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DON'T APOLOGIZE UNLESS YOU MEAN IT: A LABORATORY INVESTIGATION OF FORGIVENESS AND RETALIATION

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We experimentally investigated the effects of arousal, offense removal ("making amends"), and apology following a scripted laboratory offense involving undeserved failure feedback. Self-report and behavioral measures of forgiveness and retaliation were influenced differentially by the manipulations. Retaliation was influenced only by the presence of an apology. Consistent with some previous findings, experimenters who committed the offense and apologized were evaluated more *negatively* than when they did not apologize. The relationship between apology and retaliation was mediated by participants' blame directed at the experimenter. Forgiveness was more complex, and varied depending on arousal, offense removal, and apology. In the high arousal condition, forgiveness was least likely following an "insincere apology" in which the offender did not make amends for the wrong when apologizing. These results are interpreted in terms of a two-stage model of forgiveness in which different variables influence revenge and forgiveness.

Although forgiveness has long been conceptualized within the frameworks of theology (Rye et al., 2000) and philosophy (Enright, Gassin, &

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Wu, 1992), in the past two decades we have witnessed rapid progress in theoretical and empirical work on the psychology of forgiveness. Forgiveness is often operationally defined in terms of behavioral, affective, and cognitive responses following an interpersonal offense. Individuals are described as forgiving if they inhibit retaliatory or destructive responses, and instead respond with conciliatory or constructive behaviors, affect, and cognitions (McCullough, 2000; McCullough, Worthington, & Rachal, 1997; Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991; Subkoviak et al., 1995). For example, in forgiving, an individual may recognize situational determinants that caused an offender's actions (cognition), feel sympathy or compassion for the offender (affect), and discuss possible resolutions to problems with the offender (behavior). McCullough et al. (1997) and Rusbult et al. (1991) consider forgiving responses to reflect an underlying motivational change that counteracts individuals' more natural tendencies toward retaliation. Transformations in these natural tendencies occur when thoughts and feelings regarding the situation and relationship lead to greater value placed on constructive responses.

Forgiveness has been associated with positive psychological outcomes such as reduced anxiety and depression (e.g., Al-Mabuk, Enright, & Cardis, 1995; Coyle & Enright, 1997; Freedman & Enright, 1996; McCullough & Worthington, 1995) and physical health benefits (e.g., Thoreson, Standard, Harris, & Luskin, 2001; Witvliet, Ludwig, & VanderLaan, 2001). In personal narratives of interpersonal offenses, individuals who wrote about forgiveness described positive outcomes and affect and a sense of closure and peace regarding the offense, regardless of whether they wrote as victim or offender (Zechmeister & Romero, 2002). With a growing number of studies demonstrating benefits of forgiveness, we sought to examine variables that may decrease retaliation and increase the likelihood of forgiveness following a laboratory interpersonal offense. Specifically, we examined whether situational variables such as apology, offense severity, and arousal influenced the likelihood of retaliation and forgiveness, and whether empathy and blame attributions mediated the relationships between situational variables and response to the offense.

THE ROLE OF SITUATIONAL VARIABLES ON RETALIATION AND FORGIVENESS

Apology. Several situational variables have been shown to moderate retaliatory and forgiving responses following an interpersonal offense. The most frequently investigated variable is apology. Results from cross-sectional surveys (e.g., Bies & Trip, 1996; McCullough et al., 1997),

autobiographical narratives (e.g., Baumeister, Stillwell, & Heatherton, 1995; Baumeister, Stillwell, & Wotman, 1990; Zechmeister & Romero, 2002), interviews (e.g., Dobash & Dobash, 1984), manipulations within vignettes (e.g., Darby & Schlenker, 1982; O'Malley & Greenberg, 1983), and laboratory experiments (e.g., Ohbuchi, Kameda, & Agarie, 1989, Study 1) consistently demonstrate that less retaliation and more favorable judgments regarding an offender are more likely following an apology. An apology may lead victims to make more favorable attributions regarding the offender's behavior (e.g., less internal, uncontrollable), or attenuate negative inferences about the offender (Takaku, 2001).

Weiner and his colleagues (1991) conducted a series of studies on confession and apology using hypothetical scenarios and one laboratory offense. When responding to vignettes, student participants evaluated an offender more favorably, were more forgiving, and were more likely to make external attributions for an offender's actions following a confession (especially when made spontaneously), compared to when the offender denied responsibility for an offense. In these studies, confession included an apology, contrition, self-blame, and reparation for the offense. Interestingly, however, Weiner et al. observed that spontaneous confession during a laboratory offense (i.e., rather than vignette) resulted in *less* favorable evaluations of an offender, relative to no information. These investigators suggested that "if misgivings [about an offender] are not held, then it appears to be deleterious for the confessor to confess" (Weiner et al., 1991, p. 308).

Offense Severity. A second situational variable that influences retaliation and judgments of offenders is offense severity. Severe offenses, most frequently investigated using hypothetical vignettes, are associated with ratings that the offender should be punished (Darby & Schlenker, 1982), pay more reparations (O'Malley & Greenberg, 1983), and not be forgiven (Boon & Sulsky, 1997). In a laboratory experiment, a severe offense (social humiliation) was associated with retaliatory behavior, even at additional cost to the victim (Brown, 1968).

Other research indicates that apology and offense severity interact to influence individuals' responses to an offense (e.g., Niedermeier & Ahearne, 2000; Ohbuchi et al., 1989). In Niedermeier and Ahearne's study, students rated their impressions of automotive companies and then read about a recall of cars (for a serious or nonserious problem) for one of the companies. An executive apologized or did not apologize for the problem leading to the recall. Results indicated that participants' evaluations of the company *decreased* (relative to initial ratings) following an apology in both the serious and nonserious conditions. In the no-apology condition, evaluations improved relative to baseline when the problem was not serious, but decreased when the problem was seri-

ous. Thus, similar to Weiner et al.'s (1991) findings, these findings suggest that an offender's apology may not always be beneficial.

Offense severity may influence how victims interpret an apology. Ohbuchi et al. (1989, Study 2) observed that apologies following severe harm were less likely to reduce victims' negative judgments of the offender and retaliation. This may be due to victims' inferences about the offender following severe harm. In Lysak, Rule, and Dobbs' (1989) experiment, participants inferred that an offender had unacceptable motives, malevolent intent, and was more blameworthy following severe outcomes relative to mild outcomes (see also Baumeister et al., 1990). Thus, victims' inferences about the offenders' motives and actions may mediate the relationship between apologies and victims' retaliatory responses.

Arousal. Results of several experiments indicate that arousal level is also associated with victims' retaliatory and forgiving responses (e.g., Witvliet et al., 2001; Zillmann, Bryant, Cantor, & Day, 1975). Interpersonal offenses increase victims' physiological arousal, and mitigating information has been shown to decrease arousal (Zillmann & Cantor, 1976). However, when individuals remain in a high state of arousal despite apologies and mitigating accounts, hostility and retaliation remain high also (Zillmann et al., 1975).

Generally, forgiveness/retaliation studies have been conducted in contexts of low physiological arousal (e.g., vignettes). In contrast, many of the situations that require forgiveness occur in situations of high arousal (e.g., interpersonal conflicts). This threatens the construct validity of most forgiveness research, because it has not been conducted in situations that approximate the high arousal conditions in which forgiving responses are most needed (Campbell & Fiske, 1959).

Furthermore, arousal in previous research has been confounded with many of the moderating variables that have been shown to influence forgiveness. For example, severe offenses, intentional and avoidable offenses, timing of an apology, and offenses committed by close relationship partners are likely to be related to arousal level. Thus, any observed effects of these situational variables must be disentangled from the effects of arousal. An important goal of the present study was to manipulate arousal level and offense severity independently to differentiate their effects.

MEDIATORS OF RETALIATION AND FORGIVENESS

Situational variables such as offense severity, apologies, and arousal may moderate when retaliation or forgiveness occur in response to an interpersonal offense; however, analysis of mediating variables may help to answer questions regarding how and why retaliation and forgiveness occur (Baron & Kenny, 1986; Holmbeck, 1997).

Two potential mediating factors, empathy and attributions, may account for the relationships between situational variables and victims' responses to an offense. First, high arousal may lead to an intense self-focus and concomitant decrease in empathy, making it less likely that the offended individual is able to forgive (McCullough et al., 1997; Worthington, 1998). Alternatively, other findings suggest that victims' attributional processes following an offense influence retaliatory responses (Dyck & Rule, 1978; Kremer & Stephens, 1983; Takaku, 2001; Weiner et al., 1991). External attributions for the offender's actions, brought forth by mitigating accounts, may effectively prevent the victim from experiencing prolonged anger about the offense, which then may decrease the likelihood of retaliation.

Empathy. The term *empathy* has been used to refer to three distinct qualities: knowing what another person is feeling, feeling what another person is feeling, and responding compassionately to another person's distress (Levenson & Ruef, 1992). Interestingly, these qualities parallel the definition of forgiveness that relies on cognitive, affective, and behavioral responses following an interpersonal offense.

McCullough et al. (1997) regarded empathy for the offender as critical for forgiveness. Drawing from a large body of social-psychological literature on empathy and altruism, they argued that empathy causes an individual to shift from self-focus on the hurts caused by an offender to caring for the offender's needs. They demonstrated that empathy partially mediated the relationship between apology and forgiveness, and that therapeutic interventions designed to increase empathy enhanced forgiveness.

Two types of other-oriented empathy have been identified: affective empathy and cognitive empathy. In general, affective empathy emphasizes shared emotional experience, whereas cognitive empathy (or cognitive perspective-taking) refers to a cognitive understanding of individuals' experience without necessarily sharing the emotional state (cf. Levenson & Ruef, 1992; McCullough et al., 1997). McCullough et al.'s intervention to enhance forgiveness targeted both affective and cognitive empathy, whereas a comparison intervention addressed forgiveness without an attempt to increase empathy. McCullough et al. observed an increase in forgiveness in both groups, with greater forgiveness in the empathy group. The increase in forgiveness in the comparison group was linked to an increase in perspective-taking within this group. Similarly, Rusbult et al. demonstrated that individual differences in perspective-taking (but not affective empathy) directly predicted accommodation (i.e., increased conciliatory behavior and decreased destructive behavior) following an offense. Thus, empathy for an offender, particularly cognitive empathy, may promote forgiveness.

Attributions. The attributions that individuals make about their own and others' behavior following interpersonal harm have been shown to be related to retaliation (e.g., Bies & Tripp, 1996; Kremer & Stephens, 1983; Kubany, Bauer, Muraoka, Richard, & Read, 1995; Weinberg, 1994). Although researchers have examined attributions for interpersonal offenses on a number of dimensions (e.g., responsibility, motives, blameworthiness), we focused on blame. Following interpersonal offenses that threaten the self, blaming the offender may protect and restore the self (Brown & Rogers, 1991).

Several investigators have noted the relationship between anger and attributions following interpersonal offenses (e.g., Averill, 1982, 1983; Boon & Sulsky, 1997; Ferguson & Rule, 1983; McGraw, 1987; Quigley & Tedeschi, 1996; Weiner, 1995). Individuals form blame attributions when they perceive another person's harmful actions as voluntary and unjustified. Thus, to the extent that actions are perceived as intentional, controllable, and avoidable, blame attributions are more likely. Quigley and Tedeschi (1996) observed a reciprocal relationship between anger and blame, in which greater anger led to increased blame, and greater blame led to increased anger (see also Parkinson, 1999). Furthermore, attributions that another person's harmful actions violated norms for appropriate conduct are related to anger, blame, and aggression (Ferguson & Rule, 1984). Thus, although anger and attributions are distinguishable, their co-occurrence in the form of blame may strongly predict retaliation following an interpersonal offense.

OVERVIEW

The present study involved a scripted offense of ambiguous intent against participants by a same-sex experimenter. Students participated individually in a study that purportedly examined factors that affect performance on aptitude tests such as the Graduate Record Examination (GRE), including arousal and the proctor's (in this case, experimenter's) behavior. Participants completed a bogus, unsolvable analogies test in either a low or high arousal condition (manipulated using noise, time pressure, and incentive to do well). Experimenters then admitted their mistake by informing participants that they had received the wrong (unsolvable) form of the test. However, all participants then received undeserved failure feedback about their performance and academic abilities from a "senior researcher." Subsequently, the experimenter either admitted the mistake to the senior researcher, who asked the participant to ignore the feedback, or the experimenter said nothing to the senior researcher. Thus, the offense (undeserved failure feedback) was removed or not removed to manipulate the severity of the offense. We assumed

that by removing the offense, the severity of the harm would be reduced. After the senior researcher left, the experimenter then apologized or did not apologize. Thus, we tested a 2 (Arousal) $\times$ 2 (Offense Removal) $\times$ 2 (Apology) design. To assess retaliation, we measured participants' evaluations of the experimenter and senior researcher (see Kremer & Stephens, 1983; Ohbuchi et al., 1989; Zillmann et al., 1975). Forgiveness was assessed using self-report measures and behavioral measures of conciliation (i.e., doing a favor for the experimenter).

We predicted that participants in the high arousal condition would retaliate more and forgive the experimenter less than participants in the low arousal condition. A possible mechanism for this effect may be reduced empathy for the offender in the high arousal condition. In addition, we expected that the effects of the apology manipulation would differ in the high and low arousal conditions. Previous mixed findings for the effect of apology may be due to different attributions that participants make for an offender's actions. In the high arousal condition, participants may be more likely to blame the offender following an apology, relative to a no-apology condition. In contrast, in the low arousal condition, participants may blame the offender less following an apology, relative to the no-apology condition. Increased blame ratings were predicted to be associated with greater retaliation. These effects may be further moderated by the effects of removing the offense. Because previous studies using offense severity variables have emphasized retaliation measures rather than forgiveness measures, our predictions for forgiveness were more speculative. We predicted that the offense removal variable would influence participants' conciliatory responses to the experimenter more so than their retaliatory responses.

METHOD

PARTICIPANTS

College students ($N = 113$; 75 female, 38 male) at Loyola University Chicago participated in exchange for credit in their introductory psychology course. Participants were randomly assigned to one of eight conditions in the 2 (Arousal) $\times$ 2 (Offense Removal) $\times$ 2 (Apology) design; cell sizes ranged from 11 to 16.

MATERIALS

Arousal Manipulation Check. After the analogies test participants completed items that assessed their arousal (e.g., relaxed, tense). Specific components of the arousal manipulation were assessed by asking partic-

ipants to rate their annoyance with the time they had to complete the test and noise during the test. Cronbach's α for this 4-item arousal subscale (relaxed, tense, time pressure, noise) was good (.83). Additional questions asked specifically about the GRE such as the extent to which participants were concerned about their ability to answer the questions and their worry about future aptitude tests. Although less reliable (Cronbach's $\alpha = .67$), this 6-item subscale allowed us to assess the extent to which the arousal manipulation increased participants' worry about aptitude test performance.

Retaliation Measures. Similar to previous studies of retaliation (e.g., Ohbuchi et al., 1989), we asked participants to provide "confidential" evaluations regarding their experience. Specifically, retaliation in this study was operationalized in terms of participants' negative evaluations of the experimenter. We also assessed whether negative evaluations would generalize to the senior researcher and to the experiment.

The experiment was described as funded by a private organization that required participants' evaluations in order to make hiring and funding decisions regarding the researchers. Using 1 (*not at all*) to 5 (*extremely*) rating scales, participants rated both the experimenter and the senior researcher on the following characteristics: *clear, friendly, competent, polite, careless* (reversed), *sincere, responsible, good-natured, unprepared* (reversed). Cronbach's α s for the evaluations of the experimenter and the senior researcher on these items were .85 and .88, respectively. Participants also evaluated the experiment on the following characteristics: *enjoyable, interesting, satisfying, and unpleasant* (reversed). Cronbach's α for these items was .78.

More direct measures of retaliation asked participants to evaluate the research staff's performance in terms of whether they should be rehired, and whether the experiment should be funded again. For both the experimenter and the senior researcher, participants rated the overall quality of performance (1 = *very poor*, 5 = *excellent*), skills as a psychologist (1 = *very poor*, 5 = *excellent*), and whether he or she should be re-appointed (1 = *definitely do not reappoint*, 5 = *definitely reappoint*). Participants also rated whether the experiment should be funded again (1 = *definitely do not fund again*, 5 = *definitely do fund again*).

Finally, participants were told the experimenter was earning credit for an independent study project in psychology and would receive a grade. The evaluation form stated that the instructor could not evaluate the experimenter's performance in all sessions, and that participants' averaged input would be used to assign a grade. Participants were asked to grade the experimenter's performance on an 8-point A - F scale (including "plus" grades); ratings were converted to a 0 ("F") to 4 ("A") scale, with plus grades representing a half-grade (e.g., B+ = 3.5).

Forgiveness Measures. We hypothesized that participants who were more forgiving of the experimenter would be more likely to comply with the experimenter's request for a favor (see Oswald, 1996, but cf. Kelln & Ellard, 1999). Near the end of the session, experimenters stated that they needed to recruit individuals to volunteer for a class research project. The experimenter did not provide details of the project, stating instead that class members needed information about potential participants' availability before making any decisions. Participants completed a form that asked if they would volunteer, and if so, they indicated how many hours they could volunteer using a 9-point scale (1/2 - 5 hrs, with half hour increments).

Embedded within the measure of mediating variables (see below) was a single item that stated, "I have forgiven the experimenter for his/her behavior today" (1 = *Strongly Disagree*, 5 = *Strongly Agree*). We used this item as a direct, self-report measure of participants' forgiveness of the experimenter's offense.

Mediating Variables. Following the apology and offense removal manipulations, we assessed participants' self-report responses toward the experimenter on empathy and blame items. All items were rated on 1 (*Strongly Disagree*) to 5 (*Strongly Agree*) Likert-type scales. The sum of responses to four items assessed affective empathy for the experimenter: "I feel sympathetic toward the experimenter," "I feel kindly or tender toward the experimenter," "I feel softhearted toward the experimenter," and "I feel moved by the experimenter" (Cronbach's $\alpha = .82$). Higher scores on this scale indicate greater affective empathy. Although two items assessed perspective-taking, the correlation between these items was very low ($r = .15$); therefore, we chose one item to assess perspective taking: "I tried to see things from the experimenter's perspective." Finally, the mean of four items (Cronbach's $\alpha = .82$) assessed the extent to which participants blamed the experimenter (e.g., "I am angry at the experimenter," "I blame the experimenter for my test performance today," "I think the experimenter should feel guilty about my test performance," and "I am upset about the experimenter's behavior today"). Higher scores indicate greater blame.

PROCEDURE

During individual sessions lasting approximately 50 min, participants were told by a same-sex experimenter that the study investigated factors that influence performance on aptitude tests such as the GRE, MCAT, and LSAT. Specifically, they were told the researchers were interested in variables such as noise, time pressure, incentive to do well, and performance of the proctor (i.e., the experimenter). Participants were ran-

domly assigned to complete a bogus analogies test in either a low or high arousal condition. High arousal was implemented by time pressure (3 min to complete the test), incentive to do well (a \$25 gift certificate for 8 out of 10 correct), and continuous random noise (a tape recording of car alarms, clock alarms, pans, and a broken whistle on a random schedule).¹ Participants in the low arousal condition completed the test without time limit, incentive, or noise. Seven of 10 problems on the analogies test did not have a correct answer, and all participants were told they had answered only 3 of 10 problems correctly, a *"below-average score."* Experimenters then told to participants that they had mistakenly administered an unsolvable test typically used in a different condition of the experiment (*"Wait a minute, I gave you the wrong analogies test. This test is for the condition that looks at what happens when there's extreme stress during tests. On this form of the test, 7 of the 10 problems are impossible to answer. I didn't give you the right test."*). Despite this mistake, experimenters called in the "senior researcher" (a female graduate student supervisor), informed her that the participant had three correct answers and earned a below-average score, and then excused themselves from the room. The senior researcher spent several minutes giving participants negative feedback about their test performance and academic abilities.

Following the feedback, the experimenter returned and implemented the offense removal variable to influence the severity of the harmful feedback. For participants randomly assigned to the offense-removed condition, experimenters admitted their mistake to the senior researcher (*"I should have told you before I left that I gave [the participant] the wrong analogies test. I gave [him/her] the one that is for the extreme stress condition, you know, the one that doesn't have any answers for most of the problems."*). The senior researcher replied, *"Oh, that's a big mistake. I'm glad you told me because that really changes things"* and then asked the participant to ignore the mistaken feedback (*"All I said to you about your test performance is wrong because the wrong form of the test was used. So, you should just ignore everything I said about the GRE test. OK? The test you did today was impossi-*

1. A multicomponent manipulation was used to increase the power of the manipulation. We chose time pressure, incentive, and noise because of their past associations with increased physiological arousal, but because we manipulated them simultaneously, we are unable to identify specifically what aspect of the arousal manipulation influenced participants' responses. Note, too, that all participants were frustrated in their performance on the unsolvable anagrams and all participants received failure feedback. Our design sought to examine the additional effects of arousal independently of these offense-related characteristics.

ble and that's the only reason your score was so low.""). When the offense was not removed, the experimenter said nothing to the senior researcher.

After the senior researcher left the room, the apology variable was implemented. The experimenter subsequently either apologized to participants for the feedback they received, or did not apologize. The experimenter did not offer excuses or reasons for the mistake; in the apology condition, experimenters simply apologized and stated that it was their fault that the participant had received negative feedback (*"I'm really sorry about giving you the wrong test, and I should have told [the senior researcher]. It's my fault that you got all that horrible feedback. I'm really sorry I messed up."*).

Participants next completed several self-report measures, including the blame, empathy, and self-report forgiveness measures. Following these measures, the experimenter implemented the behavioral measure of forgiveness by asking participants to volunteer for a class research project as a favor. Finally, participants completed the experiment evaluation form that allowed them to retaliate against the experimenter and senior researcher. The experimenter instructed participants to complete the form, insert it into an envelope, and drop it into the large box using the opening on top of the box. The experimenter left the room while participants completed the evaluation.

At the end of the session, participants were fully debriefed about the purpose of the experiment and the use of deception. In general, participants were surprised to learn the true nature of the research and expressed satisfaction in their participation.

RESULTS

AROUSAL MANIPULATION CHECK

Results of the self-report measure of arousal indicated that we successfully manipulated participants' arousal level prior to the apology and offense removal manipulations. For the arousal items specific to the manipulation (e.g., noise), a main effect of Arousal indicated that participants in the high arousal condition were more tense and aroused ($M = 3.00$, $SD = .96$) than participants in the low arousal condition ($M = 1.73$, $SD = .43$, $F(1, 102) = 74.91$, $p < .001$, $MSE = .58$, $B = .65^2$). The effects of the arousal manipulation did not extend to participants' concern about test

2. Standardized beta coefficients, B , from regression analyses (using effects coding) are presented as a measure of effect size to facilitate interpretation of subsequent mediational analyses.

performance, as all participants expressed concern about their ability to answer the (unsolvable) items ($M = 2.95$, $SD = .64$, $MSE = .41$). As expected, there were no effects of the Apology and Offense Removal variables.

RETALIATION MEASURES

Retaliation was assessed using participants' confidential evaluations of the experimenter, senior researcher, and experiment. A series of 2 (Arousal) $\times$ 2 (Offense Removal) $\times$ 2 (Apology) ANOVAs tested our hypotheses that participants would be more retaliatory in the high arousal condition, and that apology and offense removal would interact to influence participants' evaluations.

Evaluations of the Experimenter. Participants rated the experimenter's overall quality of performance, skills as a psychologist, and whether the experimenter should be reappointed. In addition, participants assigned a grade to the experimenter's performance and rated the experimenter's personal characteristics (e.g., competent, responsible). Results were consistent across these different measures (see Table 1). Consistently, the main effect of Apology indicated that participants who received an apology from the experimenter evaluated the experimenter *less* favorably than participants who did not receive an apology. Effect sizes for the apology effect ranged from .21 to .31 (small to medium effects; Cohen, 1988). No statistically significant effects emerged for the arousal and offense removal variables.

Evaluations of the Senior Researcher. In general, the effects of the manipulations did not generalize to influence participants' evaluations of the senior researcher. Two small effects were observed, however. The offense removal variable (implemented by the senior researcher) tended to impact participants' evaluations of her personal characteristics (e.g., friendly, responsible) in the expected direction, $F(1, 101) = 3.72$, $p = .057$, $MSE = .37$, $B = -.19$. Participants evaluated the senior researcher more favorably when she removed the offense ($M = 4.52$, $SD = .52$) than when she did not ($M = 4.31$, $SD = .68$). Participants also tended to evaluate the overall quality of the senior researcher's performance more favorably when she removed the offense ($M = 4.44$, $SD = .73$) than when she did not ($M = 4.20$, $SD = .82$), $F(1, 100) = 2.84$, $p = .095$, $MSE = .60$, $B = -.16$.

Evaluations of the Experiment. We also asked participants to evaluate the experiment (e.g., interesting, unpleasant) and to indicate whether the experiment should be funded again. No effects of the arousal, apology, and offense removal manipulations emerged for participants' mean evaluation of the experiment's characteristics. However, the

TABLE 1. Retaliatory Evaluations of the Experimenter in the Apology and No-Apology Conditions

Measure	Apology Condition	Mean	SD	F	p	B ^a
Overall quality of performance ^b	Apology	3.59	.96	7.53	.007	-.26
	No Apology	4.09	.86			
Skills as a psychologist ^b	Apology	3.63	.83	10.78	.001	-.31
	No apology	4.15	.82			
Reappointment ^b	Apology	3.50	1.30	7.44	.008	-.26
	No apology	4.13	1.16			
Characteristics ^c	Apology	4.09	.55	4.53	.036	-.21
	No apology	4.35	.63			
Grade ^d	Apology	3.39	.76	4.54	.036	-.21
	No apology	3.66	.54			

^aStandardized regression coefficients, *B*, for the relationship between apology and each retaliation measure. ^b1-5 scale; higher scores indicate more favorable evaluation; single-item measure. ^cMean of nine items (e.g., careless, responsible) rated on a 1-5 scale; higher scores indicate a more favorable evaluation. ^d0.0 ("F") - 4.0 ("A") scale; higher scores indicate a more favorable grade.

arousal and apology variables interacted to influence participants' funding judgments, $F(1, 101) = 4.19, p = .043, MSE = .66, B = -.20$. In the low arousal condition, the apology variable did not influence judgments, $t(105) = .69, ns, B = .09$ (apology: $M = 4.58, SD = .58$; no apology: $M = 4.43, SD = .86$). In the high arousal condition, however, participants were less favorable about the experiment if they had received an apology ($M = 4.19, SD = 1.02$) than if they had not ($M = 4.67, SD = .62$), $t(105) = -2.22, p = .029, B = -.29$.

Summary of the Retaliation Findings. In the procedure, the experimenter implemented the apology manipulation and the senior researcher implemented the offense removal manipulation. These manipulations affected participants' subsequent evaluations accordingly. Although removing the offense improved participants' evaluations of the senior researcher, the effect was small and, in general, evaluations of the senior researcher were high in all conditions (despite the negative feedback). The effects of the apology manipulation on participants' evaluations of the experimenter, who produced the offense and subsequent apology, were consistent and stronger. Consistent with findings of previous studies demonstrating negative effects of an apology (e.g., Niedermeier & Ahearne, 2000; Weiner et al., 1991), our participants evaluated the experimenter less favorably following an apology. This effect of apology generalized to participants' decisions about future funding for the experiment when participants completed the analogies test in the high arousal condition.

FORGIVENESS MEASURES

We assessed forgiveness using behavioral and self-report measures. Conciliatory behaviors were assessed by measuring participants' response to the experimenter's volunteer request. In addition, participants rated a single item to assess forgiveness of the experimenter. Findings for these measures were identical, and are summarized in Table 2 and in Figures 1 and 2.

Volunteer Measure. Near the end of the session, the experimenter asked participants to volunteer for a research project (at a later date) with no compensation. We analyzed the data in two ways: a chi-square test of association using participants' agreement to volunteer (*yes/no*) as the dependent variable and an analysis of variance (ANOVA) using the number of hours participants volunteered as the dependent variable.³

3. We entered 0 hr into the analyses for participants who did not volunteer.

TABLE 2. Summary of ANOVA^a Results for Forgiveness Measures

Independent Variable Effect	F	p	B ^b
Dependent Measure: Number of hours volunteered^c (MSE = 1.94, <i>df</i> _{error} = 99)			
Main Effect of Offense Removal	4.45	.037	-.20
Arousal × Apology × Offense Removal interaction	5.06	.027	-.21
<u>Low Arousal Condition</u>			
Apology × Offense Removal interaction	0.02	.895	.01
<u>High Arousal Condition</u>			
Apology × Offense Removal interaction	10.88	.002	-.41
<i>Simple Effects:</i>			
<u>No-Apology Condition</u>			
Offense Removal	<i>t</i> (99) = 1.29	.199	.24
<u>Apology Condition</u>			
Offense Removal	<i>t</i> (99) = -3.09	.003	-.57
<u>Offense-Removed Condition</u>			
Apology	<i>t</i> (99) = 2.34	.021	.42
<u>Offense-Not-Removed Condition</u>			
Apology	<i>t</i> (99) = -2.05	.043	-.39

Dependent Measure: Self-Reported Forgiveness^d
($MSE = 0.52, df_{\text{error}} = 103$)

Main Effect of Offense Removal	10.54	.002	-.29
Arousal $\times$ Apology $\times$ Offense Removal Interaction	5.12	.026	-.20
<u>Low Arousal Condition</u>			
Apology $\times$ Offense Removal Interaction	0.04	.846	.02
<u>High Arousal Condition</u>			
Apology $\times$ Offense Removal Interaction	7.76	.007	-.39
<i>Simple Effects:</i>			
<u>No-Apology Condition</u>			
Offense Removal	$t(103) = -.05$	.957	-.01
<u>Apology Condition</u>			
Offense Removal	$t(103) = -4.45$	<.001	-.78
<u>Offense-Removed Condition</u>			
Apology	$t(103) = 1.62$	.109	.27
<u>Offense-Not-Removed Condition</u>			
Apology	$t(103) = -2.79$	.006	-.51

^aTwo univariate 2 (Arousal) $\times$ 2 (Apology) $\times$ 2 (Offense Removal) ANOVAs were conducted. ^bThe measure of effect size, B , is the standardized Beta coefficient from regression analyses using effects coding. ^cParticipants indicated the number of hours they would volunteer using a 9-point scale (½ hour – 5 hours, in half-hour increments). Zero was entered into analyses for participants who declined to volunteer (30.1% across all conditions). ^dParticipants rated their forgiveness in response to the statement, "I have forgiven the experimenter for his/her behavior today" (1 = *Strongly Disagree*, 5 = *Strongly Agree*).

The results and interpretation of the two analyses were identical. To avoid redundancy, we describe here the results for the number of hours participants volunteered.

The 2 (Arousal) $\times$ 2 (Offense Removal) $\times$ 2 (Apology) ANOVA indicated that the main effect of offense removal was statistically significant (see Table 2). On average, participants offered more hours when the offense had been removed ($M = 1.73$, $SD = 1.48$) compared to when it had not been removed ($M = 1.17$, $SD = 1.35$). However, this relationship was complicated by a statistically significant three-way interaction among arousal, apology, and offense removal variables (see Figure 1). Analyses of the simple interactions within high and low arousal conditions indicated that the Apology $\times$ Offense Removal interaction reached statistical significance only in the high arousal condition. No statistically significant effects of apology and offense removal emerged in the low arousal condition (see Figure 1, Panel a), but the variability of volunteer hours was quite large in these conditions ($MSE = 2.21$).

In the high arousal condition in which the experimenter did not apologize, removing the offense did not significantly increase the number of hours participants volunteered (see Figure 1, Panel b). However, when the experimenter did apologize, not removing the offense significantly decreased the number of hours participants offered ($M = .54$, $SD = .94$) relative to when the offense was removed ($M = 1.75$, $SD = 1.48$). These findings may indicate the effect of a "false" or insincere apology, in which the experimenter apologized but did nothing to ameliorate the consequences of the offense. As a result, conciliatory behavior (volunteering to help the offender) was less.

Self-Report Forgiveness Item. Embedded within the self-report measure following the manipulations was a single item that asked directly about forgiveness of the experimenter. Participants' forgiveness ratings corroborated the findings for the volunteer measure. Overall, participants reported more forgiveness of the experimenter when the offense had been removed ($M = 3.70$, $SD = .76$) compared to when the offense had not been removed ($M = 3.26$, $SD = .73$). This effect, however, was moderated by the three-way interaction of arousal, apology, and offense removal variables (see Figure 2). In the low arousal condition (Panel a), the effects of the apology and offense removal variables did not reach statistical significance, although participants tended to be more forgiving when the offense was removed compared to when it had not been removed, $F(1, 50) = 2.99$, $p = .09$, $MSE = .40$, $B = -.20$. In the high arousal condition (Panel b), the Apology $\times$ Offense Removal interaction was statistically significant. When the experimenter did not apologize, removing the offense did not affect participants' forgiveness ratings, and forgiveness ratings were similar to those observed in the low arousal

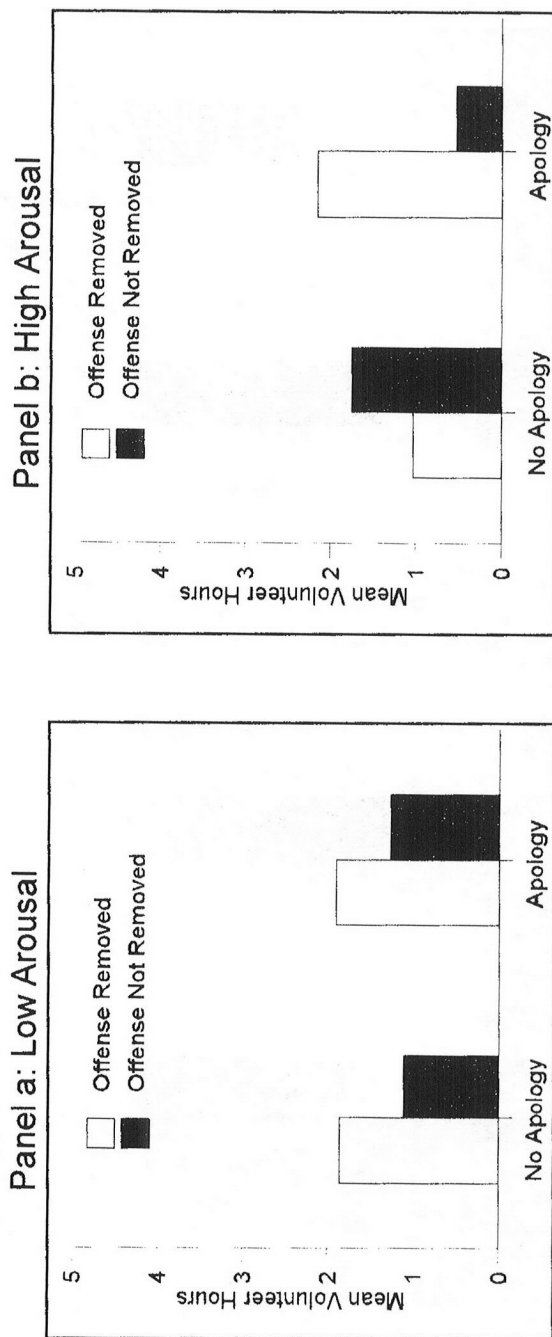


FIGURE 1. Mean number of hours volunteered as a function of apology and offense removal in low arousal (Panel a) and high arousal (Panel b) conditions.

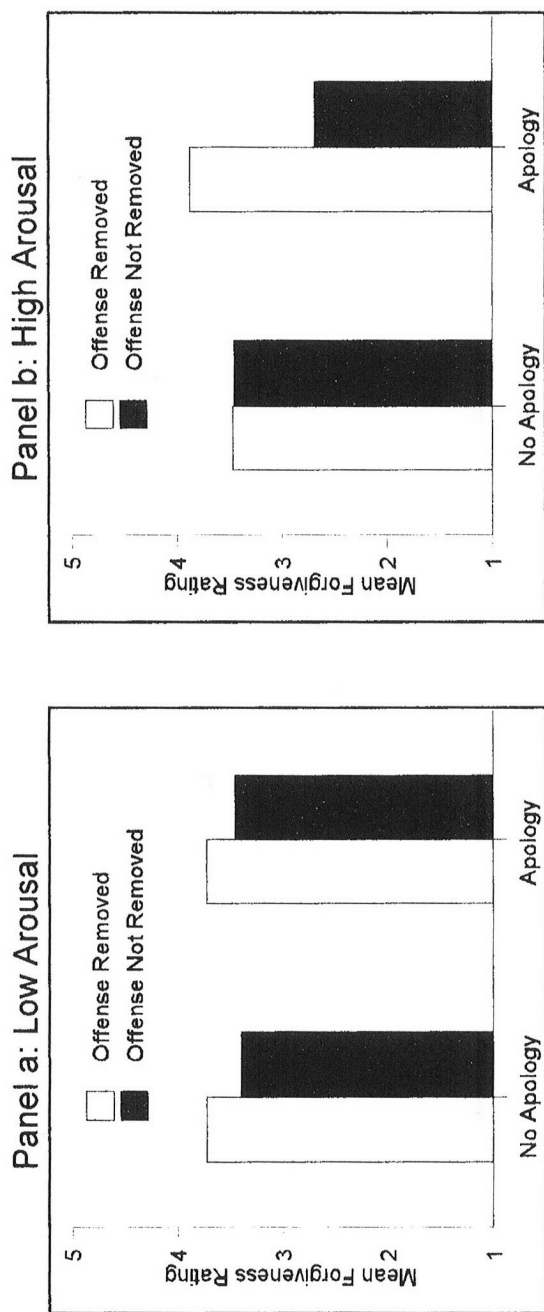


FIGURE 2. Mean forgiveness rating as a function of apology and offense removal in the low arousal (Panel a) and high arousal (Panel b) conditions.

conditions. In contrast, when the experimenter apologized, participants were more forgiving when the offense was removed compared to when it was not removed.

Additional contrasts in the high arousal conditions revealed that when the offense had been removed, apologizing did not significantly increase forgiveness ratings compared to when the experimenter did not apologize, suggesting that offense removal was the critical variable. However, the medium effect size ($B = .27$) for this contrast indicates that apologizing may provide additional forgiveness benefit in a more powerful test. In the present study, the critical contrast occurred when the offense was not removed. Forgiveness ratings were significantly lower when the experimenter apologized (relative to no apology) but did nothing to make amends.

Summary of the Forgiveness Findings. Whereas the apology manipulation most consistently influenced retaliation measures, the offense removal manipulation had its greatest effects on forgiveness measures. Although main effects indicated that forgiveness was more likely when the offense was removed, these findings were consistently moderated by the effects of apology and arousal for both behavioral and self-report measures of forgiveness. Specifically, in the high arousal condition, participants who heard an apology were less forgiving and conciliatory when the experimenter did nothing to remove the offense. An apology with no attempt to remove the offense is likely to be perceived as insincere and may result in less forgiveness than not apologizing at all.

MEDIATING VARIABLES

After the manipulations, we assessed participants' attitudes toward the experimenter using a questionnaire with empathy and blame items. We used Baron and Kenny's (1986) regression procedures for testing whether these variables mediated the relationship between the independent variables (arousal, apology, offense removal) and the retaliation and forgiveness dependent variables (see also Holmbeck, 1997). Four conditions must be met to demonstrate mediation: (a) The independent variable must be significantly related to the dependent variable (path c), (b) the independent variable must be significantly associated with the hypothesized mediator (path a), (c) the mediator must be significantly related to the dependent variable (path b), and (d) the relationship between the independent variable and dependent variable (path c) must be weaker when controlling for the mediating variable. We first tested mediational effects for the retaliation measures, then the forgiveness measures.

Mediation of the Relationship Between Apology and Retaliation. As previously demonstrated, participants evaluated the experimenter more negatively when experimenters apologized compared to when they did not apologize (path *c*). Our next step was to determine whether the apology variable was significantly related to participants' responses to the mediating variables (path *a*). The apology variable was significantly related to participants' responses on the blame measure, $F(1, 103) = 6.40, p = .013, MSE = .68, B = .24$; participants blamed the experimenter more following an apology ($M = 2.33, SD = .88$) compared to no apology ($M = 1.93, SD = .73$).

We then simultaneously entered the apology and blame variables into regression models to predict retaliation using each of the five retaliation outcome measures (see Table 3). In each case, blame was significantly negatively related to participants' evaluation of the experimenter: The greater the blame, the lower the evaluation (path *b*). In addition, the relationship between the apology independent variable and participants' evaluations (path *c*) became nonsignificant when controlling for blame in four of the five analyses, indicating the mediational role of blame. Using Sobel's (1988) equation for testing the statistical significance of mediation (see Holmbeck, 2002), we observed statistically significant mediation for three retaliation outcomes, with blame accounting for 17.9-51.9% of the relationship between apology and retaliation across the five retaliation measures (see Table 3). Thus, to the extent that participants blamed the experimenter following an apology, they retaliated by evaluating the experimenter more negatively.

We also tested the mediational role of blame for the relationship between apology and participants' judgments regarding whether the experiment should be funded again. In the low arousal condition, the apology variable was not significantly related to participants' funding ratings, $F < 1$ (thus, a mediating role of blame was not tested further). In the high arousal condition, the apology variable influenced participants' funding ratings, path *c*: $F(1, 54) = 4.38, p = .041, B = -.29$, and blame ratings, path *a*: $F(1, 55) = 3.22, p = .078, B = .24$. Participants who heard an apology indicated lower funding ratings and greater blame of the experimenter. Simultaneous regression of funding judgments on apology and blame predictors indicated that blame was significantly related to funding judgments (path *b*) when controlling for apology, $t(104) = -2.12, p = .036, B = -.20$. Although the relationship between apology and funding (path *c*) was reduced when controlling for blame, $t(104) = -1.81, p = .074, B = -.24$, suggesting a mediating role for blame, this was not a statistically significant reduction ($z = -1.38, p = .168$). These findings suggest that participants' blame of the experimenter weakly mediated their decisions about future funding in the high arousal condition.

TABLE 3. Simultaneous Regression of Apology and Blame on Retaliation Outcome Measures

Retaliation Outcome	Blame—Outcome Path B ^a	Apology—Outcome Path C ^b	Z _{indirect} ^c	% ^d
Overall quality of performance	$B = -.41^{***}$ $b = -.46$ $se = .10$	$B = -.16^{+}$ $b = -.15$ $se = .08$	-2.23*	37.8
Skills as a psychologist	$B = -.23^{*}$ $b = -.24$ $se = .10$	$B = -.24^{*}$ $b = -.21$ $se = .08$	-1.77 ⁺	17.9
Reappointment	$B = -.31^{**}$ $b = -.48$ $se = .14$	$B = -.17^{+}$ $b = -.22$ $se = .12$	-2.04*	28.7
Characteristics	$B = -.44^{***}$ $b = -.32$ $se = .06$	$B = -.10$ $b = -.06$ $se = .05$	-2.27*	51.9
Grade	$B = -.28^{**}$ $b = -.22$ $se = .08$	$B = -.13$ $b = -.09$ $se = .06$	-1.93 ⁺	32.8

^aRegression coefficients for the relationship between blame and each retaliation measure, controlling for apology. B = standardized beta coefficients, b = unstandardized coefficients, and se = standard error of regression coefficient. ^bRegression coefficients for the relationship between apology and each retaliation measure, controlling for blame. ^cThe statistical significance of mediation is tested using z , which is calculated using: $b_{\text{indirect}} \div se_{\text{indirect}}$, where b_{indirect} is the product of the predictor $\rightarrow$ mediator (Path a) and mediator $\rightarrow$ outcome (Path b) unstandardized b coefficients. The formula for the standard error of the indirect effect is: $[(b_{yx})^2(se_{zy,x})^2 + (b_{zy,x})^2(se_{yx})^2]^{1/2}$, where b = unstandardized beta, se = standard error, yx = the prediction of y from x , and zy,x = the prediction of z from y , with x in the model (Holmbeck, 2002; Sobel, 1988). Statistical significance at $p < .05$ (two-tailed) is given by $|z| > 1.96$. ^dPercentage of the direct effect between apology and retaliation outcome accounted for by blame, given by $b_{\text{indirect}} \div b_{\text{total}}$ effect, where b_{total} effect = unstandardized zero-order beta for the relationship between apology and the retaliation outcome (Holmbeck, 2002; MacKinnon & Dwyer, 1993). *** $p < .001$, ** $p < .01$, * $p < .05$, ⁺ $p < .10$.

Mediation of the Relationships Between the Independent Variables and Forgiveness. We assessed the mediation of self-reported forgiveness and the number of hours participants agreed to volunteer for the experimenter's project. As demonstrated earlier, the main effect of offense removal (path c) was statistically significant for hours volunteered ($B = -.20$) and self-reported forgiveness ($B = -.29$), as were the Arousal $\times$ Offense $\times$ Apology interactions ($B = -.21$ and $B = -.20$, respectively). We next tested whether these independent variables were related to the mediators: cognitive empathy, affective empathy, and blame (path a). As previously described, the apology manipulation influenced blame ratings; however, the main effect of offense and the three-way interaction were not significantly related to blame ratings. In addition, no statistically significant effects of the independent variables were observed for participants' cognitive and affective empathy ratings. Thus, blame and empathy variables did not mediate the relationships between forgiveness and offense, arousal, and apology independent variables in the present study.

Summary of the Mediation Analyses. Results of mediational analyses indicated that participants' blame directed toward the experimenter consistently mediated the relationship between apology and retaliation measures, accounting for 17.9-51.9% of the relationship between apology and retaliation across the five retaliation measures. Thus, when experimenters apologized, compared to no apology, participants were more likely to blame experimenters for their actions. Furthermore, blame was related to participants' negative evaluations of the experimenter. In the high arousal condition, the relationships among apology, blame, and retaliation generalized to participants' judgments regarding future funding of the experiment. Unfortunately, the empathy and blame mediators we assessed did not mediate the relationships between the independent variables and forgiveness.

DISCUSSION

Participants in this study experienced a scripted offense (undeserved failure feedback) designed to affect self-relevant beliefs about their academic performance and future performance on aptitude tests. Although the failure feedback was designed to increase arousal for all participants (i.e., we wanted to create an interpersonal offense), we sought also to manipulate arousal independently to determine if arousal had independent and interactive effects with offense variables such as apology and offense removal. We assessed participants' retaliation and forgiveness following the offense, apology, and offense removal.

RETALIATION

Across both levels of arousal, the apology manipulation most consistently influenced participants' retaliation, as measured by their negative evaluations of the experimenter. Consistent with previous laboratory findings (e.g., Weiner et al., 1991), our findings indicated that an apology, compared to no apology, increased participants' blaming of the experimenter and retaliatory responses. Prior to the apology manipulation, participants in this study may have experienced the experimenter's behavior as ambiguous. Although the experimenter initially admitted the mistake, participants may have wondered why the senior researcher was called. The experimenter intimated that protocol was being followed. As a result, prior to the apology manipulation, all participants may have questioned whether the experimenter's offense was intentional. In the apology, however, experimenters clearly stated that they should have informed the senior researcher of the mistake, thus removing any ambiguity in the situation. The apology, then, may have served as a lightning rod for blame and subsequently increased participants' retaliation. This interpretation is consistent with previous findings, which indicate that attributions that an offense was intentional and avoidable are strongly related to blameworthiness and anger (e.g., Boon & Sulsky, 1997; Shaver, 1985).

FORGIVENESS

In contrast to the retaliation measures, participants' responses on the forgiveness measures were most consistently influenced by the offense removal manipulation. In general, participants were more forgiving when the offense had been removed compared to when it had not. However, these effects were moderated by the arousal and apology variables, indicating that forgiveness involves a complex interaction of situational factors. In the high arousal condition, participants' forgiving and conciliatory responses depended both on an apology and on offense removal. Participants were least forgiving when the experimenter apologized but did nothing to remove the offense. Participants likely interpreted this apology as insincere (see also Takaku, Weiner, & Ohbuchi, 2001). In contrast, a sincere apology required the additional step of "making amends," which subsequently made forgiveness more likely.

Recent theoretical development of the forgiveness construct has addressed whether "true" forgiveness is unconditional (e.g., Al-Mabuk et al., 1995; Baumeister, Exline, & Sommer, 1999; Enright et al., 1991; McCullough & Worthington, 1994; Scobie & Scobie, 1998; Trainer, 1981). For example, Al-Mabuk et al. (1995) claimed that forgiveness is a gift of-

ferred to an offender whose behaviors justify retaliation or demands for restitution, but the forgiver neither retaliates nor requires particular behaviors of the offender such as an apology or restitution.

This conceptualization of forgiveness is at odds with the findings in the present study, in which both self-reported forgiveness and behavioral conciliation depended on arousal, apology, and offense removal variables. Thus, participants' forgiveness in the present study seemed to be conditional rather than unconditional, and most strongly depended on the offender's attempts to make amends (particularly following an apology). These findings are consistent with evidence observed in autobiographical narratives that describe interpersonal offenses. Stories of forgiveness were more likely to describe an offender's apology and attempts to make amends than narratives of unforgiveness (Zechmeister & Romero, 2002). Thus, although theological and philosophical conceptualizations may emphasize the ideal of unconditional forgiveness, the everyday human practice of forgiveness may require that offenders satisfy specific conditions such as apologizing and making amends.

Although blame was shown to mediate the relationship between apology and retaliation in the present study, we were unable to identify variables that mediated the complex relationships between forgiveness and arousal, apology, and offense removal. Previous research has demonstrated that empathy, particularly cognitive empathy, mediated the relationship between offense variables (e.g., apology) and forgiveness (e.g., McCullough et al., 1997, 1998; Rusbult et al., 1991); however, our results failed to replicate these findings. One possible explanation for our nonsignificant findings involves the differing roles of the experimenter and the senior researcher. The offense removal independent variable was implemented by the senior researcher, who asked participants to ignore the negative feedback she administered. The offense removal variable consistently influenced participants' forgiveness, with greater forgiveness (both self-reported and behavioral) occurring when the offense was removed. However, the empathy items assessed participants' empathy for the experimenter, not for the senior researcher. Furthermore, although we included two items to assess participants' cognitive empathy (i.e., perspective-taking), the poor correlation between these items suggested that we did not assess empathy well. Additional research with reliable measures that more validly assess empathy for multiple offenders in an interpersonal situation will better address the role of empathy in forgiveness. In addition, research in which attributions and empathy are manipulated after an offense is required to identify the causal effects of these variables.

A TWO-STAGE MODEL OF FORGIVENESS

The results in this study indicate that situational variables such as apology and offense removal have different effects on measures of retaliation and forgiveness. This has important theoretical implications. Definitions of forgiveness have varied according to whether conciliatory responses are necessary for forgiveness. That is, at issue is whether abandoning the desire for revenge is sufficient to argue that forgiveness has occurred. For example, McCullough et al. (1998) defined forgiveness as "the reduction in avoidance motivation and revenge motivation following an interpersonal offense" (p. 1587), and their transgression-related interpersonal motivations (TRIM) inventory assessed only interpersonal avoidance and revenge. Other definitions emphasize that, in addition to decreased avoidance and revenge motivations, forgiving individuals respond constructively in the relationship (e.g., Hope, 1987; McCullough et al., 1997, 1998; Rusbult et al., 1991; Scobie & Scobie, 1998; Takaku, 2001; Van Lange et al., 1997). That retaliatory and conciliatory responses were differentially influenced by situational variables in the present study provides some support for a two-stage model of forgiveness in which retaliatory responses must first be overcome before an individual is likely to engage in conciliatory responses. Thus, "unforgiveness" and forgiveness may not be opposites; forgiveness requires more than simply returning to a "neutral" point following an offense (see also Worthington, Barry, & Parrott, 2001; Worthington & Wade, 1999). On the basis of previous research (e.g., Boon & Sulsky, 1997) and the findings in which retaliatory and forgiving responses were dissociated in the present study, we hypothesize that attributional information may influence participants' retaliatory responses and empathy may influence participants' forgiving/conciliatory responses (see also McCullough et al., 1997). Such findings would provide additional support for a two-stage model of forgiveness following interpersonal offense.

LIMITATIONS AND FUTURE DIRECTIONS

An important goal of this research was to examine retaliation and forgiveness following an actual interpersonal offense, rather than a hypothetical vignette or recalled event. It is not clear, however, whether our offense (undeserved failure feedback) is typical of offenses individuals struggle to forgive, or whether participants felt especially affronted while participating in the experiment. Of course, ethical constraints limit the types and extent of harm that can be implemented in a laboratory setting. Anecdotally, many participants were clearly angry with the experi-

menter and expressed this in a variety of ways we did not record (e.g., glares, impatience). However, there was a good deal of variability in participants' responses to the offense, making it more difficult to assess the effects of our independent variables.

In general, results did not support our hypothesis that participants would retaliate more in the high arousal condition relative to the low arousal condition. One explanation for this finding is that, in general, our participants' evaluations of the experimenter, senior researcher, and experiment were quite favorable. Several factors may have operated here. First, the offense took place in a relatively benign setting: a laboratory experiment for an introductory psychology class. Importantly, student research participants often perceive themselves as having little power in this context, and participants with low power tend to be more cooperative and compliant and less aggressive than participants with greater power (Kim, Smith, & Brigham, 1998). Additionally, participants frequently indicated during debriefing how interesting they found the experiment, especially in contrast to research experiences that simply required them to complete questionnaires. Together, these factors may have undermined our ability to differentiate clear effects of our arousal manipulation. Research that assesses participants' physiological arousal during an interpersonal offense and offenders' subsequent attempts to apologize and ameliorate the effects of the offense will help to describe the role of arousal in retaliation and forgiveness.

The counterintuitive findings regarding apology in this study warrant additional laboratory research. Experimenters clearly indicated their responsibility for causing harm to participants and expressed remorse and empathy (*I'm really sorry...It's my fault that you got all that horrible feedback*). This apology, however, seemed to be inadequate for preventing retaliation and, when combined with no attempt to make amends, greatly reduced participants' likelihood of forgiveness. Thus, an apology, by itself, may not cause individuals to make benevolent attributions or attenuate negative inferences regarding the offender (Takaku, 2001).

Importantly, our experimenters' apology lacked information regarding their motive for not admitting their harmful mistake to the senior researcher. The findings that blame mediated the relationship between apology and retaliation suggest that without a fuller explanation (e.g., mitigating circumstances, intention, controllability), participants in our study assumed that the experimenter behaved intentionally. Research that manipulates attributes of an apology in laboratory offenses will shed additional light on the relationships among apology, blame, retaliation, and forgiveness.

In addition, the construct validity of our measures of retaliation and forgiveness may be questioned. Previous studies have used confidential

evaluations of the experimenter as a measure of retaliation (e.g., Ohbuchi et al., 1989; Zillmann & Cantor, 1976). However, it is not clear whether our participants viewed their ratings as retaliatory. As previously noted, participants' evaluations of the experimenter and experiment were generally quite favorable, suggesting that participants themselves may not have interpreted their evaluations as retaliatory. In addition, it would be interesting to know whether participants must be consciously aware that their evaluations were negatively influenced by offense-related variables such as apology and offense removal, because research findings suggest that revenge motives can be activated nonconsciously (Forner, Zechmeister, Romero, & VanderLaan, 2002).

Similar to previous forgiveness research, we assessed forgiveness using a single, self-report item that asked participants to indicate the extent to which they forgave the experimenter. In addition to the limitations when a single item is used to assess a construct, the term *forgive* was open to idiographic interpretation, and participants may have differed in the meaning they ascribed to this item and whether the question was relevant to their experience. Additional work on the construct of forgiveness is required. For example, do individuals forgive "in degrees" (i.e., *not at all to very much*), or is forgiveness dichotomous—either an offender is forgiven or not forgiven? Answers to this question will have important implications for how forgiveness is measured.

We attempted to improve our assessment of forgiveness by asking participants to do a favor for the experimenter. We hypothesized that participants who forgave would be more likely to volunteer to aid the experimenter than unforgiving participants because of the prosocial nature of forgiveness. Our converging operations were successful in that the findings for the self-report forgiveness item corroborated the findings for the volunteer measure. However, additional research should examine the relationship between helping/altruism and forgiveness. This question has theoretical and practical implications. Current definitions of forgiveness vary according to whether reconciliation is required following forgiveness (e.g., Baumeister et al., 1999; Enright & Zell, 1989; Fow, 1996; Freedman, 1998; Power, 1994; Scobie & Scobie, 1998). Thus, if reconciliation is not required for forgiveness to occur, it may be theoretically irrelevant to assess whether a forgiver behaves prosocially (e.g., by doing a favor) toward the offender. In order to pursue the relationship between forgiveness and prosocial responses, it would be helpful to distinguish between direct and indirect prosocial behavior. Direct prosocial behavior, involving interaction with the offender, may require reconciliation. Indirect prosocial behavior following forgiveness, such as praying for the offender or contributing indirectly to the welfare of the offender (e.g., monetary contributions), need not require reconciliation.

A growing body of research demonstrates the deleterious psychological and physical impact of "unforgiveness"—the ruminative resentment, anger, hostility, fear, and stress that follows interpersonal offenses (Worthington et al., 2001). Chronic anger and hostility have been associated with suppressed immune functioning, high blood pressure, depression, substance abuse, and general poor health status (e.g., Herbert & Cohen, 1993; Kaplan, 1992; Salovey, Rothman, Detweiler, & Steward, 2000; Smith & Christensen, 1991). Forgiveness, in which individuals replace negative ruminative responses to interpersonal offenses with prosocial, affiliative responses, thus represents an important method for facilitating intra- and interpersonal health and well-being. Psychologists are still within the relatively early stages of forgiveness research, and little is known about the conditions and mechanisms by which the transition from unforgiveness to forgiveness occurs. The results of the present study indicate that forgiveness interventions should address a complex interplay of factors such as arousal, apologies, and offense removal. An important first step in clinical interventions to reduce unforgiveness and retaliation may be to examine victims' blame attributions and interpretations of apologies.

CONCLUSIONS

Conventional wisdom and previous vignette research suggest that an offender's apology softens the deleterious effects of an offense and prevents retaliation by the victim. The results of this study, however, indicate that an apology may lead to retaliation when the victim places greater blame on the offender who admits a wrong. Furthermore, an apology without any effort to make amends may decrease the likelihood of victims' forgiveness, particularly if an offense is associated with high arousal. Thus, it appears that an apology must be sincere—as evidenced by efforts to make amends—for forgiveness to occur.

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