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Transgression-Related Motivational Dispositions: Personality Substrates of Forgiveness and Their Links to the Big Five

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Generalizability analyses were used to evaluate the contribution of individual differences to people's transgression-related interpersonal motivations (TRIMs). Individual differences accounted for 22% to 44% of the variance in participants' TRIMs (i.e., avoidance, benevolence, and revenge). Although revenge motivation is apparently more cross-situationally consistent than either avoidance or benevolence, estimating people's dispositions on the basis of their responses to single transgressions will lead to perilously undependable estimates for all three TRIMs. Agreeableness consistently predicted revenge, whereas both Neuroticism and Agreeableness predicted avoidance and benevolence. The association of Neuroticism, but not Agreeableness, with people's TRIMs appeared to be mediated by appraisals of transgression severity. Differences in people's responses to historical versus fictional transgressions suggest that transgression-related motivational dispositions should probably be estimated with responses to historical rather than fictional transgressions.

In social relationships, people occasionally violate relational norms or damage the interests of their relationship partners. Such transgressions typically elicit at least two transgression-related interpersonal motivations (TRIMs): the motivation to avoid and the motivation to seek revenge. McCullough, Worthington, and Rachal (1997); McCullough et al. (1998); and McCullough, Bellah, Kilpatrick, and Johnson (2001) have postulated that reductions in these two motivations, perhaps along with a restored motivation to be benevolent (which typically decreases when one is injured or offended), are the psychological dimensions in which forgiveness occurs. In other words, forgiveness can be conceptualized as a complex of prosocial changes in one's interpersonal motivations following a transgression (McCullough

et al., 1997, 1998): When people forgive, they experience (a) reduced motivations to seek revenge, (b) reduced motivations to avoid their transgressors, and (c) increased benevolence or goodwill for their transgressors. Thus, we typically assess forgiveness in terms of these three TRIMs (avoidance, benevolence, and revenge). Such cross-sectional measurements correlate quite highly with people's self-reports of the extent to which they have forgiven a transgression (McCullough et al., 1998).

SOCIAL AND PERSONALITY CORRELATES OF FORGIVENESS

What causes people to undergo the suite of motivational transformations that we call forgiveness? Not surprisingly, people are more inclined to forgive committed versus less committed relationship partners (McCullough et al., 1998) and apologetic versus unapologetic transgressors (Darby & Schlenker, 1982). Moreover, people are more prone to forgive if they experience empathy for the transgressor (McCullough et al., 1997, 1998), avoid ruminating about the transgression (McCullough et al., 2001), and avoid attributing responsibility and

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intentionality to the transgressor (Bradfield & Aquino, 1999; Fincham, 2000).

Researchers also have begun to shed light on the personality correlates of forgiveness. To do so, most researchers have relied on self-report measures of people's generalized tendencies to forgive rather than measures of their forgiveness responses to specific, real-life transgressions. Such measures elicit people's self-descriptions of their typical responses to transgressions (e.g., "I forgive easily even when I feel bad") (Mullet, Houdbine, Laumonier, & Girard, 1998; see also Mauger et al., 1992) or elicit ratings of the extent to which they would forgive in series of hypothetical transgressions (Berry, Worthington, Parrott, & O'Connor, 2001; Hebl & Enright, 1993; Tangney, Fee, Reinsmith, Boone, & Lee, 1999).

Such global measures of the disposition to forgive have been related to an array of personality variables. To simplify this potentially bewildering array of correlates, McCullough (2001) appealed to the Big Five (John, 1990) or five-factor (McCrae & Costa, 1987) model of personality, suggesting that the many correlates of the disposition to forgive can be summarized by referring to the Big Five superordinate dimensions of Agreeableness and Neuroticism (e.g., see Berry et al., 2001; McCullough et al., 2001; Schratte, Iyer, Jones, Lawler, & Jones, 2000).

Despite the relative success of attempts to identify the personality correlates of the more generalized, self-reported disposition to forgive, the personality factors underlying people's forgiveness responses to individual, real-life transgressions has received less attention. When they have been sought, they have proven to be elusive. For example, McCullough and Worthington (1999) reported with some puzzlement that self-ratings of people's general tendencies to forgive are moderately positively correlated with measures of spiritual and religious interests but that people's reports of the extent to which they forgive individual, real-life transgressions tend to be negligibly correlated with similar measures of their religious and spiritual interests. Thus, from the existing literature, it might seem reasonable to conclude that religion and spirituality have no meaningful effect on "real-life" forgiveness, despite their correlations with people's self-descriptions as "forgiving" people.

Although people's responses to transgressions are certainly based at least in part on contextual variables (nature of the offense, relationship to the transgressor), it is reasonable to expect that enduring characteristics of the victim (i.e., stable personality traits) would play a role as well. However, a lesson learned from the literature on religion/spirituality and forgiveness (see Tsang, McCullough, & Hoyt, 2002; McCullough & Worthington, 1999) is that detecting this dispositional contribution to

forgiveness may require concerted methodological effort. In the present article, we present an approach to modeling the dispositional contribution to forgiveness and use this approach for assessing the associations of the Big Five with the dispositional factors underlying forgiveness.

MODELING THE DETERMINANTS OF RESPONSES TO REAL-LIFE TRANSGRESSIONS

We conceptualize a person's response to a particular transgression as a linear combination of characteristics of the person, which we shall call p (for person), characteristics of the relationship with the transgressor (r), and characteristics of the transgression (t). The model also takes into account possible interactions among these components. For example, a particular type of transgression (e.g., failing to pay back a small loan) may offend some lenders more than others—a pt interaction. Thus, person p 's response y (e.g., avoidance motivation) toward relationship partner r following a transgression t can be represented as y_{prt} and modeled as follows:

$$y_{prt} = \beta_1(p) + \beta_2(r) + \beta_3(t) + \beta_4(pr) + \beta_5(pt) + \beta_6(rt) + \beta_7(prt) + \epsilon, \quad (1)$$

where p is person p 's general tendency to avoid others after a transgression, r is the extent to which relationship partner r usually elicits avoidance in others following a transgression, and t is the extent to which this particular type of transgression usually inspires victims to avoid the perpetrator. The other effects in Equation 1 are two- and three-way interactions among the p , r , and t main effects. The error term (ϵ) refers to random variation in the y_{prt} s plus (and of importance) the effects of *any determinants of avoidance motivation not specified in the model*. This model implies that as the effects of (a) r and t , (b) their interactions with each other and with p , and (c) the influence of unspecified factors that are not explicitly modeled (i.e., error) increase, the relative influence of p decreases.

The Problem of Nondispositional Variance

Equation 1 implies that single-transgression measures of TRIMs (i.e., y_{prt}) will correlate weakly or negligibly with personality measures if contextual factors (i.e., r , t , interactions, and error) are important determinants of y_{prt} . In other words, even if personality does influence y_{prt} , this influence will be difficult to detect because any single-transgression measure is a relatively unreliable indicator of p (see Girard & Mullet, 1997, for evidence of the importance of nondispositional variance in y_{prt}). Relying on such unreliable indicators will necessarily attenuate the personality-TRIM relationship.

The Aggregation Solution

As with many psychometric problems related to extraneous sources of variance, this one may be solved through aggregation (Fishbein & Ajzen, 1974; Rushton, Brainerd, & Pressley, 1983). At this point, we introduce some nomenclature that we will use throughout the article. When discussing an individual's transgression-related interpersonal motivations (TRIMs) (i.e., their avoidance, benevolence, or revenge motivation), we are referring to their interpersonal motivations regarding a single transgression. When discussing an individual's transgression-related motivational dispositions, or motivational dispositions (i.e., their dispositions toward avoidance, benevolence, or revenge), we are referring to their general tendencies toward avoidance, benevolence, and revenge across many transgressions. By aggregating people's TRIMs across a variety of transgressions that vary on the relevant contextual factors (e.g., relationship- and transgression-specific factors, as in Equation 1), it is possible to develop aggregate measures that represent people's motivational dispositions. These aggregate measures will be more reliable indicators of p than will individual TRIM scores because they are relatively independent of the nondispositional influences on people's TRIMs. With these more reliable estimates of people's motivational dispositions, it is possible to explore how personality affects people's motivational responses to real-life transgressions. In the two studies that follow, we use this approach to explore the dispositional factors and personality correlates governing people's motivational responses to interpersonal transgressions.

*Agreeableness and Neuroticism:**Possible Effects on the**Transgression-Forgiveness Sequence*

Given the consistent correlations of Agreeableness and Neuroticism with global measures of the disposition to forgive, it is likely that these two Big Five dimensions also shape people's motivational responses to specific, real-life transgressions as well. Neuroticism appears to govern people's perceptions of and responses to negative environmental stimuli (Derryberry & Reed, 1994), and Agreeableness appears to reflect active concern for the welfare of other people (Costa & McCrae, 1992). Insofar as the associations between Agreeableness, Neuroticism, and global measures of the disposition to forgive can be reproduced with responses to real-life transgressions, they might be conceptualized as the causal effects of Agreeableness and Neuroticism on psychological or interpersonal processes that occur before, during, or after a transgression (even if the nonexperimental methods used to collect the data made

it difficult to prove that the observed associations are produced by cause-and-effect relationships).

Neuroticism. Neuroticism may influence the interpersonal and psychological processes surrounding a transgression in several ways. First, Neuroticism exposes people to high levels of interpersonal stress (Gunthert, Cohen, & Armeli, 1999) and perhaps, by extension, an increased probability of incurring transgressions. Neuroticism also may influence forgiveness through perceptual processes. People high in Neuroticism marshal more attention toward negative stimuli than do people low in Neuroticism (Derryberry & Reed, 1994). Relatedly, they report more health problems, marital dissatisfaction, and negative life events (e.g., Karney & Bradbury, 1997; Larsen, 1992; Magnus, Diener, Fujita, & Pavot, 1993).

Second, negative life events—including interpersonal stressors—produce more negative emotional reactions among people high in Neuroticism (Gunthert et al., 1999; Larsen & Ketelaar, 1991). For example, people high in Neuroticism tend to have more hostile reactions to negative interpersonal events (Gunthert et al., 1999). People high in Neuroticism also tend to ruminate over negative life events. These tendencies toward hostile reactions and rumination might cause neurotic people to be less effective at discharging their negative motivations regarding a transgressor and, thus, less forgiving.

Agreeableness. Agreeableness is also a robust correlate of global self-report measures of the disposition to forgive, and adjectives such as *forgiving* and *vengeful* are prototypical correlates of Agreeableness (e.g., John, 1990; McCrae & Costa, 1987). Similar to Neuroticism, Agreeableness might influence forgiveness through several mechanisms. First, because agreeable people have less conflict with peers and assert less power during conflict (Asendorpf & Wilpers, 1998; Graziano, Jensen-Campbell, & Hair, 1996), they also may be more forbearing, manifesting less extreme motivational responses to transgressions. Second, agreeable people may appraise transgressions as less severe.

Third, Agreeableness might promote the psychological operations that foster forgiveness itself. Empathy for one's transgressor appears to exert a causal influence on forgiveness (McCullough et al., 1997, 1998), and agreeable people tend to have more empathy for others than do less agreeable people (e.g., see Ashton, Paunonen, Helmes, & Jackson, 1998). Finally, agreeable people may find forgiving to be hedonically pleasant and, conversely, holding onto a grudge or seeking revenge to be unpleasant because agreeable people tend to experience positive affect when they engage in agreeable behaviors. Conversely, when agreeable people engage in quarrel-

some behaviors, they tend to experience negative affect (Côté & Moskowitz, 1998).

AN ADDITIONAL METHODOLOGICAL ISSUE

Estimating the dispositional factors in forgiveness and their correlations with the Big Five raises another methodological issue: Do estimates of the individual differences underlying people's TRIMs that are based on people's responses to hypothetical transgressions (i.e., those that respondents simply imagined having occurred) yield similar results as those that are obtained through determining people's actual responses to historical transgressions (i.e., transgressions that actually occurred in respondents' lives)? This question is important because several research groups have attempted to measure the disposition toward forgiveness with fictional vignettes to provide respondents with uniform transgressions to which they could indicate their hypothetical willingness to forgive (e.g., Berry et al., 2001; Hebl & Enright, 1993; Rye et al., in press; Tangney et al., 1999). Researchers have assumed that the statistical control gained from employing fictional transgressions as stimuli does not come at the price of low validity, but their validity in reference to real-life transgressions has not been examined.

THE PRESENT STUDIES

In the studies described in the present article, we examined four issues regarding the interpersonal motivations that have been posited to underlie forgiveness. First, we used the principles of generalizability theory (Cronbach, Gleser, Nanda, & Rajaratnam, 1972) to examine the extent to which people are consistent in their transgression-related interpersonal motivations, or TRIMs. Generalizability analyses allow researchers to assess cross-situational consistency in behavior by estimating the proportion of variance in responses that is attributable to persons (i.e., stable individual differences). Second, we investigated the association of the transgression-related motivational dispositions underlying forgiveness with the Big Five personality traits. Third, we examined one possible mechanism that could underlie the correlations of the Big Five with people's TRIMs: appraisals of the severity of their transgressions. Fourth, we examined the extent to which assessments of these motivational dispositions based on responses to fictional transgressions generalized to estimates of the same motivational dispositions as assessed with measures of people's TRIMs in response to real-life or historical scenarios.

STUDY 1

In Study 1, we investigated transgression-related motivational dispositions within same-sex friendships, opposite-sex friendships, and romantic relationships.

Method

PARTICIPANTS

Participants were 137 undergraduate students enrolled in a psychology course. They completed study materials on three different occasions in a single semester and received a small amount of course credit for their participation.

INSTRUMENTS

Transgression-related interpersonal motivations. We measured avoidance and revenge motivations in response to individual transgressions with McCullough et al.'s (1998) Transgression-Related Interpersonal Motivations (TRIM) Inventory. This 12-item self-report measure assesses two of the interpersonal motivations posited by McCullough et al. to underlie forgiveness. The Avoidance subscale consists of 7 items that measure motivation to avoid contact with a specific transgressor (e.g., "I live as if he/she doesn't exist, isn't around," "I withdraw from him/her"). The Revenge subscale consists of 5 items that measure motivation to seek revenge against a transgressor (e.g., "I'll make him/her pay," "I want to see him hurt and miserable"). Items are rated on a 5-point Likert-type scale (where 1 = *strongly disagree* and 5 = *strongly agree*). Both subscales have high internal consistency (i.e., $\alpha \geq .85$), moderate temporal stability when completed in reference to the same transgression at two different time points (e.g., 8-week test-retest r s = approximately .50), and evidence for convergent and discriminant validity (McCullough et al., 1998, 2001).

We also measured benevolence motivation with seven positively worded items¹ that were rated on the same 5-point Likert-type scale. These seven items were highly intercorrelated, with internal consistency estimates (α) > .85 for every transgression rated in Study 1.

The Big Five. The Big Five were assessed on three different occasions. On the first occasion, participants rated themselves on the 40 Big Five adjective markers that appear in John and Srivastava (1999). On the second and third occasions, the Big Five were measured with John, Donahue, and Kentle's (1991) Big Five Inventory (BFI). Participants rated each of the 44 BFI items on a 5-point scale (where 1 = *disagree strongly* and 5 = *agree strongly*). Internal consistencies for the BFI subscales typically exceed .75 for all five subscales, and 3-month test-retest reliabilities typically exceed .80 (Benet-Martínez & John, 1998).

In our sample, with the exception of Agreeableness ($\alpha = .73$) and Openness ($\alpha = .68$) at Wave 1, all internal consistency estimates (α) for the Big Five subscales $> .75$ on each of the three measurement occasions. Personality ratings were also relatively stable over the 2 months of the study, with both 4-week and 8-week stability coefficients exceeding $.70$, again with the exception of Agreeableness ($r_s = .59$ and $.50$ between Waves 1-2 and Waves 1-3, respectively) and Openness ($r = .68$ between Waves 1-3). To reduce errors of measurement associated with occasion-specific variance in responding (Schmidt & Hunter, 1996), we used the mean of respondents' standard scores on the three occasions to measure each of the Big Five dimensions. We also removed one item from the Agreeableness subscale of the BFI ("... has a forgiving nature") to avoid item overlap with our TRIM measures. None of the remaining items on the measures of the Big Five related to people's responses to interpersonal slights or transgressions.²

PROCEDURE

Participants completed a variety of self-report instruments during three computer-administered assessment sessions that were spaced approximately 4 weeks apart.

Occasion 1. On the first measurement occasion, participants completed the Big Five adjectives and the TRIM measures in response to four scenarios related to transgressions committed by a romantic partner. In Scenario 1 (severe fictional), participants imagined themselves as the protagonist in a situation in which they discover that their romantic partner had an illicit sexual encounter. In Scenario 2 (severe historical), participants recalled the worst thing that a romantic partner ever did to them. In Scenario 3 (moderate fictional), participants imagined a situation in which their romantic partner publicly embarrasses them. In Scenario 4 (moderate historical), participants recalled a time when a romantic partner seriously disappointed them (a single, discrete event that was different from the worst thing that a romantic partner ever did to them). After reading each scenario, respondents completed the TRIM measures to indicate how they believed they would feel (in response to the hypothetical transgressions) or how they actually did feel (in response to the historical transgressions).

Occasion 2. On a second measurement occasion approximately 4 weeks later, participants completed a similar battery of measures, including the BFI and the TRIM measures, in response to four scenarios related to transgressions perpetrated by a same-sex friend. The fictional scenarios were similar to those in Gonzales, Manning, and Haugen (1992). In Scenario 5 (severe fictional), respondents imagined a situation in which they discover that a close friend has begun surreptitiously to date their romantic interest. In Scenario 6 (severe

historical), respondents recalled the worst thing that a close friend of the same sex ever did to them. In Scenario 7 (moderate fictional), respondents imagined a situation in which a close friend assumes responsibility for delivering their term paper to a professor but forgets to deliver it on time, costing them a grade reduction. In Scenario 8 (moderate historical), respondents recalled an occasion when a close friend of the same sex seriously disappointed them (i.e., a transgression that was different from the worst thing that a close same-sex friend ever did to them).

Occasion 3. Four weeks later, respondents completed the BFI and the TRIM measures in response to four scenarios related to transgressions perpetrated by an opposite-sex friend. In Scenario 9 (severe historical), participants recalled the worst thing that an opposite-sex friend ever did to them. In Scenario 10 (moderate fictional), respondents imagined a scenario in which a close friend of the opposite sex borrows their car and gets a speeding ticket that leads to a substantial increase in their insurance rates. In Scenario 11 (severe fictional), respondents imagined a scenario in which a close friend of the opposite sex spreads an embarrassing (and possibly untrue) rumor that the protagonist acquired a sexually transmitted disease. In Scenario 12 (moderate historical), respondents recalled an occasion when a friend of the opposite sex seriously disappointed them. Thus, throughout the three measurement occasions, respondents indicated their actual or hypothetical forgiveness responses to 12 transgressions. The 12 scenarios occupied the cells of a $3 \times 2 \times 2$ (Relationship Type: romantic partner, same-sex friend, opposite-sex friend \times Severity of Transgression: mild vs. moderate \times Scenario Type: historical vs. fictional) within-subjects design. Of 137 participants, 93 (67.9%) completed measures on all three occasions, 27 (19.7%) completed measures on two occasions, and 17 (12.4%) completed measures on only one occasion.

ANALYSES

After missing values (approximately 14.8%) were estimated and imputed using the Expectation-Maximization procedure (Dempster, Laird, & Rubin, 1977), we conducted several sets of statistical analyses. First, we used the GENOVA software (Crick & Brennan, 1982) to estimate the sources of variability in respondents' avoidance, benevolence, and revenge motivations by conducting six variance components analyses, crossing three TRIM dimensions (avoidance, benevolence, and revenge) with the two types of transgression scenarios (historical and fictional). In each of these analyses, we partitioned the variance among the measures of avoidance, benevolence, and revenge motivation into seven orthogonal effects. We specified main effects for (a) per-

TABLE 1: Means, Standard Deviations, and Internal Consistency Reliability (α) for Three TRIMs (Study 1)

	<i>Avoidance</i>			<i>Benevolence</i>			<i>Revenge</i>		
	M	SD	α	M	SD	α	M	SD	α
Significant other									
Fict-Sev	3.56	0.71	.83	2.61	0.73	.86	2.29	0.77	.83
Hist-Sev	3.07	1.10	.94	3.12	1.04	.93	2.07	0.93	.90
Fict-Mod	2.62	0.84	.89	3.41	0.74	.88	2.12	0.79	.85
Hist-Mod	2.44	0.95	.91	3.67	0.85	.92	1.83	0.72	.86
Same-sex friend									
Fict-Sev	3.63	0.73	.90	2.69	0.83	.93	2.48	0.89	.93
Hist-Sev	3.15	0.99	.94	3.19	0.95	.95	2.17	0.91	.94
Fict-Mod	2.61	0.82	.92	3.57	0.81	.93	1.98	0.75	.93
Hist-Mod	2.66	0.85	.93	3.60	0.76	.94	1.89	0.75	.92
Opposite-sex friend									
Fict-Sev	3.74	0.73	.93	2.45	0.83	.93	2.73	1.02	.88
Hist-Sev	2.91	0.87	.88	3.32	0.86	.93	2.05	0.73	.94
Fict-Mod	2.66	0.89	.92	3.75	0.75	.94	2.01	0.77	.88
Hist-Mod	2.31	0.80	.94	3.50	0.85	.96	2.11	0.76	.92

NOTE: TRIMs = transgression-related interpersonal motivation scales; Fict = fictional scenario; Hist = historical scenario; Sev = severe transgression; Mod = moderate transgression.

son (i.e., consistent individual differences), (b) transgression severity (moderate vs. high), and (c) relationship type (romantic partner, same-sex friend, or opposite-sex friend) and two-way interactions between pairs of these factors. The final effect is a residual term that reflects variability due to the three-way interaction, sources of variability not modeled in the present study, and random error (see Cronbach et al., 1972).

Second, we examined the correlations between people’s transgression-related motivational dispositions as assessed, respectively, with historical and fictional transgressions. Third, we conducted a series of multiple regression analyses to determine the extent to which the Big Five were associated with avoidance, benevolence, and revenge dispositions.

Results and Discussion

DESCRIPTIVE STATISTICS

Means, standard deviations, and internal consistency reliabilities (α) for avoidance, benevolence, and revenge scores are reported in Table 1.

VARIANCE COMPONENTS ANALYSES

Table 2 contains variance estimates for persons (and six other effects) for avoidance, benevolence, and revenge scores. Because we were mainly interested in the role of consistent individual differences in historical transgressions, we focus below on the historical scenarios.

Historical scenarios. The left sides of each of the three major columns in Table 2 show results for the six historical scenarios. The three TRIM dimensions differed in the extent to which self-ratings were consistent across

scenarios, with individual differences (the main effect for persons) accounting respectively for 25%, 28%, and 44% of the variance in avoidance, benevolence, and revenge motivations, respectively. Thus, stable individual differences appear to account for between 25% and 44% of the variance, on average, in people’s TRIMs in response to single transgressions. The corresponding generalizability coefficients, estimating the dependability of measurement when single-transgression ratings of historical scenarios are used to assess the disposition toward avoidance, benevolence, and revenge, were $E_p^2 = .29, .31, \text{ and } .45$, respectively. These generalizability coefficients represent the estimated proportions of variance due to persons in this particular research design. They are interpreted much as one would interpret Cronbach’s α , which estimates the proportion of variance among a group of items that is due to differences among persons. The low magnitude of these coefficients suggests that single-scenario TRIM measures are poor representations of people’s motivational dispositions. In comparison, when scores based on six historical scenarios are aggregated (using three relationship types and two levels of severity), generalizability improves: $E_p^2 = .60, .64, \text{ and } .78$ for avoidance, benevolence, and revenge, respectively. Thus, a moderate degree of aggregation across transgressions is required to measure dependably the stable individual differences that inform people’s TRIMs. Without aggregating in this fashion, the obtained associations of people’s TRIMs with measures of individual differences will be greatly attenuated relative to the true degree of association. The product of the square roots of the generalizability coefficients of two measures yields the coefficient of attenuation for the

TABLE 2: Variance Estimates (and Percentage of Variance Accounted for) in Historical and Fictional Scenarios (Study 1)

Variance Component	Avoidance		Benevolence		Revenge	
	Historical Scenarios	Fictional Scenarios	Historical Scenarios	Fictional Scenarios	Historical Scenarios	Fictional Scenarios
Person (P)	0.27* (25%)	0.13* (10%)	0.24* (28%)	0.14* (13%)	0.30* (44%)	0.39* (46%)
Relationship (R)	0 ^a (0%)	0 ^a (0%)	0 ^a (0%)	0 ^a (0%)	0 ^a (0%)	0.00 (0%)
Severity (S)	0.11 (11%)	.61 (48%)	0.08 (10%)	0.48 (42%)	0.01 (2%)	0.07 (8%)
P*R	0.14* (13%)	0.02 (1%)	0.12* (14%)	0.02 (2%)	0.09* (13%)	0.04* (5%)
P*S	0.13 (12%)	0.13* (10%)	0.07* (9%)	0.12* (11%)	0.03* (4%)	0.03* (4%)
R*S	0.01 (1%)	0.02 (2%)	0.01 (1%)	0.03 (2%)	0.00 (1%)	0.03 (3%)
Residual	0.39* (37%)	0.37* (29%)	0.34* (40%)	0.34* (30%)	0.25* (36%)	0.28* (34%)
Total	1.07	1.28	0.86	1.14	0.69	0.84

a. These variance component estimates, because they are estimates, can be either higher or lower than the actual (population) value. When population values are exactly zero, estimates will be less than zero half the time. Negative estimates are typically set to zero on the premise that the actual values are either zero or negligibly different from zero.

* $p < .05$, one-tailed.

observed correlation of these variables, relative to the true (error-free) population correlation (Hoyt, 2000).

Table 2 also demonstrates that moderate and significant amounts of variance in people's TRIMs can be accounted for by the interaction of persons and severity (the P*S interaction) and the interaction of persons and relationship (the P*R interaction). Thus, the ordering of individuals on the three TRIMs for severe transgressions is different from that for moderate transgressions and is different among the three types of relationships (i.e., romantic partner, same-sex friend, opposite-sex friend). Of interest, the main effect for relationship was negligible, indicating that people's avoidance, benevolence, and revenge motivations are not reliably higher or lower in some types of relationships than in others.

The variance component for the three-way interaction, which is confounded with error, was large for all three TRIMs (i.e., 37%, 40%, and 36% of the variance in avoidance, benevolence, and revenge motivations, respectively). These indicate that other aspects of the relationships and the transgressions that we did not vary systematically are important determinants of people's TRIMs in response to historical transgressions.

Fictional scenarios. The right sides of each of the major columns in Table 2 suggest a different partitioning of variance for fictional scenarios. Compared with the historical scenarios, persons accounted for considerably less variance in avoidance and benevolence (10% and 13%, respectively), and severity accounted for considerably more variance (48% and 42%, respectively). The smaller contribution of consistent individual differences to people's avoidance and benevolence responses to fictional scenarios relative to historical scenarios suggests that in responding to hypothetical transgressions, people underestimate their cross-situational consistency and overestimate the importance of other factors (such as transgression severity). This was not the case for

revenge scores, for which the main effect for persons accounted for approximately the same amount of variance (46%) in the fictional scenarios as it did in the historical scenarios (44%).

Although people may give too much weight to transgression-specific information (e.g., transgression severity) when reporting their hypothetical TRIMs in response to fictional transgressions, this distortion has little effect on the generalizability of these scores. In a study using all fictional scenarios, all respondents respond to the same transgressions, so transgression severity influences everyone's scores equally. Thus, the severity main effect is not included in the error term when computing generalizability coefficients. Estimated generalizability coefficients for single fictional scenarios were similar to those we obtained for historical scenarios: $E\rho^2 = .21, .23, \text{ and } .52$ for avoidance, benevolence, and revenge, respectively. The corresponding coefficients for six-scenario aggregates were $E\rho^2 = .51, .54, \text{ and } .83$, respectively.

*CONGRUENCE OF DISPOSITION
ESTIMATES BASED ON HISTORICAL
VERSUS FICTIONAL SCENARIOS*

We also examined the extent to which avoidance, benevolence, and revenge responses to the two scenario types (historical and fictional) assess the same latent constructs—namely, the dispositions toward avoidance, benevolence, and revenge. We did so by estimating the covariance component due to persons (here converted to a correlation coefficient) between the person components for the three TRIMs assessed respectively with fictional and historical scenarios (Conger, 1981). The resulting correlation represents an estimate of the correlation that would be obtained by aggregating (within persons) over a large number of scenarios of each type so that the aggregates for both historical and fictional sce-

narios represent “pure” person variance. The historical-fictional correlations for person components were $r = .79, .63,$ and $.89$ for avoidance, benevolence, and revenge, respectively, suggesting relatively strong congruence between the fictional and historical methods for estimating these dispositional factors.

*INTERCORRELATIONS AND
CORRELATIONS WITH THE BIG FIVE*

Because of the high congruence of people’s responses to historical and fictional transgressions, we aggregated responses to all 12 scenarios (6 fictional and 6 historical) to examine the Big Five correlates of people’s motivational dispositions. These 12-item aggregate measures of the dispositions toward avoidance, benevolence, and revenge had high internal consistency estimates ($\alpha = .83, .83,$ and $.92$, respectively) and were highly intercorrelated, $r_s = -.79$ (avoidance-benevolence), $.55$ (avoidance-revenge), and $-.55$ (benevolence-revenge), respectively, $p_s < .01$. (Of interest, the correlation of our measures of avoidance and benevolence dispositions after correcting for attenuation due to unreliability per Schmidt and Hunter [1996] was $-.95$. Given this very high negative correlation and their identical, although inversely signed, correlations with the disposition toward revenge, that is, $r_s = .55$ and $-.55$, respectively, these two dispositions seem to be mirror images of one another.)

Then we estimated the extent to which the Big Five personality factors accounted for variance in these aggregate scores. To do so, we conducted three simultaneous multiple regression analyses. In each analysis, one of the 12-item aggregate measures (i.e., avoidance, benevolence, or revenge disposition) was regressed on the measures of Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (aggregated across three occasions into single scores). The results of these analyses appear in Table 3.

Avoidance. The set of Big Five aggregate measures accounted for 18% of the variance in avoidance disposition, $F(5, 131) = 5.85, p < .001$. In particular, Neuroticism had a unique positive association with avoidance disposition ($\beta = .36, p < .001$).

Benevolence. The set of Big Five aggregate measures accounted for 15% of the variance in benevolence disposition, $F(5, 131) = 4.49, p < .001$. In particular, Neuroticism had a unique negative association with benevolence disposition ($\beta = -.22, p < .05$) and Agreeableness had a marginally significant association with benevolence disposition ($\beta = .19, p = .052$).

Revenge. The set of Big Five aggregate measures accounted for 18% of the variance in revenge disposition, $F(5, 131) = 5.63, p < .001$. In particular,

Agreeableness had a unique negative association with revenge disposition ($\beta = -.36, p < .001$).

STUDY 1 SUMMARY

Study 1 indicated that people’s forgiveness avoidance, benevolence, and revenge motivations in response to transgressions are related to the Agreeableness and Neuroticism dimensions of the Big Five. However, Study 1 also revealed that researchers must aggregate people’s TRIMs across several transgressions to estimate people’s dispositions toward avoidance, benevolence, and revenge dependably. Otherwise, the observed correlations of people’s TRIMs with other personality variables will be considerably attenuated relative to their actual population values. Of importance, Study 1 also demonstrated that estimates of people’s dispositions toward avoidance, benevolence, and revenge based on their hypothetical responses to fictional transgressions are highly (but not perfectly) correlated with estimates of the same dispositions based on their reported responses to historical transgressions from their real lives.

Study 1 also raised further questions. First, the transgression scenarios in Study 1 concerned three types of peer relationships. The extent to which the findings from Study 1 would apply to people’s responses to transgressions occurring in other relationships, such as family relationships, was unclear. Second, because Study 1 relied solely on self-report measures of the Big Five, we were concerned that the observed associations with the Big Five might have resulted from mono-method bias. If the observed associations are robust, then they should emerge when peer reports of respondents’ relative standing on the Big Five personality traits are used in addition to self-reports. Third, we wondered how Agreeableness and Neuroticism influence people’s transgression-related interpersonal motivations. We hypothesized that these correlations were mediated in part by the effects of Agreeableness and Neuroticism on perceptions of transgression severity. We addressed these issues in Study 2.

STUDY 2

Method

PARTICIPANTS

Participants were 95 undergraduate students enrolled in a psychology course who completed study materials on four occasions. They received a small amount of course credit for participating. Participants also nominated up to three peers who knew them well to rate their personalities using the Big Five Inventory. Of the 95 participants, 50 obtained personality ratings from either two or three peers. Thus, Study 2 involved 95 target persons and 145 peer raters.

TABLE 3: Results of Multiple Regression Analyses (Study 1)

Personality measure	Avoidance			Benevolence			Revenge		
	B	SE	β	B	SE	β	B	SE	β
Openness	-.08	.05	-.13	.07	.05	.13	-.06	.06	-.08
Conscientiousness	.04	.05	.08	-.02	.05	-.04	-.01	.06	-.02
Extraversion	-.01	.05	-.02	-.02	.05	.05	.06	.06	.10
Agreeableness	-.06	.06	-.10	.11	.05	.19†	-.26	.07	-.36*
Neuroticism	.21	.05	.36*	-.12	.05	-.22*	.04	.06	.06
R^2				.18*			.15*		.18*

NOTE: *B* = unstandardized regression coefficient; *SE* = standard error; β = standardized regression coefficient.

† $p < .10$. * $p < .05$.

INSTRUMENTS

Transgression-related interpersonal motivations. As in Study 1, we measured the motivations underlying forgiveness (i.e., avoidance, benevolence, and revenge motivation) with McCullough et al.'s (1998) TRIM Inventory and the new items for measuring benevolence motivation.

The Big Five. As in Study 1, the Big Five were measured with John et al.'s (1991) Big Five Inventory (BFI). Participants completed the BFI on three occasions. As in Study 1, we aggregated these BFI ratings to obtain participants' mean scores on the five BFI subscales. Peers also completed an adjective checklist measure of the Big Five for assessing targets that consisted of 40 adjectives known to be strong markers of the Big Five (John, 1990). We calculated the mean of peer ratings of personality for participants who returned at least two peer ratings ($N = 50$). The aggregated self-report measures of the Big Five factors were moderately correlated with the aggregated peer-report measures. Monotrait-heteromethod correlations ranged from $r(50) = .46$ (for Openness) to $r(50) = .77$ (for Extraversion), $ps < .01$. The heterotrait-heteromethod correlations ranged from $r(50) = |.03|$ to $r(50) = |.28|$, $ps > .10$, indicating that the self-ratings and peer ratings of the Big Five had adequate convergent and discriminant validity.

SEVERITY RATING SCALES

We quantified the subjective severity of the historical transgressions with a rating scale anchored by the two fictional scenarios administered on the same measurement occasion. Participants rated the eight historical transgressions on a 10-point scale, where 1 = *very minor*, 5 = *as severe as* (the moderate fictional transgression), 9 = *as severe as* (the severe fictional transgression), and 10 = *one of the worst things that has ever happened to me*. Thus, the rating scale forced participants to frame the severity difference between the two fictional scenarios within each relationship as a four-unit difference while allowing par-

ticipants ample space on the scale to indicate even larger differences in the severity of their two historical transgressions. In this fashion, we were able to place the historical and fictional transgressions on the same severity scales and thereby improve interpretability.

PROCEDURE

Procedures were similar to those of Study 1. Participants completed the self-report instruments during four computer-administered assessment sessions spaced at approximately equal intervals throughout the semester. On the first two occasions, transgressions concerned same-sex and opposite-sex friends and were similar to the scenarios administered in Study 1. On the third and fourth occasions, transgressions concerned the respondent's father (or other male caregiver) and mother (or other female caregiver), respectively, and had the same format as the friend scenarios: two historical and two fictional scenarios completely crossed with severity level (moderate vs. high). The order of administration of the four scenario types was randomly chosen for the first assessment session and was counterbalanced in a Latin Square design (Kirk, 1982) in the remaining three sessions to control for possible order effects (which we did not control in Study 1).

Therefore, across the four assessment occasions, respondents indicated their TRIMs in response to 16 transgression scenarios. The 16 scenarios filled in the cells of a $4 \times 2 \times 2$ (Relationship Type: same-sex friend, opposite-sex friend, father, mother \times Severity of Transgression: moderate vs. high \times Scenario Type: historical vs. fictional) within-subjects design. After the second assessment session, we distributed peer-rating packets to those willing to participate in this phase of the study. Packets contained three peer-rating forms, which the target person gave to close acquaintances. Peers rated the target person on the Big Five and returned their forms to William Hoyt in a postage-paid envelope.

TABLE 4: Means, Standard Deviations, and Internal Consistency Reliability (α) for Three TRIMs (Study 2)

	<i>Avoidance</i>			<i>Benevolence</i>			<i>Revenge</i>		
	M	SD	α	M	SD	α	M	SD	α
Same-sex friend									
Fict-Sev	3.72	0.76	.86	2.40	0.82	.94	2.79	1.07	.91
Hist-Sev	2.88	1.04	.91	3.30	0.90	.91	2.01	0.76	.87
Fict-Mod	2.26	0.82	.94	3.86	0.75	.94	1.90	0.71	.87
Hist-Mod	2.09	0.88	.94	3.98	0.81	.96	1.65	0.65	.82
Opposite-sex friend									
Fict-Sev	3.77	0.77	.84	2.32	0.72	.91	3.01	1.00	.91
Hist-Sev	3.17	1.05	.92	3.13	0.96	.93	2.39	1.03	.94
Fict-Mod	2.67	0.83	.88	3.51	0.81	.95	2.11	0.78	.89
Hist-Mod	2.57	0.91	.87	3.61	0.71	.91	2.00	0.78	.86
Father									
Fict-Sev	2.81	0.87	.91	3.32	0.82	.93	1.99	0.82	.91
Hist-Sev	2.33	1.05	.93	3.78	0.93	.95	1.84	0.85	.90
Fict-Mod	2.25	0.84	.88	3.75	0.76	.91	1.69	0.68	.82
Hist-Mod	2.21	0.87	.90	3.94	0.77	.91	1.66	0.74	.91
Mother									
Fict-Sev	2.56	0.95	.92	3.58	0.81	.91	1.88	0.82	.90
Hist-Sev	2.18	1.12	.96	3.95	0.95	.97	1.76	0.84	.87
Fict-Mod	2.56	0.87	.89	3.63	0.78	.91	1.95	0.85	.86
Hist-Mod	2.07	0.96	.92	4.09	0.84	.96	1.73	0.84	.91

NOTE: TRIMs = transgression-related interpersonal motivation scales; Fict = fictional scenario; Hist = historical scenario; Sev = severe transgression; Mod = moderate transgression.

ANALYSES

First, we conducted variance component analyses similar to those in Study 1. Also, as in Study 1, we conducted multiple regression analyses to determine the extent to which self-ratings and peer ratings of the Big Five accounted for variance in participants' dispositions toward avoidance, benevolence, and revenge. Finally, we used multivariate generalizability analysis to examine whether severity appraisals appeared to mediate the relationships between personality traits (Agreeableness and Neuroticism) and the three motivational dispositions.

Results and Discussion

DESCRIPTIVE STATISTICS

Means, standard deviations, and internal consistency reliabilities (α) for major study variables are reported in Table 4.

VARIANCE COMPONENTS ANALYSES

Table 5 shows the results of the generalizability analyses for the 16 scenarios.

Historical transgressions. As in Study 1, variance attributable to persons was substantial and significant for avoidance and benevolence (22% and 28%, respectively) and somewhat larger (36%) for revenge. Generalizability coefficients for TRIM scores based on single historical scenarios were $E_p^2 = .24, .32, \text{ and } .40$ for avoidance, benevolence, and revenge, respectively. For

an aggregate based on all eight historical scenarios, the corresponding $E_p^2 = .64, .72, \text{ and } .77$, respectively.

As in Study 1, the P*R interactions were significant, indicating that the ordering of people's TRIMs scores depends on the type of relationship in which the transgression occurs. That is, people who are most forgiving of friends are not necessarily the people who are most forgiving of parents, and vice versa. Also, as in Study 1, the main effect for relationship type was negligible, indicating that people's TRIMs are not dependably higher or lower in response to transgressions within particular types of relationships than within others. The residual component accounted for a substantial proportion of variance (32%, 31%, and 26% for avoidance, benevolence, and revenge, respectively), suggesting the importance of additional variables not manipulated within the study.

Generalizability of fictional scenarios. Stable individual differences accounted for substantial proportions of variance (i.e., 17%, 18%, and 32% for avoidance, benevolence, and revenge, respectively) in response to fictional scenarios. Person variance was somewhat smaller in fictional than in historical scenarios—a pattern also noted in Study 1. However, the corresponding generalizability coefficients were comparable to those for the historical scenarios: $E_p^2 = .23, .23, \text{ and } .38$ for avoidance, benevolence, and revenge, respectively, for a single fictional scenario, and $E_p^2 = .64, .65, \text{ and } .77$, respectively, for an eight-scenario aggregate.

TABLE 5: Variance Estimates (and Percentage of Variance Accounted for) in Historical and Fictional Scenarios (Study 2)

Variance Component	Avoidance		Benevolence		Revenge		Severity
	Historical Scenarios	Fictional Scenarios	Historical Scenarios	Fictional Scenarios	Historical Scenarios	Fictional Scenarios	Historical Scenarios
Person (P)	0.25* (22%)	0.22* (17%)	0.26* (28%)	0.21* (18%)	0.25* (36%)	0.33* (32%)	1.17* (14%)
Relationship (R)	0.02 (2%)	0 ^a (0%)	0.04 (5%)	0 ^a (0%)	0.04 (6%)	0.06 (6%)	0 ^a (0%)
Severity (S)	0.07 (6%)	0.30 (23%)	0.08 (8%)	0.24 (21%)	0.03 (4%)	0.12 (11%)	3.01 (35%)
P*R	0.28* (24%)	0.12* (10%)	0.15* (17%)	0.08* (7%)	0.17* (24%)	0.11* (11%)	0.30 (3%)
P*S	0.03 (3%)	0.04 (3%)	0.03 (3%)	0.05 (4%)	0.01 (2%)	0.05* (5%)	0.42 (5%)
R*S	0.12 (10%)	0.27 (21%)	0.08 (8%)	0.27 (23%)	0.01 (2%)	0.15 (14%)	0.22 (3%)
Residual	0.37* (32%)	0.33* (26%)	0.29* (31%)	0.29* (26%)	0.18* (26%)	0.22* (21%)	3.51* (41%)
Total	1.14	1.28	0.93	1.06	0.69	1.03	8.63

a. Negative variance estimate is set to 0.

* $p < .05$, one-tailed.

Congruence of historical and fictional scenarios. As in Study 1, we then examined the extent to which responses to the two scenario types (historical and fictional) assessed the same latent construct by estimating the covariance component due to persons (here converted to a correlation coefficient) using Conger's (1981) method. As in Study 1, these correlations ($r_s = .69, .80$, and $.95$ for avoidance, benevolence, and revenge, respectively) indicate a high proportion of common variance in these two assessment methods.

TRANSGRESSION-RELATED MOTIVATIONAL DISPOSITIONS AND THE BIG FIVE

To examine the Big Five correlates of avoidance, benevolence, and revenge dispositions, we created aggregates of people's avoidance, benevolence, and revenge motivations across all 16 scenarios. To avoid inordinately restricting sample size, we also included participants who completed fewer than four waves (of 94 participants, 34 completed four waves, 26 completed three waves, 18 completed two waves, and 16 completed one wave) with aggregate scores based on correspondingly smaller numbers of transgression scenarios. For the subset of participants ($n = 34$) who completed all four waves, the 16-scenario aggregate scores on avoidance, benevolence, and revenge had internal consistency estimates of $\alpha = .87, .90$, and $.93$, respectively, and were highly intercorrelated (r_s for avoidance, benevolence, and revenge were $-.83$ [avoidance-benevolence], $.67$ [avoidance-revenge], and $-.62$ [benevolence-revenge], $p_s < .01$). As in Study 1, the correlation between avoidance and benevolence dispositions was extremely high after correcting for attenuation ($r = -.94$), and the strength of their correlations with the disposition toward revenge was nearly identical.

Avoidance. As reported in Table 6, the self-report Big Five aggregate measures accounted for 30% of the variance in avoidance disposition, $F(5, 88) = 7.68, p < .001$.

Self-rated Agreeableness and Neuroticism ($\beta_s = -.41$ and $.24$, respectively, $p_s < .05$) had unique associations with avoidance disposition. The peer-report Big Five measures accounted for 19% of the variance in avoidance disposition, $F(5, 44) = 2.09, p < .10$. Peer-rated Neuroticism had a unique positive association ($\beta = .40, p < .05$) with avoidance disposition.

Benevolence. Self-reports of the Big Five accounted for 40% of the variance in benevolence disposition, $F(5, 88) = 11.51, p < .001$. Self-rated Agreeableness and Neuroticism ($\beta_s = .48$ and $-.32$, respectively, $p_s < .05$) were uniquely predictive of benevolence disposition. Peer ratings on the Big Five accounted for 30% of the variance in benevolence disposition, $F(5, 44) = 3.73, p < .01$. Peer-rated Neuroticism had a unique negative association ($\beta = -.51, p < .001$), and peer-rated Agreeableness had a marginally significant positive association ($\beta = .28, p = .06$) with benevolence disposition.

Revenge. Self-reports on the Big Five accounted for 33% of the variance in revenge disposition, $F(5, 88) = 8.81, p < .001$. Self-rated Agreeableness ($\beta = -.50, p < .001$) was uniquely predictive of revenge disposition. Peer-rated Big Five scores accounted for 24% of the variance in revenge disposition, $F(5, 44) = 2.81, p < .05$. Peer-rated Agreeableness had a unique negative association ($\beta = -.44, p < .01$) and peer-rated Neuroticism had a marginally significant unique positive association ($\beta = .28, p = .06$) with revenge disposition.

PERCEIVED TRANSGRESSION SEVERITY AS MEDIATOR OF PERSONALITY-FORGIVENESS RELATIONSHIPS

The mean perceived severity rating for the severe historical transgressions ("the worst thing X ever did to you"; $M = 6.84, SD = 1.84$) was higher than that for moderate historical transgressions ("a time X seriously disappointed you"; $M = 4.72, SD = 1.61$): paired samples $t(93) =$

TABLE 6: Results of Multiple Regression Analyses (Study 2)

Personality Measure	Avoidance						Benevolence						Revenge								
	Self-Ratings			Peer Ratings			Self-Ratings			Peer Ratings			Self-Ratings			Peer Ratings					
	B	SE	β																		
Openness	-.07	.10	.07	.31	.22	.22	-.06	.08	-.06	-.30	.22	-.20	.09	.11	.07	.10	.24	.06			
Conscientiousness	-.07	.09	-.07	.17	.15	.18	-.04	.08	-.04	-.12	.14	-.12	-.13	.10	-.12	.14	.16	.13			
Extraversion	.03	.07	.04	.03	.13	.04	-.06	.06	-.08	.00	.12	.01	.01	.08	.01	.06	.14	.07			
Agreeableness	-.38	.09	-.41*	-.26	.18	-.23	.42	.08	.48*	.33	.17	.28†	-.54	.11	-.50*	-.55	.19	-.44*			
Neuroticism	.18	.07	.24*	.27	.10	.40*	-.23	.06	-.32*	-.36	.10	-.51*	.06	.08	.07	.21	.11	.28†			
R^2				.30*			.19†			.40*			.30*			.33*			.24*		

NOTE: B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient.
 † $p < .10$. * $p < .05$.

11.90, $p < .0001$, Cohen's $d = 1.23$. The contrast between the severe and moderate historical transgressions accounted for 60.4% of the variance in the mean severity ratings, $\epsilon^2 = .604$.

In the variance partitioning for the eight historical scenarios, the person component accounted for 14% of the variance in perceived severity (see Table 5). Therefore, some persons perceived the transgressions they had experienced as consistently more severe than did others. This finding gives rise to the possibility that either Agreeableness or Neuroticism (or both) might influence people's dispositions toward avoidance, benevolence, and revenge by influencing their tendencies to perceive transgressions as severe.

We investigated this possibility by examining the person covariance components for the relevant Big Five dimensions (Agreeableness and Neuroticism); the perceived severity ratings; and the aggregate measures of avoidance, benevolence, and revenge dispositions. We converted these covariances to correlation coefficients and then conducted a mediational analysis following the steps outlined by Baron and Kenny (1986). According to Baron and Kenny (1986, p. 1177), mediation may be present when three conditions are met: (a) the predictor and the presumed mediator are significantly related, $r(XM)$; (b) the predictor and the criterion variable are significantly related, $r(XY)$; and (c) the presumed mediator and the criterion are significantly related when the predictor is controlled, $\beta(YM.X)$. Significance-testing procedures are not available for these coefficients (Cronbach et al., 1972); thus, to interpret them, we adopted the rule of thumb that correlations of $r = .2$ and above (i.e., halfway between Cohen's, 1988, pp. 79-80, "small" and "medium" effect sizes) were large enough to be of practical interest.

Table 7 shows the relevant coefficients for six possible mediational effects. X represents the predictor, M the mediator, and Y the criterion variable. In the first column are the disattenuated correlations between the predictor (Agreeableness or Neuroticism) and the presumed mediator (perceived transgression severity). The correlation between Agreeableness and perceived transgression severity, $r(XM)$, was less than $r = .2$. For Neuroticism, however, $r(XM) = .27$, which indicates that Neuroticism is positively correlated with a propensity to perceive transgressions as severe. The second column includes the disattenuated correlations between the predictor and the criterion variables, $r(XY)$. All coefficients exceed .5, except that between Neuroticism and revenge ($r = .36$), indicating that people high in Agreeableness and Neuroticism do score higher on the three motivational dispositions. However, we did not proceed with mediational analyses involving Agreeableness because its association with perceived transgression severity was

TABLE 7: Coefficients for Evaluating Mediational Relationships Among Agreeableness and Neuroticism (X), Perceived Transgression Severity (M), and Three Motivational Dispositions (Y) (Study 2)

<i>X-M-Y</i>	$r(XM)$	$r(XY)$	$\beta(YM.X)$
Agr-Sev-Av	-.16	-.75	— ^a
Agr-Sev-Ben	-.16	.70	— ^a
Agr-Sev-Rev	-.16	-.87	— ^a
Neur-Sev-Av	.27	.60	.22
Neur-Sev-Ben	.27	-.53	-.34
Neur-Sev-Rev	.27	.36	.23

NOTE: Agr = Agreeableness, Sev = Severity, Av = Avoidance, Ben = Benevolence, Rev = Revenge, Neur = Neuroticism. All correlations are forecasts from a multivariate generalizability study of personality, severity, and transgression-related interpersonal motivation (TRIM) ratings for 16 scenarios ($n = 34$).

a. Because initial conditions for mediation were not satisfied (i.e., $r(XM) < .20$), we did not compute this simultaneous regression.

less than $r = .20$; thus, it could not serve as a mediator of the relationships of Agreeableness with the three motivational dispositions.

The coefficients in column 3 are the standardized regression weights for predicting avoidance, benevolence, and revenge dispositions from perceived transgression severity when Neuroticism was controlled, $\beta(YM.X)$. These coefficients exceeded .2 for all three motivational dispositions, with the strongest evidence of mediation in the case of benevolence, $\beta(YM.X) = -.34$. Thus, there is evidence that perceived transgression severity partially mediates the relation between Neuroticism and the three transgression-related motivational dispositions. That is, one reason why people high in Neuroticism are prone to high avoidance, low benevolence, and high revenge motivation may be that they are prone to perceive transgressions as relatively severe.

The indirect (mediated) effect of Neuroticism on each TRIM is equal to the product of the coefficient indexing the Neuroticism-severity relationship (rXM) and the coefficient indexing the severity-TRIM association controlling for Neuroticism, $\beta(YM.X)$. The proportion of the total Neuroticism-TRIM association (rXY) that is accounted for by the mediating effects of severity can therefore be computed as the quotient of the indirect effect to the total effect. Multiplying these quotients by 100% for the present data yields estimates of 9.9%, 17.3%, and 17.3% for the percentage of the total associations of Neuroticism with avoidance, benevolence, and revenge, respectively, that are accounted for by the mediating effect of perceived transgression severity.

STUDY 2 SUMMARY

In Study 2, we replicated the findings from Study 1 using a broader array of relationship types. As in Study 1, variance due to persons was substantial and statistically

significant for all three TRIMs, and the estimates of people's dispositions toward avoidance, benevolence, and revenge based on responses to historical transgressions corresponded well (although not perfectly) to the same dispositions as estimated via their responses to hypothetical transgressions.

Also, as in Study 1, Agreeableness and Neuroticism emerged as the most important predictors of avoidance, benevolence, and revenge dispositions. However, Study 2 was not a perfect replication of Study 1 in this regard. For example, whereas the avoidance disposition was associated only with self-rated Neuroticism in Study 1, it was associated with both self-rated Agreeableness and Neuroticism in Study 2. (Of interest, the correlations in Study 2 involving peer ratings of the Big Five resembled the results of Study 1 more closely than did the correlations involving self-ratings of the Big Five.) Also, whereas Agreeableness was the single unique correlate of revenge disposition in Study 1, peer-rated Agreeableness and Neuroticism were predictors of revenge disposition in Study 2.

In Study 2, we also found evidence for the role of perceived transgression severity in determining people's transgression-related motivational dispositions. Global severity ratings were correlated with all three transgression-related motivational dispositions and appeared to mediate partially the relation between Neuroticism and these dispositions. This suggests that one way that Neuroticism might influence TRIMs is via its proximal effect on perceptions of transgression severity.

It is worthwhile to keep in mind that perceptions of transgression severity may simply be that—*perceptions*. Individuals scoring high on Neuroticism devote exaggerated attention to negative interpersonal experiences (Derryberry & Reed, 1994; Gunther et al., 1999) and may thus take umbrage at slights that others would consider relatively inconsequential. However, no measure of the actual or objective severity of the historical offenses was available in the present study, and there is also reason to suspect that individuals scoring high on Neuroticism may actually incur more severe interpersonal transgressions (e.g., Coyne, 1976; Egan & Perry, 1998). Thus, it might be worthwhile to study the social-psychological basis of perceived transgression severity among individuals high and low in Neuroticism and the extent to which the mediational role of severity is a function of accurate versus distorted perceptions.

GENERAL DISCUSSION

Forgiveness can be understood as a suite of prosocial motivational changes toward a transgressor (McCullough et al., 1997, 1998). These motivational changes almost surely have a foundation in basic personality processes, but the processes in question have not been investigated

thoroughly until the present article. We conducted two generalizability studies to examine how best to estimate people's dispositions toward avoidance, benevolence, and revenge when they incur transgressions; the associations of these three dispositions with the Big Five; and one potential mechanism through which these dispositions might be influenced by the Big Five. Our findings indicate that people are moderately consistent across relationships and situations in their avoidance, benevolence, and revenge motivations. For avoidance and benevolence motivations, and even more so for revenge motivation, variance attributable to persons was very important, accounting for 22% to 44% of the variance. These proportions of variance due to differences among persons are typical of the degree of individual consistency that one finds in other areas of behavioral research through generalizability analyses (see, e.g., Schwartz, Neale, Marco, Schiffman, & Stone, 1999).

Our results also testify to the importance of aggregating people's TRIMs in response to multiple transgressions. Studies 1 and 2 indicate that even when people's responses to as many as eight different transgressions are aggregated to derive estimates of their dispositions toward avoidance, benevolence, and revenge, one can still expect correlations with other personality variables to be attenuated due to less-than-perfect generalizability. For example, in Study 2, the estimated generalizability of single-transgression measures of people's disposition toward avoidance was .24. The coefficient of attenuation (estimated by taking the square root of .24) is .49, which indicates that using a single-transgression measure of avoidance as an estimate of the disposition toward avoidance will result in a $1 - .49 = 51\%$ lower correlation with another personality variable than would be expected with perfectly dependable measurement. (Of course, attenuation will be even greater if the personality variable with which the single-transgression measure is correlated is also measured with imperfect reliability—as is usually the case; see Hoyt, 2000.) An eight-scenario aggregate performs much better with an estimated generalizability of .64 and an attenuation coefficient of .80. Thus, using eight scenarios, we can expect only a 20% deflation in observed correlations with personality variables. Thus, we recommend that when people study the personality correlates of forgiveness, they aggregate people's responses across many different transgressions so as to avoid severely attenuated effect size estimates.

Differences in the Cross-Situational Consistency of Avoidance, Benevolence, and Revenge

Revenge motivations were considerably more consistent across scenarios than were avoidance and benevolence motivations, suggesting that revenge motivations

are relatively insensitive to contextual factors. People's desires to do harm to their transgressors appear to be driven more by consistent differences among individuals than are their desires to avoid and to act benevolently toward their transgressors. Correspondingly, transgression severity appears to be less important as a determinant of revenge motivation than as a determinant of avoidance and benevolence motivations. These results are consistent with recent theorizing (Newberg, d'Aquili, Newberg, & deMarici, 2000) that the mechanisms of injury detection and revenge motivation—for which reliable individual differences apparently exist—are relatively unmediated by higher cognitive processes. As a result, revenge motivations may be less sensitive to subtle interpretive cues such as features of the transgression or transgressor than are avoidance and benevolence motivations. It is also interesting to note that people seem to be aware of their tendency toward revenge motivation—the person component accounted for essentially the same amounts of variance in revenge motivation in historical scenarios as in fictional scenarios, whereas person variance for avoidance and benevolence motivations was considerably lower in fictional scenarios.

Differences in Responses to Historical and Hypothetical Scenarios

Measures of people's transgression-related motivations based on their responses to historical transgressions performed differently than did measures of the same motivations based on people's responses to hypothetical scenarios. Multivariate generalizability analyses demonstrated a high degree of correspondence between the person components for revenge derived from the two scenario types. The forecast correlations between universe scores, which estimate the correlation that would be observed between person components derived from responses to the entire universe of possible scenarios of each type, were .89 and .95 in Studies 1 and 2, respectively, indicating that they share 80% to 90% of their variance in common. In contrast, congruence was more modest for avoidance (about 50% to 60% common variance) and benevolence (about 40% to 65% common variance). These latter findings indicate that even when estimates of people's avoidance and benevolence dispositions are derived from large numbers of fictional scenarios, they will diverge from estimates based on their responses to real-life transgressions.

Relatedly, although generalizability coefficients for revenge disposition scores derived from the two scenario types were roughly equivalent, those for benevolence scores based on fictional transgressions indicated poorer generalizability for both Studies 1 and 2 and poorer generalizability for avoidance scores for Study 1.

Thus, researchers using fictional scenarios to measure avoidance and benevolence motivations—if they must use them at all—are advised to aggregate responses to relatively large numbers of hypothetical transgressions—perhaps as many as 12 to 16—to achieve dependable estimates of people's transgression-related motivational dispositions.

Our findings help to illuminate some of the differences in people's responses to historical versus fictional transgressions. First, transgression severity was a major determinant of people's TRIM responses to historical scenarios (accounting for 20% to nearly 50% of the variance in avoidance and benevolence ratings across Studies 1 and 2) but was much less important in governing their responses to historical transgressions. The strong influence of severity on people's TRIM scores in response to hypothetical transgressions probably reflects the paucity of other information concerning the relational context of the transgression: People likely assigned greater weight to cues about transgression severity than they might in real life because so little additional information was available for estimating their likely TRIM responses.

Second, there were important differences in the relative severity of the moderate and severe transgressions for historical versus fictional scenarios. The measured difference in the severity of people's moderate and severe transgressions from real life was only 2.12 scale points, which was only slightly more than half as much as the 4-point difference that we set between the moderate and severe fictional scenarios within each relationship type. However, as we noted earlier, the main effect for severity does not contribute to error variance (and hence does not reduce generalizability of measurement) when all respondents consider the same transgressions (which is typical in studies using fictional scenarios).

Third, we might consider the Person \times Relationship Type (P \times R) interaction, which in both Studies 1 and 2 accounted for considerably less variance in fictional as compared to historical scenarios. Respondents were less likely to be influenced by their relationship to the transgressor when responding to fictional scenarios, which again suggests some limitations on the generalizability of findings based on hypothetical responses to fictional transgressions.

Correlations With the Big Five

The present studies also helped clarify the associations of the dispositions toward avoidance, benevolence, and revenge with the Big Five. In Studies 1 and 2, the Big Five accounted for between 15% and 40% of the variance in our measures of the dispositions toward avoidance, benevolence, and revenge. This range of effect

sizes is consistent with those found in other studies (e.g., Ashton et al., 1998; McCullough et al., 2001) that relied on more conventional self-report measures of the disposition toward forgiveness or revenge.

Using both self-reports and peer-reports of the Big Five, the disposition toward revenge was consistently correlated with Agreeableness, which reflects a prosocial orientation toward others and is inversely related to Eysenckian (Eysenck, 1967) Psychoticism (John, 1990). Highly agreeable people may have a relatively high threshold for provocation or may restrain or rechannel impulses toward revenge. Thus, one possible explanation for the Agreeableness-revenge link may be that agreeable people have weaker or slower revenge responses and therefore less initial vengeance motivation to dissipate following a transgression. It may also be that agreeable people are less likely to ruminate (i.e., nurse grudges) due to the relative importance they place on relationships (compared with disagreeable people) or are more likely to experience empathy for their transgressors (Ashton et al., 1998; McCullough et al., 1997, 1998). Thus, the effects of Agreeableness on the disposition toward revenge may occur both early (e.g., by making people less disposed to respond aggressively to transgressions) and also later (e.g., by discouraging rumination or fostering empathy for the transgressor) in the transgression-forgiveness sequence.

As with the revenge disposition, the Avoidance and benevolence dispositions were consistently related to Agreeableness. Unlike the revenge disposition, however, they were also reliably and consistently related to Neuroticism, which involves a proneness to negative mood states (John, 1990) and affective instability. Neuroticism has been hypothesized to reflect the subjective component of a biobehavioral withdrawal system (Watson, Wiese, Vaidya, & Tellegen, 1999), which is consistent with the notion that neurotic individuals are dispositionally more avoidant of individuals who harm them. Because Neuroticism also embodies a negative focus on the self, including a lack of ego resiliency (John, 1990) and low self-regard (Watson, Clark, & Tellegen, 1988), highly neurotic transgression recipients may favor withdrawal instead of counteraggression when they are harmed because the victimization itself calls into question their self-worth and abilities to respond effectively.

Neuroticism also might be influential much earlier in the transgression-forgiveness sequence. Highly neurotic people are more likely to be victimized by peers (e.g., Egan & Perry, 1998) and also to perceive negative social events as more severe than do less neurotic people. The operation of such mechanisms would be consistent with the apparent mediational effects of transgression severity on the relationship between Neuroticism and peo-

ple's avoidance, benevolence, and revenge dispositions. Of course, whether the relationship between perceived transgression severity and these motivational dispositions is attributable to perceptual biases on the part of people high in Neuroticism or an actual objective tendency to incur more frequent (and more severe) transgressions is still unclear and merits future investigation.

Are Avoidance and Benevolence Motivations Distinct?

Our findings provide evidence of the overlap between the TRIM dimension of avoidance and the positively worded TRIM items, here labeled benevolence. Avoidance and benevolence scores had similar variance partitioning and similar (although inverse) patterns of correlation with the Big Five. Disattenuated correlations between avoidance and benevolence dispositions (i.e., aggregated across many transgressions) were $r = -.89$ for historical and $r = -.86$ for fictional scenarios in Study 2, suggesting that people's dispositional tendencies toward benevolence regarding their transgressors are nearly redundant with their tendencies toward avoidance of their transgressors. However, although the dispositional factors underlying avoidance and benevolence are correlated upwards of $r = .90$, benevolence and avoidance motivations in response to a single transgression are correlated less strongly (e.g., among the 16 scenarios in Study 2, $M r = .81$), indicating that they share only $.81 \times .81 = 66\%$ of their variance. Also, other work (e.g., McCullough, Fincham, & Tsang, in press) suggests that avoidance motivations and benevolence motivations possess different patterns of temporal change. Thus, for now at least, future investigators may wish to include both measures in their work to evaluate further whether they are distinct as dispositions and as responses to single transgressions.

LIMITATIONS AND QUALIFICATIONS

The Universe of Generalization

At least two qualifications regarding the present studies merit mention. First, the substantial proportions of variance in people's avoidance, benevolence, and revenge motivations due to consistent individual differences should be interpreted in light of the universe of observations from which we sampled to obtain those estimates. In the present studies, we sampled only from transgressions occurring in friendships and romantic relationships (in Study 1) or friendships and parent-child relationships (in Study 2). The variance accounted for by consistent individual differences might have been different if we had sampled from a broader array of relationships (e.g., work relationships, relationships with strangers, etc.).

Relationship Factors

Second, forgiveness often has been conceptualized as a dyadic phenomenon (McCullough, Hoyt, & Rachal, 2000), but we were unable to examine fully the specific relationship factors that determine people's TRIMs. Although we found that people were not reliably more forgiving in certain types of relationships (e.g., parent-child relationships) than in others (e.g., same-sex friendships), this relational facet does not fully capture the importance of dyadic factors. In particular, the lack of a main effect for relationship type should not be construed as evidence that people are equally forgiving in all their relationships. In fact, the substantial variance attributable to the P*R interaction signals that this is clearly not the case (e.g., some people forgave parents consistently more readily than friends, whereas others forgave friends consistently more than parents). Future studies examining dyadic factors (e.g., relational commitment and satisfaction, the extent to which the transgressor apologizes, etc.) may be fruitful.

CONCLUSION

The present results provide several methodological insights for future research on the dispositional factors that govern people's motivational responses to interpersonal transgressions. Investigators who apply these insights in their own work will improve substantially their odds of gleaning stable and theoretically important findings about the personality factors that shape people's tendencies to forgive. These results also lead us to nominate Agreeableness and Neuroticism as the two dimensions of the Big Five with the most promise for revealing more about forgiveness, who does it, and how they do it.

NOTES

1. The seven items on the benevolence subscale were as follows: "Even though his/her actions hurt me, I still have goodwill for him/her"; "I want us to bury the hatchet and move forward with our relationship"; "Despite what he/she did, I want us to have a positive relationship again"; "I have given up my hurt and resentment"; "Although he/she hurt me, I put the hurts aside so we could resume our relationship"; "I forgive him for what he/she did to me"; and "I have released my anger so I could work on restoring our relationship to health."

2. At a reviewer's suggestion, we conducted three sets of maximum likelihood exploratory factor analyses on the data from Study 1 to ensure that the transgression-related interpersonal motivation (TRIM) scales were not simply alternate measures of Agreeableness. For each set of analyses, we factored 15 variables: the 3 Agreeableness measures and either (a) 12 avoidance measures, (b) 12 benevolence measures, or (c) 12 revenge measures. For each set, we first estimated models in which the covariances among the 15 variables were hypothesized to result from a single common factor. Then we estimated models (using oblimin rotation, $\Delta = 0$) in which the covariances among the 15 variables were posited to result from two correlated factors. In each of the three sets of models, the two-factor model fit the data substantially better than did the one-factor model. In the two-factor models, one of the factors was clearly a TRIM disposition factor, with the TRIM scores loading $> .30$ on that factor alone and the other factor was clearly an

Agreeableness factor, with the three Agreeableness scores loading $> .30$ on that factor alone. In the three sets of models, the Agreeableness factor was correlated with the avoidance, benevolence, and revenge factors at $r = -.26$, $.26$, and $-.38$, respectively. Thus, Agreeableness and the TRIMs do not appear to be correlated simply because the TRIM measures are alternate measures of Agreeableness.

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