

EXPLORING THE DYNAMICS OF REVENGE

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

in

The Faculty of Graduate Studies

(Psychology)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

November 2008

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ABSTRACT

Although its consequences can be devastating, revenge is surprisingly understudied. In this dissertation, I address several key questions. For example, are the factors that trigger revenge the same across different individuals? What are the psychological processes that facilitate revenge? Does revenge have any adaptive value? These issues were addressed with a series of three studies. Study 1 explored whether personality predictors of self-reported revenge generalize across four specific transgressions. Results indicated that narcissists were only vengeful after social rejection whereas psychopaths and neurotics tended to be vengeful across transgressions. Study 2 expanded on these results by exploring trait-level vengeful fantasies and vengeful behaviors and the impact of a potential mediator, namely, anger rumination. Neuroticism was shown to be predictive of vengeful fantasies: This association was entirely mediated by anger rumination. Psychopathy predicted vengeful behavior: This association was partially mediated by vengeful fantasies. Study 3 involved the analysis of participants' personal anecdotes about how they reacted to transgressions against them. Coded variables included revenge as well as 10 other coping behaviors: These 11 predictors were then evaluated with respect to their impact on both immediate relief and long-term recovery. Although the revenge option fostered immediate relief, it did not benefit long-term recovery. Only one coping behavior (meaning-making) actually fostered recovery. The contributions and limitations of this research plus suggestions for future studies are discussed.

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INTRODUCTION

The destructive nature of revenge seems self-evident. On a regular basis, we hear of the havoc wreaked by employees “going postal”. Every day, jilted lovers attack their former partners, often in diabolical fashion. Students rampage against teachers alleged to have disrespected them – whether the provocation is real or imagined. Revenge appears to sustain centuries-old conflicts between cultures.

Despite the devastating consequences of revenge, empirical research on this phenomenon remains scant – especially when compared against the sizable literature on the related phenomenon of forgiveness (for a review, see McCullough & Witvliet, 2002). Indeed, calls for additional research on revenge have come from prominent experts in the field (McCullough, Bellah, Kilpatrick, & Johnson, 2001).

This dissertation answers that call in an attempt to deepen and broaden our current understanding of revenge and its processes. I will narrow down the spate of unanswered questions to a few key ones. To that end, revenge was approached from several complementary angles across three studies. Before detailing these studies, I will first define revenge, then outline each of the major issues to be addressed, and then elaborate the extant research.

What is revenge?

Traditionally, revenge is defined as *an infliction of harm by a victim on the party judged responsible for a transgression* (e.g., Aquino, Tripp, & Bies, 2001; McCullough, Rachal, Sandage, Worthington, Brown, & Hight, 1998; Stuckless & Goranson, 1992). For the exact definitions given by these authors, see Appendix A. For reasons explained below, I argue that, to qualify as revenge, the infliction of harm must come *after some deliberation*.

This adjustment to the definition differentiates the relatively understudied phenomenon of revenge from the extensively studied phenomenon of *provoked aggression*. Although both involve retaliation, the delay between transgression and retaliation tends to be longer with revenge. Even then, it is not absolute length of delay that matters: It is the amount of deliberation and calculation that enters into the response. In other words, provoked aggression is a reflexive response, but revenge is the product of consideration and planning. Additional details regarding the differences between these two phenomena may be found in Appendix A.

Of course, revenge is not the only possible response to a perceived transgression. Revenge is most likely when more prosocial reactions (e.g., forgiveness and reconciliation or coping behaviors like support-seeking or meaning-making) are unavailable or inadequate. In short, revenge may be thought of as a last resort -- the most extreme strategy to cope with a transgression.

The catastrophic nature of revenge

In some respects, revenge is more devastating than other forms of aggression. At the heart is its self-perpetuating nature: A transgression spurs a vengeful reaction, which in turn causes the original transgressor to retaliate, and so on. In extreme cases, this vicious cycle becomes a longstanding vendetta or 'blood feud'. Prototypical is the infamous feud between the Hatfield and McCoy families in the late 19th century (Waller, 1988): Generations of family members lost their lives as a result. Such tragic consequences have also been portrayed historically in art and literature, from Greek tragedies to Shakespeare's *Romeo and Juliet* to modern films like *The Godfather*.

Apart from the self-perpetuation aspect, there are personal costs to revenge. It can lead to serious criminal charges, prosecution, incarceration, and even capital punishment for the

avengers. Exacting revenge closes the door to alternatives that may actually yield benefits, for example, reconciliation and personal growth (McCullough, Root, & Cohen, 2006). Compared to the alternative of forgiveness, revenge has been shown to be detrimental with respect to both physical and mental health (McCullough et al., 2001; Witvliet, Ludwig, & Vander Laan, 2001; Yamhure-Thompson & Snyder, 2002; Ysseldyk, Matheson, & Anisman, 2007).

In sum, revenge can have catastrophic consequences to the avenger, the victim, and the larger society. Clearly, society could profit from a better understanding of this phenomenon.

Key issues in understanding revenge

This dissertation will deal with four issues that are particularly pertinent to this quest to understand revenge. These issues are: Do different transgressions trigger revenge in certain individuals? What is the relation between vengeful fantasies and vengeful behavior? What is the role of psychological processes, especially rumination, in fostering revenge? Does revenge have any benefits? I will now discuss each of these issues and the extant research in turn.

Generalizability across transgressions. People encounter a variety of transgressions in the course of everyday life. Most of us forget these transgressions, forgive the transgressor, or find some other way of reacting. Few seek outright revenge for the transgressions they incur (Crombag, Rassin, & Horselenberg, 2003). However, research from the provoked aggression literature suggests that some transgressions are more aggression-eliciting than others – especially in select individuals.

For example, Bushman and Baumeister (1998) provided evidence that narcissists are provoked by challenges to their inflated self-view – a so-called ego-threat: As a result, they are liable to react aggressively (see also Raskin, Novacek, & Hogan, 1991). Those studies were

followed up by Twenge and Campbell (2003), who showed that narcissists tend to lash out at those who rejected them.

This interactionist approach has also been applied to the study of revenge. One example is series of studies by Skarlicki and colleagues. Their initial research indicated that employee perceptions of injustice in their employer led to increased acts of vengeful behaviors directed against the organization (Skarlicki & Folger, 1997). In the followup study, they included major personality traits such as the Big Five to determine whether these variables moderated the injustice-revenge link (Skarlicki, Folger, & Tesluk, 1999).

Of particular interest were low agreeableness and neuroticism. Low agreeableness was thought to be a moderator given established links between disagreeableness, hostility, and anger (McCrae & Costa, 1987). Neuroticism was expected to moderate the injustice-fairness link based on neurotics' tendency to over-react to negative events. Skarlicki and colleagues replicated the results of their previous paper and found that, indeed, these personality traits were significant moderators. Compared to stable and agreeable individuals, neurotic and disagreeable individuals were most likely to retaliate (Skarlicki et al., 1999).

In sum, several personality variables (neuroticism, disagreeableness, narcissism) have already been linked to revenge. What remains unclear, however, is whether these traits predict revenge across qualitatively different transgressions. For example, are narcissists also vengeful after being manipulated, insulted, or bullied? The range of personality predictors considered could also be expanded. To answer these questions, I will explore the extent to which different personality traits predict revenge across a number of common interpersonal transgressions.

Vengeful fantasies vs. behaviors. To date, studies of revenge have focused either on vengeful fantasies (e.g., McCullough, Fincham, & Tsang, 2003) or vengeful behavior (e.g., Kim, Smith, & Brigham, 1998). These studies have not considered these phenomena jointly. Although vengeful fantasies and behaviors are undoubtedly correlated, there may be important differences between them that have not yet been uncovered. My earlier discussion of the aftermath of carrying out vengeful behavior suggests that, at least in impact alone, these two responses should have markedly different consequences.

However, the available research suggests that vengeful fantasies and behaviors have similar predictors. A 2001 study by McCullough and colleagues explored the predictors of a forgiveness measure developed by Mauger, Perry, Freeman, Grove, McBride, and McKinney (1992). As might be expected, those who were unforgiving scored high on McCullough's own measure of vengeful fantasies (McCullough et al., 1998). Moreover, being unforgiving was predicted by neuroticism and disagreeableness.

In a later study, McCullough and Hoyt (2002) explored the extent to which vengeful fantasies and other transgression-related interpersonal motivations may be considered trait-like. Participants completed a standard measure of the Big Five and indicated the extent to which they would avoid, act benevolent toward, and have vengeful fantasies in response to a set of real and imagined transgressions. These responses were aggregated across the transgressions to form dispositional indexes of the motivations.

Results showed a sizable degree of cross-situational consistency for all motivations but vengeful fantasies emerged as the most consistent. Similar to the results of the 2001 study, disagreeableness emerged as a strong, significant predictor of dispositional vengeful fantasies.

Neuroticism, in contrast, demonstrated smaller but consistently positive relationships with this outcome.

The aforementioned study by Skarlicki and colleagues (1999) also addressed the predictive power of neuroticism and agreeableness. Consistent with the above findings, highly neurotic individuals and highly disagreeable individuals were each particularly likely to be vengeful. That is, in addition to being moderators of the injustice-revenge link, there were also main effects of neuroticism and disagreeableness on revenge.

What remains unclear, however, is the interplay between personality and trait measures of vengeful fantasies and vengeful behaviors. Given the lack of studies that explore vengeful fantasies and vengeful behaviors together, let alone both with personality, the dynamics of their relationship remain unclear. For example, it is possible that vengeful fantasies act as a cognitive mediator between personality and vengeful behavior for certain individuals but not others.

Anger as a potential psychological mediator. A major issue that has received some attention is that of the role of psychological processes in influencing revenge. Given the well-established literature on the impact of such processes as hostile biases on aggression (Crick & Dodge, 1994), it seems highly likely that cognitive and emotional mechanisms are at play in fostering revenge. For example, the question of whether revenge is reactive – a ‘hot’, spur-of-the-moment response – or instrumental – a ‘cold’, goal-oriented decision – remains an open and interesting one (Bushman & Anderson, 2001; Wilkowski & Robinson, 2008; Woodworth & Porter, 2002).

Given its links to aggression (Wilkoski et al., 2008), I will be exploring the impact of one emotion, namely *anger*, on perpetuating revenge. Specifically, I will address the extent to which

ruminating about anger following a transgression sustains vengeful thoughts and behavior in certain individuals.

There has already been considerable research on how rumination influences reactions to transgressions. As might be expected, increased rumination about a transgression hinders forgiveness and promotes vengeful thoughts (Collins & Bell, 1997; McCullough et al., 2001; McCullough, Bono, & Root, 2007; Ysseldyk et al., 2007). However, research on anger rumination remains limited. Similarly, research on whether anger rumination contributes to the vengeful fantasies and actions of particular individuals – that is, the extent to which anger rumination mediates the relationship between personality and revenge – remains absent.

The few available studies suggest that anger rumination plays an important role in revenge (e.g., Barber, Maltby, & Macaskill, 2005; Burnette, Taylor, Worthington, & Forsyth, 2007). Perhaps the most compelling evidence comes from a 2006 study by Denson, Pedersen, and Miller. The authors not only found that vengeful fantasies were strongly related to anger rumination, but also that neuroticism predicted both. However, they did not address the extent to which anger rumination mediated the link between neuroticism and fantasies. In short, I suspect that anger rumination will emerge as an important psychological process in understanding revenge.

Possible benefits to revenge. Over the years, a number of potential benefits for revenge have been suggested. The most extensive arguments came from Nico Frijda (1994), who argued that revenge had numerous benefits to the avenger including: deriving pleasure from seeing the offender suffer, restoring honor, and improving self-esteem. Similar sentiments were expressed by McCullough and colleagues (2001), who suggested that revenge may also serve: to ‘balance the scales’ by returning unfavorable treatment in kind, to ‘teach the transgressor a lesson’ to not

behave similarly in the future, and to save face (McCullough et al., 2001). However, at present many of these benefits remain speculative.

Several additional benefits have been proposed. Central is the notion that revenge may have provided an evolutionarily advantage. For example, revenge may deter enemies and build self-esteem to such a degree that one can turn to reproduction. Also, promoting and defending the honor of the group promotes alliances that increase mutual security. Reproductive activities are more likely to be successful within a cohesive social group.

The results of several anthropological studies bolster these claims. Chagnon's (1988) extensive study of the Yanomamö tribe revealed clear evolutionary benefits to those who sought revenge. Given the importance of kinship to the social and economic relationships within this tribe, kin will pool their resources to attack those who transgressed against them and will kill their transgressors if necessary. Despite the losses of kin that such acts of 'blood revenge' incur, those who get revenge experience a number of benefits compared to those who do not, including: fewer transgressions in the future given their reputation for being dangerous, higher survival rates, greater marital and reproductive success, and successful mating with nubile women from less vengeful groups.

Of course, acts of revenge are not always homicidal. Non-fatal but aggressive revenge, however, appears to share a number of important characteristics with this more violent phenomenon, at least as observed in primates. Work by Franz de Waal and colleagues on the social relationships of chimpanzees suggests these primates have developed a reciprocity-based social structure out of which has developed a so-called "revenge system" (de Waal, 1991, p. 346; de Waal and Luttrell, 1988). Just as prosocial acts from chimpanzee A will be met with similar acts in return from chimpanzee B, harmful acts from one chimpanzee will bring a response in

kind from the others. In turn, this system facilitates the maintenance of the appropriate rules of conduct within the group. In short, findings from anthropology suggest that revenge may have evolutionary benefits, although the extent to which these benefits transfer beyond primates or tribal groups remains an open question.

Another potential benefit to revenge is the restoration of justice¹ (Carlsmith, Darley, & Robinson, 2002; Exline, Worthington, Hill, & McCullough, 2003). Doing so may benefit the avenger and others (Aquino et al., 2001; Bies & Tripp, 1998; 2001; Neuman & Baron, 2005). However, the aforementioned results of the 1999 study by Skarlicki and colleagues challenged the notion that revenge does, in fact, restore a sense of justice. Although perceptions of injustice in an organization contribute to getting revenge, this tendency is particularly pronounced among neurotic and disagreeable individuals. The powerful implications of these results were succinctly put by Skarlicki and colleagues themselves: “[t]hese findings qualify previous justice research by showing that unfair treatment might not affect everyone in the same way” (Skarlicki et al., 1999, p. 106).

This dissertation will address yet another purported benefit, namely the notion that revenge helps alleviate the avenger’s distress (Frijda, 1994). In a sense, this benefit is one expression of the adage ‘Revenge is sweet’: By getting back at the transgressor, the avenger experiences positive affect, or at the very least reduces the negative affect brought on by the transgression. Although some preliminary work has been done in this area (Crombag et al., 2003), additional studies are necessary.

¹ Indeed, the belief in a just world is associated with an increased desire for revenge (Kaiser, Vick, & Major, 2004).

Overview

My goal is to address these key issues via a series of studies. I approach the phenomenon from three different yet complementary perspectives. Study 1 explored whether the ability of personality to predict revenge generalizes across four types of interpersonal transgressions. Study 2 explored the similarities and differences between vengeful fantasies and vengeful behaviors and also examined the role of anger rumination in perpetuating these phenomena. Finally, Study 3 explored whether revenge, compared to other coping behaviors, contributes to short-term relief and long-term recovery.

STUDY 1:

DO CERTAIN PEOPLE GET REVENGE REGARDLESS OF THE TRANSGRESSION?

Study 1 explored a range of personality traits and transgressions. I was particularly interested in the extent to which specific individuals seek revenge across a range of specific transgressions. For example, are psychopaths vengeful regardless of how they are provoked?

The Big Five personality factors. There is growing consensus that five factors of personality (“the Big Five”) can account for the essential elements of personality space (e.g., Costa & McCrae, 1992). The five are Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience (Goldberg, 1990; John, 1990). Given their prominence, the Big Five have served as the starting point for research on personality predictors of revenge.

As detailed in the introduction, two consistent Big Five predictors have emerged, namely, neuroticism and disagreeableness. These links have been found with self-reports and peer ratings (e.g., McCullough et al., 2001; McCullough & Hoyt, 2002; Skarlicki et al., 1999) as well as clinician ratings of personality (Mauger et al., 1992). A more detailed examination of these two traits is needed to clarify why they are related to revenge.

For example, compared to emotionally stable individuals, neurotics are generally more likely to experience negative affect. Given their tendency to ruminate, neurotics have difficulty forgetting about negative experiences (Trapnell & Campbell, 1999). Moreover, they are easily provoked: They are sensitive to negative experiences and as a result are easily angered and offended (Berkowitz, 1990; Caprara, Barbaranelli, & Comrey, 1992; Martin & Watson, 1997). This combination of qualities may set up neurotics for revenge.

A different dynamic may underly revenge in the other established Big Five predictor, that is, disagreeableness. Unlike their agreeable counterparts, disagreeable individuals are susceptible to anger and aggression. They show difficulties in forming close and committed interpersonal relationships. Worse yet, when they do establish interpersonal relationships they are likely to experience increased conflict and are unconcerned about maintaining these connections (Graziano, Jensen-Campbell, & Hair, 1996). Several personality theorists have suggested that terms like *vengeful* and *unforgiving* are key indicators of disagreeableness (e.g., John, 1990; McCrae & Costa, 1987). Research on facets of disagreeableness, for example, the Dark Triad of personalities, may provide more insight into the personality dynamics underlying revenge.

The Dark Triad. Evidence is accumulating that prediction of delinquent behavior is clarified by distinguishing the Dark Triad of narcissism, Machiavellianism, and subclinical psychopathy (Paulhus & Williams, 2002). Although the triad have sometimes been viewed as equivalent in non-institutionalized populations (e.g., McHoskey, Worzel, & Szyarto, 1998), recent research has challenged this notion and concluded each of these constructs are distinct, meaningful, and valid in their own right (e.g., Lee & Ashton, 2005; LeBreton, Binning, & Adorno, 2006; Nathanson, Paulhus, & Williams, 2006a; 2006b; Paulhus, Harms, Bruce, & Lysy, 2003).

Narcissists are characterized by selfishness, a sense of entitlement, and an unrealistically positive self-image (Emmons, 1984). Although initially well-liked by others, narcissists become increasingly unpopular over time (Paulhus, 1998). They enjoy ‘basking in reflected glory’ and attempt to align themselves with important and powerful people; in turn, they regard most others as unworthy of their attention or friendship. These tendencies rest on an unstable, fragile sense of

self-esteem that is highly susceptible to negative, challenging information termed ‘ego-threats’ (Raskin et al., 1991).

Machiavellians are highly cynical, cunning, and manipulative of others (Christie & Geis, 1970; Fehr, Samson, & Paulhus, 1992). A recent review suggests that Machiavellians are characterized by behaviors that tradeoff agentic goals such as personal success against communal goals such as being a desirable friend (Jones and Paulhus, in press). They have low ethical standards (Singhapakdi & Vitell, 1991) and will do whatever is necessary to succeed (Ryckman, Thornton, & Butler, 1994). Although Machiavellians can enjoy real success (e.g., Shultz, 1993), they are not favored as partners in long-term relationships (Wilson, Near, & Miller, 1998).

Subclinical psychopathy, like its clinical counterpart, is characterized by the potent combination of impulsivity, criminality, callousness, and manipulation (Hare, 2003). Of the Dark Triad, subclinical psychopathy has consistently emerged as the most effective predictor of a host of serious outcomes including academic dishonesty (Nathanson et al., 2006b), serious crime, drug abuse (Nathanson et al., 2006a), and sexual assault (Williams, Spidel, & Paulhus, 2005). For a review, see LeBreton et al. (2006).

One issue that concerns some researchers is the extent to which psychopathy is present in noninstitutionalized samples. Put differently, is the notion of psychopathy viable for samples from subclinical populations as opposed to those in jail or under the care of a clinician?

I will argue that the answer is yes. Following Williams, Paulhus, and Hare (2007), ‘psychopathy’ and ‘subclinical psychopathy’ are conceptually equivalent (Paulhus, Hare, & Hemphill, in press). The only difference is the nature of the sample from which the data are collected: Institutionalized samples for the former, noninstitutionalized for the latter.

Moreover, the same measures may be used to assess clinical and subclinical psychopathy. Interview measures, like the Psychopathy Checklist-Revised (Hare, 2003), and self-report measures, like the Self-Report Psychopathy Scale-III (Paulhus, Hare, & Hemphill, in press), are valid of psychopathy in both institutionalized and noninstitutionalized populations alike. Not surprisingly, mean scores on both interview and self-report measures are higher in institutionalized samples (Spidel, 2008). For the remainder of this paper, I will use the term ‘psychopathy’ or ‘psychopaths’ regardless of the type of sample.²

Taken together, there is a wealth of evidence pointing to the antisocial tendencies of the Dark Triad of personalities. Moreover, the research suggests that these personality traits should be especially predictive of malevolent behavior such as revenge.

Transgression-specific reactions. As indicated previously, the interplay between personality and specific transgressions has received some attention (e.g., Skarlicki et al., 1999). At the very least, the interplay between two particular Dark Triad traits – narcissism and psychopathy – and specific transgressions deserves particular attention given how severe much of their behavior is.

To address this issue I sought to include a variety of different interpersonal transgressions, namely, social rejection, manipulation, insult, and bullying. These four were chosen to represent a range of severity, from mild (social rejection) to severe (bullying).

For narcissists, I concluded that social rejection would be most provoking. Given that narcissists tend to be social *rejecters* (Buss & Chiodo, 1991), they should be most reactive to having the tables turned. Indeed, there is already some evidence that narcissists react

² Note also that the term ‘psychopaths’ or any similar personality label (e.g., ‘neurotics’, ‘disagreeable individuals’) is not intended to suggest discrete categories. This designation is simply a shorthand to refer to those tending to score high (or low) on a continuous personality trait.

aggressively following social rejection: When told that no one wanted to associate further with them, narcissists react to this ego-threatening information by lashing out at their rejecters (Twenge & Campbell, 2003; see also Bushman & Baumeister, 1998; Raskin et al., 1991; Kernis & Sun, 1994).

In contrast, psychopaths should be vengeful regardless of the transgression. Recall the aforementioned findings suggesting that psychopathy scores predict various forms of aggression (e.g., Williams et al., 2005; 2007). Moreover, several findings point to the vengeful nature of institutionalized psychopaths (Williamson, Hare, & Wong, 1987; Woodworth & Porter, 2002). To date, there are no studies on subclinical populations. Most relevant is the study by Mauger and colleagues (1992), which showed that ‘normal’ individuals scoring high on their revenge measure were rated as impulsive, reckless, sensation-seekers, and callous. As a whole, then, the prior research converges on the notion that psychopathy should be relevant to revenge.

Hypotheses

- Hypothesis 1.1: Disagreeableness will predict revenge across all four transgressions.
- Hypothesis 1.2: Neuroticism will predict revenge across all four transgressions.
- Hypothesis 1.3: Narcissism will predict revenge following social rejection.
- Hypothesis 1.4: Psychopathy will predict revenge across all four transgressions.

Because the literature provided no justification, I offer no predictions for Extraversion, Conscientiousness, Openness, or Machiavellianism. These variables were included to complete the Big Five and Dark Triad models.

Method

Participants

Fifty-seven undergraduates (65% women; 44% European heritage, 42% East Asian heritage) enrolled at a large Western Canadian university participated in this study. They were compensated with extra course credit marks.

Procedure

Participants were recruited via an advertisement for a study entitled “Stressful memories and personality” for one course credit. The advertisement contained instructions regarding the designated times during which participants could come to the laboratory and complete the study.

Participants first completed a brief demographics measure followed by a battery of personality tests. Following these tests, participants were asked to provide descriptions of recent incidents in which they were the victims of four specified transgressions. After each description participants were asked to indicate how they reacted to the transgression.

Materials

The Big Five. To measure the Big Five, I asked participants to complete the 44-item Big Five Inventory (BFI; John & Srivastava, 1999). The BFI is a popular measure of the Big Five because of its brevity as well as its reliability and validity. All items are prefaced by the statement “I see myself as someone who...” and participants are asked to indicate the extent to which each item applies to them using a 5-point Likert scale (1 = ‘disagree strongly’ to 5 = ‘agree strongly’). Sample items include “Can be cold and aloof” and “Is sometimes shy,

inhibited.” In the current study, alpha reliabilities were .87 for extraversion, .80 for agreeableness, .80 for conscientiousness, .83 for neuroticism, and .79 for openness.

Narcissism. Narcissism was measured with the 40-item Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979). Widely considered to be the gold-standard self-report measure of narcissism, the NPI uses a forced-choice format: For each item, participants are required to endorse one of two statements where one statement is the narcissistic option. For example, in the item “(A) I am a born leader; B) Leaders are born not made,” option A is the narcissistic option.

The psychometric properties of the NPI have been well-established (Raskin & Terry, 1988). In this study, the alpha reliability of NPI scores was .87.

Machiavellianism. Machiavellianism was measured with the Mach-IV (Christie & Geis, 1970). This 20-item instrument asks participants to indicate their agreement with the given statements using a 5-point Likert scale (1 = ‘disagree strongly’ to 5 = ‘agree strongly’). Sample items include “Barnum was right when he said there’s a sucker born every minute” and “It is wise to flatter important people.” The alpha reliability of Mach-IV scores in this study was .79.

Psychopathy. Psychopathy was measured with the Self-Report Psychopathy Scale-III (SRP-III; Paulhus, Hemphill, & Hare, in press). The SRP-III contains 40 self-report items asking participants to indicate their agreement on a 5-point Likert scale (1 = ‘disagree strongly’ to 5 = ‘agree strongly’). In the current study, the alpha reliability of SRP scores was .90.

Descriptions of transgressions. Participants were asked to recall four separate recent incidents in which they were the victims of specified transgressions, namely *social rejection*³, *being manipulated*, *being physically bullied*, and *being publicly insulted*. After recalling each

³ Similar to Twenge and Campbell (2003), participants were instructed to recall incidents of social rejection that were not romantic in nature. Therefore, social rejection refers to incidents where the participant was shunned by others or left out of a group activity.

incident participants were told to write a brief description that included what occurred and what the outcome was.

Revenge. After reading these descriptions, participants were asked to indicate how vengeful they were in reaction to these transgressions. On a 5-point Likert scale (1 = ‘not at all’ to 5 = ‘very much’) participants rated to rate two items: (1) the extent to which they wanted revenge and (2) the extent to which they got revenge.

For each transgression type, I computed the means of these two items to form an index of revenge. Alpha reliabilities were .75, .63, .68, and .66 for social rejection, manipulated, bullied, and publicly insulted, respectively.

I also computed a composite revenge score by taking the mean across all four transgression. The alpha reliability of this index was .79.

Results

Table 1 shows the correlations of revenge with the eight personality predictors across the four transgressions and includes the means and standard deviations for the latter. (The complete correlation matrix with all of the means and SDs are included in Appendix B). Note from Table 1 that the mean revenge scores ordered from smallest to largest were social rejection, manipulation, insult, then bullying. This ordering is consistent with an increasing severity of provocation. Indeed, a repeated measures trend analysis indicated a significant linear increase ($F_{1,62} = 14.92, p < .001$).

To evaluate the possibility of pooling the data across gender and ethnicity, I compared the pattern of intercorrelations for (1) males vs. females and (2) Euros vs. East Asians. I used the STATISTICA package to effect a matrix comparison based in structural equation modeling

(SEM) as outlined by Steiger (2005; see also Jennrich, 1970). This technique assesses the extent to which the pattern of intercorrelations is similar across groups.⁴

Results of these analyses indicated that the patterns of intercorrelations were similar across gender ($\chi^2(28) = 40.58$ $p > .05$) and ethnicity ($\chi^2(28) = 39.19$ $p > .05$). Accordingly, the data were pooled and only those results are reported below.

Big Five predictors. As seen in Table 1, the expected negative correlations between agreeableness and revenge were all in the predicted direction, although only two values reached significance. Agreeableness significantly predicted the composite revenge score, $r = -.27$, $p < .01$, one-tailed.

Correlations between neuroticism and revenge were all in the predicted direction, although only one value reached the conventional level of significance, $r = .27$, $p < .01$, one-tailed. The correlation with the composite revenge index was marginally significant ($r = .18$, $p = .08$, one-tailed).

The Dark Triad. As expected, narcissists were vengeful following social rejection, $r = .31$, $p < .05$, one-tailed.⁵ The correlations did not approach significance for any of the other transgressions.

Results with psychopathy were also in line with the prediction: Psychopathy emerged as a significant predictor of revenge across all four transgressions with correlations ranging

⁴ Analyses yield traditional SEM goodness-of-fit indices such as chi-square and root mean square of approximation (RMSEA; Steiger & Lind, 1980). As with more common SEM analyses, the matrices are said to have good fit if the chi-square statistic is not significant. However, although chi-square tests remain in wide use in SEM, they have been criticized for tending to over-reject acceptable models (e.g., Bentler & Bonett, 1980). In cases where the chi-square test is significant, other fit indices such as RMSEA are also examined to determine whether acceptable model fit is evident. Hu and Bentler (1999) suggest that an RMSEA of around .06 is indicative of good fit.

⁵ This correlation was not significantly greater than those for the remaining transgressions.

from .32 to .39; the correlation with the composite revenge index was .45 (for all tests, $p < .05$, one-tailed).

Unpredicted were the strong results for Machiavellianism. Correlations with revenge were significant for three of the four transgressions. Machiavellianism was also significantly associated with the composite revenge score, $r = .47$, $p < .05$, two-tailed.

Given the strong correlations of agreeableness with psychopathy, $r = -.46$, and Machiavellianism, $r = -.57$, I decided to compute partial correlations of agreeableness with the composite revenge score controlling for these Dark Triad variables and vice versa. Regardless of which Dark Triad variable was held constant, agreeableness no longer predicted the composite revenge score (psychopathy held constant: $r = -.06$; Machiavellianism held constant: $r = .00$). In contrast, when controlling for agreeableness, the Dark Triad constructs remained significant predictors (psychopathy: $r = .33$; Machiavellianism: $r = .32$, both $p < .05$, two-tailed).

Discussion

Neuroticism and disagreeableness. The results of Study 1 provided some insight into the interplay of personality and situation in predicting revenge. Although weaker than anticipated the pattern of correlations was consistent with the notion that neuroticism and disagreeableness promote revenge.

Although some correlations were significant and some were not, the patterns across the transgressions appeared consistent in direction and size. Indeed, none of those correlations within transgression differed significantly from each other. Therefore, I do not wish to argue for the notion that specific transgressions are better predicted by specific personality variables.

Note also from Table 1 that none of the three remaining Big Five variables predicted revenge for any transgression. These results dovetail with the previous literature (e.g., Mauger et al., 1992; McCullough et al., 2001; McCullough & Hoyt, 2002; Skarlicki et al., 1999) and support claims for distinctive links between the Big Five variables and proclivity toward revenge.

The Dark Triad. As indicated in Table 1, the Dark Triad variables emerged as key predictors. As expected, narcissists reported increased revenge following social rejection. This finding is in line with the previous literature (e.g., Bushman & Baumeister, 1998; Twenge & Campbell, 2003) but extends that work from provoked aggression to revenge.

As anticipated, psychopathy was a significant predictor of revenge across all four transgressions. These findings are notable for being the first to demonstrate that, like their clinical counterparts (e.g., Williamson et al., 1987), subclinical psychopaths are vengeful. The message about psychopaths and revenge appears to be: Regardless of how psychopaths are provoked, they will seek revenge.

Unexpected were the results with Machiavellianism: Across all four transgressions, Machiavellianism predicted revenge. According to Jones and Paulhus (in press), Machiavellians will only seek revenge in those instances where they stand to personally benefit (i.e., revenge is in their best interest.) This notion suggests that self-benefit is the key mechanism in understanding the current results with Machiavellianism. Perhaps, our participants interpreted the instructions to imply some instrumental benefits in exacting revenge.

The role of disagreeableness also warrants some comment. Analyses revealed that controlling for either Machiavellianism or psychopathy eliminated the prediction of revenge by disagreeableness. This result is not altogether surprising given that, as suggested above, these constructs are more refined versions of many of the facets of agreeableness. In short, it seems

that ‘dark’ personalities allow us to “articulate the links of [revenge] to other personality dimensions” (McCullough et al., 2001, p. 609).

However, previous research indicates that, of the Dark Triad, psychopathy is the best predictor of delinquency in general and, more relevant to the current studies, aggression (e.g., Hare, 2003; LeBreton et al., 2006; Nathanson et al., 2006a; 2006b; Paulhus & Williams, 2002). For this reason, Studies 2 and 3 focus on psychopathy as the ‘dark’ personality predictor of interest.

In sum, Study 1 highlighted the key personality predictors of revenge, and suggested that they generalize across types of transgressions. Study 2 will (1) explore the interplay between personality and trait-like measures of vengeful fantasies and vengeful behaviors with the goal of disentangling these phenomena and (2) consider the role of a likely mediator, namely anger rumination, in perpetuating revenge.

STUDY 2:
EXPLORING THE INTERPLAY
OF TRAIT REVENGE WITH PERSONALITY AND ANGER RUMINATION

Study 1 suggested that neuroticism and psychopathy are the major personality predictors of revenge across transgressions. However, this study is not without its limitations. Although I tried to capture a wide range of transgressions, I included only four out of the many types that people encounter. This limitation arguably hinders the generalizability of my findings. To gain a better understanding of revenge I will have to consider a broader spectrum of transgressions.

In addition, treating vengeful fantasies and behaviors as a single entity in Study 1 may be masking important differences between these phenomena. The substantial overlap observed in Study 1 may be attributable to both being outcomes. For example, it is common in experimental designs to obtain a correlation when combining control and experimental groups despite there being null correlations within those groups. In our case, among those individuals who did not experience a given transgression, none should report fantasizing about or getting revenge, whereas for those who did experience a transgression there may be a high instance of fantasies and behaviors. As a result, within both groups there will be no correlation but when these groups are combined a strong positive correlation will emerge.

Even if this correlation is legitimate, there is an important methodological change between the previous and current study that does not guarantee vengeful fantasies and vengeful behaviors will be correlated. In the current study, these phenomena are considered as trait-like and measured accordingly. As traits, fantasies and behaviors may or may not be correlated.

The current study explored the similarities and differences between two trait measures of revenge, namely, vengeful fantasies and vengeful behaviors. For simplicity, henceforth these terms will refer to trait measures. Their relations with personality predictors, relationships with other reactions to transgressions, and their role(s) as mediator and outcomes were explored. I also addressed the impact of a psychological process, namely anger rumination, to determine its potential impact as a mediator in the personality-revenge relationship.

Trait measures of revenge. For the current study, I turned to established trait measures of revenge. At present there are three published scales to consider.

Among the first to appear was the Vengeance Scale (VS) developed by Stuckless and Goranson (1992). This 20-item measure specifically taps attitudes towards revenge with such items as “It is always better to not seek vengeance” (reversed) and “I believe in the motto ‘an eye for an eye, a tooth for a tooth’”. However, given the VS assesses attitudes towards revenge rather than either vengeful fantasies or behaviors, I did not feel this measure was appropriate for the current study.

Another scale to appear in 1992 came from Mauger and colleagues, namely the Forgiveness of Others scale (FO; Mauger et al., 1992). Despite its name, high scores on the FO suggest a tendency toward “taking revenge, justifying retaliation and revenge, holding grudges, and seeing other people as apt to cause one hurt” (Mauger et al., 1992, p. 174). Items include “When other people insult me, I tell them off” and “I believe that when people say they forgive me for something I did they really mean it” (reversed). I decided against using the FO scale in this study because (1) I felt it did not contain enough items that directly tapped either vengeful fantasies or behaviors, and (2) although it has had some prominent exposure (e.g., McCullough

et al., 2001), the FO is not as widely-used (and, arguably, as well-validated) as the next scale discussed.

By far the most widely used measure of revenge (e.g., Brown, 2003; Finkel, Rusbult, Kumashiro, & Hannon, 2002; Yamhure-Thompson, Snyder, Hoffman, Michael, Rasmussen, Billings, et al., 2005) is that developed by Michael McCullough and colleagues, namely the five item Revenge subscale from the 12 item the Transgression-Related Motivations Inventory (TRIM; McCullough et al., 1998). Participants are asked to consider a recent transgression and to indicate how they acted towards the transgressor. The revenge subscale includes such items as “I’ll make him/her [the transgressor] pay” and “I’m going to get even”. Given its popularity and extensive validation, I decided to include the TRIM-Revenge items in the current study as a measure of vengeful fantasies.⁶

Noticeably absent from the research literature are measures that isolate vengeful *behavior*. To date, measures of this construct are typically study-specific operationalized outcomes (e.g., Aquino et al., 2001; Kim et al., 1998). As indicated above, Mauger et al.’s (1992) FO does not contain enough vengeful behaviors items to compose a scale with sufficient psychometric properties. To rectify this gap in the literature, I created a novel measure of vengeful behaviors described in detail in this study’s Method section and found in Appendix C.

Predicting other reactions to transgressions. Given their potential overlap, there will be some domains in which vengeful fantasies and behaviors will have similar correlates. For example, they should demonstrate similar associations with other, non-vengeful reactions to transgressions.

⁶ Although the TRIM is specifically designed to tap reactions to a particular transgression, it can be easily modified to capture dispositional reactions (McCullough & Hoyt, 2002).

Undoubtedly the most widely studied of these reactions is *forgiveness* (e.g., Boon & Sulsky, 1997; for a review, see McCullough & Witvliet, 2002), defined as an increase in prosocial motivations toward the transgressor (McCullough et al., 1998). Indeed, many studies on forgiveness use the full 12-item TRIM – the five vengeful fantasies items plus the remaining seven items that taps *avoidance*, defined as refraining from thinking about or being around the transgressor – as a measure of this phenomenon (i.e., low TRIM scores mean greater forgiveness).⁷

It seems more appropriate to treat the TRIM scales as measures of vengeful fantasies and avoidance and to measure forgiveness using a separate, standalone measure. The forgiveness measure chosen was the Forgiveness of Others subscale of the Heartland Forgiveness Scale (Yamhure-Thompson et al., 2005). Although this measure is relatively new, it has been extensively validated.

I also included was a measure of an understudied but important reaction, namely *reconciliation*, defined as restoring a relationship following a transgression. A relationship is reconciled when the two parties no longer hold a grudge against the other and treat each other like they did before the transgression. Despite reconciliation's similarities to forgiveness, most researchers believe these phenomena to be distinct (e.g., McCullough, 2001; Yamhure-Thompson et al., 2005; Worthington & Drinkard, 2000).

⁷ More recently, McCullough and colleagues developed an additional six-item subscale that measures *benevolence* (McCullough, Root, & Cohen, 2006). This subscale directly taps motivations towards forgiveness and reconciliation with such items as “I forgive him/her for what he/she did to me” and “I have released my anger so I can work on restoring our relationship to health.” Unfortunately, these items were not yet published when these data were collected so I was unable to include this subscale.

As indicated above, I expect vengeful fantasies and behaviors to show similar patterns of associations with these reactions, namely negative with forgiveness and reconciliation but positive with avoidance.

Different personality predictors? Given that in Study 1 vengeful fantasies were consistently strongly correlated with vengeful behaviors, one might think it is odd to consider them separately. However, as indicated above, there may be important differences between these phenomena that the single-item measures in Study 1 are incapable of detecting. One important difference may be found in their personality predictors. When considering the key personality predictors of revenge from Study 1, neuroticism seems more relevant to vengeful fantasies but psychopathy seems more relevant to vengeful behaviors.

Recall that neurotics are ruminative and easily offended, which makes them prime candidates for revenge. However, neurotics are also reluctant to take direct action in response to these offenses out of their fear of punishment. Their elevated inhibition system (Carver & White, 1994; Gray, 1990) leads them to avoid confrontation whenever possible. Taken together, these tendencies suggest that following a transgression neurotics are likely to find themselves in an approach-avoidance bind: They want to get back at the transgressor but are afraid of the repercussions.

In contrast, psychopaths should not only fantasize about revenge but *get* revenge as well. Psychopaths should be vengeful because they are (1) unlikely to weigh the benefits and costs to getting back at someone, (2) unconcerned with the consequences of their behavior on those around them, and (3) they tend to be aggressive (Hare, 2003; Williams et al., 2007).

In short, neurotics should fantasize about revenge but be unlikely to actually get it. In contrast, psychopaths should fantasize about *and* carry out revenge. These different predictions

will be one way of disentangling vengeful fantasies from behaviors. Another approach is to consider psychological processes.

A potential emotional mediator: Anger. For most people, the desire to get revenge drops over time (McCullough et al, 2003b). For others, however, their vengeful fantasies persist long after the offending incident. This distinction may be the result of the latter group's tendency to rehash the transgression. That is, the persistence of vengeful fantasies may be attributable to *rumination*, defined as persistent and unwanted recurring fantasies about an offending incident (Trapnell & Campbell, 1999). Indeed, rumination has been found to hinder forgiveness and promote vengeful fantasies (e.g., Collins & Bell, 1997; Denson et al., 2006; McCullough et al., 2001; McCullough et al., 2007; Ysseldyk et al., 2007).

A more specific mechanism that taps the lingering negative affect suffered by some transgression victims is *anger rumination*, characterized by unintentional and recurrent fantasies about an anger-inducing episode (Sukhodolsky, Golub, & Cromwell, 2001). Indeed, anger rumination has also been shown to hinder forgiveness (Barber et al., 2005; Burnette et al., 2007) and promote vengeful fantasies (Denson et al., 2006).

As indicated previously, neurotics are easily angered and prone to rumination. Their tendency to fantasize about getting back at their transgressors, particularly long after the transgression has occurred, seems likely to be fueled by persistently clinging to their anger. Indeed, Denson and colleagues (2006) found that neuroticism, anger rumination, and vengeful fantasies are all strongly related to each other. Put differently, anger rumination should at least partially mediate the link between neuroticism and vengeful fantasies.

A potential cognitive mediator: Vengeful fantasies. Whereas vengeful fantasies are the stopping point for neurotics, I expect psychopaths to fantasize about *and* get revenge. To what extent, then, do psychopaths' fantasies impact their behavior?

One possibility is that for psychopaths, vengeful fantasies are, sometimes, a necessary stepping stone to vengeful behaviors. In those situations where it is impossible to get back at the transgressor immediately – for example, the transgressor has run away after the offending incident – psychopaths may fantasize about doing so, which fuels their eventual revenge. In this sense, vengeful fantasies should at least partially mediate the link between psychopathy and vengeful behavior.

Testing for mediation. To test the potentially mediating roles of anger rumination and vengeful fantasies, mediation analyses were conducted. By conducting a mediation analysis, I can determine the extent to which a third variable explains the impact of a predictor on an outcome. In so doing I can better understand the causal mechanisms underlying many psychological phenomena.

I decided to use the mediation approach advocated by Shrout and Bolger (2002). Instead of using Sobel's (1982) z -test as suggested by Baron and Kenny (1986), the newer approach uses bootstrapped samples derived from the data from which confidence intervals around the indirect effect are created. In so doing, the results obtained are more accurate and in turn one can be more confident in the conclusions drawn. More details about these approaches and the advantages of Shrout and Bolger may be found in Appendix D.

Overview

This study focused on dispositional differences in vengeful fantasies and vengeful behaviors. I explored two key personality predictors – neuroticism and psychopathy – along with additional reactions to transgressions. I also explored the impact of an emotional mediator, namely anger rumination, in explaining the expected link between neuroticism and fantasies and also considered fantasies as a cognitive mediator in explaining the expected link between psychopathy and vengeful behavior.

Hypotheses:

- Hypothesis 2.1: Trait measures of vengeful fantasies and vengeful behaviors will be highly intercorrelated and show similar associations with related reactions to transgressions: Positive with avoidance, negative with forgiveness and reconciliation.
- Hypothesis 2.2: Neuroticism will predict only vengeful fantasies, but psychopathy will predict both fantasies and behaviors.
- Hypothesis 2.3: Anger rumination will at least partially mediate the link between neuroticism and vengeful fantasies.
- Hypothesis 2.4: Vengeful fantasies will at least partially mediate the link between psychopathy and vengeful behaviors.

Method

Participants

One hundred forty-three undergraduates (75% female; 47% East Asian heritage, 29% European heritage) enrolled in a large Western Canadian university participated in this study. Participants were compensated with course credit.

Procedure

Participants were recruited via a website that advertised this and numerous other Psychology Department that required participants from our subject pool. Prospective participants logged onto this site and were presented with a list of active studies including this one. To ensure any given study did not have an unfair advantage over other studies in recruiting participants, the order in which the studies were presented was randomized each time a prospective participant logged in. The current study was entitled “Rate Your Personality on the Web.”

Participants were provided with an URL where they would complete the study protocols. Upon accessing the study website, participants were instructed to generate and input a unique login number that was used to identify them in the data file. If they inputted a login number that was already used, participants were instructed to input a new one until a unique login was entered.

After reading and agreeing to a consent form, where complete anonymity was assured, they completed the study protocols and provided demographic information. Finally, participants were thanked and instructed how to obtain their course credit.

Materials

Personality predictors. The same measures of neuroticism and psychopathy used in Study 1 were administered in this study. BFI Neuroticism scores demonstrated a strong alpha reliability of .84. Alpha reliability of psychopathy (SRP-III) scores was .92.

URAT. A novel measure was created to assess numerous trait reactions to transgressions. This measure was called the URAT, an acronym for Understanding Reactions After Transgressions. The URAT is composed of 24 items and four subscales: Revenge fantasies; avoidance (derived from McCullough et al.'s [1998] TRIM); forgiveness (the Forgiveness of Others scale developed by Yamhure-Thompson and Snyder (2002)); and reconciliation, which was a novel measure developed by Nathanson and Paulhus (2006). The item order is jumbled to help reduce response biases.

When assessing dispositional reactions to transgressions, McCullough and Hoyt (2002) advocate having participants recall actual events. With that in mind, participants were instructed to “[t]hink about incidents when somebody was offensive, obnoxious, irritating, got on your nerves, or was annoying.” Using a 5-point Likert scale (1 = ‘Strongly disagree’ to 5 = ‘Strongly agree’), participants were asked to indicate the extent to which they tend to react in the ways indicated. Sample items include “I’m going to get even” (revenge fantasies), “I cut off the relationship with him/her” (avoidance), “I continue to be hard on him/her” (forgiveness, reverse-scored), and “I tried to talk things over with him/her” (reconciliation). Alpha reliabilities were .87 (revenge fantasies), .82 (avoidance), .68 (forgiveness), and .74 (reconciliation).

Trait vengeful behavior. To complement the vengeful fantasies subscale of the URAT, I administered a novel trait measure of vengeful behavior. Items were designed to capture a general tendency toward getting back at transgressors after waiting and planning to do so. This

nine-item measure required participants to indicate their agreement with the items using a 5-point Likert scale (1 = ‘Strongly disagree’ to 5 = ‘Strongly agree’). Sample items include “I usually even the score with people who hurt me” and “When getting back at people, I like to plan it out”. In the current sample, the alpha reliability of revenge behavior scores was .79.

Anger rumination. To measure anger rumination, I administered the six-item ‘Angry Afterthoughts’ subscale of the four-factor, 24-item Anger Rumination Scale developed by Sukhodolsky and colleagues (Sukhodolsky, Golub, & Cromwell, 2001). These items were chosen for numerous conceptual and empirical reasons based on the Sukhodolsky et al. article: These six items best represented the construct; this factor was the most reliable ($\alpha = .86$ vs. .72, .85, .77); and this factor had the highest eigenvalue ($\lambda = 9.61$, vs. 1.58, 1.23, 1.20).

Participants were instructed to “[t]hink about any situation that made you angry” and indicate the extent to which they agreed with the items using a 5-point Likert scale (1 = ‘Strongly disagree’ to 5 = ‘Strongly agree’). Sample items include “Memories of even minor annoyances bother me for a while” and “Memories of being aggravated pop up into my mind before I fall asleep.” The alpha reliability of anger rumination scores was .86.

Results

Table 2 contains the intercorrelations, validities, and descriptive statistics for the measures used in Study 2. The procedure for comparing the patterns of correlations across sexes and ethnicities was the same here as that used in Study 1. Results suggested similar patterns of intercorrelations across sexes ($\chi^2(36) = 53.16, p < .05$; RMSEA = .07) and ethnicities ($\chi^2(36) = 49.19, p > .05$). These results led me to pool the data across sexes and ethnic groups and conduct one set of analyses for the whole dataset.

Intercorrelations with other reactions to transgressions. Note from Table 2 that, as expected, the trait measures of vengeful fantasies and vengeful behavior were strongly intercorrelated, $r = .66, p < .01$, two-tailed. Also as predicted, vengeful fantasies and vengeful behavior showed largely similar patterns of correlations with the other reactions to transgressions. Each outcome was correlated positively with avoidance (fantasies: $r = .44$; behavior: $r = .15$) and negatively with forgiveness (fantasies: $r = -.60$; behavior: $r = -.45$) and reconciliation (fantasies: $r = -.34$; behavior: $r = -.20$), all of which were significant at $p < .05$, one-tailed.

Personality predictors. As expected, vengeful fantasies were significantly predicted by psychopathy, $r = .52, p < .01$, one-tailed. The predicted association with neuroticism was only marginally significant, $r = .11, p < .07$, one-tailed.

As expected, psychopathy was a powerful and significant predictor of vengeful behavior, $r = .58, p < .01$, one-tailed. However, neuroticism was not a significant predictor, $r = -.08$, n.s.

Disentangling vengeful fantasies and vengeful behavior. To control for their overlap, vengeful fantasies and vengeful behaviors were entered together as predictors of neuroticism. Results suggested a suppression effect: The partial correlation of neuroticism with vengeful fantasies was $r = .17, p < .05$, one-tailed, and that with vengeful behavior was $r = -.15, p < .06$, two-tailed.

Mediation. Anger rumination was examined as a potential mediator of the link between neuroticism and vengeful fantasies. The impact of the indirect effect of anger rumination was tested using Shrout and Bolger's (2002) techniques described above and run using SPSS syntax created by Preacher and Hayes (2004). In each analysis, 1000 bootstrapped samples were drawn. Notation from Figure 1 is used to maintain conceptual clarity and all values reported are standardized regression coefficients.

As seen in Figure 2, anger rumination was a full mediator of the direct effect of neuroticism on vengeful fantasies: The total effect, $c = .10$, dropped to a direct effect of $c' = -.05$ once anger mediation was added to the model. As expected, the indirect effect of anger rumination, $ab = .15$, was significant at $p < .05$, one-tailed.

The same approach was used to evaluate vengeful fantasies as a mediator of the link between psychopathy and vengeful behavior. As seen in Figure 3, vengeful fantasies emerged as a significant partial mediator. The total effect of psychopathy on vengeful behaviors, $c = .58$, dropped to a direct effect of $c' = .50$ when vengeful fantasies were added. In line with the hypothesis, the indirect effect of vengeful fantasies, $ab = .08$, was significant at $p < .05$, one-tailed.

Discussion

Following the results of the Study 1, the current study attempted to disentangle *vengeful fantasies* and *vengeful behaviors* at a trait level. The current study expanded on Study 1 in a number of respects by evaluating standalone, trait-level measures of these constructs. In addition, this study considered the impact of psychological processes as potential mediators of the links between personality and revenge.

Intercorrelations of vengeful fantasies and behaviors. In line with Hypothesis 2.1, trait measures of vengeful fantasies and behaviors were strongly intercorrelated. As might be expected from such a strong relationship, these outcomes showed similar patterns of correlations with the other reactions to transgressions. Of particular note are the results with the vengeful

behavior scale: Given the novelty of this measure, the pattern of results obtained strongly suggests this measure is valid.

Differentiating vengeful fantasies from behaviors. More interesting, however, were the results that addressed the differences between vengeful fantasies and behaviors. In line with Hypothesis 2.2 and the previous literature (e.g., Denson et al., 2006; McCullough et al., 2001), neurotics reported high levels of vengeful fantasies but low levels of vengeful behavior. This pattern lends credence to the aforementioned notion of the approach-avoidance bind: Neurotics fantasize about the various ways they can get back at the transgressor but are unlikely to actually carry out those fantasies, the latter of which is most likely due to their heightened inhibition system and fear of punishment. If neurotics do engage in any sort of retaliatory behavior it is likely to be displaced aggression (Denson et al., 2006).

In contrast, psychopathy was a significant predictor of both vengeful fantasies and behaviors, consistent with Hypothesis 2.2. The dynamics of this relationship will be discussed in detail below.

Anger rumination and neuroticism. Among the more interesting findings in Study 2 were those obtained with anger rumination. Although neurotics' tendency to ruminate has been well established (e.g., Trapnell & Campbell, 1999), to date no one has examined the extent to which rumination accounts for neurotics' vengeful fantasies. My findings suggest that, in fact, anger rumination is entirely responsible, which supported Hypothesis 2.3.

Neurotics' desire to get back at someone is completely attributable to their inability to let go of the bitter emotional sting brought on by a transgression. Put differently, the vengeful fantasies of neurotics may be said to be a byproduct of their tendency to maintain the anger induced by a stressful event long after it took place. Perhaps more tragic is the notion that anger

rumination metaphorically provides the fuel to a fire that may never be extinguished: Rather than moving on with their lives and trying to let the passage of time dull or erase the pain, neurotics persistently cling to their anger and in turn plot vengeance that will never come. Note also that our results indicated that neurotics avoid and neither forgive nor reconcile with the transgressor. All of these findings suggest that when reacting to transgressions, neurotics choose those strategies that are highly maladaptive in terms of their health and relationships (McCullough et al., 2001; Witvliet et al., 2001; Ysseldyk et al., 2007).

Vengeful fantasies and psychopathy. Consistent with Hypothesis 2.4, vengeful fantasies partially explained psychopaths' tendency to get revenge. As suggested above, in some instances, fantasizing is required. Psychopaths are not always able to get revenge immediately following a transgression: The transgressor may no longer be present, the victim may be in extreme pain or suffering physical injuries, etc. In cases like these, psychopaths are forced to fantasize about revenge. Eventually, when the opportunity to get revenge presents itself, psychopaths' seize it. In this sense, vengeful fantasies are a sort of 'stepping stone' for psychopaths to help them reach their goal of getting revenge.

However, vengeful fantasies only partially explain psychopaths' vengeful tendencies. The significant direct path from psychopathy to vengeful behavior suggests impulsivity and callousness play important roles in fostering revenge. Although psychopaths must sometimes wait to get back at someone, they should impulsively take advantage of an immediate opportunity. Indeed, results from a previous study of ours yielded a null correlation between psychopathy and time waited to take revenge (Nathanson & Paulhus, 2006). In addition, psychopaths' impulsivity should lead to deficiencies in adequately considering the consequences of their actions. This lack of insight should in turn lead to making a poor choice

about how to react to a transgression, namely getting revenge, given its many negative outcomes (e.g., Witvliet et al., 2001).

In addition, as suggested by McCullough and Hoyt (2002), callousness should facilitate vengeful behavior. Psychopaths' callousness contributes to the range and severity of their antisocial behavior in general (Hare, 2003). Revenge is no exception: Results from our aforementioned initial study suggested that psychopaths' revenge tends to be brutal (Nathanson & Paulhus, 2006). In addition, psychopaths are unconcerned about the quality of their interpersonal relationships. Their vengeful tendencies likely only worsen their already poor relationships, which may be characterized by coercive sex, infidelity, and even domestic abuse (Spidel, Vincent, Huss, Winters, Thomas, & Dutton, 2007; Williams, Spidel, & Paulhus, 2005).

Summary. Study 2 addressed several key issues in understanding revenge: (1) The similarities and differences between vengeful fantasies and vengeful behaviors, and (2) the role of psychological processes. Although these two constructs show similar patterns of associations with other reactions to transgressions – positive with prosocial, negative with antisocial – one key difference is in their personality predictors. Neurotics fantasize about revenge but do not take it. Their tendency to fantasize is entirely explained by their persistent clinging to their anger felt as a result of the transgression. In contrast, psychopaths use vengeful fantasies as a means to an end, namely eventually getting revenge when they cannot immediately do so.

As yet unaddressed is the extent to which revenge is helpful in dealing with transgressions. Put differently, does revenge offer any consolation or emotional benefit to the avenger? Similarly, if there is such an upside, is it present in the immediate, the long-term, or

both? Study 3 addressed these issues by considering whether revenge contributes to short-term relief or long-term recovery when compared against conventional coping behaviors.

STUDY 3:

REVENGE, COPING, RELIEF, AND RECOVERY

The previous studies explored (1) whether personality predicts revenge across situations, and (2) the interplay of personality and psychological processes in understanding trait-level vengeful fantasies and vengeful behaviors. As yet unaddressed is a crucial question: Is revenge beneficial or not?

This question remains an open one. Recall from the Introduction that although numerous potential benefits have been suggested, such as seeing the offender suffer, restoring self-esteem, or saving face (e.g., Frijda, 1994; McCullough et al., 2001), evidence remains largely absent. The only indications of adaptiveness come from anthropological (Chagnon, 1988) and ethological sources (de Waal, 1991; de Waal and Luttrell, 1988).

Overall, the human research points to the downsides of revenge. Research using health outcomes suggests that that prosocial reactions like forgiveness have numerous benefits but that revenge is detrimental (e.g., Maltby, Day, & Barber, 2004; Yamhure-Thompson & Snyder, 2002; Ysseldyk et al., 2007). Some also suggest that a chronic, trait-like tendency towards revenge has powerful long-term costs to psychological well-being (Witvliet et al., 2001).

Given these costs, why do people get revenge? That is, if there are downsides to getting revenge but benefits to more prosocial reactions like forgiveness, why would anyone choose the former? The answer may come by considering *psychological benefits*: To the extent revenge provides reinforcement to the avenger by making them feel good, they may be more likely to act this way in the future.

With this notion in mind, the current study addressed whether revenge provides a psychological reward to the avenger. In particular, it remains unclear whether getting revenge brings about immediate relief or long-term recovery to the avenger.

To date, the only study to explore this issue is that by Crombag, Rassin, and Horselenberg (2003). Participants were asked to recall an incident from the previous year where they had vengeful feelings and whether or not they acted on them. Those participants who got revenge were then asked how they felt after doing so: Nearly three-quarters of these participants indicated they felt 'satisfied' or 'triumphant'. All participants were asked whether their urge to revenge had subsided at present and, to the authors' surprise, equal proportions of avengers and non-avengers reported lingering vengeful feelings.

At best, however, this study only provides a vague indication that revenge has any psychological benefits. Although avengers reported feeling good immediately, it is unclear how non-avengers felt given they were only asked why they did not get revenge. In turn, we do not know whether avengers felt better than, worse than, or the same as those who did not get revenge. Similarly, in exploring the long-term effects, both groups were asked a *different* question than those asked regarding the short-term effects, making a comparison of the immediate and later effects of revenge highly problematic.

In addition, Crombag and colleagues (2003) limited the time frame of transgressions to the past year. Such a narrow time frame may not be adequate to allow for sufficient recovery. Put differently, given the importance of time on effective recovery (DeLongis & Holtzman, 2005), limiting the transgressions of interest to the past year does not allow for an adequate exploration of the effects of time.

Finally, Crombag and colleagues (2003) did not ask those participants who did not get revenge what, if anything, they did instead. This limitation means that the group of non-avengers represents a hodgepodge of alternative reactions. To unpack this hodgepodge and to rectify the other flaws of the Crombag (2003) study, I turned to a well-established literature that has addressed them extensively: Coping (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986).

Coping

Research on coping, defined as the cognitive and behavioral strategies employed to manage the internal and external demands of situations that are appraised as stressful (Folkman et al., 1986), provides a useful context within which to address the current issue. For decades, the coping literature has addressed the different behaviors individuals use to deal with stressful situations (Folkman et al., 1986; Lee-Bagley, Preece. & DeLongis, 2005; O'Brien & DeLongis, 1996). This literature offers a host of additional reactions to consider alongside those traditionally examined in the forgiveness and revenge literatures.

Coping behaviors have traditionally been divided into two major categories. *Emotion-focused* behaviors are those that attempt to deal with the negative emotions brought on by a stressful situation, such as deriving personal meaning from the death of a loved one. *Problem-focused* behaviors are those that attempt to change the situation, such as speaking to the police after being assaulted. More recently, DeLongis and colleagues (e.g., O'Brien & DeLongis, 1996) added a third category: *Relationship-focused* behaviors are those that aim to maintain or repair relationships following a stressful incident, such as empathizing with a friend after they shared a secret.

DeLongis and Holtzman (2005) identified several key issues that must be considered when exploring the effectiveness of coping. These include: The nature of the outcome chosen, the type of transgression, and the importance of time. These issues and how I dealt with them in the current study will now be discussed.

Nature of the outcome. An important issue in determining whether a given coping behavior is deemed 'effective' is the particular outcome chosen to measure effectiveness. That is, the particular choice of criterion used to indicate whether or not coping was successful directly impacts the predictions that may be made about particular coping behaviors (DeLongis & Holtzman, 2005). A number of different outcomes are common in the coping literature ranging from support and affection (DeLongis & Preece, 2002) to degree of physical pain (Newth & DeLongis, 2004).

As indicated above, for the current study I am interested in the psychological benefits of revenge. Specifically, I am interested in whether revenge is immediately rewarding by improving affect (relief) and ultimately rewarding by improving psychological well-being (recovery). I felt these particular benefits were worthy of attention because (1) they are commonly used as outcomes in the coping literature (e.g., Manne, Ostroff, Sherman, Glassman, Ross, Goldstein, et al., 2003) and, moreover, (2) the immediate reward may explain why revenge persists despite its costs. Rather than ask three different questions (Crombag et al., 2003), I asked all participants how their reaction(s) made them feel, both immediately and at present.

Type of transgression. In considering the impact of coping or revenge on relief and recovery, the type of transgression (i.e., the nature of the stressor) must be taken into account. Unlike in Study 1 where the types of transgression to be recalled were clearly specified, in the

current study participants were allowed to describe whatever type they wanted. Although the current approach may be more externally valid, it does raise an important issue.

DeLongis and Holtzman (2005) suggest that the type of transgression or stressor directly impacts whether a given coping behavior will likely be chosen and, moreover, effective. To the extent there is a match between the behavior chosen and the nature of the transgression, that behavior should be more effective. For example, Aldwin (1994) suggests that in those situations where one is harmed or has lost something or someone meaningful, emotion-focused coping is highly effective. However, when the stressor is something one can anticipate (e.g., a dissertation defense), then problem-focused coping is the more suitable strategy.

Crombag and colleagues (2003) did investigate the impact of type of transgression on the likelihood to get revenge (and found none) but they did not address whether transgression type influenced the effectiveness of revenge. It remains unclear, then, whether revenge is more or less effective for some transgressions compared to others.

Moreover, failing to account for the type of transgression may lead to confounded results. To the extent certain transgressions foster certain coping behaviors, the effectiveness of these behaviors may be spuriously driven by the influence of the transgression. Put differently, one must control for the type of transgression to determine the unique effect of coping behaviors on effectiveness.

In short, the type of transgression must be taken into account. Note also that doing so has the added benefit of controlling for biases in recalling certain transgressions over others (McCullough, Emmons, Kilpatrick, & Mooney, 2003a; Wachtel, 1997).

The importance of time. DeLongis and Holtzman (2005) stress that time is an essential factor in addressing the effectiveness of a given coping behavior. Any given behavior may be effective, detrimental, or even neutral in the short- or long-terms. For example, in a study on married couples, O'Brien (2000) found that husbands who reported a stressful incident on a given day and coped with empathy reported *increased* marital tension that day but *decreased* tension the next day. In contrast, for wives, empathy led to decreased tension on both days. Another study on parents and children demonstrated that although interpersonal withdrawal (i.e., physical avoidance) lowered next-day tension (DeLongis & Preece, 2002), a follow-up study two years later suggested that this early withdrawal was associated with *increased* tension at this later date (Preece & DeLongis, 2005).

In short, time must be taken into account when evaluating the effectiveness of coping. I addressed this issue by asking participants how their reaction(s) to the transgressions made them feel at the time and at present. That is, I wanted to measure whether participants were able to find *relief* in the short-term and *recovery* in the long-term. Moreover, unlike Crombag and colleagues' (2003) study, I did not limit participants' transgressions to the last year and instead allowed them to recall a transgression from any point in time.

Snapshot approach vs. daily process. One additional issue to be considered is the approach taken in asking participants about their transgressions, coping behaviors, and reactions. Similar to the approach taken by Crombag and colleagues (2003), in the current study I decided to take a 'shotgun' or 'snapshot' approach. That is, participants were asked to recall a transgression and provide the requested details. This approach is contrasted with the so-called 'daily process' approach where participants are asked to keep regular records of the stressors

they encounter, how they coped, and how they felt as a result (e.g., Lee-Baggley et al., 2005; Newth & DeLongis, 2004).

Although this latter approach has its advantages, particularly its ability to capture the ‘online’ dynamics (DeLongis, Hemphill, & Lehman, 1992; Tennen, Affleck, Armeli, & Camey, 2000), its major downside is its costliness in terms of time and labor (DeLongis & Holtzman, 2005). As a result it is often difficult to include additional measures in the same study. In contrast, what the snapshot approach lacks in immediacy it makes up for with its economy, efficiency, and being undemanding in what it asks of participants. Given that the current data were collected as part of a larger study with many additional measures, I felt the snapshot approach was the most appropriate.

Predicting relief and recovery

Revenge. I expect revenge to aid short-term relief but hinder long-term recovery.⁸ As suggested above, the immediate psychological benefit to revenge may explain why someone would choose to respond this way despite the eventual costs. That is, the benefit that comes from getting revenge may act to reinforce this behavior, which in turn contributed to previous, current, and future acts of revenge.

Compared to those individuals who do not seek revenge, those who do should face a slew of eventual negative consequences, from broken relationships to criminal charges or jail time, all of which should worsen their psychological well-being. Although Crombag and colleagues’

⁸ Some behaviors that are arguably analogous to revenge in terms of similar patterns of short-term benefits and long-term costs are drinking alcohol or taking drugs. The immediate effects of consuming these substances are pleasurable but eventually one feels worse than they did before they drank or took the drug. For many individuals, despite the eventual costs, the immediately pleasurable sensations they derive lead them to repeatedly engage in these behaviors.

(2003) study suggested there were no long-term benefits or detriments to avengers compared to non-avengers, by limiting the time frame to one year the full deleterious effects of revenge may not have been fully manifested. In turn, revenge should be a *negative* predictor of long-term recovery.

Coping. In terms of coping, the use of a given coping behavior is not synonymous with successful relief or recovery. Put differently, no one coping behavior is intrinsically good or bad (Lazarus & Folkman, 1984). However, one can make predictions about which forms of coping will be associated with successful versus unsuccessful relief or recovery, i.e., which may be considered ineffective or effective.

McCrae and Costa (1986) found that such behaviors as self-blame and avoiding the transgressor both cognitively and physically – what may generally be classified as “passive emotion-focused strategies” (Lee-Baggeley et al., 2005, p. 1167) – were ineffective, i.e., these behaviors failed to reduce distress. Similar results were reported by McCullough and colleagues (2001) who found that individuals with high trait levels of avoidance reported lower life satisfaction. In the current study, I expect self-blame, cognitive avoidance, and physical avoidance to be negatively associated with relief and recovery.

In contrast, there are a series of behaviors that should be effective at promoting relief and recovery. For example, so-called “mature coping” behaviors should be effective. McCrae and Costa (1986) found that support seeking, deriving personal meaning from an incident (i.e., positive reappraisal), and taking action to address or rectify a stressful incident (i.e., problem-solving) reduced distress. Similar results were reported by Newth and DeLongis (2004) who found that positive reappraisal leads to reduced pain (see also Folkman et al., 1986).

In addition, as indicated above, prosocial reactions to transgressions like forgiveness and reconciliation have shown consistent positive links with health outcomes – both physical and psychological (e.g., Witvliet et al., 2001; Ysseldyk et al., 2007). Taken together, in the current study I expect support seeking, meaning making, problem solving, forgiveness, and reconciliation to predict relief and recovery.

Personality. Just as the type of transgression must be taken into account in exploring the effectiveness of coping, so too must personality. That is, to the extent personality impacts the coping behaviors chosen and effectiveness, it must be controlled for to obtain the unique influence of coping on effectiveness. Indeed, the influence of personality has been a longstanding topic addressed in the coping literature (e.g., DeLongis & Holtzman, 2005; Lee-Bagglely et al., 2004; McCrae & Costa, 1986).

Based in large part on the results of Studies 1 and 2, the personality constructs of particular interest in the current study are psychopathy and neuroticism. Given the consistent link between psychopathy and revenge, I expect the same result to hold in the current study.

In terms of neuroticism, considerable research has been done on its links with coping and effectiveness. Neurotics tend to report high levels of self-blame and cognitive and physical avoidance but low levels of problem-solving (Lee-Bagglely et al., 2004; O'Brien & DeLongis, 1996; McCrae & Costa, 1986). My results from Study 2 largely dovetail with these findings and in addition suggest that neurotics neither forgive nor reconcile, both of which have demonstrated benefits to health (e.g., Witvliet et al., 2001). As might be expected by (1) their choice of coping behaviors and (2) their overall irritability and high negative affect, neurotics experience a slew of negative outcomes such as poorer health and psychological well-being (e.g., DeLongis & Holtzman, 2005; Newth & DeLongis, 2004; Ozer & Benet-Martínez, 2006). In the current study,

I expect neurotics to (1) report high levels of cognitive avoidance, physical avoidance, and self-blame, (2) report low levels of problem-solving, forgiving, and reconciling, and (2) show poor relief and recovery.

Overview

The current study examined how revenge and a range of other coping behaviors predict psychological well-being following a transgression using a ‘snapshot’ (i.e., cross-sectional, single transgression) approach. I was particularly interested in exploring whether revenge improved well-being in the short-term (i.e., relief) and the long-term (i.e., recovery) and considering its effectiveness against that of other coping behaviors. Given the numerous issues inherent in addressing this topic (DeLongis & Holtzman, 2005), I also explored (1) the impact of transgression type, and (2) the influence of personality, particularly psychopathy and neuroticism.

Hypotheses:

- **3.1:** Psychopathy will positively predict revenge.
- **3.2:** Neuroticism will positively predict cognitive avoidance, physical avoidance, and self-blame, but negatively predict problem-solving, forgiveness, and reconciliation.
- **3.3:** Neuroticism will negatively predict relief and recovery.
- **3.4:** Revenge will positively predict relief but negatively predict recovery. Put differently, revenge will be beneficial in the short-term but harmful in the long-term.
- **3.5:** Cognitive avoidance, physical avoidance, and self-blame will negatively predict relief and recovery.

- **3.6:** Support seeking, meaning-making, problem-solving, forgiveness, and reconciliation will positively predict relief and recovery.

I did not make predictions for empathy or the silent treatment. Results with these variables are included for completeness.

Method

Participants

One-hundred eighty-eight undergraduates (77% female; 24% European heritage, 61.5% East Asian heritage) enrolled in a large Western Canadian university participated in this study. Participants were compensated with course credit.

Procedure

The procedure for this study was similar to that of Study 2: Participants completed a series of online protocols and were identified using unique login numbers. The major difference in the current study was the inclusion of the ‘payback or coping’ anecdotes, described below.

Materials

Personality measures. The measures of psychopathy and neuroticism used in Studies 1 and 2 were again administered here. Each showed strong alpha reliabilities (psychopathy [SRP-III]: alpha = .92; BFI neuroticism; alpha = .81.).

Revenge or coping anecdotes. Participants were asked to write about incidents in which they were the victims of a transgression.⁹ The exact instructions were as follows:

Describe an incident when you thought about getting back at someone who did something bad to you. How long ago was it?

If you actually got back at the person who hurt you, please give as much detail as possible. Make sure to include (a) how long you waited, (b) how you felt afterwards, and (c) how you feel about it now.

If you did not get back at the person who hurt you, how did you cope with the incident? Please give as much detail as possible, including (a) whether the coping strategy made you feel better back then, and (b) how you feel about it now.

To code these anecdotes I devised a detailed system to measure revenge, other forms of coping, and type of transgression as well as relief and recovery. The complete and detailed coding system is found in Appendix E; the key aspects of this system are summarized below.

The anecdotes were coded by a trained rater. To obtain estimates of inter-rater reliability another trained rater coded half of the anecdotes and then I correlated the two overlapping sets of ratings and applied the Spearman-Brown correction formula.

Coding revenge and coping. The coding of revenge and other forms of coping was dichotomous and designed to indicate presence (1) or absence (0) of the variable being coded. Given the above instructions, revenge was coded as mutually exclusive from all other reactions.

⁹ Recall that in this study, like in the other two studies, participants were guaranteed complete anonymity. Aside from the obligation from our IRB to do so, we intended for the guarantee of anonymity to encourage participants to be open and honest in describing these transgressions and their reactions. Although there is no way to verify the accuracy of these anecdotes, after reading the anecdotes and noticing the often serious content and personal revelations that emerged we feel confident that participants were being honest.

A total of ten coping behaviors were coded. Four of these (forgiveness, reconciliation, cognitive avoidance, physical avoidance) were similar to those assessed as trait measures in the URAT. The six remaining coping behaviors were derived from the recent literature (e.g., Lee-Baggley et al., 2005). These included examples of problem-focused coping (e.g., problem-solving), emotion-focused coping (e.g., empathy), and relationship-focused coping (e.g., support-seeking). More difficult to categorize were three others: self-blame, silent treatment, and meaning-making.

Any given anecdote could be coded for multiple non-vengeful behaviors. For example, a participant could report forgiving the transgressor, seeking social support, and engaging in meaning making. The participant would receive scores of '1' for each of these reactions.

Coding relief and recovery. I also coded how participants' reactions made them feel immediately and at the time of writing the anecdote. These variables were termed *short-term relief* and *long-term recovery*. Unlike revenge and coping, scores for relief and recovery were polychotomous: A score of '-1' was given for regret or other misgivings; a score of '1' was given if the participant was satisfied with their actions or has successfully 'moved on' from the transgression. Scores of 0 were given where there was insufficient information or the participant appears to have 'recovered' due to temperament or the passage of time, i.e., without demonstrating any of the coded reactions. Put differently, to receive a non-zero score participants had to indicate that the stated efforts they took to recover were either unsuccessful (-1) or successful (1).

Coding for transgression type. Recall that certain types of individuals may be more likely to experience certain types of transgressions than others (e.g., neurotics experiencing stress-inducing situations) and, similarly, certain transgressions may tend to be followed by particular

reactions (e.g., aggression followed by revenge). With these issues in mind, two trained raters coded the anecdotes for *transgression type*. Nine types were chosen after reading half of the anecdotes and creating categories out of the specific transgressions. These types included betrayal (e.g., having a secret told to unwanted others), perceived unfairness (e.g., not playing during a sporting event), and irresponsibility (e.g., failing to return loaned course notes); a full list is found in Appendix E.

Raters were able to code transgression type from 73% of the anecdotes. The specific transgressions reported ranged from minor theft to sexual abuse; several complete anecdotes are found in Appendix F. Three of the nine types – betrayal, aggression, romantic offenses – made up 73% of all transgressions coded.

Coding for delay. Delay between the transgression and the time of writing the anecdote was also coded in years.¹⁰ Results indicated a mean delay of 3.09, or roughly three years, one month.

Results

The descriptive statistics and intercorrelations among the personality predictors, revenge, the remaining reactions to transgressions, and coping behaviors are found in Table 3. As indicated on the diagonal of Table 3, the alpha reliabilities for the two personality questionnaires -- psychopathy and neuroticism -- were in line with those from the previous studies. Moreover, the inter-rater reliabilities for the variables coded from the anecdotes were high, ranging from .72

¹⁰ Note that the design of Study 3 confounds *time for recovery* and *time when transgression occurred*. That is, the time since the transgression may induce biases in memory. To separate these two effects would require a laboratory study where these variables are manipulated (e.g., participants experience transgressions at different times and are given different amounts of time to recover).

to .99. As in Study 2, the pattern of results were similar across sexes, ($\chi^2(76) = 119.75, p < .05$; RMSEA = .06), and ethnicities ($\chi^2(76) = 150.31, p < .05$; RMSEA = .05) suggesting it was acceptable to pool the data. The pooled sample showed a pattern similar to those within the groups.

Note also from Table 3 that the delay between when the incident took place and the writing of the anecdote was reliably coded (inter-rater reliability = .98). However, its correlation with other variables in this study was minimal and non-significant. Therefore, it was omitted from Table 3.

Overall rates of reactions to transgressions. Recall that the scores for all reactions – vengeful and non-vengeful – were dichotomous. Note from Table 3 that a substantial number -- 28 percent of participants -- reported engaging in revenge. Indeed, it was second in popularity only to seeking support (30%). The least common reactions were self-blame (5%) and reconciliation (4%).

Personality predictors of reactions to transgressions. As indicated in Table 3, in line with the hypothesis, psychopathy was a positive and significant predictor of revenge ($r = .29, p < .05$, one-tailed). Similarly, neuroticism was a significant negative predictor of forgiveness ($r = -.12, p < .05$, one-tailed). Contrary to the prediction, neuroticism did not significantly predict cognitive avoidance, $r = .11$, or physical avoidance, $r = .09$, though both correlations were in the expected direction. Unpredicted was the significant correlation of neuroticism with meaning making ($r = -.16, p < .05$, two-tailed).

Predicting relief and recovery. Table 4 shows the correlations of personality and vengeful and non-vengeful reactions with relief (short-term) and recovery (long-term). These outcomes were significantly inter-correlated, $r = .29, p < .05$, two-tailed. In addition, 57% of

participants were coded as experiencing immediate relief whereas 59% of participants were coded as experiencing eventual recovery.

Results indicated that, as predicted, opting for revenge led to short-term relief, $r = .29, p < .05$, one-tailed. However, contrary to the hypothesis, in the long-term, choosing revenge had no effect on recovery $r = -.05$, n.s.

Contrary to predictions, most of the non-vengeful reactions to transgressions showed null associations with relief and recovery. However, there were several notable exceptions. In line with the hypotheses, relief was hindered by self-blame ($r = -.21, p < .05$, one-tailed), and cognitive avoidance ($r = -.13, p < .05$, one-tailed). Contrary to expectation, problem solving also hindered relief ($r = -.22, p < .05$, two-tailed).

In addition, I found the expected positive association of recovery with meaning-making ($r = .26, p < .05$, one-tailed) and reconciliation ($r = .13, p < .05$, one-tailed). Finally, contrary to predictions, neither forgiveness nor support-seeking predicted either relief (forgiveness: $r = -.03$; support-seeking: $r = -.07$) or recovery (forgiveness: $r = .09$; support-seeking: $r = .02$, all n.s.).¹¹

¹¹ Several researchers suggest that the extent to which a given coping behavior is effective or ineffective may be influenced by total coping effort (Ptacek, Smith, & Zanas, 1992; Vitaliano, Russo, Carr, Maiuro, & Becker, 1985). For example, those who devote all of their effort towards an effective behavior may experience more positive outcomes than those who devote only some effort.

To account for this potential confound, the aforementioned researchers suggest computing *relative use scores* for all coping behaviors. In the current study, given that revenge was coded as mutually exclusive from all other coping behaviors, scores for revenge already function as relative use scores. For the non-vengeful coping behaviors, relative use scores were computed by dividing scores for each behavior over the sum of all non-vengeful behaviors. I correlated these relative use scores with relief and recovery. No differences were observed in the pattern of results with these new correlations compared to that with the raw coping scores. As might be expected from these results, I also did not find any differences between the new and original regressions.

Comparing vengeful and non-vengeful coping. Given the above results, I wanted to evaluate which reactions were uniquely predictive of each of relief and recovery. Put differently, I wanted to compare vengeful and non-vengeful coping as predictors of each outcome. Multiple regressions were used for this purpose.

Results from these analyses are found in Figures 4A and 4B. As seen in Figure 4A, after controlling for the key non-vengeful coping predictors, revenge remained a significant negative predictor of relief, $\beta = -.19, p < .05$, two-tailed. Of the three non-vengeful coping behaviors, self-blame remained significantly negatively related to relief, $\beta = -.16, p < .05$, two-tailed, whereas problem solving was only marginally predictive, $\beta = -.13, p < .08$, two-tailed.

Figure 4B shows the results of the similar regression predicting long-term recovery. Revenge was not a significant predictor, $\beta = .03$, n.s. Of the two non-vengeful coping behaviors, only meaning making was a significant positive predictor, $\beta = .25, p < .05$, two-tailed.

Controlling for type of transgression. Recall the concern that type of transgression may generate spurious correlations between coping choice and outcome. To address this concern, I wanted to determine whether the results obtained for the two beneficial coping behaviors (revenge and meaning making) held within transgression type.

As indicated above, the most common types of transgressions were betrayal, aggression, and romantic offenses. Indeed, revenge remained a consistent, moderate predictor of relief (betrayal: $r = .20$; aggression: $r = .53$; romantic offenses: $r = .20$). Similarly, meaning making was a consistent and moderate predictor of recovery (betrayal: $r = .30$; aggression: $r = .40$; romantic offenses: $r = .35$).

Controlling for personality. Similar to the above analyses for type of transgression, I addressed the concern that the patterns of results for revenge and meaning making were spuriously attributable to the effects of personality. To that end, I computed partial correlations controlling for the relevant personality predictor.

After controlling for psychopathy, revenge remained a significant positive predictor of relief, $r = .27, p < .05$, two-tailed. Similarly, after controlling for neuroticism, meaning making remained a significant positive predictor of recovery, $r = .22, p < .05$, two-tailed.

Discussion

Personality predictors of revenge and coping. In line with the findings from Studies 1 and 2 and Hypothesis 3.1, psychopathy emerged as a significant predictor of revenge. Moreover, this result bolsters the validity of the anecdote ratings.

I obtained only mild support for Hypothesis 3.2. Although many of the predicted coping behaviors were uncorrelated with neuroticism, a notable exception was forgiveness: Similar to the results observed in Study 2, neurotics were unlikely to forgive. In addition, consistent with Hypothesis 3.3, neurotics reported poorer relief and recovery. This finding is in line with previous research indicating neurotics demonstrate poor psychological and physiological health outcomes (Ozer & Benet-Martínez, 2006).

The road to relief. My results indicated that short-term relief and long-term recovery, although related, are best achieved through different behaviors. In the short-term, revenge is rewarding to the avenger, which is consistent with Hypothesis 3.4. That is, regardless of the type of transgression experienced and after controlling for psychopathy, revenge temporarily assuages

negative affect and at the very least returns the avenger to their pre-transgression emotional state. This finding is novel in empirically demonstrating that revenge has psychological benefits.

There are several possible explanations of this finding. Consider that revenge involves the calculation and execution of a planned response. Like any other plan, one should derive a certain amount of immediate pleasure when it is carried out successfully. This reaction may be especially true of revenge given the extensive deliberation, plotting, and effort that goes into it.

Other possible explanations stem from considering the other, non-mutually exclusive potential benefits of revenge (e.g., Frijda, 1994). In addition to deriving pleasure from successfully carrying out their plan, avengers may also derive pleasure from seeing the transgressor suffer. That is, avengers may experience some immediate ‘primal’ or ‘visceral’ enjoyment out of simply harming the offending party (Nell, 2006). The avenger may get also some relief from their sense of restored honor or self-esteem. Feeling better about their reputation or overall sense of self-worth should help assuage avengers’ negative feelings. In sum, there are numerous potential paths that foster the immediate reward experienced after getting revenge.

Although revenge is immediately beneficial, other forms of coping are not. In line with Hypothesis 3.5, cognitive avoidance and self-blame were associated with a lack of relief. More surprising was the result with problem-solving given it was a *negative* predictor. When these coping behaviors were included in a regression with revenge predicting relief, of the coping behaviors only self-blame emerged as significant.

The immediately detrimental effects of self-blame are somewhat self-evident. Rather than holding a third-party responsible for the transgression, by pursuing this strategy an individual holds themselves responsible. Doing so should trigger a string of negative reactions such as

shame, guilt, rumination, and anger, all self-directed at the victim for letting the transgression occur. In turn the victim is suffering doubly as a result of (1) the transgression and (2) their own self-created misery.

The harmful effect of problem solving on relief, although marginal, is worth discussing. This odd result (cf. Folkman et al., 1986; McCrae & Costa, 1986) may be explained by the fact that problem solving included direct confrontation of the transgressor. Such an action, although likely well-intended and aimed towards improving one's emotions, may cause the victim additional distress. This distress may be brought on by the very experience of encountering the transgressor again, which in turn serves as a potent painful reminder of the transgression itself. In addition, the transgressor may fail to show any guilt or remorse for their actions, leaving the victim no better – or even worse – than before.

The road to recovery. In the long run, however, the story is different. Contrary to the prediction, revenge was uncorrelated with recovery. That is, in the long-term, revenge appears to be neither beneficial nor detrimental to psychological well-being.

Rather than seeking revenge, our results instead suggest that pursuing such mature coping behaviors as reconciliation and meaning making will lead to eventual recovery, in line with Hypotheses 3.6. Moreover, this finding was consistent regardless of the type of transgression and after controlling for neuroticism. These findings dovetail nicely with the aforementioned literature suggesting prosocial behaviors lead to positive outcomes (e.g., McCrae & Costa, 1986; Newth & DeLongis, 2004).

Of these coping behaviors, only meaning making remained a statistically significant predictor in multiple regression. It is notable that this result was obtained only when predicting

long-term recovery. Given the nature of meaning making, however, such a result makes sense. The process of deriving some personally relevant information or lesson does not seem like the sort of process that could be fully accomplished in a short period of time. The full implications of a stressful event may only be realized with greater temporal distance from the event. This temporal distance allows the victim to put the event in perspective, which in turn allows them to derive some useful life lesson. Once this lesson is realized, the victim is then able to recover.

Summary. Study 3 addressed whether revenge, compared to other forms of coping, was psychologically beneficial to the avenger in terms of providing an immediate reward (relief) or eventually improving psychological well-being (recovery). Results suggested that, in fact, revenge *does* provide immediate relief, which may serve to reinforce this behavior and increase its future frequency. However, in the long-term, revenge has no impact on psychological well-being. Instead, eventual recovery appears to be best achieved via meaning making.

General discussion

The rise of the positive psychology movement has resulted in a surfeit of studies on forgiveness and related phenomena. In contrast, revenge has been surprisingly understudied. This gap provided the impetus to the current studies.

Study 1 explored the interplay between personality, situations, and revenge. Results indicated that although some individuals report exacting revenge only following selective transgressions, others demonstrate it regardless of the transgression.

Study 2 highlighted the differences between vengeful fantasies and behaviors. There were some similarities and some differences. The differences were most evident in relations with personality traits. I found that neurotics' vengeful fantasies were entirely explained by their tendency to ruminate about the anger induced by the transgression. In addition, psychopaths¹² tended to get revenge and fueled this revenge, in part, via vengeful fantasies.

Finally, Study 3 addressed the question of whether revenge is psychologically beneficial by comparing it to numerous non-vengeful reactions, including those from the forgiveness and coping literatures. Although revenge aided short-term relief, it had no effect on long-term recovery. In contrast, meaning making aided recovery. I will argue below that these studies shed much-needed light on our understanding of revenge.

What have we learned about revenge?

Comparing different transgressions. Among the contributions of Study 1 is its examination of revenge across several specific situations. This approach contrasts with the method typically employed -- participants are either asked to recall a transgression of their own

¹² Recall that the term 'psychopaths', like 'neurotics', is used to ease communication and is not meant to imply distinct groups. All personality variables were treated as continuous traits.

choice (e.g., McCullough et al., 1998) or that of the experimenter's choice (e.g., Skarlicki et al., 1999). Although those approaches have merit, the current approach allowed me to more deeply explore the interplay of personality and transgression type on revenge.

My results indicated that transgression type has more of an influence on revenge for some individuals than others. For example, I found that narcissists were uniquely vengeful following social rejection, which is in line with the longstanding literature suggesting these individuals react aggressively to ego-threats (Kernis & Sun, 1994; Raskin et al., 1991; Twenge & Campbell, 2003). However, the results for neuroticism and psychopathy were more uniform: Regardless of the type of transgression, neurotics and psychopaths were vengeful. In other words, neurotics and psychopaths may have more global perceptions of transgressions.

Given the substantive differences between these personality traits, it could be a matter of differential thresholds. For neurotics, their irritability and ease at being offended likely lead them to be vengeful following any type of transgression, from mild ones (e.g., social rejection) to more severe ones (e.g., physical aggression).¹³

On the other hand, psychopaths' low threshold may stem from hostile cognitive biases with which they perceive their interactions with others. Indeed, previous research suggests that such hostile biases as attributing malicious intent to the ambiguous actions of others or expecting conflicts to end aggressively partially explain psychopaths' aggression (Doninger & Kosson, 2001; Nathanson, Paulhus, & Williams, 2004). To the extent that psychopaths view the world as a dangerous place, revenge is an appropriate reaction to transgressions. Additional research is needed to fully explore this notion.

¹³ Recall from Table 1 that the mean revenge scores, from smallest to largest were social rejection, manipulation, insult, then bullying.

There appears to be one exception to the differential threshold theory. If it were true, then the personality that responded to only one transgression should have done so for the most egregious offense. In fact, narcissists responded only to the mildest of offenses, namely, social rejection. Instead, it appears that they show qualitatively different responses to transgressions.

The importance of psychopathy. More generally, the fact that psychopathy was a significant and consistent predictor of revenge is noteworthy in itself: Study 1 is novel in suggesting that like their institutionalized counterparts, psychopaths in the ‘normal’ population also demonstrate revenge.

Recall that to date there were only two previous studies that specifically link psychopathy with revenge and both were on offender samples. Both studies indicated that the psychopath group was more likely than the non-psychopath group to have committed crimes that were motivated by revenge (Williamson et al., 1987; Woodworth & Porter, 2002). The fact that my current finding dovetails with the extant research is further evidence pointing to the validity of the concept of subclinical psychopathy (LeBreton et al., 2006).

In addition, recall that in Study 1 psychopathy was compared against the Big Five trait disagreeableness to determine which was the better predictor of revenge. My results indicated that latter trait’s influence on revenge was entirely explained by its overlap with the former trait. That is, psychopathy was demonstrated to be a more powerful predictor of revenge than disagreeableness.

This finding answers the call made by McCullough and colleagues several years ago to go beyond the broad Big Five factors to explore more narrow predictors of revenge (McCullough et al., 2001). In short, my results suggest that when considering the antisocial or aversive

personality trait that predicts revenge, one should consider psychopathy rather than disagreeableness.

Distinguishing trait vengeful fantasies and trait vengeful behaviors. Study 2 addressed several key issues in understanding revenge. The first of these was the importance of distinguishing trait-level vengeful fantasies from trait-level vengeful behaviors. Recall that previous studies tended to address each of these phenomena separately (e.g., McCullough et al., 1998; Kim et al., 1998). My findings uncovered interesting similarities and differences between them and highlights the importance of considering and measuring these constructs together.

On one hand, vengeful fantasies and vengeful behaviors demonstrated similar patterns of associations with alternative reactions to transgressions. The tendency to fantasize about revenge, like the tendency to choose to act vengefully, is associated with such ill-conceived behaviors as failing to forgive or reconcile with the transgressor. In a sense, vengeful fantasies or vengeful behavior are both reflective of a more general tendency to react in an antisocial manner.

On the other hand, several important differences between vengeful fantasies and behaviors were uncovered. Among these differences were their personality predictors. Neuroticism was particularly relevant to vengeful fantasies but psychopathy was relevant to both fantasies and behavior. That is, both neurotics and psychopaths tend to fantasize about how they will get back at those who wronged them, but only psychopaths choose to act on these fantasies. This important distinction speaks to the second major issue addressed by Study 2, namely the importance of psychological processes in understanding revenge.

Psychological processes. These two major psychological processes are anger rumination and vengeful fantasies. The former turned out to be relevant to neurotics and the latter, to psychopaths.

Recall from the above results that vengeful fantasies appeared to be the stopping point for neurotics: They think about ways to get revenge but do not act on them, placing neurotics in what I previously described as an approach-avoidance bind. Given (1) these dynamics, (2) the well-established link between neuroticism and rumination (e.g., Trapnell & Campbell, 1999), and (3) the link between rumination and revenge (e.g., McCullough et al., 2001), I considered the possibility that anger rumination linked these three elements.

My results indicated that, in fact, anger rumination entirely explained neurotics' tendency to fantasize about revenge. This finding is notable for several reasons. As suggested above, previous studies have considered the dynamics of neuroticism, rumination, and revenge but have only included at most two of these pieces. My finding represents the first simultaneous exploration of the relationship between predictor (neuroticism), mediator (anger rumination), and outcome (vengeful fantasies).

In addition, my analysis is among the few that examined *anger* rumination rather than rumination more generally (e.g., Maltby et al., 2004; Sukhodolsky et al., 2001). Specifically, my research explored the role of an *affective* rather than cognitive mediator in explaining vengeful fantasies. The current finding suggests that neurotics' vengeful tendencies are the product of an affective psychological process.

In fact, my finding suggests that neurotics' vengeful fantasies are *entirely* the product of anger rumination. This complete mediation points to anger rumination as the key process in understanding neurotics' vengeful fantasies.

Yet vengeful fantasies also have their own products. Rather than considering vengeful fantasies solely as an outcome, I also considered it in a similar vein to anger rumination, namely

as a cognitive psychological mediator. In this case, I examined vengeful fantasies as a mediator of the link between psychopathy and vengeful behavior.

My results indicated that vengeful fantasies only partially mediated the link between psychopathy and vengeful behaviors. When opportunities to get back at the transgressor are thwarted or not readily available, psychopaths' heightened fantasies keep the transgressor in mind until they can successfully retaliate.

Note that vengeful fantasies only *partially* explain psychopaths' vengeful behavior. In turn, there are likely additional psychological processes that should be considered. For example, the hostile cognitive biases mentioned above are likely candidates: Psychopaths' expectation that conflicts will be resolved aggressively should contribute to their taking the initiative in lashing out.

More generally, the results of Study 2 point to the importance of vengeful fantasies. They play a dual role of outcome and psychological process. Just as research into vengeful fantasies as an outcome has flourished, I hope that researchers will also consider research on fantasies as a process.

The psychological benefits of revenge. Perhaps the most notable finding of all three studies was found in Study 3. I was interested in determining whether there were any psychological rewards to revenge that could serve to explain why this behavior persists in light of its costs (e.g., McCullough et al., 2006; Witvliet et al., 2001; Ysseldyk et al., 2007). Although there was evidence from anthropological (Chagnon, 1988) and ethological sources (de Waal, 1991; de Waal and Luttrell, 1988) suggesting that revenge was adaptive, evidence for its psychological benefits was, at best, vague (Crombag et al., 2003).

My results are the first to demonstrate the psychological rewards of revenge. Compared to those who chose not to get revenge, those who chose to do so experienced immediate relief. This immediate reinforcement may explain why revenge has persisted despite its catastrophic nature.

More generally, the question remains whether the short-term relief experienced after getting revenge makes the avenger feel better than they did before the transgression. Perhaps getting revenge simply removes some of the negative affect experienced as a result of a transgression. Alternatively, is the negative affect from the transgression canceled by the positive affect engendered by revenge? A laboratory study that examined positive and negative affect at different stages of a transgression – before, immediately after, following a particular reaction (coping or revenge), and some time later – would be best suited to address this question.

The links with psychopathy may also enrich our understanding of revenge. These links include (1) the consistent association between psychopathy and revenge and (2) the small positive correlation between psychopathy and relief observed in Study 3. Subsequent mediation analyses indicated this relief was entirely explained by revenge. These results suggest that psychopaths are more vengeful because they experience more reward (or relief) than others do.

Moreover, earlier research on psychopaths suggests that they are slow to learn from punishment. For example, in a learning task where correct responses bring apparent financial rewards and incorrect responses incur costs, psychopaths end up with little to no money by the end (for a review, see Newman, Brinkley, Lorenz, Hiatt, & MacCoon, 2007). Despite the punishments typically ensuing from revenge, psychopaths will continue to repeat the behavior. This argument holds whether or not they get exceptional psychological rewards from revenge.

The current results are among the first to suggest that there is a psychological benefit to revenge, albeit one that is short-lived. This benefit corresponds most closely to Frijda's (1994) suggestion that revenge offers relief from distress. But are there any additional benefits to revenge?

Recall from the introduction that Frijda (1994) argued for six benefits including deterring future transgressions and restoring honor. Although this list is by no means comprehensive it is a useful base from which to start to address this question. Research programs could be developed to evaluate any of these possible benefits.

Limitations and future directions

I will now address my studies' limitations. These limitations also provide some useful directions to consider for future research.

Self-reports. One limitation of these studies was the sole reliance on self-report measures. Even the anecdotes represent a form of self-report. Although these measures were all psychometrically sound, there are nonetheless several problems with only using self-report measures, including method variance and response sets.

Measuring something like revenge, or any form of aggression, in the laboratory presents its own challenges but is not impossible. Future research on revenge would do well to obtain concrete behavioral indicators of this phenomenon. Such studies could use the standard procedures for studying provoked aggression (Bushman & Baumeister, 1998; Twenge & Campbell, 2001) but manipulate the opportunity for deliberation.

Of course, even laboratory studies are unlikely to achieve the remotest resemblance to the real-world incidents reported by our participants. The latter concerned serious, long-term interpersonal transgressions.

Generalizable beyond students? These studies suffer from the classic problem of a sample of convenience: Across all three studies participants were exclusively university students from a large Canadian institution. In turn, the extent to which these results generalize beyond a student sample remains an open question.

The results with psychopathy suggest an optimistic answer to this question. The majority of the previous studies on psychopathy cited here were conducted on institutionalized populations (e.g., Williamson et al., 1987; Woodworth & Porter, 2002). That our results were in line with those previously obtained in these populations suggests at least some generalizability.

More generally, to the extent the samples are largely homogeneous they suffer from a restriction of range. That is, to the extent the samples in my research have narrow distributions, then the results are *underestimates* of the true relationships. Removing this restriction will only strengthen the already solid results.

Snapshot approach. Perhaps the most serious limitation to the findings of Study 3 is the use of a single incident or ‘snapshot’ approach in capturing participants’ reactions to transgressions. Such an approach can be problematic for a number of reasons, perhaps most obvious of which are memory biases or inaccuracies (DeLongis & Holtzman, 2005; DeLongis et al., 1992). After all, participants choose to report on a past specific episode based on an unknown set of idiosyncratic criteria.

A powerful albeit labor-intensive alternative to this approach is the *daily process* method. Perhaps the most popular example is the daily diary method, used in many coping studies (e.g.,

Lee-Baggley et al., 2005) and forgiveness studies (e.g., McCullough et al., 2003a). This ‘online’ approach requires participants to keep regular records of the transgressions they encounter each day, how they cope with them, and how they feel. Such a technique provides more accurate and immediate information and is therefore not affected as greatly by the aforementioned biases.

This technique would also allow one to observe the temporal progression of reactions that immediately follow a transgression to those that occur later. Recall that in Study 3, I asked specifically about (1) what participants did following the transgression and (2) how those decisions made them feel at the time and at present. As a result, I was unable to determine whether early coping behaviors eventually led into others.

For example, the short-term costs of self-blame and the long-term benefits of meaning making may be part of a dynamic sequence: In the short-term, people blame themselves for their mistakes because they have no balanced perspective and they feel bad in turn. As that perspective develops over time they are able to make meaning and successfully recover. However, the correlation between self-blame and meaning making was null, but this may have been a byproduct of the snapshot approach.

In sum, the diary method may provide a fruitful approach that permits insight into the temporal unfolding of revenge and associated reactions use the daily diary approach. Of course, the method would have to be applied to a context where there is a substantial chance of observing revenge.

Predicting effectiveness. Results from Study 3 indicated that many of the hypothesized coping behaviors failed to predict relief or recovery. But why such a mismatch?

Experts in the coping literature suggest that although one may predict which coping behaviors will be effective, there are many interconnected factors that influence this relationship.

These factors and how I dealt with them are detailed above. Of these factors, the two that provide insight into the null findings are the (1) particular effectiveness outcome chosen and (2) nature of the transgression.

There are a number of ways of assessing effectiveness, such as affection, support, psychological well-being, and various indicators of health (O'Brien & DeLongis, 1996; Newth & DeLongis, 2004). Moreover, the particular outcome chosen impacts the results obtained. For example, DeLongis and Preece (2002) found that parents who dealt with stress by compromising received support and affection from their biological children but not their stepchildren.

My outcomes were single-item indicators of psychological benefits, namely short-term relief and long-term recovery. Moreover, my results suggested that these outcomes are both reliable and valid. However, there are many additional indicators of effectiveness that should be considered, such as those listed above. Future studies should take advantage of this diversity and explore other potential domains in which revenge is or is not effective.

The other important issue is the nature of the transgression. Typically, studies in the coping literature focus on particular transgressions or stressful situations such as families with biological children and stepchildren (e.g., Lee-Baggley et al., 2005). In contrast, the current study allowed participants to describe whatever transgression they wanted.

To the extent that transgression type interacts with certain coping behaviors in predicting effectiveness, the unrestricted choice of transgressions may explain why many behaviors were null predictors of relief and recovery. It is notable, however, that the effective coping behaviors – revenge and meaning making – remained so after controlling for transgression type. Nevertheless, future studies may wish to restrict participants to describe only one type of transgression.

Another possibility is that the transgressions reported by the participants were just too weak to allow many of the coping behaviors to be effective. Consider that DeLongis' work and that of her colleagues typically involves participants who report on such stressors as familial instability or divorce (e.g., DeLongis & Preece, 2002; Lee-Bagley et al., 2005). In contrast, roughly three-quarters of my participants reported being betrayed, insulted, or breaking up with their significant other. Compared to the transgressions that DeLongis and others address, those reported by my participants are minor.

Note, however, that to the extent my sample is restricted and types of transgressions are minor, the results are underestimates of the true relationships. Put differently, given these limitations it is all the more impressive that I was able to obtain the results that I did. However, future studies should address more serious transgressions than those reported by my participants.

Conclusions

Revenge has long been an important topic without much research. In particular, several key issues – the interplay between persons and situations, the similarities and differences between fantasies and behaviors, the role of psychological processes, and the potential psychological benefits – remained largely unaddressed. The current studies addressed these issues in great detail and in turn yielded much needed insight into our understanding of revenge. Hopefully these studies will signal the start of renewed interest in exploring the dynamics of revenge.

Table 1. Study 1- Correlations of personality predictors with revenge.

	Social rejection	Manipulation	Bullied	Publicly insulted
<i>Dark Triad</i>				
Narcissism	.31	.13	.16	.15
Machiavellianism	.19	.40	.51	.41
Psychopathy	.35	.32	.39	.32
<i>Big Five</i>				
Extraversion	.11	.00	.10	-.03
Agreeableness	-.25	-.10	-.28	-.16
Conscientiousness	-.23	-.04	-.25	-.05
Neuroticism	.11	.27	.06	.11
Openness	.00	.05	.18	-.06
Mean	2.16	2.29	2.95	2.32
Standard deviation	1.25	1.19	1.33	1.33

Note: N = 57. Correlations of $|\geq .26|$ and greater are significant at $p < .05$, two tailed.

	1	2	3	4	5	6	7	8
Mean	3.22	2.22	3.46	3.32	3.26	3.59	2.43	2.31
Standard deviation	.75	.45	.77	.65	.73	.84	.99	.71

Note: N = 142. Correlations of $|\geq .17|$ and greater are significant at $p < .05$, two-tailed. Values on the diagonal indicate alpha reliabilities.

Table 3. Study 3 – Intercorrelations and descriptive statistics for personality predictors and vengeful and non-vengeful reactions.

	1	2	3	4	5	6	7	8	9	10	11	12	13
<i>Personality predictors</i>													
1. Psychopathy	(.92)	-.07	.29	-.13	.05	-.25	-.18	-.07	-.16	-.04	-.23	-.16	.01
2. Neuroticism		(.81)	-.08	-.01	.11	.09	-.12	.05	.01	-.16	.04	-.03	.02
<i>Vengeful and non-vengeful reactions</i>													
3. Revenge			(.95)	-.13	-.27	-.31	-.27	-.21	-.41	-.28	-.24	-.37	-.14
4. Reconciliation				(.99)	-.02	.17	.35	.11	.04	.12	.16	.12	-.05
5. Cognitive avoidance					(.89)	.20	-.02	.01	.11	.21	-.08	-.11	-.03
6. Physical avoidance						(.86)	.05	.03	.16	.08	.30	.06	-.11
7. Forgiveness							(.86)	.06	.11	.09	.10	.09	.04
8. Empathy								(.72)	.10	.05	.04	.06	-.07
9. Support seeking									(.83)	.12	.13	.19	-.04
10. Meaning making										(.87)	.00	.04	-.03
11. Silent treatment											(.82)	.18	-.01
12. Problem solving												(.85)	.16

	1	2	3	4	5	6	7	8	9	10	11	12	13
13. Self-blame													(.79)
Mean	2.19	3.18	.28	.04	.15	.19	.15	.10	.30	.17	.13	.24	.05
Standard deviation	.44	.72	.03	.01	.03	.03	.03	.02	.03	.03	.02	.03	.02

Note. N = 188. Correlations of $|\geq .14|$ or greater are significant at $p < .05$, two-tailed. Values on the diagonal are reliabilities: Alpha for the personality predictors and inter-rater for the remaining variables.

Table 4. Study 3 - Predicting short-term relief and long-term recovery from personality, revenge and coping behaviors.

	Short-term relief	Long-term recovery
<i>Personality predictors</i>		
Psychopathy	.10	.07
Neuroticism	-.11	-.21
<i>Vengeful and non-vengeful reactions</i>		
Revenge	.29	-.05
Reconciliation	-.05	.13
Cognitive avoidance	-.13	.03
Physical avoidance	-.10	.02
Forgiveness	-.03	.09
Empathy	.04	-.01
Support seeking	-.07	.02
Meaning making	-.02	.25
Silent treatment	-.11	-.11
Problem solving	-.22	-.09
Self-blame	-.21	.01
Mean	.57	.59
Standard deviation	.04	.04
Inter-rater reliability	.93	.94

Note: N = 188. Correlations of $|\geq .14|$ or greater are significant at $p < .05$, two-tailed.

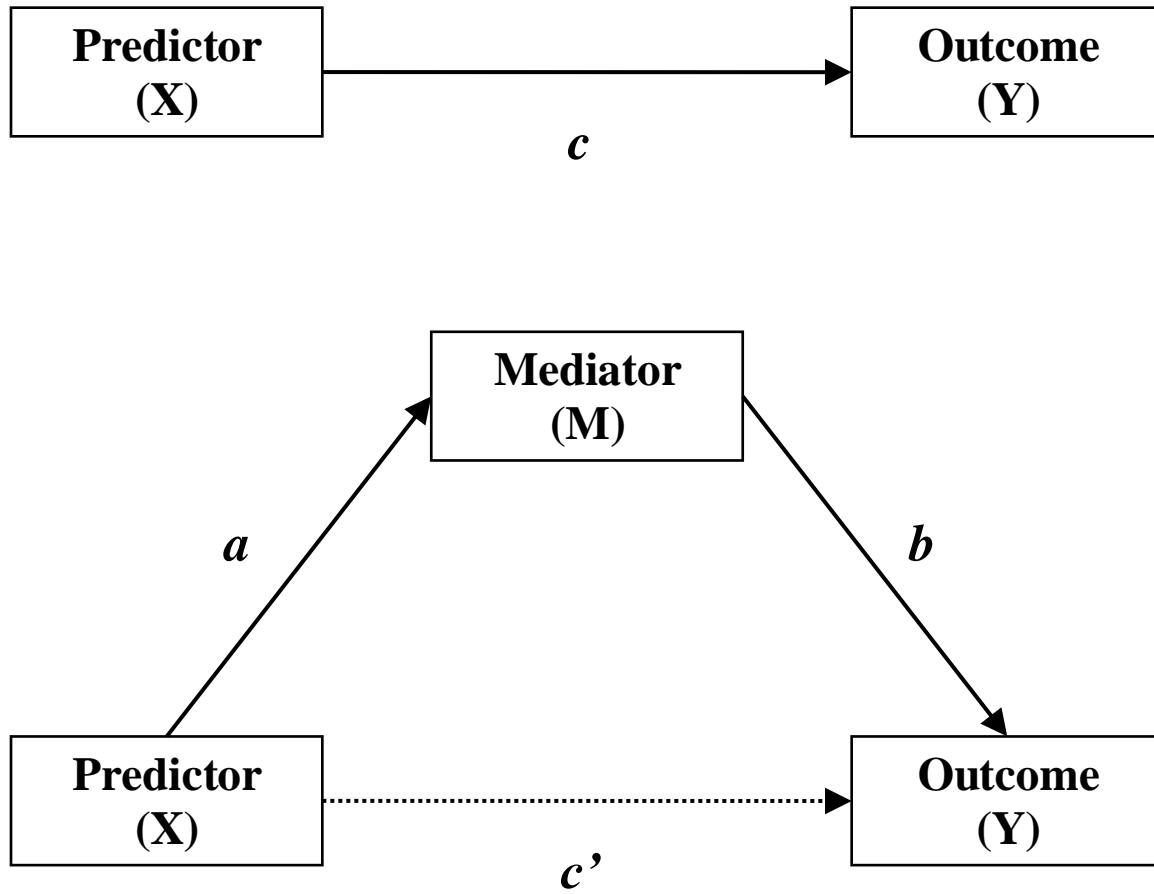


Figure 1. Path models of direct effect c (top panel) and mediated effect c' (bottom panel).

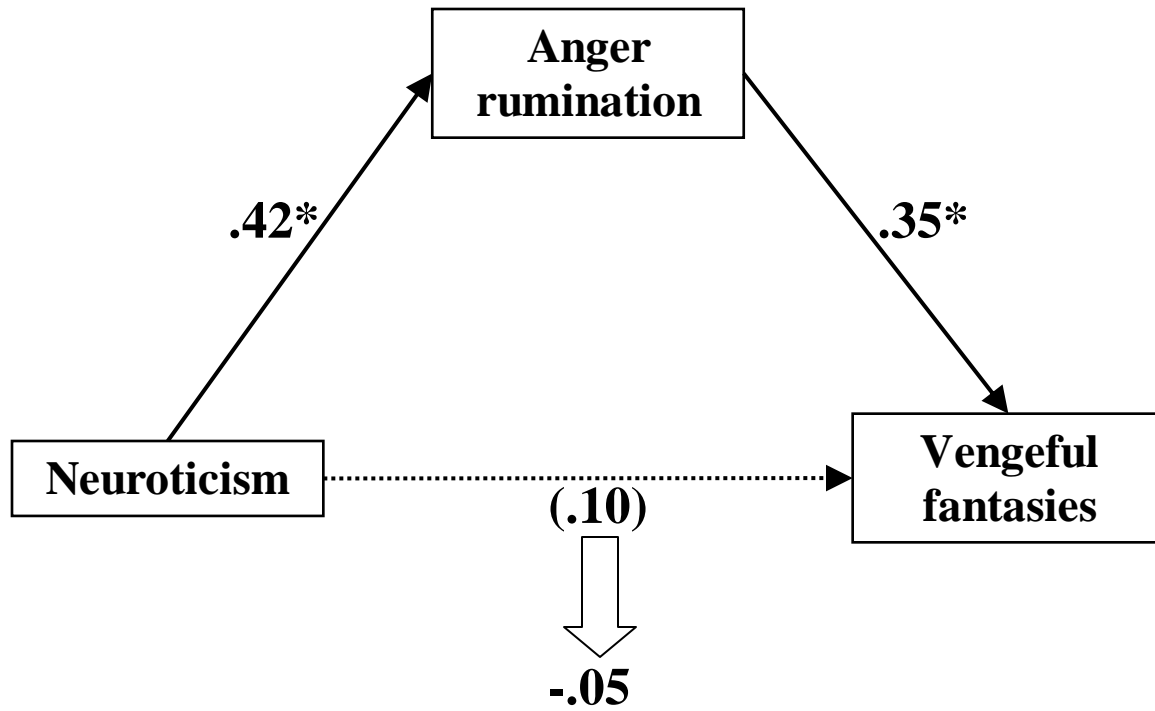


Figure 2. Analysis of anger rumination as a potential mediator of the relation between neuroticism and vengeful fantasies.

Note: $N = 142$. All values represent standardized regression coefficients (betas). Total effect of neuroticism on vengeful fantasies appears in parentheses. $R^2 = .11, p < .05$.

* indicates significance at $p < .05$, one-tailed.

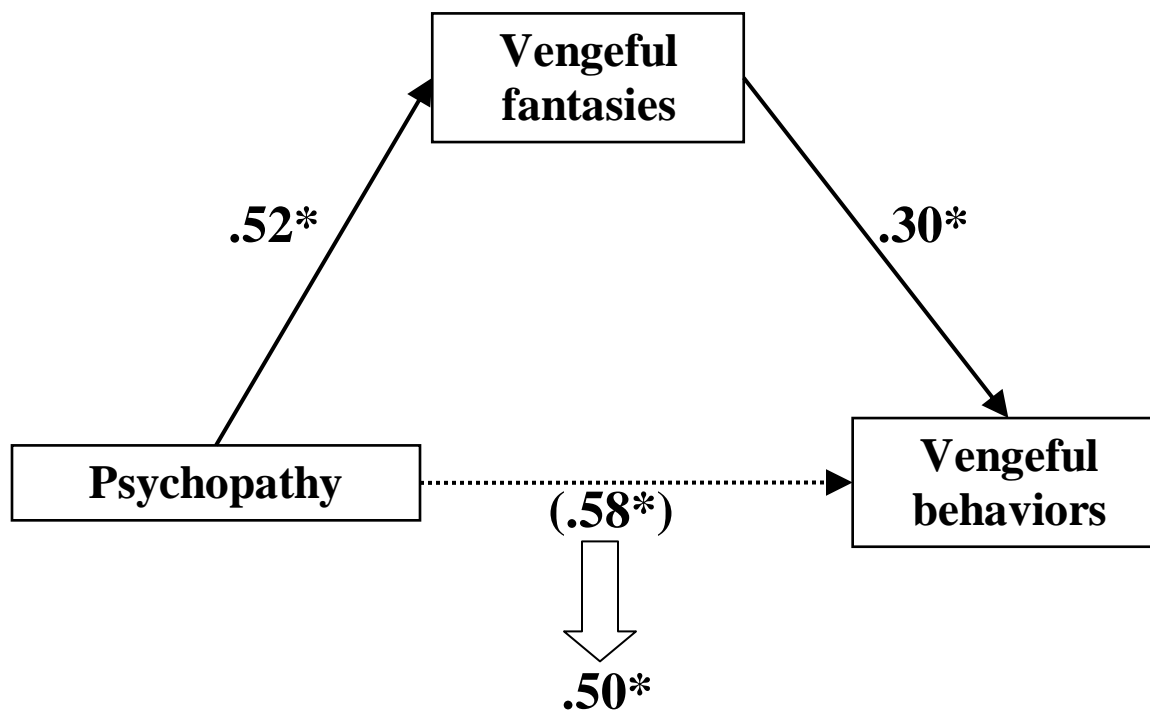


Figure 3. Analysis of vengeful fantasies as a potential mediator of the relation between psychopathy and vengeful behaviors.

Note: $N = 142$. All values represent standardized regression coefficients (betas). Total effect of psychopathy on vengeful fantasies appears in parentheses. $R^2 = .51, p < .05$.

* indicates significance at $p < .05$, one-tailed.

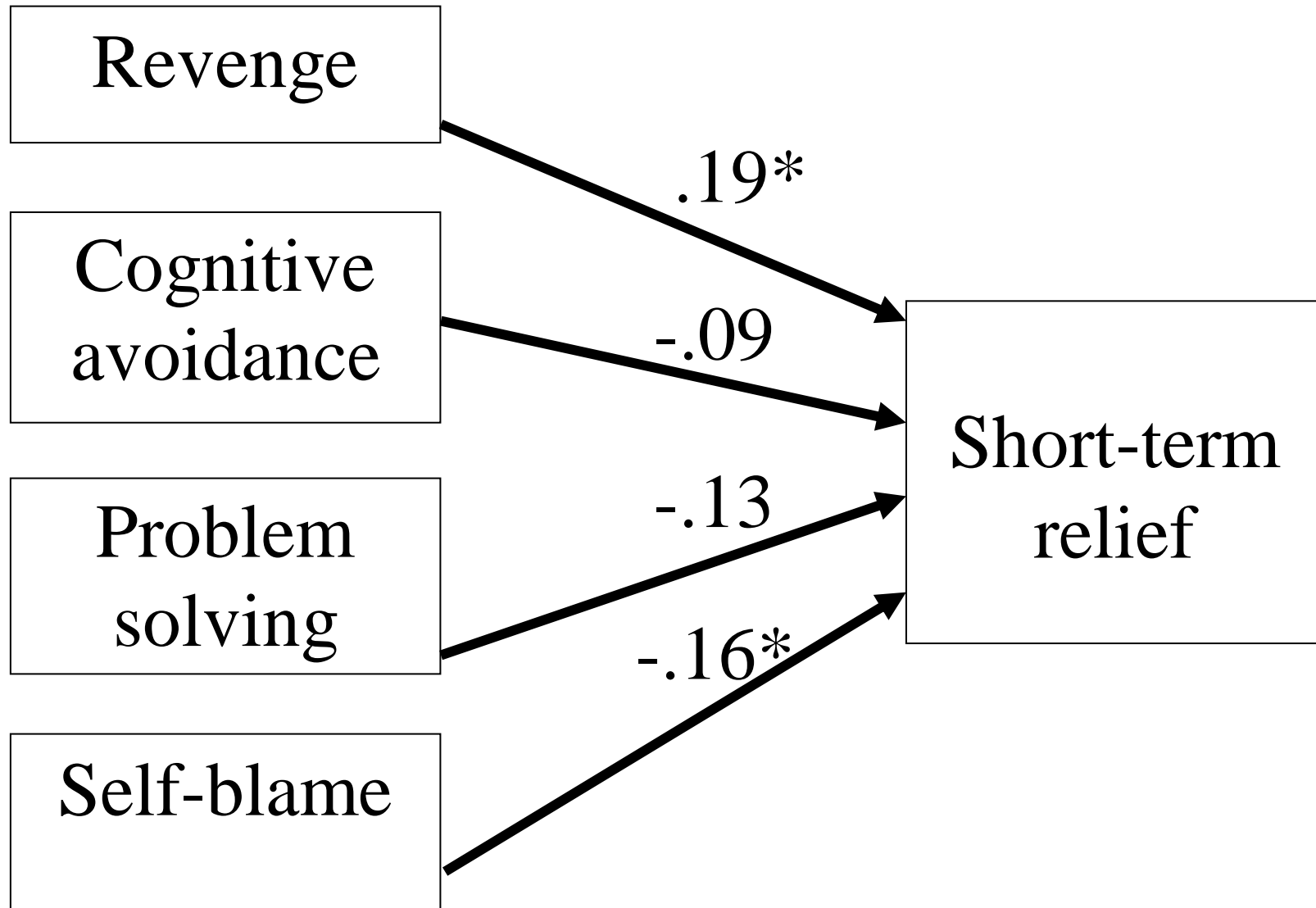


Figure 4A. Regression of revenge, cognitive avoidance, problem solving, and self-blame on short-term relief. Note: $N = 188$. $R^2 = .13$. An asterisk (*) indicates $p < .05$, two-tailed.

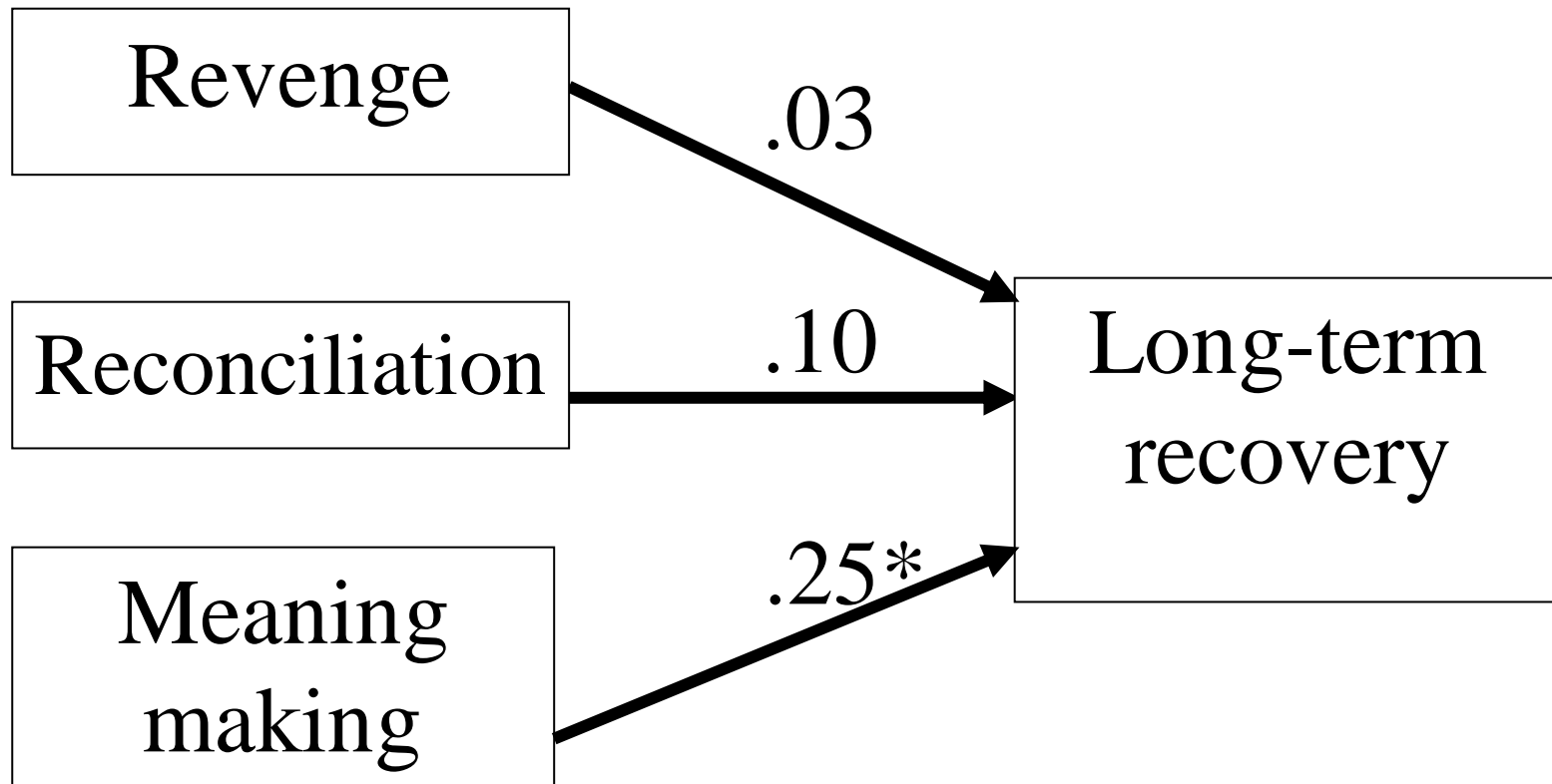


Figure 4B. Regression of revenge, reconciliation, and meaning making on long-term recovery. Note: $N = 188$. $R^2 = .07$. An asterisk (*) indicates $p < .05$, two-tailed.

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APPENDIX A:

DEFINITIONAL ISSUES IN UNDERSTANDING REVENGE

Background

In discussing the definitional issues behind revenge, I will start by providing the precise definitions offered by the experts in the field. Stuckless and Goranson (1992) defined revenge as “the infliction of harm in return for perceived wrong” (p. 25). Later, McCullough and colleagues defined revenge as “a motivation to... see harm come to the offender” (McCullough et al., 1998, p. 1587). Most recently, Aquino, Tripp, and Bies (2001) defined revenge as “an action in response to some perceived harm or wrongdoing by another party that is intended to inflict damage, injury, discomfort, or punishment on the party judged responsible” (p. 53).

The definition of revenge offered in this dissertation highlights the fact that to qualify as revenge, the infliction of harm must follow some deliberation. That is, it is deliberation that differentiates revenge from the widely-studied phenomenon of provoked aggression. However, the precise distinction between revenge and provoked aggression is not as clear-cut as one might like.

I recently submitted this question to a group of experts to elicit their opinions on this matter. Although there was consistency there were also clearly varying opinions. For example, although some suggested these phenomena are identical – or at least very difficult to distinguish – others suggested they are clearly distinct with important, fundamental differences.

After reading through and discussing these opinions, I attempted to put them together in one coherent and cohesive framework that highlighted the similarities and differences among the experts. As a result, this framework does not represent the opinion of one particular expert but rather a synthesis of all the opinions expressed.

Shared evolutionary history. Revenge and provoked aggression likely have the same origins in our evolutionary history.¹⁴ In pre-legal societies – that is, in societies without a clear rule of law or the power/authority to enforce those laws and mete out the appropriate punishments when necessary – aggressing against someone who violated the social order was essential for two related reasons. First, it sent a message to rule-violators that their behavior would be met with a potent punishment. Second, and perhaps more important, it acted as a deterrent against future violations. By making it clear that breaking social rules would be met with an aggressive response, most people would stay on the ‘straight and narrow’ out of fear of the punishments they would likely incur. In short, in our evolutionary history physically harming a party deemed responsible for a transgression was a powerful and effective, albeit primitive, form of justice.

Over time, however, a greater distinction between revenge and provoked aggression became more apparent. This differentiation is, perhaps appropriately, at least partially attributable to the creation and maintenance of a state-run legal system, which has the authority to enforce the law and punish those who break it. In such a system, the punishments meted out by the state are *not* considered revenge, let alone provoked aggression. Moreover, society at large benefits by *not* having its members ‘take the law into their own hands’ or aggress against each other. When acts of aggression do occur, the legal system must differentiate between them to determine the appropriate amount of punishment, if any.

Automatic vs. controlled. Perhaps the key fundamental difference between provoked aggression and revenge is the amount of decision-making involved: Whereas provoked

¹⁴ For a more in-depth discussion of this notion, see the first three chapters of McCullough (2008).

aggression is immediate, revenge is delayed. Put differently, provoked aggression is an automatic process and revenge is a controlled one. In the case of provoked aggression, the act is reflexive and done without deliberation. In contrast, although someone who gets revenge *could have inhibited* this response, they chose not to; there are other paths the avenger might have pursued. Unlike a provoked aggressor, an avenger intended to make the choice they made.

The controlled, intentional nature of revenge brings with it a certain amount of *delay* – voluntary or involuntary – between the transgression and the response. With increased delay comes increased *calculation* or *deliberation*, which are key elements in characterizing an aggressive act as vengeful: The more calculated the aggression, the more likely we see it as revenge.

Inherent in calculation are two related issues. The first is the *size* of the response. The potential avenger must decide the extent to which they wish to provide a *measured* response or a *maximal* response. That is, does the avenger wish to get back at the person at an appropriate level that may be considered ‘in kind’ or at least within acceptable limits, or do they want to respond with a stronger, nastier, worse version of what was done to them?

The second issue is the *meaningfulness* of the response. Unlike provoked aggression, revenge has an element of being elegant and symbolic: Not only has the victim chosen to get back at their transgressor, they are choosing to do so in a particular way. That is, rather than the victim simply doing to the transgressor what was done to them, a certain course of action is likely to be chosen because it has some significance understood by both parties. Perhaps the most popular examples of this come from Mafia revenge killings, where, for example, individuals suspected of being informants are killed and left with a dead canary in their

mouths because they “sang” (Federal Bureau of Investigation, 2004). Indeed, several experts on revenge have suggested that certain “aesthetic” elements, such as symmetry and poetic justice, are important elements when thinking about or describing acts of revenge (Tripp, Bies, & Aquino, 2002).

The importance of motivation. Another key difference stems from considering the importance of motivations for each of provoked aggression and revenge. Given provoked aggression is automatic, motivations play no major role. That is, if we consider provoked aggression like any other reflexive process then exploring the underlying desires or goals seems out of place. Its reflexiveness may stem from a phylogenetically basic part of the brain, such as certain parts of the limbic system. Another possible cause is the culture in which an individual grew up. Nisbett and Cohen (1996; see also Cohen et al., 1996) have written extensively about the ‘culture of honor’ in the Southern United States, which promotes an aggressive response to threats (real or imagined) to one’s and one’s family’s honor. Yet another possibility is the tendency towards increased aggression in extremely hot climates (Daly & Wilson, 1988).

The same cannot be said for revenge, where the motivation is highly relevant. These motivations may include restoring honor, status, face or self-esteem, seeing the offender suffer, or getting justice by ‘balancing the scales’ (Frijda, 1994; McCullough et al., 2001). Such desires are by no means mutually exclusive. Moreover, different desires may appeal to different individuals or to different transgressions. Regardless, the important point is that we can and must consider the motivation(s) behind revenge.

Is revenge in the eye of the beholder? Some experts suggest that whether or not an act of aggression may be characterized as revenge is a matter of opinion. Rather than arguing for objective, clear-cut criteria for delineating provoked aggression from revenge, these theorists argue that making that distinction is a subjective decision by the perceiver.

One implication of this perspective is whether or not the transgression and aggressive response are or are not *viewed as a unit*: Is the transgression and subsequent aggression part of a single narrative event or do they represent distinct occurrences? The victim-cum-aggressor should undoubtedly view these events as a unit, e.g., we were in the bar, he pushed me and made me spill my drink, I later met him in the parking lot and beat him up.

An outside observer, such as a judge or other impartial third-party, may not necessarily see a connection between these events. The upshot of this ‘perceptual bias’ is that one may end up with a ‘he said-she said’ problem: In cases where the agent’s and the third-party’s accounts differ, whether or not the aggressive act is provoked aggression or revenge will depend on who one believes.

Another, related implication of that of *justifiability*. As time between the transgression and the aggressive response increases, the response seems less justifiable. Put differently, there is a negative correlation between how long the victim waits to retaliate and the acceptability of what they have done. For example, if someone punched you in a bar and you immediately punched them back, justifying such an act is not particularly difficult: It was the heat of the moment; I was angry; I acted on impulse, etc. Such retaliation may be characterized as a ‘crime of passion’. However, if you punched your aggressor three weeks hence, the aforementioned reasons do not seem as legitimate.

This difference in justifiability can have important legal implications. A 'crime of passion' may be met with a more lenient charge such as manslaughter given its immediate, spur-of-the-moment nature. Although the victim may be culpable they should receive a relatively minor sentence. However, retaliation after three weeks may be seen as intentional or premeditated and in turn should be met with a harsher charge (e.g., first degree murder) and sentence.

APPENDIX B:**INTERCORRELATIONS, MEANS, AND STANDARD DEVIATIONS FOR ALL
VARIABLES FROM STUDY 1**

Study 1- Intercorrelations and descriptive statistics for personality predictors and revenge.

	1	2	3	4	5	6	7	8	9	10	11	12
Dark Triad												
1. Narcissism	(.87)	.25	.46	.37	-.24	.08	-.23	.10	.31	.13	.16	.15
2. Machiavellianism		(.79)	.58	-.15	-.57	-.32	.14	-.06	.19	.40	.51	.41
3. Psychopathy			(.90)	.05	-.46	-.23	-.05	.05	.35	.32	.39	.32
Big Five												
4. Extraversion				(.87)	.06	.13	-.26	.23	.11	.00	.10	-.03
5. Agreeableness					(.80)	.31	.19	.01	-.25	-.10	-.28	-.16
6. Conscientiousness						(.80)	-.14	.03	-.23	-.04	-.25	-.05
7. Neuroticism							(.83)	-.12	.11	.27	.06	.11
8. Openness								(.79)	.00	.05	.18	-.06
Revenge												
9. Socially rejected									(.75)	.40	.30	.34
10. Manipulated										(.63)	.44	.53

	1	2	3	4	5	6	7	8	9	10	11	12
11. Bullied											(.68)	.42
12. Publicly insulted												(.66)
Mean	1.37	2.75	1.61	3.32	3.71	3.41	3.06	3.61	2.16	2.29	2.95	2.32
Standard deviation	.19	.45	.73	.81	.66	.66	.79	.66	1.25	1.19	1.33	1.33

Note: $N = 57$. Correlations of $|\geq .26|$ and greater are significant at $p < .05$, two tailed. Values on the diagonal indicate alpha reliabilities.

The intercorrelations among the Big Five and the Dark Triad, as well as their means and standard deviations, are similar to those reported in previous studies (e.g., Lee & Ashton, 2005; Paulhus & Williams, 2002; Williams & Paulhus, 2004).

APPENDIX C:

INDIVIDUAL DIFFERENCE MEASURES

Narcissistic Personality Inventory (NPI)

Read each pair of statements and then choose the one that is closer to your own feelings. Indicate your answer by circling the letter "A" or "B" to the left of the item. Please do not skip any items.

1. A I have a natural talent for influencing people.
B I am not good at influencing people.
2. A Modesty doesn't become me.
B I am essentially a modest person.
3. A I would do almost anything on a dare.
B I tend to be a fairly cautious person.
4. A When people compliment me I sometimes get embarrassed.
B I know that I am good because everybody keeps telling me so.
5. A The thought of ruling the world frightens the hell out of me.
B If I ruled the world it would be a much better place.
6. A I can usually talk my way out of anything.
B I try to accept the consequences of my behaviour.
7. A I prefer to blend in with the crowd.
B I like to be the center of attention.
8. A I will be a success.
B I am not too concerned about success.
9. A I am no better or no worse than most people.
B I think I am a special person.
10. A I am not sure if I would make a good leader.
B I see myself as a good leader.
11. A I am assertive.
B I wish I were more assertive.
12. A I like having authority over people.
B I don't mind following orders.
13. A I find it easy to manipulate people.
B I don't like it when I find myself manipulating people.

14. A I insist upon getting the respect that is due me.
B I usually get the respect that I deserve.
15. A I don't particularly like to show off my body.
B I like to display my body.
16. A I can read people like a book.
B People are sometimes hard to understand.
17. A If I feel competent I am willing to take responsibility for making decisions.
B I like to take responsibility for making decisions.
18. A I just want to be reasonably happy.
B I want to amount to something in the eyes of the world.
19. A My body is nothing special.
B I like to look at my body.
20. A I try not to be a show off.
B I am apt to show off if I get the chance.
21. A I always know what I am doing.
B Sometimes I am not sure of what I am doing.
22. A I sometimes depend on people to get things done.
B I rarely depend on anyone else to get things done.
23. A Sometimes I tell good stories.
B Everybody likes to hear my stories.
24. A I expect a great deal from other people.
B I like to do things for other people.
25. A I will never be satisfied until I get all that I deserve.
B I take my satisfactions as they come.
26. A Compliments embarrass me.
B I like to be complimented.
27. A I have a strong will to power.
B Power for its own sake doesn't interest me.
28. A I don't very much care about new fads and fashions.
B I like to start new fads and fashions.

29. A I like to look at myself in the mirror.
B I am not particularly interested in looking at myself in the mirror.
30. A I really like to be the center of attention.
B It makes me uncomfortable to be the center of attention.
31. A I can live my life in any way I want to.
B People can't always live their lives in terms of what they want.
32. A Being an authority doesn't mean that much to me.
B People always seem to recognize my authority.
33. A I would prefer to be a leader.
B It makes little difference to me whether I am a leader or not.
34. A I am going to be a great person.
B I hope I am going to be successful.
35. A People sometimes believe what I tell them.
B I can make anybody believe anything I want them to.
36. A I am a born leader.
B Leadership is a quality that takes a long time to develop.
37. A I wish somebody would someday write my biography.
B I don't like people to pry into my life for any reason.
38. A I get upset when people don't notice how I look when I go out in public.
B I don't mind blending into the crowd when I go out in public.
39. A I am more capable than other people.
B There is a lot that I can learn from other people.
40. A I am much like everybody else.
B I am an extraordinary person.

Mach-IV

A	B	C	D	E
strongly disagree	disagree	neutral	agree	strongly agree

- _____ 1. Anyone who completely trusts anyone else is asking for trouble.
- _____ 2. Most people who get ahead in the world lead clean moral lives.
- _____ 3. It is safest to assume that all people have a vicious streak and it will come out.
- _____ 4. One should take action only when sure it is morally right.
- _____ 5. Generally speaking, people won't work hard unless they're forced to do so.
- _____ 6. It is wise to flatter important people.
- _____ 7. It is hard to get ahead without cutting corners here and there.
- _____ 8. People suffering from incurable diseases should have the choice of being put painlessly to death.
- _____ 9. Most people are brave.
- _____ 10. The best way to handle people is to tell them what they want to hear.
- _____ 11. The biggest difference between most criminals and other people is that criminals are stupid enough to get caught.
- _____ 12. Honesty is the best policy in all cases.
- _____ 13. Barnum was very wrong when he said there's a sucker born every minute.
- _____ 14. Most people are basically good and kind.
- _____ 15. When you ask someone to do something for you, it is best to give the real reasons for wanting it rather than giving reasons which might carry more weight.
- _____ 16. It is possible to be good in all respects.
- _____ 17. Most people forget more easily the death of a parent than the loss of their property.
- _____ 18. Never tell anyone the real reason you did something unless it is useful to do so.

_____ 19. There is no excuse for lying to someone else.

_____ 20. All in all, it is better to be humble and honest than to be important and dishonest.

Big Five Inventory (BFI-44)

Disagree strongly A	Disagree a little B	Neither agree nor disagree C	Agree a little D	Agree strongly E
----------------------------------	----------------------------------	---	-------------------------------	-------------------------------

I See Myself as Someone Who . . .

- _____ 1. Is talkative
- _____ 2. Tends to be lazy
- _____ 3. Tends to find fault with others
- _____ 4. Is emotionally stable, not easily upset
- _____ 5. Does a thorough job
- _____ 6. Is inventive
- _____ 7. Is depressed, blue
- _____ 8. Has an assertive personality
- _____ 9. Is original, comes up with new ideas
- _____ 10. Can be cold and aloof
- _____ 11. Is reserved
- _____ 12. Perseveres until the task is finished
- _____ 13. Is helpful and unselfish with others
- _____ 14. Can be moody
- _____ 15. Can be somewhat careless
- _____ 16. Values artistic, aesthetic experiences
- _____ 17. Is relaxed, handles stress well
- _____ 18. Is sometimes shy, inhibited
- _____ 19. Is curious about many different things

- _____20. Is considerate and kind to almost everyone
- _____21. Is full of energy
- _____22. Does things efficiently
- _____23. Starts quarrels with others
- _____24. Remains calm in tense situations
- _____25. Is a reliable worker
- _____26. Prefers work that is routine
- _____27. Can be tense
- _____28. Is outgoing, sociable
- _____29. Is ingenious, a deep thinker
- _____30. Is sometimes rude to others
- _____31. Generates a lot of enthusiasm
- _____32. Makes plans and follows through with them
- _____33. Has a forgiving nature
- _____34. Gets nervous easily
- _____35. Tends to be disorganized
- _____36. Likes to reflect, play with ideas
- _____37. Worries a lot
- _____38. Has few artistic interests
- _____39. Has an active imagination
- _____40. Likes to cooperate with others
- _____41. Tends to be quiet
- _____42. Is easily distracted

_____43. Is generally trusting

_____44. Is sophisticated in art, music, or literature

Self-Report Psychopathy Scale-III (SRP-III)

- | 1 | 2 | 3 | 4 | 5 |
|------------------------------|-----------------|----------------|--------------|---------------------------|
| Disagree
Strongly | Disagree | Neutral | Agree | Agree
Strongly |
-
- ___1) Not hurting others' feelings is important to me.
- ___2) I think I could "beat" a lie detector.
- ___3) I'm a rebellious person.
- ___4) I like to change jobs fairly often.
- ___5) It's amusing to see other people get tricked.
- ___6) I am usually very careful about what I say to people.
- ___7) I have often done something dangerous just for the thrill of it.
- ___8) I don't think of myself as tricky or sly.
- ___9) I am often rude to other people.
- ___10) I get a kick out of "conning" someone.
- ___11) I get in trouble for the same things time after time.
- ___12) It bothers me to see children or animals in pain.
- ___13) I enjoy taking chances.
- ___14) I almost never feel guilty over something I've done.
- ___15) I enjoy hurting people I care about.
- ___16) I would be good at a dangerous job because I like making fast decisions.
- ___17) It's sometimes fun to see how far you can push someone before they catch on.
- ___18) On average my friends would probably say I am a kind person.
- ___19) I have sometimes broken an appointment because something more interesting came along.
- ___20) I don't enjoy driving at high speed.

1	2	3	4	5
Disagree	Disagree	Neutral	Agree	Agree
Strongly				Strongly

- ___21) I'm not afraid to step on others to get what I want.
- ___22) When I do something wrong, I feel guilty even though nobody else knows it.
- ___23) I find it easy to manipulate people.
- ___24) I'm a soft-hearted person.
- ___25) I enjoy drinking and doing wild things.
- ___26) I am the most important person in this world and nobody else matters.
- ___27) Conning people gives me the "shakes." (i.e. I become nervous and jittery)
- ___28) Rules are made to be broken.
- ___29) I don't enjoy gambling for large stakes.
- ___30) People can usually tell if I am lying.

Everyone misbehaves during their teenage years. Different people misbehave in different ways and different amounts.

The following information will be used for survey purposes only. It cannot be used against you in any way. Recall that there is no way for us to connect your responses to your identity.

1	2	3	4	5
Disagree Strongly	Disagree	Neutral	Agree	Agree Strongly

In the *last five years* I have...

- ___31) Shoplifted.
- ___32) Had (or tried to have) sexual relations with someone against their will.
- ___33) Avoided paying for things, such as movies, bus or subway rides, and food.
- ___34) Copied answers on a school test.
- ___35) Been arrested.
- ___36) Plagiarised a school essay or paper.
- ___37) Been involved in delinquent gang activity.
- ___38) Stolen (or tried to steal) a motor vehicle, such as a car or motorcycle.
- ___39) Broken into a building or vehicle (or tried to break in) to steal something or to vandalize.
- ___40) Attacked someone with the idea of seriously hurting him or her.

Understanding Reactions After Transgressions (URAT)

Think about incidents when somebody was offensive, obnoxious, irritating, got on your nerves, or was annoying

Here are the ways I tend to react....

1 Disagree Strongly	2 Disagree	3 Neutral	4 Agree	5 Agree Strongly
--	-----------------------------	----------------------------	--------------------------	---

1. I avoid him/her.
2. I continue to be hard on him/her.
3. I cut off the relationship with him/her.
4. I'm going to get even.
5. I don't trust him/her.
6. I tried to talk things over with him/her.
7. I eventually moved past it.
8. I continue to punish him/her.
9. I thought up ways of harmonizing our disagreement.
10. I find it difficult to act warmly toward him/her.'
11. I got someone we both know to smooth things over.
12. I keep as much distance between us as possible.
13. I let some time pass and revisited the issue later.
14. I live as if he/she doesn't exist, isn't around.
15. I talked to him/her about things we both agree on.

16. I want to see him/her hurt and miserable.
17. I tried to understand things from his/her perspective.
18. I want him/her to get what he/she deserved.
19. I was eventually able to see him/her as a good person.
20. I wish that something bad would happen to him/her.
21. I withdraw from him/her.
22. I continue to think badly of him/her.
23. I'll make him/her pay.
24. With time I am understanding of him/her for the mistake he/she made.

Anger rumination

Think of about any situation that made you angry and indicate to the extent to which you agree or disagree with each statement.

1	2	3	4	5
Disagree	Disagree	Neutral	Agree	Agree
Strongly				Strongly

1. I re-enact the anger episode in my mind after it has happened.
2. When something makes me angry, I turn this matter over and over again in my mind.
3. Memories of even minor annoyances ebother me for a while.
4. Whenever I experience anger, I keep thinking about it for a while.
5. After an argument is over, I keep fighting with this person in my imagination.
6. Memories of being aggravated pop up into my mind before I fall asleep.

Vengeful behaviors

1
Disagree
Strongly

2
Disagree

3
Neutral

4
Agree

5
Agree
Strongly

1. In the last year, I have gone out of my way to get back at people.
2. I like to wait before I get back at people.
3. When getting back at people, I like to plan it out.
4. I never get revenge on people.
5. I usually even the score with people who hurt me.
6. People don't mess with me cause they know what will happen.
7. Honor requires that you get back at someone who hurts you or someone close to you.
8. It is usually better to show mercy than to take revenge.
9. I've had the opportunity to get revenge on someone but I didn't take it.

APPENDIX D:

OVERVIEW OF MEDIATION ANALYSIS

To test the potentially mediating roles of anger rumination and vengeful thoughts, mediation analyses were conducted. By conducting a mediation analysis, a researcher can determine the extent to which a third variable explains the impact of a predictor on an outcome. In so doing a researcher can better understand the causal mechanisms underlying many psychological phenomena.

Mediation was first popularized in a 1986 article by Robert Baron and David Kenny (Baron and Kenny, 1986). In conducting mediation one is interested in the relationships between three variables within the framework of multiple regression: The independent variable (X), the dependent variable (Y), and the mediator (M) (see Figure 1).

As indicated in the top half of Figure 1, which represents the simple case of one-predictor regression, the *total effect* of X on Y is labeled as c (or b_{YX} in multiple regression). When the mediator is introduced to the model, as seen in the bottom half of Figure 1, the total effect is now considered the sum of two effects: (1) The *direct effect* of X on Y after controlling for M, designated as c' (or $b_{YX.M}$) and; (2) the *indirect effect* of X on Y. The indirect effect ab is the product of the effects of X on M, designated as a (or b_{MX}), and the effect of M on Y after controlling for X, designated as b (or $b_{YM.X}$). The ab term is often equivalent to $(c' - c)$. Therefore, the equation that underlies the mediation model is: total effect = $c' + ab$.

Mediation takes place when the indirect effect is significantly different from zero. However, the type of mediation depends on how greatly the size of the direct effect drops. Full mediation takes place when the direct effect c' is no longer significantly different from zero after accounting for the indirect effect ab . Conceptually, this outcome means that the

third variable completely accounts for the influence of the predictor on the outcome, i.e., that the direct effect is spurious.

Partial mediation takes place when the direct effect c' drops after accounting for the indirect effect ab , but is still significantly different from zero. Such an outcome implies that the third variable explains a substantial portion of the effect of the predictor on the outcome, but the predictor retains a unique influence.

The system outlined by Baron and Kenny (1986) has recently been challenged by Shrout and Bolger (2002) on a number of levels. Although Baron and Kenny argued that a necessary condition for mediation is that the direct effect be significant, Shrout and Bolger disagree. This disagreement is based on two related premises. First, the direct effect may not be significant for various reasons including low power and suppression (Paulhus, Robins, Trzesniewski, & Tracy, 2004). In the latter case, conducting a mediation analysis will elucidate the problem.

Second, researchers should abide by their understanding of the conceptual associations between the variables in determining whether or not mediation is likely to occur. Instead of rigidly relying on the initial statistical analyses (e.g., intercorrelations or validities), researchers should keep in mind the theory behind the associations being tested before ruling out mediation analyses altogether.

The other major challenge to Baron and Kenny (1986) is Shrout and Bolger's (2002) suggestion for testing the significance of the indirect effect ab . Baron and Kenny advocated using Sobel's (1982) test, which computes a z -score for the indirect effect and is then compared against the normal distribution to determine significance. Shrout and Bolger noted

that with smaller samples, the indirect effect is not distributed normally. In turn, Sobel's test may yield biased scores and incorrect conclusions may be drawn from the results.

Instead of Sobel's (1982) test, Shrout and Bolger (2002) advocate the use of bootstrapping to derive confidence intervals for the indirect effect. Bootstrapping is an empirically-driven approach where a series of sampling distributions are generated from and designed to be similar to the existing data. From these new distributions one may derive a host of values such as mean, standard deviation, and standard error (Efron & Tibshirani, 1993). Shrout and Bolger suggest (1) computing a set of values for ab from a series of bootstrapped distributions then (2) using the standard error of the ab values to construct the appropriate confidence intervals. In short, the approach to mediation advocated by Shrout and Bolger overcomes the problems inherent in the Baron and Kenny (1986) approach and ultimately yields more accurate values, which in turn improves the validity of the conclusions drawn.

APPENDIX E:

DETAILS OF CODING SYSTEM FOR STUDY 3 ANECDOTES

General rules:

- Do not enter the following types of participants into the data set:
 - If no anecdotes are provided
 - If anecdotes are hypothetical, e.g., “If someone annoyed me I’d forgive them.”
- In cases where the information is so ambiguous or there is not enough information to make a reasonable, quick judgment, leave the score for that variable blank.
- If the participant reports *getting revenge*, do not code for any type of coping. Getting revenge and other forms of coping are mutually exclusive.

For all coping styles and revenge behavior, the coding is binary: 0 = no 1 = yes

The exception to this system is for *relief* and *recovery*

-1: has not yet recovered

0: no information, not enough information, or recovered due to time or resiliency (temperament)

1: has recovered due to coping or revenge

Definitions of the 10 other coping styles:

1. Reconciliation (R): The relationship has been fully repaired and the people involved go back to the way things were before the transgression.
2. Forgiveness (F): The participant no longer holds a grudge against the transgressor. However, the relationship remains fractured. Even if the victim has ‘gotten back’ with the transgressor, the relationship is not the same as it was before the transgression.
3. Cognitive avoidance (CA): Not thinking about the person or the problem (i.e., the transgression).
4. Physical avoidance (PA): Actively staying away from the transgressor.
 - a. Isolation from others or society at large (e.g., staying in one’s room, not eating, not answering the telephone) counts as physical avoidance.
 - b. Note that we are *not* assuming ‘out of sight, out of mind.’ That is, physical avoidance does not automatically imply cognitive avoidance.
5. Empathy (E): If an apparently empathic statement appears in the context of negative thoughts, it is not empathy. For example, if someone writes “I realized he was doing this because he is my boyfriend’s brother.”
 - a. Also, showing awareness of an existing condition counts as empathy. For example, if someone says “I didn’t want to get revenge because I knew my co-worker was a single mother with lots of responsibilities,” we are counting that as empathy
6. Support seeking (SS): Talking to other people about the transgression for various purposes, e.g., feeling better, advice regarding how to proceed, etc. Whoever the

- person speaks to must be close to the person (e.g., friends, family) for support seeking to be coded as 1. Speaking to authority figures does not count as support seeking.
7. Meaning making (MM): The participant has learned a life lesson from the transgression and is better able to understand the transgression and future similar situations. Cases that are *not* meaning making are those in which a simple explanation or rationalization for the event is given, e.g. “I realized that the prank would only lead to a battle for supremacy that I did not want to participate in. It would waste too much of my time.” Religious-themed explanations, such as karma or “God works in mysterious ways,” count as meaning-making.
 8. Self-blame (SB): The participant admits they made a mistake but does not feel particularly bad about the incident, e.g. “The only thing I could do to cope was give copious apologies to him and his parents. There wasn’t much I could do to repair the damage. One of those mistakes.”
 9. Problem solving (PS): The participant pursues a course of action, either directly or indirectly, aimed at rectifying the transgression. Instances where the participant speaks to an authority (e.g., a policeman, principal, dean) counts as problem solving because the authorities have the power to bring about change (e.g., arrest, expulsion, exam re-write). Similarly, instances where the participant tries to improve their current situation, e.g., studying harder after failing an exam, are considered problem solving.
 10. Silent Treatment (ST): Participant purposely does not talk to transgressor. We separated this from revenge because it seems to involve a degree of physical and cognitive avoidance.

Outcome:

We code for 2 separate variables of recovery. Short term recovery – the immediate effects of their coping efforts or revenge, and Long term recovery – the long term effects of their coping efforts or revenge.

- Recovered: Originated from DeLongis category called ‘distancing’. We decided that recovering from a transgression should rightly be considered an outcome of coping or revenge and *not* a coping style. Recovering could be influenced by temperament (some people are just more resilient than others) and/or time (time heals all wounds, therefore after a while people are no longer bothered by transgressions). Note that such coding also makes sense for the purposes of data analysis: If we want to demonstrate that coping works (i.e., that coping helps people recover from transgressions), then only those individuals who actively coped and recovered should get a 1.
 - Recovered means feeling okay now – at the time of writing the anecdote.
 - Recovered should only get a 1 in cases where the participant clearly indicates some effort in dealing with the transgression.
 - Cases in which little to no information is present, such as “I didn’t think about revenge, I just moved on” would be counted as 0 because there is not enough information here to indicate the means to this apparent ‘moving on’. If the participant indicates a belief in karma or other similar religious explanations,

these statements *do not* necessitate a score of 0. That is, a belief in karma does not necessarily rule out recovery.

- A score of -1 is appropriate when the participant reports still thinking about the transgression or shows some regret in their decision to act (or not act) as they did.

Coding system for transgressions

Specifics of coding:

- Transgression type:
 - Craig, after coding about half of the transgressions and in consultation with Del, decided on nine distinct transgression types:
 1. Irresponsibility (I): The transgressor let down the victim in some way.
 - a. Examples include losing loaned course notes.
 2. Theft (T): The transgressor stole something from the victim, regardless of what that “something” is.
 - a. Examples include hiding a book the participant was reading or stealing the participant’s wallet.
 3. Betrayal (B): The transgressor broke a promise, violated the victim’s trust, and/or did something to jeopardize or abruptly end the friendship.
 - a. Examples include reneging on a promise, or spreading gossip or rumors.
 - b. Note that romantic offenses such as cheating or breaking up do not fall under this category; instead, these sorts of transgressions were so common they were designated their own category.
 4. Aggression (A): The transgressor inflicted harm on the participant, be it verbal, physical, or psychological.
 - a. Examples include insults, accusations, or being hit.
 5. Rudeness (R): The transgressor acted in a socially inappropriate or indecent way.
 - a. Examples include acting in an out of control way or callously throwing out something important to the participant.
 6. Arguments (A): The transgressor got into a heated or personal debate with the victim.
 - a. The participant should indicate that the transgression was an argument rather than (a series of) insults (aggression).
 7. Romantic offenses (RO): The participant’s significant other (the transgressor) hurt their partner in the context of the couple’s romantic relationship.
 - a. Examples include breaking up and all forms or ‘levels’ of cheating (e.g., from flirting while in a relationship to extra-relationship sex).
 8. Embarrassment (E): The transgressor acted in such a way to (publicly) shame or humiliate the victim.
 - a. Examples include being the victim of a prank or being made fun of in a public place.
 9. Perceived unfairness (PU): The victim feels that they were treated unjustly or dealt with unduly by someone with power or authority.
 - a. Examples include being excluded from a sporting event or being given a surprisingly low grade on a course assignment.

APPENDIX F:

SAMPLE STUDY 3 ANECDOTES

Sample anecdote 1:

at a young age I was sexually abused by an older friend of the same sex (male). my emotions mostly consisted of confusion as to my perceived enjoyment of the event at the time. By the time the memories arose again in my adolescence I felt more confused as to my sexual preference and felt a persisting feeling of shame mixed with certain twisted sexual arousal.

At first I felt violated and unclean but dreaded the thought of confrontation because of having to admit to him what had occurred. Something I was as too embarrassed to mention and would rather avoid. I spent most of my adolescence confused as to my sexual preferences and “experimented” sexually with members of both sex and am left to this day with lingering feelings of being violated and sexual uncertainty which, once confessed to my partners in various relationships, have totally killed whatever relationship we had.

Today I am still confused but not as stressed or insecure about having to come up with a verdict as to what sex I am exclusively attracted to. Thinking back on the friend that had abused me, after blaming myself for too long I still can't resent what he had done but seem to blame myself more for what happened.

Sample anecdote 2:

It was about two weeks ago when a close friend of mine told me over the phone they had started a rumour about me having romantic feelings for him (ie., He, the close friend, gossips about me having feelings for him). I am not very sure if he was joking or not but nonetheless I was somewhat humiliated and offended since I am in a very stable relationship with my partner. I explained my feelings towards the rumour but he seemed content in having thoughts of spreading it further. I was simply very disappointed in my close friend because I realized how insensitive and immature he can be.

I did not intend to carry out a revenge plan and what not since he is a very dear and close friend that I've known for quite a while. I decided that maybe I should keep reasonable distance from the close friend for now so that I won't have to deal with the gossip. I simply didn't want the rumour to spread even further.

I did not hang out with him or talk to him during the past two weeks. And he did not contact me as well. I was unhappy since I felt that this friendship seems to be deteriorating because of seemingly a trivial misunderstanding. I didn't know what else to do but I really did not want the friendship to fall apart just like that. I decided to talk to my other friends about the situation and they told me not to worry. They said true friends don't stop talking to each other just like that. They told me not to stop worrying and just let things happen. I tried not to think about the problem too much but it doesn't feel good to have an unresolved issue lurking at the back of my mind all the time. Despite, I felt slightly relieved when I told my other friends about the problem.