

ABSTRACT

Title of Thesis: EYE FOR AN EYE, BUT NOT FOR EVERYONE:
REVENGE AND ITS RELATIONSHIP WITH THE
NEED FOR CLOSURE

Lauren M. Boyatzi, Master of Science, 2011

Thesis directed By: Professor Arie Kruglanski
Department of Psychology

The urge for revenge after an individual experiences a transgression is ever-present. However, little is known about why one chooses revenge specifically versus other options. This paper examines the desire for revenge as a function of the need for closure. Specifically, this paper argues that due to its evolutionary benefits, revenge is the most cognitively accessible reaction and thus, individuals high (vs. low) in the need for closure seize and freeze on it after a transgression occurs. Results provide convergent support for the positive association between the need for closure and the desire for revenge but are unable to provide evidence that revenge serves the urgency and permanency desires of high need for closure because of its greater saliency. Methodological limitations and theoretical implications are discussed.

EYE FOR AN EYE, BUT NOT FOR EVERYONE: REVENGE AND ITS
RELATIONSHIP WITH THE NEED FOR CLOSURE

By

Lauren M. Boyatzi

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Master of Science
2011

Advisory Committee:

Professor Arie Kruglanski, Chair
Professor Michele Gelfand
Professor Charles Stangor

© Copyright by
Lauren M. Boyatzi
2011

Table of Contents

Table of Contents	ii
Chapter 1: Introduction	1
Literature Review.....	1
Revenge and the Need for Closure	5
Overview of Present Research	6
Chapter 2: Study 1a.....	9
Methods.....	9
Participants and Design.....	9
Procedure.	9
Results and Discussion	10
Chapter 3: Study 1b	11
Methods.....	11
Participants and Design.....	11
Procedures	11
Results and Discussion	12
Chapter 4: Study 2	14
Methods.....	14
Participants.....	14
Procedures and Design.....	14
Results and Discussion	16
Chapter 5: Study 3	19
Methods.....	21
Participants.....	21
Procedures and Design.....	21
Results.....	22
Discussion	24
Chapter 6: General Discussion.....	28
Limitations	30
Chapter 7: Conclusion.....	32
Appendices.....	34
References.....	46

Chapter 1: Introduction

Literature Review.

The urge for revenge when one suffers a perceived injustice is ubiquitous. It can be traced back through history and is also found among animals (McCullough, 2008). But this phenomenon is not well understood. Specifically, there is little research investigating why one would desire or seek revenge after a transgression as opposed to pursuing other options, such as forgiveness. This paper will provide evidence that revenge is chosen through motivated cognition and in particular, that revenge is desired more by some individuals than others. This paper will specifically examine the relationship between the need for cognitive closure (NFC; Webster & Kruglanski, 1994) and the desire for, and willingness to engage in, revenge.

Behaving in a vengeful, or aggressive, manner after a perceived wrong is an innate impulse and one that has a strong influence on behavior (Marongui & Newman, 1987; Stuckless & Goranson, 1992). Most researchers agree that revenge is an act committed in response to a prior harmful act by another (Allred, 1999; Stuckless & Goranson, 1992). It is a response that is motivated by an injustice and can serve many different purposes, including: validation of moral standards (Vidmar, 2002), protecting one's belief in a just world and reinstating moral order in society (Lerner, 1980; McCullough, Bellah, Kilpatrick & Johnson, 2001). It can act as a restorative of the balance of power (Crombag Rassin, & Horselenberg, 2003; Frijda, 1994) and justice (McCullough et al., 2001; Vidmar & Miller, 1980) as well as one's self-image (Miller, 2001) and self-esteem (Crombag et al., 2003). It has also been argued that revenge is an approach used to avoid being exploited in future exchanges (Eisenberger et al., 2004), to

deter the abuse of power by authorities (Bradfield & Aquino, 1999), and to deter future transgressions (Allred, 1999; Crombag et al., 2003).

These purposes of revenge can be categorized as acts that a) prevent future acts of aggression and b) help one to regain personal significance that was lost during a transgression. However, both of these central purposes of revenge can be included within the same conceptual framework. Specifically, research (e.g. Crocker & Wolfe, 2001; Deci & Ryan, 1995; Fein & Spencer, 1997; Horney, 1937; James, 1890; Kernis, 2003; Kernis & Waschull, 1995; Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004; Rogers, 1959; Sullivan, 1953; Tesser, 1988) has shown that people have a motivation to feel good about themselves, to have high self esteem, and to feel important. When someone is treated contrary to this idea by being humiliated or wronged, it makes apparent the discrepancy between how one sees oneself and how one is being treated by others. This discrepancy may be viewed as a lack of closure. Therefore, after a transgression, one may have a goal of achieving closure and this may be seen as achievable by taking revenge. Indeed, research has shown that an individual often view aggression or revenge after an injustice as a method of catharsis. Consequently, after engaging in these acts, one expects that the tension will be released and one's positive affect will be restored¹ (see Carlsmith, Wilson, & Gilbert, 2008).

From an evolutionary perspective, preventing future acts of aggression against oneself was likely instrumental to survival and could also be important for one's fundamental needs for self-value or esteem (Maslow, 1943). In other words, revenge may viewed as a way to reestablish one's sense of worth. A specific example of this need for

¹ It should be noted that these positive expectations for aggression and revenge are errors in affective forecasting and indeed, revenge does not lead to positive cognitive benefits (Carlsmith et al., 2008) or closure (N. Stuckless, personal communication, May 4, 2009).

self-value resides in the research on the Culture of Honor (Nisbett & Cohen, 1996; 1999), which shows that in these cultures, men attend to the “code of honor” and thus are more ready to fight or kill to defend their reputation. For example, a man from a culture of honor is more likely to view insults as directly impacting his masculine reputation, or as violations of personal honor (Nisbett & Cohen, 1999), and thus sees aggression *as a way of restoring his status* (Cohen, Nisbett, Bowdle, Schwarz, 1996). Aggression is a behavior intended to hurt another (Anderson & Bushman, 2002) and in this case is an example of revenge.

No matter what the impetus is when a person chooses to engage in revenge, it is unclear why an individual would choose revenge specifically, especially when another reaction could have achieved the same end result. For example, if one is transgressed against in the workplace, preventing future acts of aggression may be achieved by simply notifying a superior. Alternatively, one may be able to restore lost personal significance by focusing on other important aspects of one’s life (i.e., self affirmation), or by forgiving the offender and therefore being able to view oneself as a “good and forgiving person.” I argue that an individual chooses revenge as a response to a transgression because revenge should be the most cognitively available reaction.

Specifically, revenge is expected to be a more salient response to a perceived injustice than forgiveness because of its evolutionarily-adaptive nature. According to McCullough (2008), individuals’ innate willingness to use revenge has adaptive advantages and can even be seen in nonhuman animals who use revenge for the same reasons as those used by humans. While McCullough acknowledges that several evolutionary theories for revenge exist, he states, “The capacity for revenge is a universal

human trait because natural selection specifically crafted it for its ability to help humans' ancestors to solve social problems that threatened their survival and their ability to produce descendants" (p. 11). Specifically, he argues that revenge has been an effective mechanism through which to solve adaptive problems. For instance, revenge could solve social problems by deterring an aggressor from harming the individual a second time. Diamond (1977) provides evidence for this, showing that fear of retaliation deters aggression among men. Revenge can also deter other potential aggressors by signaling that one will not passively endure harm (Brown, 1968; Kim, Smith, & Brigham, 1998). Moreover, in the presence of a third party, revenge from a low power individual to a high power individual is more severe than downward revenge (Kim et al., 1998); this provides additional evidence that revenge is a means of not only showing transgressors, but also showing others who have not committed a transgression, that one will not accept harm 'lying down.' Revenge has further value in coercing people to cooperate who otherwise would be social loafers (Fehr & Gächter, 2002; Price, Cosmides, & Tooby, 2002). Since revenge has been used as an effective strategy throughout time and is beneficial in a variety of situations, it is likely that this reaction to a transgression will be a particularly salient option when an individual is the victim of a transgression.

Because choosing to act in any specific way after a perceived transgression is a judgment, the process of judgment formation is important in understanding why revenge is chosen over other options. A type of motivated cognition that should influence how one makes judgments and that affects how one reacts to the saliency of information, which is revenge in this case, is the NFC (Webster & Kruglanski, 1994).

I argue that due to its evolutionary benefits, revenge is the most accessible reaction after a transgression and should therefore be the most salient option for everyone. However, revenge is not taken after every transgression (McCullough, Kurzban & Tabak, 2010). Thus, the fact that revenge is the most salient option does not necessarily lead to engagement in revenge. To predict when revenge is taken, however, the NFC offers a unique explanation because it is characterized by seizing and freezing on the most salient option.

Revenge and the Need for Cognitive Closure

The NFC is a motivation regarding knowledge and judgment formation; specifically, it is a general proclivity to seek closure via any answer or judgment that achieves closure (Kruglanski, 1989; Kruglanski & Webster, 1991; Kruglanski & Webster, 1996). For a person high in the NFC, any answer is seen as preferable to experiencing ambiguity or uncertainty. The NFC is comprised of preferences for order and structure, general closed-mindedness, decisiveness, a desire for predictability, and an intolerance of ambiguity (Webster & Kruglanski, 1994). Further, the NFC is characterized by “seizing” and “freezing” tendencies such that an individual high (vs. low) in the NFC seizes on the most salient option in order to achieve closure quickly and freezes on that decision in order to avoid potential future losses of closure.

Individuals high in the NFC should be more likely to seek revenge than forgiveness because they are likely to choose the option that is most salient. Choosing the most accessible alternative allows one to satisfy the need of urgency, which leads to achieving closure more quickly than if one were to assess different options (Kruglanski & Webster, 1996). Revenge can also act as a method for one to gain permanent closure and

specifically to prevent future losses of closure (Kruglanski & Webster, 1996) because it deters future transgressions (Allred, 1999; Crombag et al., 2003).

In summary, due to the evolutionary benefits of revenge, I expect revenge to be the most salient option in response to a transgression. Further, I expect individuals high (vs. low) in the NFC to choose revenge after being wronged because they will seize and freeze on revenge as the most accessible course of action, and thus will be more likely to desire and pursue it.

Overview of Present Research

The aim of this research is to demonstrate a positive relationship between the NFC and revenge such that individuals high (vs. low) in the NFC desire and engage in revenge. I examine this relationship by looking at both the desire for revenge and actual engagement in revenge as dependent measures. Further, I examine whether the saliency of revenge can be overridden with the priming of other responses to a transgression, such as forgiveness.

I also manipulate the severity of the transgression. Individuals high (vs. low) in the NFC should satisfy their urgency and permanency desires for closure by seizing and freezing on the most salient option (which could be revenge or forgiveness in the priming manipulation); however, this may vary as a function of transgression severity. For low severity transgressions, the offense may be mild enough that any response may provide closure. More severe transgressions are greater losses of personal significance, however, and consequently have more enduring consequences (McCullough, Fincham, & Tsang, 2003). Therefore, forgiveness may not provide closure as easily after a severe transgression as for a mild transgression. Thus, high (vs. low) NFC individuals desire to

achieve closure quickly and thus will respond with the fastest or easiest way to achieve closure, which should be revenge after a severe transgression.

In the four studies presented herein, I test the following hypotheses:

Hypothesis 1a: I expect a positive relationship between the NFC and one's chronic, cross-situational desire for revenge. This question is investigated in Study 1a.

Hypothesis 1b: I expect there to be a positive relationship between the NFC and situation-specific desire for revenge. This hypothesis is addressed in Study 1b and extends Study 1a by examining how the NFC influences one's reaction after a hypothetical transgression.

Hypothesis 2: I expect that individuals high (vs. low) in the NFC will be more likely to seek revenge when they are the victim of a transgression (vs. engaging in a neutral interaction). This hypothesis is explored in Study 2 and investigates the relationship between NFC and revenge using more ecologically-valid measures. In this study, I manipulated participants' NFC and provided an opportunity to revenge (versus simply state their desire for revenge) against the transgressor.

Hypothesis 3: Individuals high (vs. low) in the NFC are more likely to seize and freeze on the most salient means to reaching closure (i.e. revenge or forgiveness). Therefore, when revenge is made salient via priming, individuals high in the NFC will state a greater desire for revenge than forgiveness; likewise, when primed with forgiveness, high NFC individuals will state a greater desire for forgiveness than revenge.

Hypothesis 4: For individuals high (vs. low) in the NFC, the severity of the transgression will moderate the effect of means (revenge or forgiveness) salience on which means is more desired. Specifically, in response to a low (vs. high) severity transgression,

participants high (vs. low) in the NFC will state their desire for whatever means is primed (revenge or forgiveness). However, in response to a high (vs. low) severity transgression, participants high (vs. low) in the NFC will exhibit a greater desire for revenge regardless of means primed. Hypotheses 3 and 4 are addressed in Study 3, which measures the NFC and employs hypothetical transgressions of varying severities, as well as a priming manipulation in which either revenge or forgiveness is made salient.

Chapter 2: Study 1a

The purpose of Study 1a was to examine the relationship between the NFC and the desire for revenge after transgressions in general. Given the evidence provided showing that revenge serves many adaptive purposes, I expected it to be the most cognitively accessible response option after a transgression occurs. Because of the characteristic attributes of people high (vs. low) in the NFC to seize on the first available or most salient option and then stick to that decision in order to achieve quick and lasting closure, I expected people high (vs. low) in the NFC to seize and freeze on revenge and therefore state a greater desire for revenge (Hypothesis 1a).

Method

Participants.

Participants were 32 undergraduate psychology students (8 men and 24 women) from a large university with a mean age of 19.97 years old who participated in exchange for course credit.

Procedure and Design.

Participants were told that the researcher was looking into the effect of individual differences on thoughts and behavior. Participants completed demographic information and the NFC scale (NFCS) full version (Kruglanski & Webster, 1994; see Appendix A). They then completed the Vengeance Scale (Stuckless & Goranson, 1992; see Appendix B), which is a short questionnaire measuring participants' reaction to injustices across situations (i.e., how they chronically respond to transgressions). Sample items include "I believe in the motto 'An eye for an eye, a tooth for a tooth.'" and "If I am wronged, I

can't live with myself unless I get revenge." After completing the questionnaires, participants were thoroughly debriefed and thanked for their participation.

Results and Discussion

In support of Hypothesis 1a, the results show that there is a significant positive correlation between the NFC and desire for revenge across situations ($r = .427, p < .02$); the higher one's NFC, the higher one's desire for revenge across situations. While this study shows a positive relationship between the NFC and desire for revenge in general, it is important to show that this relationship holds after a transgression is experienced. In the present study, participants may have imagined prior transgressions against them and responded based on past experience. Therefore, it is possible that individuals high (vs. low) in the NFC simply have a general desire for revenge, even in the absence of a transgression, rather than a greater propensity to seize and freeze on revenge as the most accessible option following a specific transgression. Study 1b was designed to address this limitation by providing a specific transgression to participants.

Chapter 3: Study 1b

The aim of study 1b was to conceptually replicate and extend the results of Study 1a by providing a specific transgression followed by a measure of one's desire for revenge, rather than measuring a general propensity to respond to transgressions with revenge. Additionally, this study measures desires for other reactions to a transgression such as forgiveness and avoidance as compared to a measure of vengeance alone. This provides a means to explore if individuals high (vs. low) in the NFC choose any available response that may provide closure after a transgression or if they desire revenge in particular. Specifically, I expected that after a transgression occurs, individuals high (vs. low) in the NFC will satisfy the urgency and permanency desires for closure through revenge only because it is the most salient option.

Method

Participants and Design.

Thirty-eight undergraduate Psychology students (3 men and 35 women) with a mean age of 19.38 years old participated in exchange for course credit.

Procedure.

Participants were told that the researcher was interested in looking into the effect of individual differences on judgments and behavior. Participants completed the NFCS short version (Webster & Kruglanski, 1994; see Appendix C). Participants then read a vignette describing a situation in which they are wronged by a friend. Specifically, the friend leaves the participant at a party so that the participant must walk back to the dorms alone, even though they had previously discussed that they would walk back together (see Appendix D). After reading the vignette, participants completed the Transgression-

Related Interpersonal Motivations Inventory, 18-item version (TRIM-18, McCullough, Root, & Cohen, 2006; see Appendix E), which measures hypothetical reactions to the perpetrator of an injustice. Items include revenge-related actions such as “I’ll make him/her pay” and “I’m going to get even,” as well as benevolence and avoidance items such as “Despite what he/she did, I want us to have a positive relationship again” and “I cut off the relationship with him/her,” respectively. This was followed by a demographic questionnaire. After completing the survey, participants were thoroughly debriefed and thanked for their participation.

Results and Discussion

In support of Hypothesis 1b, the results show that there is a significant positive correlation between the NFC and desire for revenge ($r = .483, p < .01$) such that as one’s NFC increases, there is also an increase in one’s desire for revenge after a transgression. Additionally, the correlations between the NFC and benevolence and the NFC and avoidance were not significant ($ps > .34$). This suggests that revenge is an especially salient response after a transgression and that individuals are seizing and freezing on revenge in particular and not on any possible reaction.

Study 1b conceptually replicates the results of Study 1a and therefore, I have converging evidence with multiple methodologies that the NFC is significantly positively related to revenge. However, both of these studies were correlational. They demonstrate that a relationship exists between the NFC and revenge but do not provide support for the directionality of the relationship (e.g. that the more one wants to get revenge, the higher one’s NFC becomes) nor do they preclude the possibility of an extraneous third variable driving the results.

A second limitation of both Studies 1a and 1b is that they use low-impact hypothetical transgressions; therefore, the participant's self-reported desire for revenge may not reflect what he/she would do if the situation actually presented itself. Additionally, the present study is limited in that it only examined the extent to which one desires revenge as an abstract concept and does not allow for the measurement of different behaviors as method of getting revenge. This may be an issue because different actions may be undertaken by different people as the way to get the same "revenge."

A further limitation in this study is that it only measured revenge after one situation and thus it is important to test alternative transgressions to show generalizeability across situations (this is addressed in Study 3). Finally, this study did not include a control condition. Therefore, it is possible that individuals high (vs. low) in the NFC simply have a general desire for revenge, even in the absence of a transgression, rather than a greater tendency to seize and freeze on revenge as the most accessible option following a specific transgression.

Chapter 4: Study 2

The aim of Study 2 is to conceptually replicate and extend the results of Studies 1a and 1b by manipulating the NFC and using a behavioral measure of revenge (versus self-report). I expected to find the same relationship between the NFC and revenge as was found in Studies 1a and 1b. With the experimental manipulation of the NFC, a causal relationship could be inferred such that a high NFC leads to a greater enactment of revenge. Manipulated high NFC (versus high need to avoid closure, hereafter described as a low NFC) should exemplify the characteristic seizing and freezing on the particularly accessible option of revenge after a transgression occurs. Therefore, I expected participants in the high (vs. low) NFC to engage in revenge.

Method

Participants.

Eighty-four undergraduate psychology students from a large university participated in the current study. However, 8 students' data were eliminated due to suspicion. Consequently, 76 students (39 men and 37 women) with a mean age of 20.1 participated in exchange for course credit. Participants' gender showed no significant effects on the dependent variable and for this reason will not be discussed.

Procedure and Design.

Participants were told that the researcher was interested in looking into the effect of individual differences on thoughts and behavior and that the study involved two participants who would work together in a role-playing exercise. In actuality, there was no other participant and all responses were preprogrammed as part of the computer task.

The study used a 2 (NFC: high and low) x 2 (Transgression: negative and neutral feedback) design. Participants' NFC was manipulated through a recall task such that items from the NFCS (Kruglanski & Webster, 1994) were transformed into questions; this is in line with previous manipulations (Orehek, 2009). Participants were asked to recall three instances in which they behaved in line with a high (or low) NFC. For instance, participants in the high NFC were asked to "Think back to the times when you believed that orderliness and organization were among the most important characteristics of a good student" and participants in the low NFC manipulation condition were asked to "Think back to the times when even after you made up your mind about something, you were eager to consider a different opinion." Participants were also given filler task questionnaires which were described as personality measures.

The role-playing exercise acted both as a means to experimentally manipulate the presence (vs. absence) of a transgression and an opportunity for revenge. Participants were told that they and another participant were co-owners of a leasing company looking to purchase an apartment building and to choose a pool company that will build a pool at the apartment building site which they purchase. Participants were told that they were best suited to complete the task of choosing an apartment building to purchase based on the (bogus) personality measures. The task was intentionally difficult and ambiguous; it included twelve apartments to choose from, eleven criteria on which to base the decision, and no objective 'right answer' (see Appendix F). The uncertainty of this task was important in that it allowed participants to distort information in line with their motivations (Kunda, 1990). I expected most, if not all, participants to (be motivated to) believe that they did a good job on their task.

Participants then chose an apartment building and waited for feedback from their partners. Participants were randomly assigned to one of two feedback conditions: one in which the participant received negative feedback from his/her partner about the choice of apartment building (transgression manipulation) and the other in which the participant received neutral feedback (to serve as a control). Feedback was given in the form of survey ratings of the partner's decision and ability to do his/her job (see Appendix G). After the feedback was given, the participant waited for a few minutes while he/she believed that the other participant was deciding on his/her choice of pool company. The participant then saw the pool company that they believed their partner chose. The pool company task was much easier, including only five choices and four criteria to use (Appendix H). There were clear 'good choices' and the partner was preprogrammed to always choose a good pool company.

As a measure of revenge, participants were asked to rate the extent to which they agreed with their partner's decision of pool company and their partner's ability to do his/her job (using the same scale as their partner's feedback). After completing the scale, the participants were thoroughly debriefed and thanked for their participation.

Results and Discussion

I conducted a 2 (NFC: high and low) x 2 (Transgression: present and absent) Analysis of Variance (ANOVA) to test the hypotheses. There were no significant main effects of NFC, ($F < 1$) or transgression manipulation, ($F < 1$). In addition, the interaction between the NFC and transgression (operationalized as partner feedback) did not produce significant differences in feedback to one's partner, ($F < 1$) such that after receiving

negative feedback, individuals high in the NFC did not differ in the ratings of their partner ($M = 3.694$, $SE = .222$) than low NFC individuals ($M = 3.635$, $SE = .192$).

Therefore, Hypothesis 2, which states that individuals high (vs. low) in the NFC are more likely to seek revenge when they are the victim of a transgression (versus a neutral interaction), is not supported. It could be that participants who were transgressed against may have desired to engage in any type of other-directed aggression instead of revenge, which is specific to the person who perpetrated the transgression (Bar-Elli & Heyd, 1986). The procedures included an opportunity for participants to rate a third party, the experimenter, as an opportunity for general aggression. The directions stated that the researcher was interested in how well the experimenter was performing his/her duties and asked participants to be as open and honest as possible with their comments. This one-item measure of aggression was counterbalanced with the dependent measure (i.e. the rating measure of the partner) and was an opportunity for aggression because participants could have provided negative feedback about the experimenter regardless of how well he/she was doing. To test whether participants would be satisfied with aggression toward anyone (vs. revenge toward the perpetrator), I examined the extent to which participants rated the experimenter negatively. None of the participants provided negative feedback about the experimenter and therefore I can state that participants were not merely interested in aggression toward any person.

There are several potential explanations for the lack of findings in Study 2. A possible explanation is that the manipulation may not have had a high enough impact (e.g. participants may have felt that the task was inconsequential and therefore their performance on it does not matter, and/or that evaluations from an anonymous partner

were insignificant). I did not include a manipulation check to ensure that participants felt that they were wronged in some way (i.e. to test if participants thought that a transgression had occurred); without a transgression, one should not have a need for revenge. Indeed, the lack of a main effect of transgression suggests that participants did not feel as though they had been the victim of an injustice.

Another limitation of the study is that participants' perceptions of what constitutes revenge were not measured. Although participants were given the opportunity to rate their partner (negatively or otherwise), this may not have constituted a method for revenge for some participants.

It is also possible that because the partner's performance was not ambiguous (in fact it was an unambiguously good choice), it may not have provided a desirable way to achieve revenge. Ambiguous situations allow for individuals to more easily distort information in line with their motivations (Kunda, 1990), and therefore the performance of the partner should have been made ambiguous. In less ambiguous situations, as in the current study, individuals are still *able* to enact revenge but may be less willing to behave in an overtly negative way or in any way that may cause them to be perceived negatively. Therefore, it is possible that in the current study, participants desired revenge but felt that there was not a good opportunity provided to engage in it. Additionally, participants may have had a strong accuracy motivation in their decisions (Kruglanski, 1989) which may have affected the results. To the extent that the revenge motivation was aroused in the present study, the motivation for accuracy may have been more powerful and thus the participants may have experienced "focal override:" their focal motivation (i.e. accuracy) overpowered or "trumped" their background motivation (i.e. revenge).

Chapter 5: Study 3

Study 3, carried out concurrently with Study 2, was designed to examine factors that may influence which response to a transgression is chosen. The factors include dispositional NFC, which was shown in Studies 1a and 1b to affect one's desire for revenge. However, whether or not one's NFC affects desire for forgiveness, if it were made salient, has not been tested. High (vs. low) NFC individuals should satisfy their urgency and permanency desires for closure through any means of closure provided. After a transgression (i.e. a lack of closure), revenge and forgiveness are means to the goal of achieving closure. Therefore, if forgiveness was made momentarily salient, it should be desired more than revenge for individuals high (vs. low) in the NFC. Specifically, the current study explored whether priming an alternative means for closure (i.e. forgiveness) can override the natural accessibility of revenge such that individuals high (vs. low) in the NFC will seize and freeze on forgiveness (vs. revenge).

Additionally, differing severities of transgressions were presented. Including transgressions of assorted severities was meant to examine if different amounts of wrongdoing would result in varying levels of desire for revenge or forgiveness. Specifically, for low severity transgressions, the wrongdoing may be mild enough that any response option may provide closure. A low severity transgression represents a small loss of significance and therefore the motivation to achieve closure quickly should be achieved with whichever means is primed (revenge or forgiveness).

For a more severe transgression, however, forgiveness may not provide closure as easily as for the mild transgression because a severe transgression leads to a greater loss of personal significance. Therefore, the motivation to achieve closure *quickly* should be

most easily served by revenge; achieving closure through forgiveness for a severe transgression should be a much more complicated process because it takes additional time and affective-cognitive resources. Specifically, forgiveness requires cognitive effort in the counteraction of revenge and avoidance motivations (McCullough et al., 2001; McCullough et al., 1998; McCullough, Worthington, & Rachal, 1997). It also requires forbearance, the restraint from these motives along with the maintenance of forgiveness motivations; this is more difficult after a severe transgression (McCullough et al., 2003). Further, while benevolence motivations do not increase over time per se (Fehr, Gelfand, & Nag, 2010), avoidance and revenge motives progressively decline after a transgression (McCullough, et al., 2003) which may indicate that the *relative* extent to which one desires forgiveness versus revenge and avoidance becomes greater over time. Therefore, after a severe transgression, closure would be achieved more slowly using forgiveness as a means.

This study tested Hypotheses 3 and 4. Specifically, I expected that individuals high (vs. low) in the NFC would be more likely to seize and freeze on whichever means to reaching closure (i.e. revenge or forgiveness) is made salient. Therefore, when primed with revenge, individuals high in the NFC would state a greater desire for revenge than forgiveness; likewise, when primed with forgiveness, high NFC individuals would state a greater desire for forgiveness than revenge (Hypothesis 3).

I also expected that for individuals high (vs. low) in the NFC, the severity of the transgression would moderate the effect of means salience on which means is desired. Specifically, in response to a low (vs. high) severity transgression, participants high (vs. low) in the NFC would state their desire for whatever means is primed (revenge or

forgiveness). However, in response to a high (vs. low) severity transgression, participants high (vs. low) in the NFC would exhibit a greater desire for revenge regardless of means primed (Hypothesis 4).

Method

Participants.

Participants were 188 (46 men and 142 women) undergraduate psychology students from a large university who participated in exchange for course credit. Sixty-four participants were excluded for the following reasons: scoring above the accepted score for the built-in social desirability measure in the NFC Scale (31 participants) or not following the directions of the study correctly (33 participants). Given that this was an online study, it was important to eliminate participants who did not follow instructions to ensure that the manipulations were effective. Consequently, 124 participants (33 males and 91 females) with a mean age of 20.37 participated. Participants' gender showed no significant effects on the dependent variables and hence will not be discussed.

Procedure and Design.

This study used a 2 (prime: revenge and forgiveness) x 2 (severity of transgression: high and low) x 2 (NFC: high and low) design. Participants completed a battery of questionnaires including the NFCS full version (Webster & Kruglanski, 1994) and filler scales. Participants were then randomly assigned to one of two prime conditions (revenge or forgiveness) in which they were primed with revenge or forgiveness through a lexical decision task. In this task, participants were told that they would be shown several strings of letters on the same screen and would have to determine if they are words or nonwords. The nonwords for both the revenge and forgiveness conditions

included “bilgram,” “vinoffy,” and “shouph.” The strings of letters in both conditions were of similar length to each other as well as to the nonwords. Revenge primes included “payback,” “penalty,” and “justice;” forgiveness primes included “pardon,” “excuse,” and “forget.” Participants saw 10 prime words, 15 nonwords, and 15 neutral words.

After they completed the priming task, participants read one of two vignettes describing either a mild or a severe transgression (see Appendices I and J). Pilot testing showed that the transgression severity manipulation was effective ($t(1) = -2.933, p < .01$). The severe transgression vignette was rated as more severe ($M = 6.50, SE = .52$) than the mild transgression vignette ($M = 5.66, SE = .70$) on a Likert scale from 1 (*not at all severe*) to 7 (*very severe*). Following the vignette, participants were asked to rate their revenge and forgiveness intentions with the TRIM-18 (McCullough et al., 2006). After completing the TRIM-18 and demographic information, the participants were thoroughly debriefed and thanked for their participation.

Results

The data were analyzed using a 2 (NFC: dichotomized high vs. low) x 2 (Prime: revenge vs. forgiveness) x 2 (Transgression Severity: high vs. low) x 2 (Means: revenge vs. forgiveness) mixed ANOVA with NFC, Prime, and Transgression Severity as between-subjects factors and Means as a within-subjects factor. This allows for the comparison between one’s desire for revenge and desire for forgiveness. The NFC was measured continuously but was dichotomized based on a meaningful cutoff score² (Preacher, Rucker, MacCallum, & Nicewander, 2005). The averaged NFC scores were divided at the value of 3.5, which is the center of the scale. Therefore, individuals who

² Although it is generally not recommended to dichotomize continuous variables (Preacher et al., 2005), the NFC was dichotomized for interpretability purposes. Analysis of the data using the NFC as a continuous variable does not have a significant impact on the results.

reported an average NFC score of 3.5 or greater were categorized as high NFC and individuals who reported an average score of less than 3.5 were categorized as low NFC.

To test Hypothesis 3, which states that individuals high (vs. low) in the NFC are more likely to seize and freeze on whichever means to reaching closure (i.e. revenge or forgiveness) is made salient, I examined the three-way interaction between the NFC, Prime, and desires for revenge vs. forgiveness. Specifically, I expected that when individuals high in the NFC are primed with revenge, they will state a greater desire for revenge than forgiveness and when they are primed with forgiveness, they will state a greater desire for forgiveness than revenge. The repeated measures ANOVA did not yield a significant three-way interaction ($F < 1$). Therefore, Hypothesis 3 is not supported.

To test Hypothesis 4, which states that the severity of the transgression will moderate the effect of means salience on the desire of means for those high (vs. low) in the NFC, I examined the four-way interaction between NFC, Prime, Severity, and desires for revenge and forgiveness. I expected that in response to a low (vs. high) severity transgression, participants high (vs. low) in the NFC would state their desire for whatever means is primed (revenge or forgiveness) and that in response to a high (vs. low) severity transgression, participants high (vs. low) in the NFC will state a greater desire for revenge regardless of means primed. The repeated measures ANOVA did not yield a significant interaction ($F < 1$). Further, the pairwise comparison of the specific a priori hypothesis examining the difference between desires for revenge and forgiveness for individuals high in the NFC when primed with forgiveness and faced with a severe transgression was also not significant ($F(1,115) = 1.067, ns$). Therefore, Hypothesis 4 is not supported.

Although the hypotheses were not supported, there was a significant interaction of interest. The repeated measures ANOVA yielded a significant two-way interaction between Severity and the desires for revenge vs. forgiveness ($F(1,115) = 5.952, p < .02$). Specifically, the pairwise comparison of desire for revenge as a function of severity is significant ($F(1,115) = 5.075, p < .03$), such that participants stated a greater desire for revenge when faced with a high severity transgression ($M = 2.716, SE = .116$) than a low severity transgression ($M = 2.347, SE = .116$). Further, participants stated a marginally greater desire for forgiveness ($F(1,115) = 2.769, p = .099$) when presented with a low severity transgression ($M = 2.858, SE = .104$) than a high severity transgression ($M = 2.613, SE = .104$).

The variables of interest in this study, namely the NFC and desire for revenge, also allow for an additional test of Hypothesis 1b, which states that the NFC will be positively related to desire for revenge after a transgression. A one-way ANOVA yielded a marginally significant main effect of the NFC on the desire for revenge ($F(1, 122) = 2.866, p = .093$), such that high NFC individuals reported a greater desire for revenge ($M = 2.688, SE = .087$) than low NFC individuals ($M = 2.411, SE = .138$). Therefore, Study 3 provides converging support for the basic effect found in Studies 1a and 1b: that a high NFC is related to one's desire for getting vengeance.

Discussion

The results of study 3 were unable to provide support for Hypotheses 3 and 4. However, importantly, Study 3 yielded converging evidence for the NFC-revenge relationship found in Studies 1a and 1b; this underscores that the relationship of interest seems robust across samples and methodologies. Additionally, the results show an

interaction between severity of transgression and desire for revenge such that individuals stated a greater desire for revenge when presented with a severe (vs. mild) transgression. This supplies a manipulation check of the severity condition and provides support that the manipulation of the severity of transgression was successful.

The lack of support for Hypotheses 3 and 4 could be due to the possibility that the priming manipulation was ineffective. The prime words were not pretested to ensure their efficacy in increasing the salience of the constructs. Further, a direct manipulation check of saliency, such as a reaction time measure to compare how quickly participants respond to salient versus not-salient items, was not included in the study design. The results show that the primes were not able to produce a greater desire for the primed (vs. not) means of closure, which suggests that perhaps the primed constructs were not made any more salient. If this were the case, individuals high (vs. low) in the NFC would have had a greater saliency of revenge in both prime conditions, as suggested by the findings of Studies 1a and 1b. However, individuals high in the NFC did not state a greater desire for revenge than individuals low in the NFC when primed with revenge ($F < 1$). Conversely, when primed with forgiveness, individuals high in the NFC stated a marginally greater desire for revenge ($M = 2.685$, $SE = .126$) than individuals low in the NFC ($M = 2.200$, $SE = .212$; $F(1,115) = 3.869$, $p = .052$).

This may be explained through the possible tension resulting from the (opposing) saliency of both revenge and forgiveness constructs. Specifically, high (vs. low) NFC individuals may experience discomfort with the competing saliency of revenge and forgiveness. The theory presented herein assumes that whereas revenge is always salient after a transgression due to its evolutionary-beneficial nature, forgiveness is not.

Therefore, in the forgiveness prime condition, I assume that the construct of forgiveness was made more salient than it is normally. This means that both revenge and forgiveness would have been salient, the former due to evolutionary adaptability, and the latter due to priming. This “double-saliency” could create cognitive tension for participants, especially for those high in the NFC. Indeed, Webster and Kruglanski (1994) state those high (vs. low) in NFC will experience “affective discomfort” (p. 1050) when faced with ambiguity. People high in the NFC also prefer decisiveness (Webster & Kruglanski, 1994) which is afforded by seizing on the most salient means to a goal; however, if two constructs are equally salient, high NFC individuals would have a more difficult time seizing and freezing on either one. This may have prompted them to manage their cognitive tension by choosing revenge to an even greater extent, because of several possible reasons including its permanent saliency, its potential greater automaticity, and/or high (vs. low) NFC participants’ greater experience with revenge following transgressions.

Limitations.

There are several limitations to the present study. This study did not allow the baseline desires of revenge and forgiveness as a function of the NFC to be measured. This is important to explore because it could eliminate the hypothesis that high (vs. low) NFC individuals desire revenge more in general due to reasons other than the saliency of revenge (e.g. due to greater dispositional aggression). The expected results would show that individuals high and low in the NFC should equally desire revenge (as well as forgiveness).

A further possible limitation concerns the severity of the transgressions. Although they differed significantly from each other in terms of ratings of severity (indicated by the

pilot study), it is possible that both were severe enough to have crossed some threshold that may exist whereby revenge is the only means to achieve the goal of closure. Indeed, there appears to have been a slight ceiling effect since the average between-subjects ratings of severity for both low and high severity transgression in the pretest were 5.66 and 6.5 respectively on a 7-point Likert scale. Thus, both transgressions were viewed as severe and consequently, one may conclude that the manipulation of severity was not strong enough (i.e. the difference between the conditions was small). Although the study provided evidence that the desires for revenge and forgiveness varied as a function of transgression severity, the differences between severity conditions for desire of forgiveness were only marginally significant. Therefore, the results do not necessarily preclude the possibility that both transgressions met a level of severity that was not able to be forgiven. It would be important for future researchers to examine transgressions that are mild enough that forgiveness and revenge are seen as equally instrumental to achieving closure. Additionally, as stated above, a limitation of Study 3 was the inefficacy of the priming manipulation and thus subsequent research should pilot test, and provide a manipulation check for, prime words to ensure their efficacy.

Furthermore, the current study was an online study that used vignettes which can be argued to lack some ecological validity, on both counts. Therefore, the priming of revenge and forgiveness may not have been successful because participants were not giving the task their full attention. Furthermore, the vignettes may not have provided a high enough impact manipulation in order to get participants' true revenge tendencies, although the support for the NFC-revenge relationship via Studies 1a, 1b, and the current study, which used vignettes, argues against this.

Chapter 6: General Discussion

Together, these studies provide convergent evidence for the relationship between the NFC and desire for revenge after experiencing a transgression. Study 1a found a positive relationship between the NFC and one's desire for revenge in general and Study 1b found a similar relationship between the NFC and one's desire for revenge after a specific transgression. In addition, Study 3 provided additional evidence for Hypothesis 1b: that individuals high (vs. low) in the NFC will seize and freeze on revenge after a transgression. The results of these studies can be combined so one may conduct a (very) small meta-analytic investigation (Rosenthal, 1991; Whitlock, 2005) to explore the average effect size of the relationship between the NFC and revenge. A composite p-value of the three studies, weighted for sample size, yields $\bar{p}_{(Fisher)} = .0004$; additionally, a composite effect size of R^2 yields $\bar{R}^2 = .129$ and weighted $\bar{R}^2 = .108$, (95% CI [.085, .535]). Therefore, on the basis of these results, I conclude that the relationship between the NFC and a desire for revenge is robust and merits further investigation.

However, Study 2 was not able to provide support for this relationship using a behavioral (vs. self-report) measure. Further, Study 3 did not provide support for Hypothesis 3: individuals high (vs. low) in the NFC did not exhibit a greater desire for whichever means was primed. Study 3 also did not provide evidence supporting Hypothesis 4 in that individuals high (vs. low) in the NFC, when primed with forgiveness but faced with a severe transgression, did not report a greater desire for revenge (vs. forgiveness).

Study 3 specifically tested that the NFC is positively associated with revenge due to the seizing and freezing mechanisms of high (vs. low) NFC. However, the results were

unable to provide support for the expected NFC by Prime relationship and specifically did not show that the priming manipulation was effective. The ineffective manipulation of means salience could be due to logistical concerns (i.e. the manipulation was a short task involving primes in an online study). Alternatively, the inefficacy of the priming manipulation may suggest that it is not possible to override the natural saliency of revenge. In other words, revenge (vs. forgiveness) as an initial, although perhaps only imagined, reaction to a transgression (McCullough et al., 2003) may be so ingrained in the human brain that temporary increases in the saliency of other reactions are not strong enough to compete.

Another possibility for the lack of support of the interaction between NFC and means prime is that revenge is salient because it is instrumental to the urgency and permanency desires of closure. Revenge satisfies the urgency of achieving closure after a transgression by offering a means to the goal of closure that is easily (and immediately able to be) performed. Revenge also acts to gain permanent closure and prevents future losses of closure because it deters future transgressions (Allred, 1999; Crombag et al., 2003). On the other hand, forgiveness takes longer to enact (McCullough et al., 2003) and thus does not serve to achieve closure promptly. Therefore, priming forgiveness without increasing its perceived instrumentality to urgency and permanency would not have increased the extent to which individuals high (vs. low) in the NFC would seize and freeze on forgiveness.

A potential reason that differences in revenge and forgiveness tendencies as a function of the NFC may not have been found as expected in Study 3 is because one or both do not function to restore personal significance. McCullough, Kurzban and Tabak

(2010) propose that revenge and forgiveness evolved to serve different functions. Specifically, they suggest that revenge serves the goal of preventing subsequent harm while forgiveness evolved in order to preserve important relationships in the face of being harmed. Therefore, while preventing future harm may be related to one's sense of worth and significance (i.e. standing up for oneself so as not to be taken advantage of in the future), preserving relationships may be unrelated to achieving closure by reestablishing one's self-value. These potential alternative goals provide intriguing hypotheses for future research.

Limitations.

The present research has several general limitations. Firstly, the studies have only shown that a high (vs. low) NFC is related to a greater desire for revenge and were unable to show that individuals high (vs. low) in the NFC were more likely to enact revenge. Therefore, I cannot reject the possibility that the NFC is related only to a greater *desire* for revenge and not a greater tendency to *engage* in vengeful behavior.

Similarly, the study in which the NFC was manipulated did not support the expected relationship between high (vs. low) NFC and a greater enactment of revenge. Therefore, this research does not provide support for the directionality of the relationship: that high (vs. low) NFC leads to a greater tendency to revenge. Additionally, it remains possible that individuals high in trait (i.e. measured) NFC have other commonalities that may cause a greater desire for revenge and thus that it is not the NFC, but some other psychological construct, that is driving the results. Future studies should examine the NFC-revenge relationship while holding constant Social Dominance Orientation (Pratto, Sidanius, Stallworth, & Malle, 1994), authoritarianism (Altemeyer, 1981), and other

possible correlates of the NFC that may be confounding the results. Additionally, future studies may wish to examine Trait Aggression (Buss & Perry, 1992) since it is possible that high NFC individuals may be higher in trait aggression and therefore it is aggression that is leading to a greater desire for revenge instead of the NFC's seizing and freezing on revenge as the most salient option.

Further, the potential moderators of the relationship between NFC and revenge are not clear. Although the results show that a severe (vs. mild) transgression may lead to a desire for revenge, the present research has not provided support showing that saliency of alternative means to achieve closure or transgression severity moderates the relationship.

Through addressing these limitations in subsequent research, such as including an effective and strengthened priming manipulation (limitation of Study 3), including a higher impact manipulation of severity of transgression that produces larger differences between the transgression conditions (limitation of Study 3), and addressing the potential overriding accuracy motivation (limitation of Study 2), the phenomena and relationships of interest may still manifest themselves and thus warrant further examination.

Chapter 7: Conclusion

This research will add to the social psychology literature in several ways. First, Studies 1a, 1b, and 3 found converging support for the relationship between the NFC and revenge. Thus, there is a clear trend, evident from the individual studies as well as the composite results, which supports that a high (vs. low) NFC is positively related to one's desire for revenge.

This research also contributes to the existing literature by looking at a different type of individual difference characteristic influencing revenge than those that have previously been examined. For instance, revenge has been shown to be related to social dominance orientation (McKee & Feather, 2008) and belief in a just world (Kaiser, 2004) which can both be conceptualized as endorsement of specific belief systems. Namely, social dominance orientation (Pratto et al., 1994) points to a belief that there is a natural social hierarchy while belief in a just world (Lerner, 1980) is a belief that the world is fair and just. However, the NFC is not a specific belief system but rather is a motivation that influences both knowledge acquisition and judgment, which can influence the formation and maintenance of beliefs.

Furthermore, this research may promote greater understanding of a possible antecedent of terrorism. Juergensmeyer (2000) proposed the Humiliation-Revenge theory of terrorism such that humiliation by an oppressor (e.g., a parent, a government) will lead to revenge as a response to the oppression. In his theory, terrorism is a method of revenge. Indeed, Speckhard and Ahkmedova (2006) find that revenge is a motivation underlying the joining of a terrorist organization. Therefore, it is possible that high (vs. low) NFC individuals are more likely to engage in revenge and therefore may also be

more predisposed to endorse terrorism. This may have practical implications for policy makers who work toward counterterrorism goals. Specifically, a better understanding of the motivations behind terrorism should lead to more effective counterterrorism policies and actions.

Appendix A

NFCS – full version

Read each of the following statements and decide how much you would agree with each according to your attitudes, beliefs, and experiences. Please respond according to the following scale.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

1. I think that having clear rules and order at work is essential for success.
2. Even after I've made up my mind about something, I am always eager to consider a different opinion.
3. I don't like situations that are uncertain.
4. I dislike questions which could be answered in many different ways.
5. I like to have friends who are unpredictable.
6. I find that a well ordered life with regular hours suits my temperature.
7. I enjoy the uncertainty of going into a new situation without knowing what might happen.
8. When dining out, I like to go to places where I have been before so that I know what to expect.
9. I feel uncomfortable when I don't understand the reason why an event occurred in my life.
10. I feel irritated when one person disagrees with what everyone else in a group believes.
11. I hate to change my plans at the last minute.
12. I would describe myself as indecisive.
13. When I go shopping, I have difficulty deciding exactly what it is that I want.
14. When faced with a problem, I usually see the one best solution very quickly.
15. When I am confused about an important issue, I feel very upset.
16. I tend to put off making important decisions until the last possible moment.
17. I usually make important decisions quickly and confidently.
18. I have never been late for an appointment or work.
19. I think it is fun to change my plans at the last moment.
20. My personal space is usually messy and disorganized.
21. In most social conflicts, I can easily see which side is right and which is wrong.
22. I have never known someone that I did not like.
23. I tend to struggle with most decisions.

24. I believe that orderliness and organization are among the most important characteristics of a good student.
25. When considering most conflict situations, I can usually see how both sides could be right.
26. I don't like to be with people who are capable of unexpected actions.
27. I prefer to socialize with familiar friends because I know what to expect from them.
28. I think that I would learn best in a class that lacks clearly stated objectives and requirements.
29. When thinking about a problem, I consider as many different options on the issue as possible.
30. I don't like to go into a situation without knowing what I can expect from it.
31. I like to know what people are thinking all the time.
32. I dislike it when a person's statement could mean many different things.
33. It's annoying to listen to someone who cannot seem to make up his or her mind.
34. I find that establishing a consistent routine enables me to enjoy life more.
35. I enjoy having a clear and structured mode of life.
36. I prefer interacting with people whose opinions are very different from my own.
37. I like to have a place for everything and everything in its place.
38. I feel uncomfortable when someone's meaning or intention is unclear to me.
39. I believe that one should never engage in leisure activities.
40. When trying to solve a problem I often see so many possible options that it's confusing.
41. I always see many possible solutions to problems I face.
42. I'd rather know bad news than stay in a state of uncertainty.
43. I feel that there is no such thing as an honest mistake.
44. I do not usually consult many different options before forming my own view.
45. I dislike unpredictable situations.
46. I have never hurt another's feelings.
47. I dislike the routine aspects of my work (studies).

Appendix B

Vengeance Scale

Listed below are a number of statements that describe attitudes that different people have. There are no right or wrong answers, only opinions. Read each item and decide whether you agree or disagree and to what extent. If you strong agree, choose 7; if you strongly disagree choose 1; if you feel somewhere in between circle any one of the numbers between 1 and 7. If you feel neutral or undecided, the midpoint is 4.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral or Undecided	Slightly Agree	Agree	Strongly Agree

1. It's not worth my time or effort to pay back someone who has wronged me.
2. It is important for me to get back at people who have hurt me.
3. I try to even the score with anyone who hurts me.
4. It is always better not to seek vengeance.
5. I live by the motto "Let bygones be bygones."
6. There is nothing wrong in getting back at someone who has hurt you.
7. I don't just get mad, I get even.
8. I find it easy to forgive those who have hurt me.
9. I am not a vengeful person.
10. I believe in the motto "An eye for an eye, a tooth for a tooth."
11. Revenge is morally wrong.
12. If someone causes me trouble, I'll find a way to make them regret it.
13. People who insist on getting revenge are disgusting.
14. If I am wronged, I can't live with myself unless I get revenge.
15. Honor requires that you get back at someone who has hurt you.
16. It is usually better to show mercy than to take revenge.
17. Anyone who provokes me deserves the punishment that I give them.
18. It is always better to "turn the other cheek."
19. To have a desire for vengeance would make me feel ashamed.
20. Revenge is sweet.

Appendix C

NFCS – short version

Read each of the following statements and decide how much you would agree with each according to your attitudes, beliefs, and experiences. Please respond according to the following scale.

1	2	3	4	5	6
Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree

1. In case of uncertainty, I prefer to make an immediate decision, whatever it may be.
2. When I find myself facing various, potentially valid, alternatives, I decide in favor of one of them quickly and without hesitation.
3. I have never been late for work or for an appointment.
4. I prefer to decide on the first available solution rather than to ponder at length what decision I should make.
5. I get very upset when things around me aren't in their place.
6. Generally, I avoid participating in discussions on ambiguous and controversial problems.
7. When I need to confront a problem, I do not think about it too much and I decide without hesitation.
8. When I need to solve a problem, I generally do not waste time in considering diverse points of view about it.
9. I prefer to be with people who have the same ideas and tastes as myself.
10. Generally, I do not search for alternative solutions to problems for which I already have a solution available.
11. I feel uncomfortable when I do not manage to give a quick response to problems that I face.
12. I have never hurt another person's feelings.
13. Any solution to a problem is better than remaining in a state of uncertainty.
14. I prefer activities where it is always clear what is to be done and how it needs to be done.
15. After having found a solution to a problem I believe that it is a useless waste of time to take into account diverse possible solutions.
16. I prefer things to which I am used to those I do not know, and cannot predict.

Appendix D

Vignette for Study 1b

“You and a friend have been close friends for quite some time. You frequently drive to school together, meet each other for meals, and hang out on the weekends. You also signed up for some of the same classes this semester and therefore occasionally do homework together. If you were to list your top three closest friends at school, this person would definitely be on the list, if not in the top spot.

The two of you get word that a very big party is happening tonight and are very excited to go even though it is pretty far away. You are acquaintances with the host of the party, having only met them once briefly in the hallway; however, your friend knows them better. You and your friend have a strict ‘no ditching each other’ policy that you guys are very good at following. When you get to the party, you see a mutual friend and while talking to them, your friend sees someone they want to talk to and goes over there. A few hours later you realize that you haven’t seen your friend in a while. You know they must still be at the party because you had already planned on going back to the dorms together.

You see your mutual friend again and ask if they have seen the friend you came with. They reply that your friend left about 45 minutes earlier with some people. You call your friend’s cell phone to find out if they are coming back but get their voicemail. You end up walking all the way back to the dorms alone.”

Appendix E

Transgression-Related Interpersonal Motivations Inventory—18-Item Version

Think about the situation just described. Remember how you felt when the situation was occurring and how you reacted to the other person. Please rate the following items on a 5-point scale.

For the following questions, please indicate your current thoughts and feelings about the person who hurt you; that is, we want to know how you feel about that person **right now**. Next to each item, choose the number that best describes your current thoughts and feelings.

- | 1 | 2 | 3 | 4 | 5 |
|-------------------|----------|---------|-------|----------------|
| Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| 6. | | | | |
| 7. | | | | |
| 8. | | | | |
| 9. | | | | |
| 10. | | | | |
| 11. | | | | |
| 12. | | | | |
| 13. | | | | |
| 14. | | | | |
| 15. | | | | |
| 16. | | | | |
| 17. | | | | |
| 18. | | | | |

Appendix F

Apartment List for Study 2

	Price	Sq. Ft.	# Bedrooms	# Bathrooms	Balcony	Fitness Center	Distance to City	W/D	Pets Allowed	Walk-in Closets	Extra Storage
Apt A	\$100,000	600	1	1	No	No	1 hour	√	√	No	√
Apt B	\$190,000	1100	2	2	√	√	10 minutes	No	No	√	No
Apt C	\$120,000	700	1	1	No	No	45 minutes	√	√	No	√
Apt D	\$160,000	900	2	1.5	√	√	35 minutes	No	No	No	No
Apt E	\$145,000	1000	2	1	No	No	50 minutes	√	√	√	√
Apt F	\$170,000	1350	2	1.5	√	√	20 minutes	No	No	√	No
Apt G	\$110,000	700	1	1	No	No	55 minutes	√	√	No	√
Apt H	\$200,000	800	2	2	√	√	in city	√	No	√	No
Apt I	\$165,000	1000	2	1.5	No	√	15 minutes	No	√	√	No
Apt J	\$135,000	850	1	1	No	No	40 minutes	√	No	No	√
Apt K	\$180,000	1400	2	2	√	√	30 minutes	√	√	√	No
Apt L	\$150,000	1100	2	1.5	No	√	30 minutes	No	√	√	√

Appendix G

Opinion Rating Scale for Apartment/Pool Role-Playing Task for Study 2

Please rate the statements below on the following scale (1 – strongly disagree, 3 – neutral, 5 – strongly agree)

- My partner has made a well thought-out decision.
- I approve of my partner's choice.
- My partner did not take all criteria into account when making his/her decision.
- I feel confident that my partner is qualified to do the job.
- My partner did not make the same choice I would have.
- My partner has chosen the best option on the list.
- I think there are more appropriate alternatives on the list than the one my partner chose.
- My partner's choice forces me to question his/her capability to do the job.

Appendix H

Pool Company List for Study 2

- Pool Company A
 - Price: \$60,000
 - Size(s): 24 x 48ft rectangular pool
 - Reputation: Satisfactory
 - Time to Complete Pool Construction: 2 months

- Pool Company B
 - Price: \$75,000
 - Size(s): 18 x 28ft rectangular pool, 15 x 26ft oval pool, and a hot tub
 - Reputation: Good
 - Time to Complete Pool Construction: 6 months

- Pool Company C
 - Price: \$55,000
 - Size(s): 20 x 40ft rectangular pool
 - Reputation: Poor
 - Time to Complete Pool Construction: 1 month

- Pool Company D
 - Price: \$70,000
 - Size(s): 25 x 50ft rectangular pool and 10ft diameter circle pool for children
 - Reputation: Excellent
 - Time to Complete Pool Construction: 8 months

- Pool Company E
 - Price: \$65,000
 - Size(s): 20 x 40ft rectangular pool, 10 x 20ft oval pool and a pond
 - Reputation: New Company – no reviews
 - Time to Complete Pool Construction: 4 months

Appendix I

Low Severity Vignette for Study 3

“You and a classmate are working on a project together for a class. The project is important to your grade and you’ve worked really hard on your part of it. After working separately on different parts of the project, you and your partner meet to finalize any loose ends. When you meet with your partner, you realize that his/her work is only partially done and the work that is complete isn’t very good. Your partner says that he/she decided to go to a party last night instead of working on the project. The project is due the next day and you and your partner work together on the rest of his/her part in order to make sure that it gets done before the deadline.

The following day in class, when it’s your turn to present your project, your partner takes control of the presentation and does most of the talking. When the class asks questions about the topic, your partner answers the majority of them acting as if she did most of the work (even though you had been the one who did the majority of the work).”

Appendix J

High Severity Vignette for Study 3

“You are a student at a large regional university. You enjoy classes and have a job at a local restaurant. Last week, you saw an information sheet posted on the bulletin board describing a scholarship, titled Scholarship A, for which you are eligible. After reading the scholarship description, you decide you are very interested in it. It requires an essay and after working several hours on the application and essay, you submit your resume and essay for review.

While talking to a fellow student, you learn that he has applied for Scholarship B, a scholarship which includes slightly more money than Scholarship A. He explains that he is not interested in Scholarship A and that he is very confident about getting Scholarship B. You mention during the conversation that you applied for Scholarship A, a point which surprises your acquaintance. He said he didn't realize you were looking for scholarships and you explain that you have on-and-off and explain why you think you are qualified. In your excitement in thinking about the scholarship, you also tell him some of the main points of your essay.

When you have your phone interview for the scholarship, you feel that it goes well. You provide thoughtful answers to the questions and some creative ideas for how you can help advertise for the scholarship at your school next year. The interviewer is somewhat quiet during your answers and you attribute this to surprise at the creativity of them. At the end of the interview, the interviewer says that you'll be hearing about their decision in a week or so. You hang up the phone feeling confident.

A few days later, you get a call from the interviewer who says that they chose someone else for the scholarship. You are upset by this news and find out by a friend that the person chosen for the scholarship is the fellow student who had said he was applying only for Scholarship B. You find out that he had a phone interview for Scholarship A the day before you had and used your ideas as his own during the interview.”

References

- Altemeyer, B. (1981). *Right-wing authoritarianism*. Manitoba: University of Manitoba Press.
- Anderson, C.A. & Bushman, B.J. (2002). Human aggression. *Annual Review of Psychology, 53*, 27-51.
- Bar-Elli, G. & Heyd, D. (1986). Can revenge be just or otherwise be justified. *Theoria, 52*, 68-86.
- Berkowitz, L. (1983). Aversively stimulated aggression: Some parallels and differences in research with animals and humans. *American Psychologist, 38*, 1135-1144.
- Berkowitz, L. & Harmon-Jones, E. (2004). Toward an understanding of the determinants of anger. *Emotion, 4*, 107-130.
- Bradfield, M. & Aquino, K. (1999). The effects of blame attribution and offender likableness on forgiveness and revenge in the workplace. *Journal of Management, 25*, 607-631.
- Brehm, J.W. (1956). Postdecision changes in the desirability of alternatives. *Journal of Abnormal and Social Psychology, 52*, 384-389.
- Brown, B.R. (1968). The effects of need to maintain face on interpersonal bargaining. *Journal of Experimental Social Psychology, 4*, 107-122.
- Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Journal of Personality and Social Psychology, 63*, 452-459.
- Cacioppo, J.T., Petty, R.E., & Kao, C.F. (1984). The efficient assessment of need for cognition. *Journal of Personality Assessment, 48*, 306-307.

- Carlsmith, K.M., Wilson, T.D., & Gilbert, D.T. (2008). The paradoxical consequences of revenge. *Journal of Personality and Social Psychology, 95*, 1316-1324.
- Cohen, G.L., Aronson, J., and Steele, C.M. (2000). When beliefs yield to evidence: Reducing biased evaluation by affirming the self. *Personality and Social Psychology Bulletin, 26*, 1151-1164.
- Cohen, D., Nisbett, R.E., Bowdle, B.F., & Schwarz, N. (1996). Insult, aggression, and the Southern culture of honor: An experimental “ethnography.” *Journal of Personality and Social Psychology, 70*, 945-960.
- Crocker, J., & Wolfe, C. (2001). Contingencies of worth. *Psychological Review, 108*, 593–623.
- Crombag, H., Rassin, E., & Horselenberg, R. (2003). On vengeance. *Psychology, Crime & Law, 9*, 333-344.
- Deci, E. L., & Ryan, R. M. (1991). A motivational approach to self: Integration in personality. In R. Dienstbier (Ed.), *Nebraska Symposium on Motivation: Vol. 38. Perspectives on motivation* (pp. 237–288). Lincoln: University of Nebraska Press.
- Diamond, S.R. (1977). The effect of fear on the aggressive responses of anger aroused and revenge motivated subjects. *Journal of Psychology, 95*, 185-188.
- Dowd, E.T., Milne, C.R., & Wise, S.L. (1991). The therapeutic reactance scale: A measure of psychological reactance. *Journal of Counseling and Development, 69*, 541-545.
- Eisenberger, R., Lynch, P., Aselage, J. & Rohdieck, S. (2004). Who take the most revenge? Individual differences in negative reciprocity norm endorsement. *Personality and Social Psychology Bulletin, 30*, 787-799.

- Fehr, E. & Gächter, S. (2002). Altruistic punishment in humans. *Nature*, 415, 137-140.
- Fehr, R., Gelfand, M.J., & Nag, M. The road to forgiveness: A meta-analytic synthesis of its situational and dispositional correlates. *Psychological Bulletin*, 136, 894-914.
- Fein, S., & Spencer, S. J. (1997). Prejudice as self-image maintenance. *Journal of Personality and Social Psychology*, 73, 31-44.
- Frijda, N. H. (1994). On vengeance. In S. H. M. van Goozen, N. E. van de Poll and J. A. Sergeant (Eds.), Emotions: Essays on Emotion Theory (pp. 263-289). Hillsdale, NJ: Erlbaum.
- Gaertner, S.L., & J.F. Dovidio. (1986). The aversive form of racism. In J.F. Dovidio and S.L. Gaertner (Eds.), Prejudice, Discrimination and Racism: Theory and Research (pp. 61-89). Orlando, FL: Academic Press.
- Gaertner, S.L., & J.F. Dovidio. (2000). *Reducing intergroup bias: The common ingroup identity model*. Philadelphia, PA: Psychology Press.
- Haidt, J., & Joseph, C. (2007). The moral mind: How 5 sets of innate moral intuitions guide the development of many culture-specific virtues, and perhaps even modules. In P. Carruthers, S. Laurence, and S. Stich (Eds.) *The Innate Mind, Vol. 3*. New York: Oxford, pp. 367-391.
- Horney, K. (1937). *The neurotic personality of our time*. New York: Norton.
- James, W. (1890). *The principles of psychology*. New York: Holt.
- Jost, J.T., Glaser, J., Kruglanski, A.W., & Sulloway, F.J. (2003). Political conservatism as motivated social cognition. *Psychological Bulletin*, 129, 339-375.
- Kernis, M. H. (2003). Toward a conceptualization of optimal self-esteem. *Psychological Inquiry*, 14, 1-27.

- Kernis, M. H., & Waschull, S. B. (1995). The interactive roles of stability and level of self-esteem: Research and theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 27, pp. 93–141). Hillsdale, NJ: Erlbaum.
- Kim, S.H., Smith, R.H., & Brigham, N.L. (1998). Effects of power imbalance and the presence of third parties on reactions to harm: Upward and downward revenge. *Personality and Social Psychology Bulletin*, 24, 353-361.
- Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, 108, 480-498.
- Kruglanski, A. W. (1989). The Psychology of being "right": On the problem of accuracy in social perception and cognition. *Psychological Bulletin*, 106, 395-409.
- Kruglanski, A. W. (2004). *The psychology of closemindedness*. New York, NY: Psychology Press.
- Kruglanski, A. W., & Webster, D. M. (1991). Group members' reactions to opinion deviates and conformists at varying degrees of proximity to decision deadline and of environmental noise. *Journal of Personality and Social Psychology*, 61, 212-225.
- Kruglanski, A.W. & Webster, D.M. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, 67, 1049-1062.
- Kruglanski, A.W. & Webster, D.M. (1996). Motivated closing of the mind: “Seizing” and “freezing.” *Psychological Review*, 103, 263-283.
- Kruglanski, A., Chen, X., Dechense, M., Fishman, S. & Orehek, E. (2009). Fully committed: Suicide bombers’ motivation and the quest for personal significance. *Political Psychology*, 331-357, 30, 2009

- Kruglanski, A.W., Shah, J.Y., Fishbach, A., Friedman, R., Chun, W.Y. & Sleeth-Keppler, D. (2002). A theory of goal systems. In M.P. Zanna (Ed.) *Advances in Experimental Social Psychology*, (Vol. 34, pp.331-378). San Diego: Academic Press.
- Lerner, M.J. (1980). *The belief in a just world: A fundamental delusion*. New York: Plenum Press.
- Marongui, P. & Newman, G. (1987). *Vengeance: The fight against injustice*. New Jersey: Roman and Littlefield.
- McCullough, M. (2008). *Beyond revenge: The evolution of the forgiveness instinct*. San Francisco: Jossey-Bass.
- McCullough, M.E., Bellah, C.G., Kilpatrick, S.D. & Johnson, J.L. (2001). Vengefulness: Relationships with forgiveness, rumination, well-being, and the Big Five. *Personality and Social Psychology Bulletin*, 27, 601-610.
- McCullough, M.E., Fincham, F.D., & Tsang, J. (2003). Forgiveness, forbearance, and time: The temporal unfolding of transgression-related interpersonal motivations. *Journal of Personality and Social Psychology*, 84, 540-557.
- McCullough, M. E., Kurzban, R., & Tabak, B. A. (2010). Evolved mechanisms for revenge and forgiveness. In P. R. Shaver and M. Mikulincer (eds.), *Understanding and reducing aggression, violence, and their consequences* (pp. 221-239). Washington, DC: American Psychological Association.
- McCullough, M.E., Rachal, K.C., Sandage, S.J., Worthington, E.L., Brown, S.W., & Hight, T.L. (1998). Interpersonal forgiving in close relationships: II. Theoretical

- elaboration and measurement. *Journal of Personality and Social Psychology*, 75, 1586-1603.
- McCullough, M., Root, L.M., & Cohen, A.D. (2006). Writing about the benefits of an interpersonal transgression facilitates forgiveness. *Journal of Consulting and Clinical Psychology*, 74, 887-897.
- McCullough, M.E., Worthington, E.L. & Rachal, K.C. (1997). Interpersonal forgiving in close relationships. *Journal of Personality and Social Psychology*, 67, 1141-1164.
- McKee, I.R & Feather, N.T. (2008) Revenge, retribution, and values: social attitudes and punitive sentencing. *Social Justice Research*, 21, 138-163.
- Nelson, D. W., Klein, C. T. F., & Irvin, J. E. (2003). Motivational antecedents of empathy: Inhibiting effects of fatigue. *Basic and Applied Social Psychology*, 25, 37-50.
- Nisbett, R. E., & Cohen, D. (1996). *Culture of honor: The psychology of violence in the south*. Boulder, CO: Westview Press.
- Nisbett, R.E. & Cohen, D. (1999). Violence and honor in the Southern United States. In J.E. Dizard, R.M. Muth, & S.P. Andrews (Eds.), *Guns in America: A reader* (pp. 264-274). New York: New York University Press.
- Orehek, E. (2009). The role of epistemic motivation in the link between arousal and focus of attention (Doctoral dissertation). Retrieved from http://drum.lib.umd.edu/bitstream/1903/9199/1/Orehek_umd_0117E_10304.pdf
- Preacher, K.J., Rucker, D.D., MacCallum, R.C., & Nicewander, W.A. (2005). Use of extreme groups approach: A critical reexamination and new recommendations. *Psychological Methods*, 10, 178-192.

- Price, M.E., Cosmides, L., & Tooby, J. (2002). Punitive sentiment as an anti-free rider psychological device. *Evolution and Human Behavior*, 23, 203-231.
- Pyszczynski, T., Greenberg, G., Solomon, S., Arndt, J., & Schimel, J. (2004). Why do people need self-esteem? A theoretical and empirical review. *Psychological Bulletin*, 130, 435-468.
- Rogers, C. R. (1959). A theory of therapy, personality, and interpersonal relationships, as developed in the client-centered framework. In S. Koch (Ed.), *Psychology: Vol. 3. A study of a science* (pp. 184–256). New York: McGraw-Hill.
- Rosenthal, R. (1991). *Meta-analytic procedures for social research, Rev. ed.* Newberry Park, CA: Sage Publications.
- Pratto, F., Sidanius, J., Stallworth, L.M., Malle, B.F. (1994). Social dominance orientation: A personality variable predicting social and political attitudes. *Journal of Personality and Social Psychology*, 67, 741–763
- Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*. New York: Norton.
- Stuckless, N. & Goranson, R. (1992). The Vengeance Scale: Development of a measure of attitudes toward revenge. *Journal of Social Behavior and Personality*, 7, 25-42.
- Stuckless, N. Ford, D.B., & Vitelli, R. (1995). Vengeance, anger, and irrational beliefs in inmates: a caveat regarding social desirability. *Personality and Individual Differences*, 18, 1-6.
- Tesser, A. (1988). Toward a self-evaluation maintenance model of social behavior. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 21, pp. 181–227). San Diego, CA: Academic Press.

- Victoroff, J. (2005). The mind of the terrorist: A review and critique of psychological approaches. *Journal of Conflict Resolution*, 49, 3-42.
- Vidmar, N. (2002). Retribution and revenge. In J. Sanders & V. L. Hamilton (Eds.), *Handbook of justice research in law* (pp. 31-63). New York: Kluwer Academic.
- Watson, D., Clark, L.A., Tellegen, A. (1988) Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063-1070.
- Webster, D.M., & Kruglanski, A.W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology*, 67, 1049-1062.
- Whitlock, M.C. (2005). Combining probability from independent tests: the weighted Z-method is superior to Fisher's approach. *Journal of Evolutionary Biology*, 18, 1368-1373.
- Yoshimura, S. (2007). Goals and emotional outcomes of revenge activities in interpersonal relationships. *Journal of Social and Personal Relationships*, 24, 87-98.