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# When Rejection by One Fosters Aggression Against Many: Multiple-Victim Aggression as a Consequence of Social Rejection and Perceived Groupness

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## Abstract

Two experiments examined the hypothesis that social rejection and perceived groupness function together to produce multiple-victim incidents of aggression. When a rejecter's group membership is salient during an act of rejection, the rejectee ostensibly associates the rejecter's group with rejection and retaliates against the group. Both experiments manipulated whether an aggregate of three persons appeared as separate individuals or members of an entity-like group and whether one of those persons rejected the participant. Consistent with the hypothesis, participants who experienced *both* rejection and perceived groupness behaved more aggressively against the aggregate (Experiment 1) and evidenced less favorable affective associations toward the aggregate (Experiment 2) than did participants who did not experience both rejection and perceived groupness.

## When Rejection by One Fosters Aggression Against Many: Multiple-Victim Aggression as a Consequence of Social Rejection and Perceived Groupness

Die Jock Die

> Motto purportedly scrawled on backpacks of Columbine High School's Trench-Coat Mafia

Blowing the school up…walk into a pep assembly with guns…That is how I will repay all you mother fuckers…everyone is against me…All humans are evil. I just want to end the world of evil.

> Diary of Kipland Kinkle, who fired 50 shots in Thurston High School killing 2 students and injuring 22

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Oh the happiness I could have had mingling among you hedonists, being counted as one of you, only if you didn't fuck the living shit out of me…Ask yourself what you did to me to have made me clean the slate.

Cho Seung-Hui's "manifesto," describing his subsequent shooting rampage at Virginia Tech University

In response to the numerous school shootings, in excess of 30 since the mid-1990s, social scientists have begun searching for behavioral processes that account for such horrendous events. Case studies, for example, identify social rejection as a precipitating element, such that perpetrators in 13 of 15 studied incidents experienced ostracism, bullying, or romantic rejection (Leary, Kowalski, Smith, & Phillips, 2003; also see Anderson, et al., 2001). Despite the common role of rejection, however, school shootings vary in regard to the number of victims. Some incidents involve only a single victim, such as the May 19, 1998 shooting at Lincoln County High School in which Jacob Davis killed his ex-girlfriend's boyfriend and the February 29, 2000 shooting at Buell Elementary in which a 6-year old boy fatally shot a 6-year old girl who teased him the previous day. Other incidents involve multiple victims, such as the April 20, 1999 shootings at Columbine High School, in which Eric Harris and Dylan Klebold killed 13 people and injured at least 24, and the April 16, 2007 shootings at Virginia Tech University, in which Cho Seung-Hui fatally shot 32 people and injured at least 19.

In this paper we examine a process involving social rejection that hypothetically gives rise to multiple-victim acts of aggression. One possibility is that perpetrators seek vengeance against the specific persons directly responsible for the rejection. Such an individual-level targeting of victims, however, seems inconsistent with the apparent randomness of the perpetrator's methods of operation in many multiple-victim incidents. Kipland Kinkle, for example, fired multiple rounds into a crowded dining hall. Harris and Klebold planted propane bombs outside of the Columbine cafeteria. Indeed, investigators of the Virginia Tech shooting have yet to identify an interpersonal connection between Cho Seung-Hui and the majority of his victims (Berkes, Haggerty, & Ludden, 2007).

In contrast to the individual-level account, we offer an alternative process in which social rejection functions in conjunction with perceived groupness to yield multiple-victim incidents of aggression. When a rejecter's group membership is salient during an act of rejection, the rejectee ostensibly associates the group with the rejection and subsequently retaliates against the group. Accordingly, acts that appear to involve the random targeting of victims, such as shooting into a crowd and planting bombs, actually involve a specific target. The target, however, is a group and the observed victims are the multiple group members who the perpetrator subjectively views as categorically interchangeable. In what follows, we briefly summarize the literatures on rejection and perceived groupness to provide a framework for the hypothesized process and present two experiments that test the plausibility of that process.

## Social Rejection and Aggression

Baumeister and Leary (1995) proposed that humans have a fundamental need to belong. As their review indicates, thwarting the belongingness need is painful and detrimental to health. Rejection activates some of the same neural pathways that are activated by physical trauma (Eisenberger, Lieberman, and Williams, 2003) and negatively affects self-esteem, mood, belongingness, perceived control, and belief in a meaningful existence (Leary, Tambor, Terdal, & Downs, 1995; Leary, Haupt, Strausser, & Chokel, 1998; Williams, Cheung, & Choi, 2000; Williams et al., 2002). Given the importance of social bonds one might expect rejection to be countered with efforts to regain inclusion and there is evidence in the form of increased conformity (Williams et al., 2000), mimicry (Lakin & Chartrand, 2005), task persistence (Williams & Sommer, 1997; but see Baumeister, Twenge, & Nuss, 2002), and desire for social

contact (Maner, DeWall, Baumeister, & Schaller, 2007). Other data, however, reveal antisocial effects of rejection such as decreased prosocial behavior (Twenge, Baumeister, De Wall, Ciarocco, & Bartells, 2007) and increased aggression (Leary, Twenge, & Quinlivan, 2006). Indeed, a methodologically diverse literature points to rejection as an antecedent of aggression.

A meta-analysis of the peer relations literature, which consists primarily of non-experimental studies in naturalistic settings, indicates that rejected children are more aggressive than their socially accepted peers (Newcomb, Bukowski, & Pattee, 1993; for reviews see Coie, Dodge, & Kupersmidt, 1990; Juvonen & Gross, 2005). Of course, non-experimental studies cannot indicate conclusively the direction of causation and the association plausibly is bi-directional. For example, aggressive children introduced into new groups are more likely than less aggressive peers to be rejected (Dodge, 1983) and over time both chronic and proximal rejection increases aggression (DeRosier, Kupersmidt, & Patterson, 1994).

Controlled experiments confirm the causal effect of rejection on aggression (for a review of multiple experimental paradigms see Leary, Twenge, & Quinlivan, 2006). Participants in one set of experiments (Twenge, Baumeister, Tice, & Stucke, 2001), for example, interacted with others in a get-to-know-you exercise and later received accepting feedback (e.g., everyone chose to work with you) or rejecting feedback (e.g., no one chose to work with you). Consistent with the possibility that rejection begets aggression rejected participants exposed a new person not involved in the get-to-know-you exercise to louder noise blasts than did accepted participants.

Unfortunately, a theoretical explanation of why rejection yields single vs. multiple victims is lacking. We suggest that linking rejection with the spectrum of social perception provides such an explanation.

## The Perception of Groupness

Social perception varies from the individual level, in which persons serve as the perceptual unit and are perceived as differentiated and distinct agents, to the group level, in which social groups serve as the perceptual unit and individual members are perceived as undifferentiated and interchangeable. Concerned with perception at the latter end of the spectrum, Campbell (1958) coined the term "entitativity" to convey that aggregates of persons vary in the extent to which they are perceived as a cohesive whole or entity. For example, both an aggregate of persons waiting for a bus and an aggregate of soccer players wearing their jerseys can be perceived as groups – the latter aggregate, however, is perceived to be more entity- or group-like than is the former (e.g., Lickel et al., 2000). The perception of entitativity is multiply determined being affected, in part, by (a) *features of the aggregate*, such as similarity, interdependence, and interaction among members (e.g., Dasgupta, Banaji, & Abelson, 1999; Gaertner, Iuzzini, Guerrero Witt, & Oriña, 2006; Gaertner & Schopler, 1998; Kim, Song, & Lee, 1997; Knowles & Bassett, 1976; Lickel et al., 2000; Lickel, Hamilton, & Sherman, 2001; McGarty, Haslam, Hutchinson, & Grace, 1995), (b) *features of the perceiver* (Brewer & Harasty, 1996), such as need for closure (Fox & Elraz-Shapira, 2005), and (c) *contextual features* such as inter-aggregate contrasts (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987).

Perceived entitativity (i.e., "groupness") dramatically shapes cognition and behavior (e.g., Hamilton & Sherman, 1996; Hamilton, Sherman, & Lickel, 1998; Wilder, 1980) and can do so implicitly without higher-level processing (Pickett, 2001). Entitativity, for example, facilitates stereotyping (Crawford, Sherman, & Hamilton, 2002; Yzerbyt, Rogier, & Fiske, 1998), promotes integration and abstraction of group representations (Johnson & Queller, 2003; McConnell, Sherman, & Hamilton, 1997), enhances judgments of collective responsibility (Denson, Lickel, Curtis, Stenstrom, & Ames, 2006; Lickel, Schmader, &

Hamilton, 2003), and, when the group is an ingroup, promotes favorable attitudes and actions toward the group (Castano, Yzerbyt, Paladino, & Sacchi, 2002; Gaertner et al., 2006, Gaertner & Schopler, 1998). Yzerbyt et al., (1998) summarized the experience of perceiving entitativity suggesting that to the degree an aggregate of persons is perceived to be an entity, "its members are expected to behave in a more consistent manner … thought to be more similar to one another …[and]… categorized in a more undifferentiated way at the group level" (p. 1092).

Two processes relevant to our analysis of multiple-victim aggression come into play when social perception shifts from the individual to group level. Social identity theory (Tajfel & Turner, 1979; Turner et al., 1987; for integrative descriptions see Hogg, 2006, and Hogg, Terry, & White, 1995) emphasizes a process of depersonalization via a group prototype. A prototype is a subjective representation of a group's defining attributes (those attributes need not be traits and can additionally consist of beliefs, attitudes, and behaviors). When groups are salient, perception of group members is depersonalized in terms of their group's prototype: members are perceived as interchangeable and depersonalized embodiments of their group rather than as idiosyncratic and differentiated individuals. The other relevant process involves the transference and abstraction of information gleaned from one group member to the group as a whole. At high levels of entitativity, because perception is depersonalized, information inferred from the behavior of an individual group member is readily transferred and abstracted into the group prototype and is subsequently associated with all members (Crawford, Sherman, & Hamilton, 2002). We suggest that perceived groupness plays a key role in multiple victim incidents of aggression via transference and depersonalization.

### Social Rejection, Perceived Groupness, and Multiple-Victim Aggression

We hypothesize that rejection and perceived groupness function *together* to promote multiple-victim incidents of aggression. When a rejecter's group membership is salient during an act of rejection the rejection experience is transferred into the rejectee's prototype of the group and via depersonalization the rejection is generalized to all group members. Stated otherwise, rather than associating rejection solely with the rejecter, the rejectee associates rejection *with the group* and retaliates against the group. Because groups consist of multiple members, an attack against a group yields multiple victims – even victims who never wronged the perpetrator. When group membership is not salient, however, transference and depersonalization do not occur and rejection remains associated only with the specific rejecter(s). Accordingly, rejection by one person can spawn aggression against a single victim or multiple victims with a determining factor being the level of perception operating in the mind of the perpetrator. Unique to this account is the possibility that multiple victim incidents do not involve random or blind aggression. While victims amass and are counted as individuals, the functional target for the perpetrator is a group.

The quotes beginning this paper provide possible footprints of the hypothesized process suggesting that perceived groupness was involved in the shootings at Columbine High School, Thurston High School, and Virginia Tech University. The perpetrators, who purportedly experienced rejection, possibly targeted "jocks," "hedonists," or the broader and more inclusive group "humans." Similarly, Twenge and Campbell (2003, p. 270) speculate that in their research rejected participants aggress against an "innocent" person because participants assume the person shares membership with those responsible for the rejection.

Preliminary empirical evidence for the joint functioning of rejection and perceived groupness is provided by a questionnaire study administered in a high school (Gaertner & Iuzzini, 2005). Students rated groups in their school (e.g., popular crowd, jocks) regarding the extent to which they (a) perceive the group as entity-like, (b) experience rejection from the group, and (c) fantasize about harming group members. Consistent with the hypothesized process, fantasized aggression increased linearly with perceived entitativity at higher levels of rejection

and was linearly unrelated to entitativity at lower levels of rejection. That is, aggression against the group required the combination of rejection and perceived groupness. Unfortunately, causal inference is limited by the cross-sectional nature of the data. In the current research, we experimentally test the plausibility of the process.

## The Current Research

We present two experiments that test the hypothesized process involving the joint functioning of rejection and perceived groupness. We hold constant the number of rejecters such that when rejection occurs it is enacted by one person. Both experiments independently manipulate the perceived entitativity of a 3-person aggregate and whether one of those persons rejects the participant. Experiment 1 assesses aggression against the aggregate to test whether persons behave more aggressively against the aggregate when rejection co-occurs with perceived groupness. Experiment 2 assesses affective associations to test whether the co-occurrence of rejection and perceived groupness lead persons to associate the group with the rejection.

## Experiment 1

A $2 \times 2$ between-subjects factorial manipulated (a) whether an aggregate of three persons appeared to be separate individuals or an entity-like group and (b) whether one of those persons rejected the participant or not. Participants subsequently had the opportunity to aggress against the aggregate with a blast of noise (e.g., Bushman & Baumeister, 1998; Twenge, et al., 2001; for a review of the validity of laboratory-aggression paradigms see Anderson & Bushman, 1997; Bushman & Anderson, 1998). We structured the noise task such that it posed a dilemma that enabled a test of the hypothesized process. Participants selected a single level of noise that would be sent to all three aggregate members. Consequently, participants could retaliate against the rejecter with a loud noise-blast but only at the expense of blasting the other persons.

If rejection and perceived groupness function together to affect multiple-victim aggression they should yield a 1-versus-3 pattern such that participants who experience *both* rejection and groupness blast the aggregate with louder noise than do participants who, in the other three conditions, do not experience both rejection and groupness. Participants who are *not* rejected have little reason to aggress. Participants who are rejected by one of three unaffiliated individuals should not associate the aggregate with rejection and might withhold an aggressive response to shield the non-rejecters. Only participants rejected by a member of an entity-like aggregate should evidence elevated aggression against the aggregate.

### Method

**Participants and Design:** Two hundred and sixty seven Caucasian students (119 males and 148 females) at Texas A&M University participated for partial credit in an introductory psychology class. Sessions consisted of one participant, one experimenter, and three confederates playing the role of other participants. We matched the sex of the experimenter and confederates to that of the participant.[1]

We manipulated the perceived entitativity of the confederates by varying their clothing. Confederates in the high-entitativity condition ostensibly shared membership on a recreational volleyball team and wore navy-blue shirts displaying a volleyball encircled in large print by the words "Bryan-College-Station Volleyball: Team United." Confederates in the low-

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[1]To minimize the possibility that participants would perceive groups other than the one fostered by our manipulation, we matched the sex of the experimenter and confederates to that of the participant. Because the majority of confederates were Caucasian, we were unable to match their ethnicity to that of ethnic-minority participants. Consequently, the methodology is not ideal for testing our hypothesis with ethnic-minority participants. Patterns of response from minority participants (50 and 20 in Experiment 1 and Experiment 2, respectively) are available upon request.

entitativity condition dressed in regular "day-to-day" clothes that did not convey group affiliations and appeared as separate individuals. We manipulated rejection by varying whether the participant was removed from the session by an ostensibly random draw of a card or scornful suggestion of a confederate, "s/he should be the one to leave!" We employed 20 assistants and randomized the role they played across sessions.

**Procedure:** Participants arrived for an experiment entitled "Noise Tolerance." The experimenter explained that the study examines "physiological and emotional reactions to noise exposure" and informed the participant that s/he might experience noise that is "very loud and highly uncomfortable." The experimenter escorted the participant to a room containing four chairs arranged in a semi-circle around a large machine (i.e., *Narco Bio-Systems Physiograph*) with blinking lights, rotating dials, and headphones extending to each chair. Two confederates sat quietly completing credit-slips. The experimenter seated the participant and suggested s/he complete a slip while waiting for the remaining participant.

The experimenter exited the room and returned 2 minutes later with the third confederate. In the high-entitativity condition, a seated confederate acknowledged the third confederate with reference to a volleyball game, "We weren't sure if you would make the game," to which the third confederate replied, "I wouldn't miss a game." In the low-entitativity condition, the confederates remained silent.[2] The experimenter seated the confederate and exited the room.

Upon returning, the experimenter apologetically announced that a mistake had been made such that there is one participant too many and displayed a deck of 4 cards proposing to reschedule the person who draws the "X." In the no-rejection condition, the confederates and participant drew from the deck, which we rigged to ensure that the participant drew the "X." In the rejection condition, before cards could be drawn, one confederate glared, pointed at the participant, and scornfully suggested, "s/he should be the one who leaves!" The experimenter acted surprised by the comment and, in all conditions, escorted the participant out of the room. The experimenter quietly explained that there was not a scheduling mistake and instead:

> It takes two experimenters to run this study and I'm not sure where my partner is. Rather than canceling the session, I thought it would be better to have one of the participants help me. Don't worry; you'll still receive your experimental credit. I mentioned the scheduling mistake so that the participants who remain in the session wouldn't know who the other experimenter is.

The experimenter further mentioned that s/he usually monitors the participants' reactions while the other experimenter administers the noise, and added, "I need you to control the noise level to which the participants are exposed."

The experimenter escorted the participant to a room containing a computer and electronic equipment and explained:

> The computer will take you through the process step by step. Just follow the instructions. They're really simple. The computer will prompt you to select a level of noise to which the participants will be exposed. The noise level will be measured in decibels. The scale ranges from 0 dB, the lowest level of sound a person can detect, to 110 dB, the highest level of sound to which we can expose participants without causing damage. Exposure to decibel levels above 110 can be harmful. Therefore, the maximum decibel level that we can use in experimental research is 110. I need you to enter a number between 0 and 110 dB. Select whatever number you want. Although

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[2]We planned to seat all confederates before the participant. Pilot testing revealed that such a procedure appeared contrived. And, we scripted a greeting for confederates in the high-entitativity condition because it appeared odd for group members not to acknowledge each other.

> the noise becomes increasingly uncomfortable as the decibels are increased, the noise will not cause permanent hearing damage. Just have a seat and follow the instructions.

The experimenter exited the room and the computer prompted the participant to enter a decibel level to be sent simultaneously to the three participants (i.e., confederates).

*Entitativity manipulation-check:* The computer subsequently prompted the participant to answer three questions intended ostensibly for the other experimenter. Participants rated on 7-point semantic-differential scales the extent to which they perceived the other "participants" as (a) "1 = *not at all a group*" to "7 = *very much a group*", (b) "1 = *a collection of unconnected persons*" to "7 = *highly connected group members*", and (c) "1 = *unrelated individuals*" to "7 = *highly related group members*." Those items successfully indexed perceived entitativity in past research (Gaertner et al., 2006).

*Social-rejection manipulation-check:* The experimenter returned and asked the participant to complete a computerized questionnaire ostensibly distributed by the Psychology Department to students who attend but are unable to participate in experiments. The experimenter exited the room and participants rated the extent to which each of four adjectives (abandoned, rejected, unwanted, and unwelcome) described how they felt when they were selected to leave the experiment (*1 = not at all*; *7 = very much*).

The experimenter returned and used a funnel debriefing to identify participants suspicious of the study's purpose (Aronson & Carlsmith, 1968). The experimenter asked if the participant had questions or comments and probed more directly if the participant implied that s/he was suspicious of aspects of the study. The session ended with a thorough debriefing.

**Results**—Approximately 11% (n = 30) of participants expressed suspicion. Previous laboratory research on aggression reports comparable rates of suspicion ranging from 1% to 24% (e.g., Bushman & Baumeister, 1998; Kirkpatrick, Waugh, Valencia, & Webster, 2002; Twenge et al., 2001). We excluded those participants from further analysis. Degrees of freedom vary across the subsequent analyses because computer failures yielded the loss of two participants' responses to the entitativity items and nine participants' responses to the rejection items.

**Entitativity Manipulation-Check:** We averaged the entitativity items and entered the index ($\alpha = .90$) into a 2(entitativity) × 2(rejection) × 2(sex) ANOVA. An entitativity main effect, $F(1, 227) = 158.11$, $p < .0001$, confirmed our manipulation: Participants perceived the aggregate to be more entity-like when confederates wore the volleyball shirt ($M = 5.15$) versus their "regular" clothes ($M = 2.77$). A rejection main effect, $F(1, 227) = 15.53$, $p < .0001$, indicated that participants perceived the aggregate to be more entity-like when they were rejected ($M = 4.41$) than when they were removed by a card-draw ($M = 3.59$). The absence of a Rejection × Entitativity interaction, $F = 0.03$, indicated that the entitativity manipulation was equally effective across levels of rejection.

**Social-Rejection Manipulation-Check:** We averaged the rejection items and entered the index ($\alpha = .85$) into a 2(entitativity) × 2(rejection) × 2(sex) ANOVA. A rejection main effect, $F(1, 220) = 44.96$, $p < .0001$, confirmed our manipulation: Participants reported stronger rejection when they were rejected ($M = 3.17$) than removed by a card-draw ($M = 1.89$). A Sex × Rejection interaction, $F(1, 220) = 8.68$, $p < .004$, indicated that the rejection manipulation was stronger for females. Nonetheless, the manipulation was effective for both males ($M_{\text{no-rejection}} = 2.12$ vs. $M_{\text{rejection}} = 2.79$), $F(1, 220) = 6.51$, $p < .02$, and females ($M_{\text{no-rejection}} = 1.74$ vs. $M_{\text{rejection}} = 3.56$), $F(1, 220) = 50.90$, $p < .0001$.

**Aggression Via Noise:** We entered the decibel level into a 2(entitativity) × 2(rejection) × 2 (sex) ANOVA. As Table 1 displays, the pattern of means is consistent with the hypothesized process. The planned 1-vs-3 contrast was significant, $F(1, 229) = 10.88$, $p < .002$, such that participants rejected by a member of the high-entitativity aggregate exposed the aggregate to louder noise than did participants in the other three conditions, among which the level of noise did not vary, $F(2, 229) = 1.22$, $p < .30$. Sex moderated neither the 1-vs-3 contrast, $F(1, 229) = 1.22$, $p < .28$, nor the test of difference among the other three conditions, $F(2, 229) = 0.94$, $p < .40$. A similar conclusion is evidenced by the Rejection × Entitativity interaction, $F(1, 229) = 6.67$, $p < .05$. The only significant simple effects involved the high-entitativity-rejection condition: Rejected participants directed louder noise to the high-than low-entitativity aggregate, $F(1, 229) = 12.67$, $p < .001$, and participants directed more noise to the high-entitativity aggregate when they were rejected than when they were removed by a card-draw, $F(1, 229) = 5.12$, $p < .05$.

**Discussion—**The current experiment tested the hypothesized process in which rejection and perceived groupness function together to yield multiple-victim aggression. We manipulated the entitativity of a 3-person aggregate and whether one aggregate member rejected the participant. Participants subsequently directed a blast of noise at all three aggregate members. Entitativity and rejection checks confirmed the efficacy of our manipulations and the noise data evidenced the predicted 1-vs-3 pattern: Only participants who concurrently experienced rejection by a member of an entity-like aggregate elevated the noise-blast against the aggregate. These data are consistent with the possibility that multiple-victim aggression arises, in part, when rejection emanates from an entity-like group and offer an account as to how rejection by a few persons (or, in this case, one person) precipitates aggression against many. The rejectee presumably associates rejection with the group to which the rejecter belongs and retaliates against the group.

### Experiment 2

In Experiment 2, we examine the presumed mechanism of association by testing whether affective associations from the rejection experience extend to the rejecter's group. We use the same design and procedure as Experiment 1 but replace the noise measure with a modified Implicit Association Test (IAT; Greenwald, Nosek, & Banaji, 2003). The IAT uses response latencies to pairings of concepts, such as racial categories (Black or White) and valenced adjectives (Pleasant or Unpleasant), to assess the strength of association between those concepts. Racially biased Caucasians, for example, respond faster when Black stimuli are paired with unpleasant words and White stimuli are paired with pleasant words than to the reverse pairings, suggesting such persons have less favorable affective associations with Blacks than Whites (McConnell & Leibold, 2001). We created a Team-United IAT in which participants categorized words as good or bad and categorized photographed persons as Team-United or Not-Team-United (i.e., persons varied in whether they wore the Team-United shirt). To ensure that the IAT assessed affective associations with Team United and not the individual rejecter, the photographed persons were not persons with whom the participant interacted in the laboratory.

If rejected individuals associate their rejection with the group to which the rejecter belongs, the IAT should evidence the same 1-vs-3 pattern of Experiment 1. Participants rejected by a member of Team United should evidence less favorable associations with Team United (vs. Not-Team-United) than do participants who do not experience *both* rejection and Team United. Of course, the positive connotation of "Team United" in comparison with the non-entity "Not-Team-United" might promote a general preference for Team United. Importantly, our hypothesis involves a pattern of relative difference across conditions and participants

experiencing both rejection and Team United should evidence the least favorable association toward Team United.

## Method

**Participants and Design:** One hundred and sixty Caucasian students (81 males and 79 females) at the University of Tennessee participated for partial credit in an introductory psychology class. We manipulated entitativity and rejection as in Experiment 1 and altered the t-shirt to maintain its relevance, "Knox County Volleyball: Team United." We matched the sex of the experimenter and confederates to that of the participant and randomized the assistants' role across sessions.

**Procedure:** The procedure followed that of Experiment 1. Participants (a) interacted with three confederates who appeared as separate individuals or an entity-like group and (b) were removed from the laboratory by an ostensibly random card-draw or the scornful suggestion of a confederate. Escorting the participant from the laboratory, the experimenter explained that the remaining participants will perform tests in the absence and presence of noise and the participant's assistance will be needed later in the session. The experimenter sat the participant in a computer cubicle and suggested that s/he test a program (i.e., IAT) slated for future research. After completing the IAT the participant completed the entitativity and rejection manipulation checks as described in Experiment 1. The experimenter concluded the session with a funnel debriefing and thorough explanation of the study.

**The IAT: Team-United vs. Not-Team-United:** Computerized instructions informed participants that they would categorize words as good or bad and categorize photographed persons as members of Team United or not members of Team United (Not-Team-United). Instructions displayed the Team United shirt and indicated that persons wearing the shirt are members of Team United and persons not wearing the shirt are not members. Participants were instructed to respond with the "i" key or "e" key and immediately follow an incorrect response, indicated by a red X, with the correct response.

"Good" words consisted of happy, joy, laughter, love, peace, pleasure, and wonderful and "bad" words consisted of agony, awful, evil, failure, horrible, nasty, and terrible. To minimize familiarity with the photographed persons, we photographed males and females enrolled in a college 20 miles from UT. We photographed each person from the waist up in a forward facing position in front of a white wall once wearing the navy-blue Team United shirt and once wearing a neutral colored shirt lacking images. We created two sets (A and B) of male photographs to be presented to male participants and two sets (A and B) of female photographs to be presented to female participants. Each gender-constant set contained the same 10 persons, five of whom wore the Team United shirt and five of whom did not. We counterbalanced across sets whether a given person was or was not wearing the Team United shirt and each participant viewed only one set (e.g., in Set A persons 1 through 5 wore the Team United shirt and persons 6 through 10 did not, and in Set B persons 1 through 5 did not wear the Team United shirt and persons 6 through 10 did). Consequently, we controlled across participants for the idiosyncratic appearance of persons who were vs. were not members of Team United.

As detailed in Table 2, we used the standard 7-block IAT (Greenwald et al., 2003). Blocks 3, 4, 6, and 7 yielded the critical trials in which Good vs. Bad and Team United vs. Not-Team-United judgments were combined and varied whether Team United or Not Team United was paired with Good or Bad. We recorded responses in milliseconds using DirectRT software.

**Results—**Approximately 6% (n = 10) of participants expressed suspicion. We excluded those participants from further analysis. Degrees of freedom vary across the subsequent analyses

because computer failures yielded the loss of two participants' responses to the entitativity items and one participant's response to the rejection items.

**Entitativity Manipulation-Check:** We averaged the entitativity items and entered the index ($\alpha = .91$) into a 2(entitativity) × 2(rejection) × 2(sex) ANOVA. An entitativity main effect, $F(1, 139) = 101.37$, $p < .0001$, confirmed our manipulation: Participants perceived the aggregate to be more entity-like when confederates wore the volleyball shirt ($M = 5.41$) versus their "regular" clothes ($M = 2.74$). A rejection main effect, $F(1, 139) = 4.31$, $p < .05$, indicated that participants perceived the aggregate to be more entity-like when they were rejected ($M = 4.24$) than when they were removed by a card-draw ($M = 3.60$). As in Experiment 1, the Rejection × Entitativity interaction was not significant, $F = 0.00$, indicating that the entitativity manipulation was equally effective across levels of rejection.

**Social-Rejection Manipulation-Check:** We averaged the rejection items and entered the index ($\alpha = .85$) into a 2(entitativity) × 2(rejection) × 2(sex) ANOVA. A rejection main effect, $F(1, 140) = 23.86$, $p < .0001$, confirmed our manipulation: Participants reported stronger rejection when they were rejected ($M = 3.28$) than removed by a card-draw ($M = 2.12$). As in Experiment 1, a Sex × Rejection interaction, $F(1, 140) = 10.05$, $p < .01$, indicated that the rejection manipulation was stronger for females ($M_{\text{no-rejection}} = 2.14$ vs. $M_{\text{rejection}} = 4.06$) than males($M_{\text{no-rejection}} = 2.09$ vs. $M_{\text{rejection}} = 2.51$). Of course, these data cannot indicate whether males experienced less rejection than did females or were less willing to report feeling rejected – an issue which we revisit in the discussion.

**The Team-United IAT:** We scored the IAT using the revised algorithm (Greenwald et al., 2003). Following the algorithm, we excluded one participant because more than 10% of her responses were faster than 300ms. The algorithm yields a person-level effect size reflecting a participant's (a) mean difference in reaction time to trials in which Team United was paired with Bad and Not-Team-United was paired with Good vs. trials in which Team United was paired with Good and Not-Team-United was paired with Bad, (b) standardized by his/her latency variability. Positive scores reflect an evaluative preference for Not-Team-United over Team United. Negative scores reflect an evaluative preference for Team United over Not-Team-United. Zero reflects no preference. The reported analyses were performed on data not adjusted for errors (i.e., responding with the wrong key). Adjusted data (i.e., replacing error latencies with the block mean reaction time + 600ms; Greenwald et al., 2003) yield the same patterns and conclusions based on p-values.

The overall IAT mean revealed a preference for Team United over Not-Team-United ($M = -39.97$), $F(1, 148) = 41.75$, $p < .0001$. Participants responded faster when Team United was paired with Good and Not-Team-United was paired with Bad than when pairings were reversed.

However, as the means in Table 3 indicate, the magnitude of the preference varied across conditions. Indeed, the predicted 1-vs-3 contrast was significant, $F(1, 141) = 6.38$, $p < .01$, indicating that participants who were rejected by a member of Team United evidenced less preference for Team United (vs. Not-Team-United) than did participants in the other three conditions, among which IAT scores did not vary, $F(2, 141) = 0.43$, $p = .66$. Sex moderated neither the 1-vs-3 contrast, $F(1, 141) = 1.24$, $p < .27$, nor the test of difference among the other three conditions, $F(2, 141) = 0.17$, $p < .85$. Furthermore, a test of the mean IAT score against 0 was significant in each condition, all $Fs(1, 141) > 13.17$, $ps < .0004$, with the exception of the condition in which participants were rejected by a member of Team United, $F(1, 141) = 1.12$, p < .30. That is, all conditions evidenced an evaluative preference for Team United except the condition in which participants were rejected by a member of Team United. The otherwise favorable affective association toward Team United (vs. Not-Team-United) was degraded by a single instance of rejection from a single group member.

**Discussion—**The current experiment examined the association mechanism presumed to underlie instances of multiple-victim aggression such that persons rejected by a member of a salient group subsequently associate the rejection with the group. Participants were rejected or not by one of three persons who appeared as separate individuals or members of Team United and completed an IAT assessing affective associations with Team United. The IAT data revealed the same 1-vs-3 pattern as did the aggression data of Experiment 1: Participants rejected by a member of Team United evidenced the least favorable affective association with Team United relative to participants who did not experience *both* rejection and Team United. Indeed, the degrading of the otherwise favorable association with Team United occurred following a single instance of rejection from a single group member. Consistent with the hypothesized process, rejection by one member of a salient group colors affective associations toward the group.

Two additional patterns merit discussion given that they replicated across experiments. One pattern involves the effect of rejection on perceived entitativity. Independent of the entitativity manipulation, the rejection manipulation increased the perceived entitativity of the 3-person aggregate. Given the context and the minimal information provided to participants for their rejection (i.e., "s/he should be the one who leaves!"), we suspect the rejection triggered a self-other contrast that increased perceived entitativity. Perhaps participants asked themselves "Why me? Why should I leave?" and thought of ways in which they differ from the others (e.g., "Maybe I was singled out because of my …"). Akin to a meta-contrast, by which group members differentiate ingroup from outgroup and perceptually solidify intergroup boundaries (Turner et al., 1987), the differences considered by rejected participants potentially provided a perceptual contrast between self and others that enhanced the perceived entitativity of the others. In the no-rejection condition, however, it's unlikely that the ostensibly random-card draw prompted "why me?" and an ensuing self-other contrast.

The other pattern worthy of discussion involves the rejection manipulation check. Both experiments indicated that the rejection manipulation was stronger for females than males. One interpretation is that females are more sensitive to rejection. Baumeister and Leary (1995), for example, suggest that the need-to-belong is differentially expressed across the sexes, with females being more concerned with maintaining relationships and males being more concerned with forming new relationships. Perhaps the stronger report of rejection among females reflects their sensitivity to the severing of a relationship. An alternative interpretation, however, is that males and females were impacted equally by the rejection, but males were less willing to report feeling rejected. The latter interpretation is more consistent with the full pattern of data. If the rejection manipulation more strongly impacted females, then rejected females should have behaved more aggressively against Team United and more strongly associated Team United with rejection on the IAT. That sex did not moderate the predicted pattern for aggression or affective associations suggests that males felt the rejection as did females but were less willing to report it.

## General Discussion

Motivated by the rash of school shootings involving multiple victims, we derived and tested a process potentially involved in such incidents. Drawing from research on social rejection and perceived groupness we hypothesized that those factors function together to precipitate acts of multiple-victim aggression. Experiencing rejection makes aggression likely. Perceived groupness activates processes of transference and depersonalization by which the rejectee integrates the rejection experience into his/her prototype of the group and subsequently generalizes the rejection to all group members. Stated otherwise, when a rejecter's group membership is salient during an act of rejection the rejectee associates the rejection with the group and retaliates against the group.

Two controlled experiments evidenced data consistent with the hypothesized process. Participants who experienced *both* perceived groupness among a 3-person aggregate *and* rejection by one member of the aggregate behaved more aggressively against the aggregate (Experiment 1) and evidenced less favorable affective associations toward the aggregate (Experiment 2) than did persons *not* experiencing *both* rejection and groupness. We conclude with a consideration of issues and questions that are ripe for future research.

**Entitativity or Categorization—**Although we discussed the group manipulation as being that of "entitativity," the data could be discussed as a dichotomous categorization effect. We varied two points along an entitativity continuum by exposing participants to an aggregate of either three apparently unaffiliated individuals or three members of a cohesive athletic team. Both aggregates can certainly be experienced as groups that differ in entitativity. The unaffiliated aggregate, however, might not have registered psychologically as a group. Consequently, our comparison may have contrasted the effect of a non-group vs. a group. Stated otherwise, the comparison might reflect a dichotomous categorization effect rather than a continuum-like entitativity-effect. Of course, such a categorization interpretation does not threaten the internal validity of our thesis that multiple-victim aggression is likely when rejection emanates from a perceived group. The categorization interpretation does, however, raise the question of whether the likelihood of multiple-victim incidents increases incrementally with increases in perceived entitativity. Our two-level manipulation can not directly address that question.

If we relax concerns with experimental control, we can approach the question of incremental effects with two sources of data. The high school study we discussed in the introduction suggested that fantasized aggression increased linearly with ratings of entitativity at high but not low levels of rejection (Gaertner & Iuzzini, 2005). Likewise, a similar test can be performed with the manipulation check employed in Experiment 1 of the current research. Participants provided ratings of the extent to which they perceived the aggregate members as being entity-like. If the likelihood of multiple-victim aggression increases incrementally with perceived entitativity following rejection, then the entitativity ratings should track such a pattern. Indeed, a moderated regression analysis in which the noise blast was regressed on a factorial crossing of the rejection manipulation, the mean-centered entitativity rating, and sex indicated that the noise blast (a) increased linearly with ratings of entitativity in the rejection condition, $B = 2.93$, $F(1, 227) = 4.80$, $p = .0294$, and (b) was linearly unrelated to entitativity ratings in the no-rejection condition, $B = -0.41$, $F(1, 227) = 0.08$, $p = .7791$ (substituting the rejection-rating for the rejection manipulation yielded the same conclusion and sex did not moderate the results in either instance, $ps > .62$). These data are certainly consistent with the possibility that multiple-victim aggression increases incrementally with perceived entitativity following rejection. Of course, future research could provide a more rigorous test by manipulating multiple levels of entitativity across the two levels manipulated in the current research.

**Mechanisms for the Rejection to Aggression Link—**Why rejection causes aggression, be it against an individual or group, remains an empirical question. Leary, Twenge, and Quinlivan (2006) discuss nine plausible mechanisms through which rejection leads to aggression. Although the current research was not designed to test or differentiate those mechanisms, the results of Experiment 1 are more consistent with some explanations and less consistent with others.

The validity of six mechanisms is called into question because each mechanism operating alone should generate equivalent aggression against the low and high entitativity aggregate following rejection. (1) The *pain* mechanism suggests that rejection serves as a source of pain which, in turn, causes persons to lash-out aggressively. We have no evidence suggesting that participants experienced more pain when rejected in the presence of the high than low entitativity aggregate

– reports of felt rejection, at least, did not vary as a function of entitativity. (2) The *frustration* mechanism suggests that rejection serves as a source of frustration which, in turn, leads to aggression (e.g., Dollard, Doob, Miller, Mowrer, & Sears, 1939). We can think of no reason to expect stronger frustration when rejected in the presence of the high than low entitativity aggregate. (3) The *threat to self-esteem* mechanism suggests that rejection challenges and devalues a person's typically favorable self-view. We can think of no reason to expect a stronger threat to self-esteem when rejected in the presence of the high than low entitativity aggregate. (4) The *mood improvement* mechanism suggests that persons assume aggression has a cathartic effect and aggress following rejection to improve their mood. In defense of this mechanism, it is possible that participants anticipated a further degraded mood following aggression against the low-entitativity aggregate to the extent to which they felt that the non-rejecting members were undeserving of aggression. (5) The *self-control* mechanism suggests that rejection reduces self-control and persons subsequently have difficulty controlling their antisocial urges. Inconsistent with that mechanism, participants apparently retained sufficient control to restrain their aggression against the low-entitativity aggregate. (6) The *social influence* mechanism suggests that rejected persons use aggression as a tactic to minimize future rejection and gain respect (e.g., "Don't mess with me"). We can think of no reason why rejected persons would be more apt to use aggression as an influence tactic in response to the high than low entitativity aggregate.

One mechanism is consistent with the results of our research. The *revenge* mechanism suggests that people aggress when rejected to achieve retribution (i.e., "evening the score"). As previously described, we intentionally designed the noise measure of aggression so that participants could retaliate against the rejecter but only at the expense of blasting the other aggregate members. We reasoned that participants would behave aggressively and retaliate only if they deemed it appropriate to harm all aggregate members. Indeed, the IAT data of Experiment 2 indicated that rejected participants more strongly associated the high- than low-entitativity aggregate with rejection. Experiment 1 and Experiment 2 together suggest that rejected participants behaved aggressively toward the high-entitativity aggregate as a means of seeking retribution – participants associated the high-entitativity aggregate with rejection (not just the rejecting member) and retaliated against the group. Additional anecdotal evidence consistent with the revenge mechanism is provided by two of the quotes from multiple-victim school shootings that start this paper. Kipland Kinkle mentions repaying his victims and Cho Seung-Hui talks about cleaning the slate. In any event, we did not design the current research to differentiate among the multiple mechanisms and the obtained patterns do not necessarily offer strong falsification of any mechanism. Future research is needed to directly test each mechanism.

**Potential Moderators—**An important avenue for future research is the consideration of variables that moderate the process examined in the current research and thereby enhance or diminish the likelihood of multiple-victim incidents. For example, individual differences that exacerbate reactions to rejection would presumably increase the likelihood of multiple-victim aggression when groupness is salient. Narcissists, for example, are particularly aggressive following social exclusion (Twenge & Campbell, 2003) and insults (Bushman & Baumeister, 1998). Similarly, children characterized as being sensitive to rejection (i.e., anxiously expect, readily perceive, and overreact to rejection; Downey & Feldman, 1996) are particularly apt to endorse hostile responses to rejection and be associated prospectively with increased aggression against peers (Downey, Lebolt, Rincon, & Freitas, 1998). Individual differences that promote the perception of groupness also would presumably increase the likelihood of multiple-victim incidents. Need-for-closure, for example, is associated with perceptions of intragroup homogeneity (e.g., "they're all the same"; Fox & Elraz-Shapira, 2005) as well as the utilization (Dijksterhuis, Van Knippenberg, Kruglanski, & Schaper, 1996) and formation (Clow & Esses, 2005) of group stereotypes. Similarly, persons who approach the social world

with the assumption that human nature is fixed and stable (i.e., entity lay-theorist; Dweck, Chiu, & Hong, 1995) are prone to perceive entitativity (Rydell, Hugenberg, Ray, & Mackie, 2007). Furthermore, contextual factors presumably moderate whether rejected persons aggress against a perceived group. In the current research, for example, participants were put in the role of ostensibly helping the experimenter. Perhaps that role shift was particularly poignant for rejected participants and contributed to their aggression by enhancing a sense of power or status. Future research should assess the effects of such variables.

**Extension to Group-Perpetrated Acts such as Terrorism—**One might question whether the process examined in the current research plays a role in group-perpetrated forms of collective violence such as terrorism. Arguably little resistance would challenge the assumption that the intended target of terrorist acts, such as the Madrid train bombings, almost daily car bombings in Iraq, suicide-bombings of buses in Israel is not the specific individuals directly victimized, but rather the group to which those individuals belong (e.g., Lickel et al., 2006). Indeed, terrorism has been described as an act intended to "instill fear in a wider group than its immediate victims" (Clayton, Barlow, & Ballif-Spanvill, 1999), p. 290.

What about the involvement of the other component of our studied process? Is social rejection involved in terrorism? We suspect that the answer depends, in part, on how abstractly rejection is experienced and interpreted. In addition to being directed at a social group, terrorism is typically conceptualized as an act that is coordinated and perpetrated by a group. To the extent to which rejection registers abstractly as an event that affects the group and is experienced by the individual via the group, it is conceivable that rejection can spawn terrorism. Perhaps at the collective level the psychological counterpart of rejection is the experience of fraternal deprivation among ingroup members (e.g., Moghaddam, 2005) or group-based anger and fear in response to devaluing of the ingroup or its members by an outgroup (Smith, 1999; Mackie, Devos, & Smith, 2000) and persons subsequently coordinate with the collective to avenge the suffering of their fellow members (Lickel et al., 2006).

On the other hand, there is reason to suspect that social rejection per se registers with a specific consequence that is distinct from collective experiences of fraternal deprivation and group-based emotions. As mentioned previously, rejection activates some of the same neural pathways as does bodily trauma (Eisenberg et al., 2003). Such piggybacking of sensitivity to rejection on an existing system that tracks bodily trauma is hypothesized to be a solution of natural selection that protects and alerts the individual to loss of necessary social connection (MacDonald & Leary, 2005). In that regard, social rejection might be an experience unique to the individual that is distinct from acts befalling and experienced via the group; in which case, rejection might be a phenomenon that has a negligible proximal-role in group perpetrated violence. Nonetheless, the role of social rejection in collective acts of terror remains an empirical issue with important theoretical and societal implications.

**Coda—**We conclude our analysis of a process that plausibly underlies horrendous instances of multiple-victim aggression on an optimistic note. The current research offers a conceptual and empirical foundation from which applied practitioners can develop potential interventions. To the extent to which incidents of multiple-victim aggression arise from the joint functioning of social rejection and perceived groupness, a two-tiered approach might serve as a successful intervention. In particular, practitioners could (a) facilitate healing and coping with rejection experiences and/or (b) diffuse antagonistic group-level perceptions and aid an understanding that an entire category of people is not necessarily responsible for the rejection experiences.

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**Table 1**

Mean Noise Level Directed at the Aggregate as a Function of Rejection and Entitativity

| | Rejection | |
|---|---|---|
| *Entitativity* | **No** | **Yes** |
| Low | 37.42 | 30.84 |
| High | 35.74 | 48.70 |

**Table 2**

Structure of the Team-United IAT

| Block | No. of trials | Stimuli assigned to e-key response | Stimuli assigned to i-key response |
|-------|---------------|------------------------------------|-------------------------------------|
| 1 | 20 | Bad words | Good words |
| 2 | 20 | Team United photos | Not-Team-United photos |
| 3 | 20 | Bad words + Team United photos | Good words + Not-Team-United photos |
| 4 | 40 | Bad words + Team United photos | Good words + Not-Team-United photos |
| 5 | 20 | Not-Team-United photos | Team United photos |
| 6 | 20 | Bad words + Not-Team-United photos | Good words + Team United photos |
| 7 | 40 | Bad words + Not-Team-United photos | Good words + Team United photos |

*Note*. We counterbalanced whether Blocks 5, 6, and 7 preceded Blocks 2, 3, and 4.

**Table 3**

Mean IAT Score as a Function of Rejection and Entitativity

| | Rejection | |
|---|---|---|
| **Entitativity** | **No** | **Yes** |
| Low | −0.56 | −0.41 |
| High | −0.51 | −0.13 |

*Note*. Negative means reflect a preference for Team-United and positive means reflect a preference for Not-Team-United.