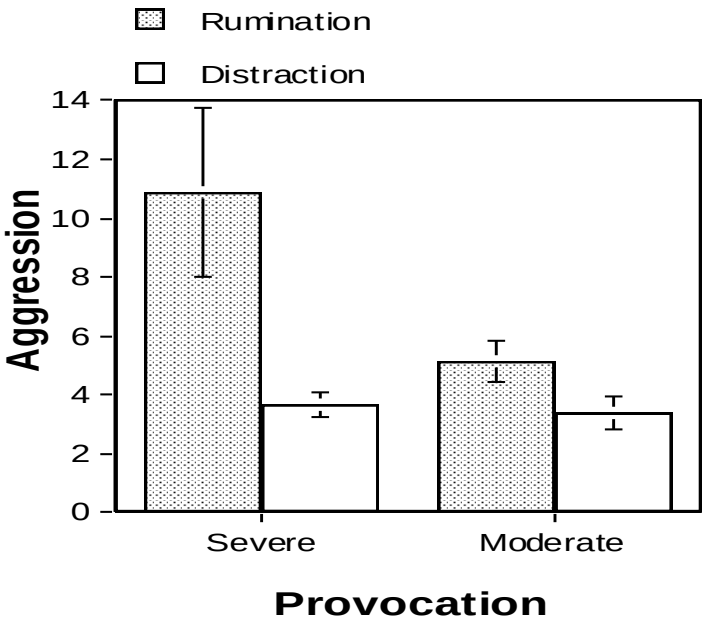


No Trigger Event

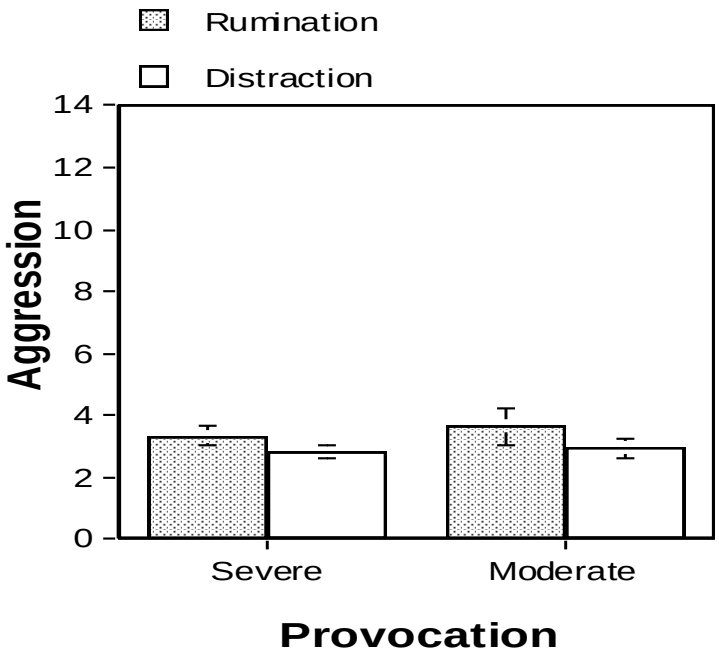



Rumination
Distraction
80
60
40
20
0
Aggression
Public
Private
None (control)
Provocation

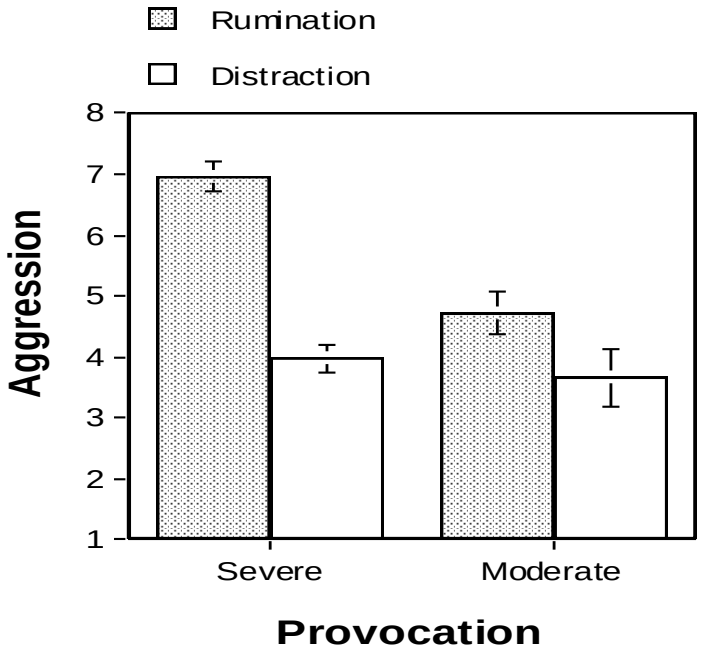
Trigger Event



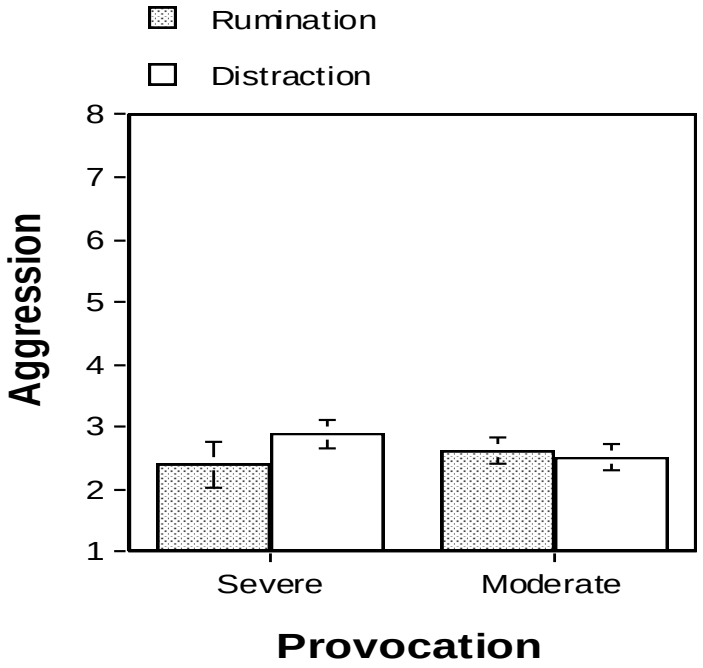
No Trigger Event

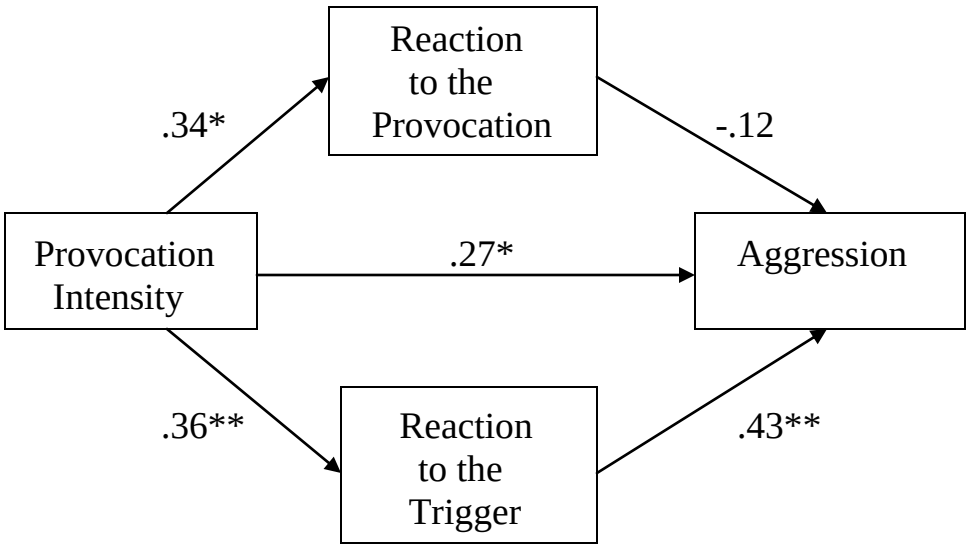


Trigger Event



No Trigger Event




Reaction to the Provocation
.34*
-.12
Provocation Intensity
.27*
Aggression
.36**
Reaction to the Trigger
.43**