

ABSTRACT

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REVENGE: MOTIVATED COGNITION AND
PERSPECTIVE TAKING

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The present research examined the extent of desire for, and the likelihood of enacting, revenge as a function of the Need for Cognitive Closure (NFC; Kruganski, 2004; Webster & Kruganski, 1994). The studies herein aimed to more fully understand how low (vs. high) NFC individuals are able to refrain from acting on revenge impulses which they were expected to do through greater cognitive processing. Specifically, I demonstrate across four studies that high (vs. low) NFC individuals desire revenge to a greater extent as well as engage in more retributive behaviors. Study 2 showed that perspective taking and attributional reasoning are examples of additional processing engaged in by low (vs. high) NFC individuals, which augment the desire for forgiveness. Study 3 demonstrated that an induction of perspective taking leads to lesser revenge behavior and indeed eliminated the difference in retaliation between high and low NFC individuals. Study 4 conceptually replicated the relationship between the NFC and retaliation using situational manipulations of high (vs. low) NFC. The present studies were unable to show that following a transgression, revenge

(vs. forgiveness) is the most cognitively accessible option and were further unable to demonstrate that accessibility of revenge changes over time for high NFC individuals.

ON THE CLOSED-MINDEDNESS OF REVENGE: MOTIVATED
COGNITION AND PERSPECTIVE TAKING

By

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*I dedicate this dissertation to my loving and supportive family including my husband,
Peter and my son, Alexander.*

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Chapter 1: Introduction

The act of taking revenge against someone who has committed an injustice has been contemplated across decades and disciplines, from Milton's *Paradise Lost* to vengeance-related crimes examined in the criminal justice field (e.g., Kubrin & Weitzer, 2003; Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002) to current research in psychology. Understanding revenge has significant implications; for example, the desire for retribution has been linked to up to 20% of homicides (Kubrin & Weitzer, 2003) and from 1974 to 2000, more than 60% of U.S. school shootings occurred due to motivations for revenge (Vossekuil et al., 2002). Further, Speckhard and Ahkmedova (2006) found that desire for vengeance is one reason cited by individuals who join terrorist organizations. Revenge and aggression more generally have also been associated with factors experienced by most people on a regular basis, such as frustration and anger (see Baumeister & Boden, 1998, for an overview).

Despite the prevalence of factors that often give rise to revenge and aggression, aggressive acts are relatively rare (Baumeister & Boden, 1998). Thus, it is important to identify the factors that make revenge following a transgression more or less likely. Expressly, who is more likely to refrain from engaging in revenge and why? The present research aims to address this question as it relates to the motivation of the Need for Cognitive Closure (NFC; Kruglanski, 2004; Webster & Kruglanski, 1994).

One reason that individuals engage in retributive acts is because it offers adaptive benefits (McCullough, 2008), specifically deterring future aggression (Allred, 1999; Brown, 1968; Crombag, Rassin, & Horselenberg, 2003; Kim, Smith, & Brigham, 1998; McCullough, Kurzban, & Tabak, 2010). Protecting oneself by preventing future harm has

been suggested to have arisen through evolutionary selection pressures (McCullough et al., 2010). This is so because a transgression reveals that one is vulnerable to being harmed. Thus, one may argue that a transgression establishes a precedent and hence "opens the door" to future wrong-doings by the original transgressor and others. In a sense, a transgression may be thought of as an implicit question asked by the transgressor. Namely, he or she is asking "Can I harm you? To what extent? Will you fight back?"¹ Revenge is arguably an answer or reply to the transgression; indeed, revenge is often defined as a *response* to a previous aggressive act (Stuckless & Goranson, 1992; Allred, 1999). Research further provides evidence that revenge can specifically "answer" that one will not accept harm, which it does by deterring future aggression from the same perpetrator (Allred, 1999; Crombag et al., 2003) as well as from third-party witnesses (Brown, 1968; Kim et al., 1998).

A transgression, then, representing a question (which begs answering), may be viewed as a lack of closure. Thus, individuals may be particularly motivated to enact revenge against transgressors as a means of answering the question and thus achieving closure. In support of this notion, Boyatzi (2011) found that individuals higher in the NFC desire revenge to a greater extent after a transgression than individuals with lower levels of the NFC. The question, therefore, is *why* individuals low (vs. high) in the NFC desire revenge less, especially given that revenge offers adaptive benefits.

¹ This is not to say that transgressions occur because individuals harm others for the sake of enjoyment; rather, given the social norm that individuals often act in their own self interest (Ratner & Miller, 2001), injustices likely occur as a consequence. For example, stealing one's wallet is for the gain of the thief, not the loss of the owner; claiming a colleague's idea as one's own may be to advance one's career, not undermine the colleague's performance; and lying to a friend about having plans for the weekend may be to avoid viewing an unappealing film, not to hurt the friend's feelings.

I argue that all individuals who are the victim of an injustice will experience an initial urge to get revenge. Considering the adaptive value of revenge, it would follow that after a transgression, revenge should be highly salient. In fact, researchers speculate that one's first impulse following a transgression is to engage in negative behaviors, such as revenge (McCullough, 2001). Individuals high in the NFC, motivated to achieve quick and lasting closure (Kruglanski & Webster, 1996), may "seize" and "freeze" on revenge as the most accessible option whereas low NFC individuals may go beyond the initial impulse and consider other options.

Individuals low in the NFC, therefore, may choose to "answer the question" in a different way, such as with forgiveness, which may appear more reasonable upon further consideration (McCullough, Root, & Cohen, 2006). These individuals may weigh the pros and cons of several different options, such as the costs associated with revenge (Boon, Alibhai, & Deveau, 2011) and the potential benefits of forgiveness, including preserving the relationship with the transgressor, if one existed (McCullough, Rachal, Sandage, Worthington, Brown, & Hight, 1998). Individuals low (vs. high) in the NFC may also reflect on the transgressor's perspective and/or may consider additional information when judging how to respond (Kruglanski & Webster, 1994). Thus, it is possible that low (vs. high) NFC individuals do not engage in revenge because they override the dominant response of revenge and engage in more elaborative processing of the transgression, perhaps leading to an alternative response. I hypothesize that increasing one's motivation to take additional information into account, through perspective taking instructions, would facilitate refraining from vengeful behaviors. Further, I will discuss

the importance of the NFC in determining whether or not an individual will override the revenge impulse and engage in additional cognitive processing of the transgression.

Revenge

Enacting revenge after a perceived injustice is an innate impulse that strongly influences behavior (Stuckless & Goranson, 1992; Marongui & Newman, 1987). There is general consensus that revenge is prompted by a prior harmful act by another (Stuckless & Goranson, 1992; Allred, 1999). Vengeance is described as a functional action (McCullough et al., 2010) serving a variety of purposes including: reinstating moral order in society (Lerner, 1980; McCullough, Bellah, Kilpatrick & Johnson, 2001), validating one's moral standards (Vidmar, 2002), and reinstating the balance of power (Crombag et al., 2003; Frijda, 1994). Revenge can further protect one's belief in a just world, restore justice (McCullough et al., 2001; Vidmar & Miller, 1980), and re-establish one's self-image (Miller, 2001) and self-esteem (Crombag et al., 2003).

It is important to distinguish revenge from other negative interpersonal behaviors as it differs from related constructs in several meaningful ways. Aggression has been defined as intentional harm to another person (Berkowitz, 1974), which does not necessitate prior interaction between them, whereas revenge is focused on a specific person *because* s/he has previously done harm to the individual (Stuckless & Goranson, 1992; Allred, 1999). Incivility is defined as “low intensity deviant behavior *with ambiguous intent to harm the target...*” and thus may or may not be enacted for the purpose of injury to the target; however, revenge is “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” (Aquino, Tripp & Bies, 2001,

p. 53, emphases added). The distinction between revenge and punishment is less clear. Returning to Aquino et al.'s (2001) definition of revenge, "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, emphasis added), it is seen that the terms revenge and punishment are often used interchangeably. Indeed many social and organizational inquiries into revenge use both terms to describe the act of retaliation (e.g., Allred, 1999; Carlsmith, Wilson, & Gilbert, 2008).

The Aquino et al. (2001) definition of revenge used herein is broadly accepted in the literature (Aquino, Tripp & Bies, 2006; Bies & Tripp, 2004; Bies, Trip & Kramer, 1997; Bradfield & Aquino, 1999; Carlsmith et al., 2008; Frijda, 1994; Kaiser, Vick & Major, 2004; McCullough, 2008; Raver & Barling 2008; Shuman & Ross, 2010; Stuckless, Ford & Vitelli, 1995; Stuckless & Goranson, 1992; Yoshimura, 2007); however, many of these authors as well as other scholars (e.g., Bradfield & Aquino, 1999; Cialdini, Green, & Rusch, 1992; Eisenberger, Lynch, Aselage, & Rohdieck, 2004; Gollwitzer, Meder, & Schmitt, 2011; Helm, Bonoma, & Tedeschi, 1972; McCullough et al., 2001; Stillwell, Baumeister, & Del Priore, 2008; Tripp, Bies, & Aquino, 2002; Youngs, 1986) clarify that revenge is a type of negative reciprocity and can be viewed as an expression of the negative reciprocity norm (Gouldner, 1960). Thus although revenge differs from other negative interpersonal behaviors such as aggression and incivility, it is not differentiated from (negative) reciprocity.

Revenge as instinctual. Researchers (McCullough, 2001; McCullough et al., 2001; McCullough et al., 1998; McCullough, Worthington, & Rachal, 1997) generally support the notion that the impulse to seek revenge is a salient and driving motivation

immediately following a transgression and that it must be overridden by the victim in order for him or her to move past the incident. McCullough and colleagues argue that individuals are “at least initially” motivated to react to transgressions with negative behaviors such as revenge, but that individuals must “counteract or modulate” the impulse to seek revenge in order to choose an alternative response option, such as forgiveness (McCullough, 2001, p. 194; McCullough et al., 2001; McCullough et al., 1998; McCullough et al., 1997).

Overriding the revenge impulse. DeWall, Baumeister, Stillman, and Gailliot (2007) provide empirical support for the idea that following a transgression, one’s initial impulse is to get revenge. In particular, they highlight how the amount of one’s resources impacts the extent to which he or she engages in revenge, showing that participants whose self-regulatory resources were depleted were less able to inhibit aggressive impulses. Specifically, some participants were depleted from earlier acts of self-control such as refraining from eating a donut or diverting one’s gaze away from words on a screen while watching a video. These participants subsequently behaved more aggressively toward the person who had insulted them. Participants who were not depleted, such as those who had abstained from eating a less tempting food (a radish) or who were not given attention-diverting instructions, acted less vengeful when insulted.

The authors argued that depleted participants were unable to inhibit the revenge impulse that arose from being insulted whereas non-depleted participants were more successful at overriding the impulse and therefore behaved with less retaliation. Although this research provides initial evidence that individuals have a revenge impulse resulting

from a transgression, this idea was not directly tested. The present research will address this gap in Study 1.

Provided that revenge is arguably the most salient option after an individual experiences an injustice, and consequently is equally accessible to everyone, one must inquire why high and low NFC individuals respond differently to transgressions. Individuals high in the NFC appear to choose the dominant response of revenge while individuals low in the NFC seemingly do not (Boyatzi, 2011). An examination of the NFC construct provides understanding of why this may occur.

The Need for Closure

The NFC is a type of motivated cognition that affects knowledge and judgment formation; specifically, it is a general inclination to seek closure via any answer or judgment (Kruglanski, 1989; Kruglanski & Webster, 1991; Kruglanski & Webster, 1996; Webster & Kruglanski, 1994). For a person high in the NFC, any conclusion is seen as preferable to experiencing ambiguity or uncertainty. The NFC is particularly sensitive to the saliency of information because it is characterized by “seizing” and “freezing” tendencies such that an individual high (vs. low) in the NFC seizes on the most salient option to achieve closure quickly and freezes on that decision in order to prevent future losses of closure.

Provided that revenge offers adaptive benefits in facilitating survival, it has been argued that it is the most salient or accessible option following a transgression (McCullough, 2001; McCullough et al., 2001; McCullough et al., 1998; McCullough et al., 1997). Therefore, individuals high (vs. low) in the NFC should be more likely to seek revenge after a transgression because they are motivated to attain quick and lasting

closure (Kruglanski, 1989; Kruglanski & Webster, 1991; Webster & Kruglanski, 1994; Kruglanski & Webster, 1996). Choosing the most accessible response, revenge, allows one to satisfy the need of urgency, thus achieving closure more quickly as compared to assessing different response options (Kruglanski & Webster, 1996) which are less initially accessible than revenge, such as forgiveness. Revenge may also provide permanent closure and specifically prevent future losses of closure (Kruglanski & Webster, 1996) because it can prevent future transgressions (Allred, 1999; Crombag et al., 2003). Although intuition may support the notion that revenge is the most dominant and accessible response after a transgression and thus is seized and frozen on by high NFC individuals, the idea remains unexplored empirically. The present research will test this assumption in Study 1.

NFC and the Dominant Response. There is a considerable body of evidence showing that individuals low (vs. high) in the NFC are less likely to seize and freeze on salient options when forming judgments or making decisions.² For instance, several studies to date have examined the effect of the NFC (or related states, such as a lack of cognitive resources) on stereotype use in judgments (Kruglanski & Freund, 1983; Brewer, 1988; Jamieson & Zanna, 1989; Bodenhausen, 1990; Fiske & Neuberg, 1990; Dijksterhuis, van Knippenberg, Kruglanski, & Schaper, 1996). Dijksterhuis et al. (1996), for example, found that low (vs. high) NFC participants judged stereotypic groups as

² All research on the NFC cited herein focused on high (vs. low) NFC as the group of interest; however, as Kruglanski and Webster (1996) state, “Effects of the motivation for closure are assumed to be monotonic along the continuum. By this assumption, the motivational effects should be directionally similar for any pair of points on the continuum: A higher (vs. lower) degree of the need for closure should effect a higher or lower degree of some phenomenon, irrespective of the points' specific locations. Thus, comparing low and high need for closure conditions should yield effects directionally similar to those involved in comparing high and low need to avoid closure conditions. Evidence reviewed in subsequent sections consistently supports this assumption” (p. 264). Thus, the results described in the current paper extrapolated the results to be framed in terms of low (vs. high) NFC.

more variable and less homogenous on a given trait. Thus, low (vs. high) NFC participants refrained from seizing on the stereotype and using it as a basis for judgments. Indeed, the authors commented that participants low (vs. high) in the NFC “seem to be more open to unexpected, disturbing information” (p. 262).

Additional evidence can be found in Kruglanski’s and Pierro’s (2008) research, in which the authors examined how accessible cognitive schemas of one’s significant other may be transferred to other individuals as a function of the NFC. The results showed that low (vs. high) NFC individuals were able to inhibit the activated mental representation of their significant other when forming an impression of a new person who resembled the significant other in some way. Specifically, they made fewer errors when identifying previously-presented descriptors of the new individual and they exhibited a smaller transference effect.

A final example of low (vs. high) NFC individuals’ ability to override a salient construct is contained in Webster-Nelson, Klein and Irvin’s (2003) study on perspective taking. The results show that low (vs. high) NFC participants exhibited a greater ability to take a student’s perspective when it was different from their own. In other words, participants low (vs. high) in the NFC transcended their own perspective in order to understand the perspective of the other student.

In conclusion, the literature supports the idea that low (vs. high) NFC individuals are able to override the situationally-dominant response. Therefore, it seems reasonable to predict that after a transgression, low NFC individuals will counteract the accessibility of revenge. They may initially experience an impulse for revenge equal to those high in

NFC, due to the high accessibility of revenge after a wrong-doing, but they may be more likely to exercise the necessary restraint to overcome this early impulse.

Low (vs. high) NFC individuals may override the accessibility of vengeance following a transgression, yet one must inquire how they proceed in their decision-making process regarding how to respond to the transgression. While they do not have the motivations of achieving closure quickly and permanently, which high NFC individuals achieve by seizing and freezing, it is unlikely that low NFC individuals *never* achieve closure when making judgments (Kruglanski & Webster, 1996). In other words, it is a logical conclusion that in most cases, low NFC individuals (eventually) come to a decision about how to respond to the transgression. I argue that the decision is often arrived at following more elaborative cognitive processing than that engaged in by individuals high in the NFC. The relationship between the NFC and extent of information processing in decision making is discussed below.

NFC and Extent of Information Processing. I propose that in addition to counteracting dominant responses, low (vs. high) NFC individuals engage in additional information processing in the course of judgment formation; indeed, there is substantial support in prior work for the idea that the NFC is negatively associated with degree of information processing. Kruglanski and Webster (1996) state that “at a minimum, the seizing and freezing mechanism implies a reduced extent of information processing under a heightened need for closure. The speeded-up reliance on early cues implied by seizing and the truncation of further exploration due to freezing suggest that individuals under a high (vs. low) need for closure should consider less evidence before forming a judgment” (p. 268). Thus it seems that seizing and freezing necessarily prevent thorough and

extensive processing from occurring. There is also support for the notion that the NFC is negatively related to the extent to which one engages in and takes pleasure in the act of thinking (i.e., the need for cognition, Cacioppo & Petty, 1982; Kruglanski & Webster, 1994). Thus, individuals low (vs. high) in the NFC engage in more cognition, as well as enjoy it to a greater extent (Kruglanski & Webster, 1994).

The literature further provides ample empirical evidence that low (vs. high) NFC individuals process more information when making decisions. Webster and Kruglanski (1994) in particular provide converging evidence that low (vs. high) NFC individuals do not utilize initial cues when forming judgments but rather go on to consider larger amounts of information. For example, individuals low (vs. high) in the NFC requested significantly more pages of information when making hiring decisions (Webster & Kruglanski, 1994; Webster, Richter, & Kruglanski, 1996). This act of requesting more information has been explicitly described as “deliberate and thorough processing of information” (Webster-Nelson et al., 2003, p. 38).

Webster and Kruglanski (1994) also found that low (vs. high) NFC participants exhibited less of a correspondence bias; that is, they formed judgments using a greater amount of information (concerning the situation) and did not rely solely on the individual’s actions. The correspondence bias has been argued to be directly related to information processing; Webster and Kruglanski (1994) and others (Winter & Uleman, 1984; Winter, Uleman, & Cunniff, 1985) suggest that making personality inferences, at least in Western cultures, is generally automatic and unintentional whereas adjusting one’s attributions to include situational factors necessitates greater cognitive work.

Other research has examined resistance to persuasion and found that when exposed to prior information, low (vs. high) NFC participants were more willing to consider alternative options (Kruglanski, Webster, & Klem, 1993; Webster & Kruglanski, 1994). There are many additional examples in the literature which demonstrate that more information is considered by individuals low (vs. high) in the NFC. These examples include low (vs. high) NFC individuals displaying an openness to persuasion by partners (Kruglanski et al., 1993), avoidance of stereotypes (Kruglanski & Freund, 1983; Jamieson & Zanna, 1989; Dijksterhuis et al., 1996), and greater acceptance of opinion deviates in a group (Kruglanski & Webster, 1991).

Perspective Taking and the NFC

Thus, in conjunction, the research literature supports the notion that low (vs. high) NFC individuals are better able to override dominant responses (e.g., revenge) and engage in more elaborate processing when making decisions (e.g., about how to respond to a transgression). An example of these processes that should directly impact interpersonal processes is perspective taking. Perspective taking and its kindred-construct empathy have been defined as “the imaginative transporting of oneself into the thinking, feeling, and acting of another and so structuring the world as he or she does” (Dymond, 1949, p. 127).

It has long been contended that one’s ability to engage in perspective taking is important for a range of interpersonal behaviors (Higgins, 1981; Mead, 1934; Piaget, 1932; Smith, 1759/1976), including altruism (Batson, 1991), cooperation (Batson & Moran, 1999), and, especially relevant to the present paper, conflict resolution (Galinsky, Maddux, Gilin, & White, 2008). Being unable or unwilling to take another’s perspective

has been associated with social disorders such as autism (Baron-Cohen, 1995) as well as negative interpersonal responding behaviors such as arrogance, inconsideration, and aggression (Richardson, Hammock, Smith, Gardner, & Signo, 1994).

Within a transgression context, engaging in perspective taking has been shown to decrease punishment of the wrongdoer. Kogut (2011) found that after reading a hypothetical transgression, taking the transgressor's perspective decreased anger as well as suggested punishment. Other researchers (e.g., Batanova & Loukas, 2011) also found support that perspective taking of the other individual is negatively associated with aggression in a longitudinal study of early adolescents. Thus, it would seem to follow that perspective taking should lead to a decrease in revenge behaviors as well; indeed, this proposition has preliminary empirical support (Okimoto & Wenzel, 2011).

Research supports the notion that perceiving the world through one's own perspective is automatic (Galinsky et al., 2008); thus it is unsurprising that taking another person's perspective requires effortful and controlled cognitive processing (Davis, Conklin, Smith, & Luce, 1996). For example, Davis et al. (1996) found that individuals who experienced cognitive load exhibited a significantly lower ability to take another's perspective. As cognitive load is a common way of manipulating the NFC via situational constraints (Kruglanski, 2004), it follows that the NFC and perspective taking ability should be negatively related to some extent. As previously mentioned, Webster-Nelson et al. (2003) have provided initial evidence for this effect.

In summary, perspective taking may be considered one way in which low NFC individuals engage in greater cognitive processing. Specifically, taking another's perspective is an example of taking additional information into account when making

decisions. Thus, perspective taking may moderate the relationship between the NFC and desire for revenge such that without perspective taking instructions, high and low NFC individuals act as they normally do (i.e., high (vs. low) NFC individuals engage in greater revenge), and with perspective taking instructions, individuals high in the NFC should engage in more perspective taking and thus act more similarly to low NFC individuals, enacting less retaliation.

While perspective taking may be regarded as a type of cognitive processing of a transgression, other forms are plausible. Items from the NFC scale (Webster & Kruglanski, 1994) provide insight into alternative methods of additional cognitive processing in which low (more so than high) NFC individuals may be likely to engage. Examples include “Even after I’ve made my mind about something, I am always eager to consider a different opinion,” “When thinking about a problem, I consider as many different options on the issue as possible,” and “*When considering most conflict situations, I can usually see how both sides could be right*” (emphasis added). After a transgression, low (vs. high) NFC individuals may thoroughly consider alternative responses, they may review the pros and cons of all possible response options to the injustice, and/or *they may engage in perspective taking to understand why the transgressor committed the wrongdoing*. Thus, high NFC individuals may be motivated to reduce ambiguity caused by the transgression as quickly as possible by seizing and freezing on revenge as the most accessible option and consequently be more likely to desire and engage in revenge. By contrast, individuals low in the NFC may be motivated to consider alternative response options and contemplate the transgressor’s perspective, thus potentially being less likely to retaliate.

The present investigation will test these notions by exploring the extent of perspective taking engaged in by low (vs. high) NFC individuals following a transgression (Study 2) as well as a manipulation of perspective taking as it relates to extent of revenge behaviors (Study 3). The perspective taking manipulation in Study 3 is intended to encourage high NFC individuals to act similarly to low NFC individuals. Specifically, it is expected that in the perspective taking (vs. neutral) condition, they will process the transgression more fully by considering how the transgressor decided to act in that way and thus will engage in less retaliation.

Chapter 2: Overview of Research

Overview of Theory and Research Predictions

The purpose of the present studies is to examine the accessibility of revenge after a transgression and to more fully explore how low (vs. high) NFC individuals are able to counteract or override the accessibility of revenge and engage in more elaborative cognitive processing of the transgression. Specifically, I investigate whether revenge is the most cognitively accessible option following a transgression for all individuals regardless of their level of the NFC. This hypothesis is based on the notion that revenge serves evolutionarily-adaptive benefits such as deterring future transgressions (Allred, 1999; Crombag et al., 2003), discouraging an aggressor from harming the individual in the future (Diamond, 1977), and deterring other potential aggressors by signaling that one will not passively endure harm (Brown, 1968; Kim et al., 1998). Therefore, I expect the following:

Hypothesis 1: Individuals will respond more quickly to revenge-related words after being presented with a transgression (vs. not).

I propose that since a transgression illustrates that one is vulnerable to harm, it acts as a question posed by the transgressor to the victim regarding whether the transgressor can “get away with it.” Revenge is often defined as a response to a previous aggressive act (Stuckless & Goranson, 1992; Allred, 1999) whereby it “answers” that one will not accept harm. Therefore, a transgression, inviting a question (whether or not one would accept harm), may be viewed as a lack of closure. Individuals, especially those high (vs. low) in the NFC, should be particularly motivated to enact revenge against transgressors as a means of quickly forming an answer and thus achieving closure.

Seizing and freezing on revenge fulfills the urgency and permanency motivations of high NFC individuals in that seizing on the most salient option (revenge) will provide quicker closure than if the individual took the time to consider all options thoroughly; furthermore, revenge provides lasting closure by preventing future acts of aggression toward the individual (Allred, 1999; Crombag et al., 2003). While Boyatzi (2011) found a significant positive relationship between the NFC and desire for revenge, the present investigation aims to extend this finding by eliminating the alternative hypotheses that a) higher (vs. lower) NFC individuals are more aggressive in general and b) that this relationship holds only for desire for revenge and not for behavioral retaliation. Thus, I expect the following:

Hypothesis 2: Individuals high (vs. low) in the NFC will desire and engage in revenge to a greater extent following an injustice, whereas no differences will exist following a neutral experience.

Whereas high NFC individuals arguably seize and freeze on revenge, low NFC individuals appear to counteract the accessibility of revenge and engage in additional cognitive processing of the transgression. It is expected that time is necessary for individuals low (vs. high) in the NFC to override the saliency of revenge and proceed with the more elaborate processing; therefore, the accessibility of the revenge construct should change over time. Measuring the accessibility of revenge immediately following a transgression (i.e., without allowing any time to pass) should confirm its equal level of accessibility for everyone, while measuring accessibility of vengeance after a period of time should allow for the saliency of revenge to be counteracted by low (vs. high) NFC

individuals. Accessibility of forgiveness will also be measured at both time points to allow for comparisons with accessibility of revenge. Thus, I expect the following:

Hypothesis 3: There will be an interaction between time and the NFC such that at time 1, both high and low NFC individuals will respond equally quickly to revenge-related words while at time 2, low (vs. high) NFC individuals will respond more slowly to revenge-related words.

Much research (e.g., Webster & Kruglanski, 1994; Webster et al., 1996) shows that individuals low (vs. high) in the NFC engage in more extensive information processing in the course of forming judgments. Specifically, they consider a greater amount of information before making a decision. For example, when making hiring decisions regarding employment candidates, low NFC individuals requested more information about the candidates than high NFC individuals (Webster & Kruglanski, 1994). Further, individuals low (vs. high) in the NFC are more open to others' opinions and to persuasive attempts (Kruglanski et al., 1993; Webster & Kruglanski, 1994). Webster and Kruglanski (1994) found that low (vs. high) NFC participants, while acting as jury members, shifted their verdict to a greater extent to be more in line with another's opinion even after being provided a full legal analysis. Additionally, the previously-noted sample items from the NFC scale (Webster & Kruglanski, 1994) underscore the motivations of low (vs. high) NFC individuals to consider both sides in a conflict and to review all possible options before forming a judgment. In the present context, the greater amount of information processing should correspond to a greater numbers of thoughts about the transgression and a greater amount of time spent processing the injustice, as well as containing thoughts relating to response options besides revenge. Since high (vs.

low) NFC individuals are expected to seize and freeze on revenge, I suggest that they should have more thoughts about revenge and fewer thoughts about alternative response options; the number of revenge-related thoughts then may mediate the relationship between the NFC and revenge. Therefore, I expect the following:

Hypothesis 4a: Low (vs. high) NFC individuals will have a greater number of thoughts after the transgression.

Hypothesis 4b: Low (vs. high) NFC individuals will spend a greater amount of time processing the transgression.

Hypothesis 5: Low (vs. high) NFC individuals will have more varied thoughts after the transgression. Specifically, low (vs. high) NFC individuals will have thoughts that relate to a wider variety of response options to the transgression.

Hypothesis 6: The relationship between the NFC and revenge will be mediated by the extent of elaboration in the additional processing. Specifically, the amount of revenge related thoughts will mediate the NFC-revenge association.

I am proposing that in order to counteract the accessibility of vengeance following a transgression, low (vs. high) NFC individuals engage in subsequent elaborative cognitive processing of the event. Contemplating why the transgression occurred, such as through perspective taking, may be one example of how individuals low (vs. high) in the NFC employ additional cognitive processing. Therefore, I expect the following:

Hypothesis 7: Low (vs. high) NFC individuals will have a greater number of perspective taking thoughts when processing the transgression.

There exists initial evidence for the negative relationship between the NFC and perspective taking (Davis et al., 1996) such that cognitive load (which should induce

higher NFC) was found to interfere with the (laborious) work of perspective taking. Therefore, under a task designed to increase perspective taking, high NFC individuals should engage in additional cognitive processing, acting more like low NFC individuals typically do, and thus engage in revenge to a lesser extent. Therefore, I expect the following:

Hypothesis 8: Perspective taking will moderate the relationship between the NFC and revenge such that individuals high (vs. low) in the NFC will engage in greater revenge when not provided with perspective taking instructions after a transgression, but that when participants are instructed to consider the transgressor's perspective, there will be no difference between high and low NFC participants in the likelihood of engaging in revenge behaviors.

While Boyatzi (2011) found a consistent relationship between the NFC and desire for revenge and Studies 1-3 of the present investigation aim to replicate and extend this effect, no studies to date have replicated the NFC-revenge relationship using a situational manipulation of the NFC. It is expected that choosing alternatives to revenge requires refraining from the initial revenge impulse and engaging in more elaborative cognitive processing of the transgression. Given that individuals low (vs. high) in the NFC are better able to inhibit the dominant response (e.g., Kruglanski & Freund, 1983; Brewer, 1988; Jamieson & Zanna, 1989; Bodenhausen, 1990; Fiske & Neuberg, 1990; Webster-Nelson et al., 1993; Dijksterhuis et al., 1996; Kruglanski & Pierro, 2008) and are more likely to engage in greater cognitive processing (e.g., Kruglanski & Freund, 1983; Brewer, 1988; Jamieson & Zanna, 1989; Bodenhausen, 1990; Fiske & Neuberg, 1990; Webster & Kruglanski, 1994; Dijksterhuis et al., 1996; Webster et al., 1996), I propose

that lowering (vs. enhancing) one's NFC should lead to less engagement in revenge.

Therefore, I expect the following:

Hypothesis 9: Lowering (vs. enhancing) one's NFC through a situational manipulation should lead to a decrease in the likelihood of engaging in revenge behaviors following a transgression, whereas after a neutral experience, manipulating the NFC should have no effect on retributive behaviors.

Overview of Studies

I tested my predictions in a series of four studies. Study 1 utilized a transgression vignette and a measure of the desire for revenge. It also included a reaction time measure of revenge-related and forgiveness-related words. In Study 1, I sought to show the effect of a transgression on response time to revenge-related words (Hypothesis 1).

Additionally, this study aimed to extend the positive association between the NFC and desire for revenge by including a neutral control condition (Hypothesis 2). Study 1 further examined the effect of time and NFC on response time to revenge-related and forgiveness-related words (Hypothesis 3).

Study 2 also employed a hypothetical transgression and a measure of desire for revenge (Hypothesis 2). This study examined the possible elaborative processing that low (vs. high) NFC individuals engage in to override the accessibility of revenge by exploring their thoughts that occur after a transgression, attempting to demonstrate that low (vs. high) NFC individuals have more thoughts following a transgression (Hypothesis 4a), spend more time engaging in information processing of the injustice (Hypothesis 4b), and have more thoughts related to perspective taking (Hypothesis 7). Study 2 also tested if individuals low (vs. high) in the NFC have thoughts about a larger set of response options (Hypothesis 5) and if the number of revenge thoughts mediates the relationship between the NFC and revenge (Hypothesis 6).

Study 3 influenced the additional processing normally engaged in by low (vs. high) NFC individuals by encouraging perspective taking. Specifically, in Study 3 I attempted to demonstrate that encouraging individuals to consider the perspective of the transgressor after a wrongdoing will lead them to engage in more elaborative cognitive

processing of the transgression and consequently to less revenge behaviors (Hypothesis 8). Study 3 included a transgression experience and a behavioral measure of revenge, both operationalized through a dictator game (Hypothesis 2). This study also employed a perspective-taking condition (vs. neutral condition) following the transgression. It further included a measure of accessibility of revenge-related (i.e., aggression) words through a word completion task (Hypotheses 1 and 3).

In Study 4, I attempted to demonstrate the relationship between the NFC and revenge can be replicated with inductions of high (vs. low) NFC. Whereas Studies 1-3 used an individual difference measure of NFC, Study 4 manipulated the NFC situationally. Thus, the present study investigated more directly the hypothesis that lowering of participants' NFC should lead to less retaliatory behaviors and augmenting the NFC would enhance the tendency to seek revenge (Hypothesis 9). Study 4 employed similar procedures as Study 3 including using a dictator game to manipulate a transgression and the word completion task to measure the accessibility of revenge-related words (Hypotheses 1 and 3). This study also examined the possible elaborative processing that low (vs. high) NFC individuals engage in following a transgression (Hypotheses 4a, 4b, 5, 6, and 7).

Chapter 3: Study 1

The purpose of Study 1 was to assess the accessibility of revenge as a response to a transgression. This study directly tested the assumption that due to revenge's evolutionary adaptability, it is the most cognitively accessible option after an individual experiences an injustice. Additionally, this study measured the accessibility of revenge-related words and forgiveness-related words at two time points, the first immediately after the transgression, and the second after some time had elapsed. The purpose of measuring accessibility over time was to test the hypothesis that low (more so than high) NFC individuals engage in additional cognitive processing of the transgression, which may lead to less accessibility of revenge at time 2 because they are considering other options, such as forgiveness. Alternatively, I assume that revenge is a cognitively accessible response and that it is seized and frozen on by more by high (vs. low) NFC individuals and thus for these individuals, revenge should remain equally accessible across time. There is limited prior research (McCullough et al., 2003) on the temporal unfolding of revenge and forgiveness motivations which previously were examined over a period of several weeks. Specifically, McCullough et al. (2003) investigated the temporal unfolding of forgiveness through a model incorporating desires for revenge, forgiveness, and avoidance at five time points. The present investigation contributes by examining a much shorter time span and investigating the role of the NFC on accessibility of revenge and forgiveness; it is expected that differences in accessibility should be found even after a very short time as a function of the NFC.

Further, Study 1 tests the alternative hypothesis that the positive association between the NFC and desire for revenge found in Boyatzi (2011) is due to the fact that

high (vs. low) NFC individuals are more aggressive in general, even in the absence of a transgression.

Method

Participants

Participants were 98 undergraduate psychology students (14 men and 84 women) from a large university with a mean age of 19.34 years who participated in the study in exchange for course credit.

Procedure and Design

Participants were told that the researcher was interested in looking into the effect of individual differences on decision making and that the study involved several questionnaires and computer tasks.

Study 1 employed a 2 (transgression: present and absent) x 2 (time: 1 and 2) x 2 (reaction time: revenge- and forgiveness-related words) design with a continuous measurement of the NFC. Transgression condition was a between-participant factor and time and reaction time were within-participant factors. Gender produced no significant main effects or interactions, so it will not be mentioned further.

Participants were given the 14-item short version of the NFC scale (Pierro & Kruglanski, 2006; $\alpha = .80$, see Appendix A) and responded to all items on a 6-point Likert scale (1 = *Strongly disagree* to 6 = *Strongly agree*). They were randomly assigned to either a transgression condition or control condition during which they read a vignette describing a transgression or a neutral story, respectively (see Appendices B and C). The transgression vignette describes an intentional act of wrongdoing which was intended to act as a strong manipulation in order to elicit the largest effect possible.

Immediately following the vignette, participants completed the first of two lexical decision tasks on a computer; these were designed to measure response latency to revenge-related, forgiveness-related, neutral and nonwords (see Appendix D). This partly constituted the measurement of the dependent variable for tests of the hypotheses that revenge is the most cognitively accessible option following a transgression (vs. no transgression; Hypothesis 1) and that the accessibility of revenge-related words will vary as a function of the NFC and time (Hypothesis 3).

Participants were instructed to judge a target stimulus as a word or nonword as quickly as possible. A fixation point was marked by an “X” which appeared in the center of the screen before every target. The target appeared in pale yellow against a black background in the center of the screen and remained on the screen for 2000 ms. Targets consisted of revenge-related words (e.g., *retaliation*, *payback*), forgiveness-related words (e.g., *excuse*, *mistake*), neutral words (e.g., *hence*, *while*), and nonwords (e.g., *abreac*, *skring*). All participants were asked to judge the same targets which included 10 revenge-related words, 10 forgiveness-related words, 10 neutral words, and 20 nonwords, all randomly presented. Forgiveness targets were taken from Nelson, McEvoy and Schreiber’s (1998) free association library and all revenge and forgiveness targets were pretested by the researcher. Only correct responses were used in subsequent analyses as is standard practice (see Bargh, Chaiken, Govender, & Pratto, 1992; Fazio, 1990) and all responses which took longer than 2000 ms were eliminated (see Bargh & Chartrand, 2000).

The lexical decision task was followed by a neutral task that did not require much thought or cognitive resources. This was intended to allow participants a chance to

consider the transgression and decide how to respond. Specifically, it was expected that during this period of time, low NFC participants, more so than high NFC participants, would engage in additional processing of the transgression. Participants then completed the second lexical decision task measuring reaction time to the revenge-related, forgiveness-related, neutral and nonwords.

Following the second lexical decision task, the Transgression-Related Interpersonal Motivations Inventory, 18-item version (TRIM-18, McCullough et al., 2006) was completed (revenge subscale: $\alpha = .82$; forgiveness subscale: $\alpha = .89$). The TRIM 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 items such as “Despite what he/she did, I want us to have a positive relationship again” and “Even though his/her actions hurt me, I have goodwill for him/her.” Participants responded to all items on a 5-point Likert scale (1 = *Strongly disagree* to 5 = *Strongly agree*). This was followed by the Aggression Questionnaire (Buss & Perry, 1992; $\alpha = .87$) which was used to control for trait aggression; participants responded to all items on a 5-point Likert scale (1 = *Extremely uncharacteristic of me* to 5 = *Extremely characteristic of me*). Participants also completed a demographic questionnaire. After completing the survey, participants were thoroughly debriefed and thanked for their participation.

Results

To test Hypothesis 1, for which I predicted that participants in the transgression (vs. no transgression) condition will have faster reaction times to revenge-related words regardless of their level of the NFC, I conducted a *t* test concerning the effect of the NFC

on reaction time to revenge-related words. The results show that individuals presented with a transgression (vs. no transgression) did not respond more quickly to revenge-related words ($t(96) = .48, p = .632$), thus Hypothesis 1 is not supported. However, a manipulation check of the transgression manipulation shows that individuals presented with a transgression (vs. no transgression) desired a greater amount of revenge ($M = 2.73, SD = .84$ vs. $M = 2.32, SD = .69$, respectively; $t(96) = 2.59, p = .011$).

To test Hypothesis 2, I conducted a multiple regression analysis with the NFC as a continuous predictor, transgression condition as a dichotomous predictor, and the NFC x Transgression condition interaction on the desire for revenge, as measured by the TRIM (McCullough et al., 2006). Trait aggression was included in the model as a covariate. The overall model was significant, $F(4, 90) = 9.05, p < .001, R^2 = .28$. The results show no main effect of the NFC ($\beta = .08, t(93) = .94, p = .346, \Delta R^2 = .01$) but a significant main effect of transgression condition ($\beta = -1.00, t(90) = -2.10, p = .038, \Delta R^2 = .08$) such that individuals in the transgression condition exhibited greater desire for revenge ($M = 2.73, SD = .84$) than those in the no transgression condition ($M = 2.32, SD = .69$). The results also show a significant interaction between the NFC and transgression condition ($\beta = 1.34, t(93) = 2.81, p = .006, \Delta R^2 = .06$). The simple slope analysis³ of the relationship between the NFC and desire for revenge revealed that in the transgression condition, higher NFC individuals desired significantly greater revenge than lower NFC individuals ($B = .43, t(93) = 2.57, p = .012$), but did not differ in the no transgression condition ($B = -.21, t(93) = -1.35, p = .179$, see Figure 1). Thus, Hypothesis 2 is supported.

³ I utilized the worksheets provided by Jeremy Dawson to plot the graphs and calculate simple slopes (Dawson, n.d.). Simple slope analyses are only available using unstandardized regression coefficients which is why they, and not the standardized coefficients, are reported. This procedure was used for all simple slope analyses.

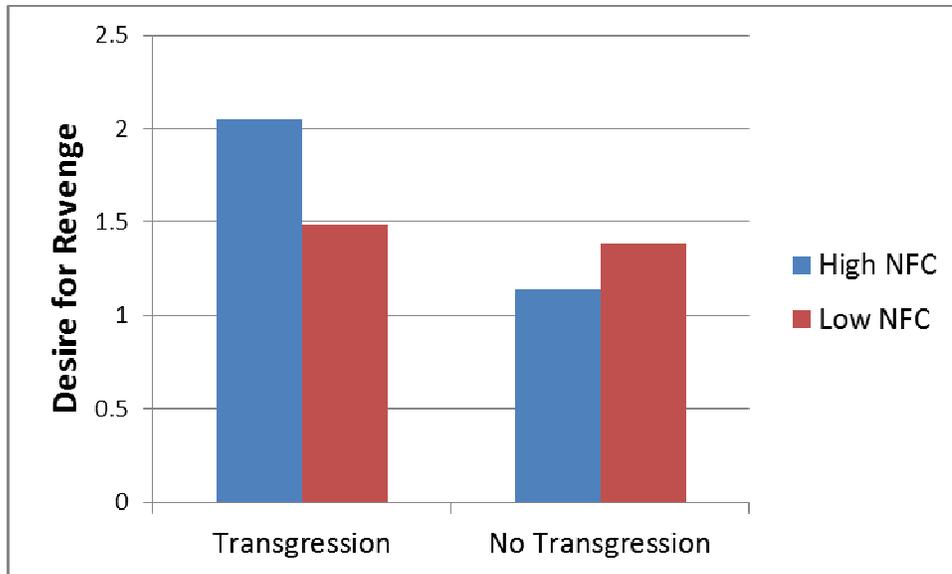


Figure 1. NFC x Transgression condition interaction on the desire for revenge. The NFC is represented as dichotomous for illustrative purposes; the NFC was measured and analyzed as a continuous variable. High and low values of the NFC in the figure were taken at one standard deviation above and below the mean (Aiken & West, 1991; Dawson & Richter, 2006).

For exploratory purposes, I also examined the relationship between the NFC, transgression condition, and their interaction on the desire for forgiveness. Specifically, I conducted a multiple regression analysis with the NFC as a continuous predictor, transgression condition as a dichotomous predictor, and the NFC x Transgression condition interaction on desire for forgiveness, as measured by the TRIM (McCullough et al., 2006). The overall model was significant, $F(3, 94) = 12.87, p < .001, R^2 = .29$. The results show a non-significant trend of the NFC in the expected direction ($\beta = -.11, t(94) = -1.321, p = .190, \Delta R^2 = .01$) and no main effect of transgression ($\beta = .43, t(94) = .93, p = .352, \Delta R^2 = .25$). However, the results show a significant interaction between the NFC and transgression condition ($\beta = -.95, t(94) = -2.05, p = .043, \Delta R^2 = .03$). The simple slope analysis of the relationship between the NFC and desire for forgiveness revealed that in the transgression condition, lower NFC individuals desired significantly more

forgiveness than higher NFC individuals ($B = -.37, t(94) = -2.33, p = .022$), but high and low NFC individuals did not differ in the no transgression condition ($B = .08, t(94) = .54, p = .586$, see Figure 2).

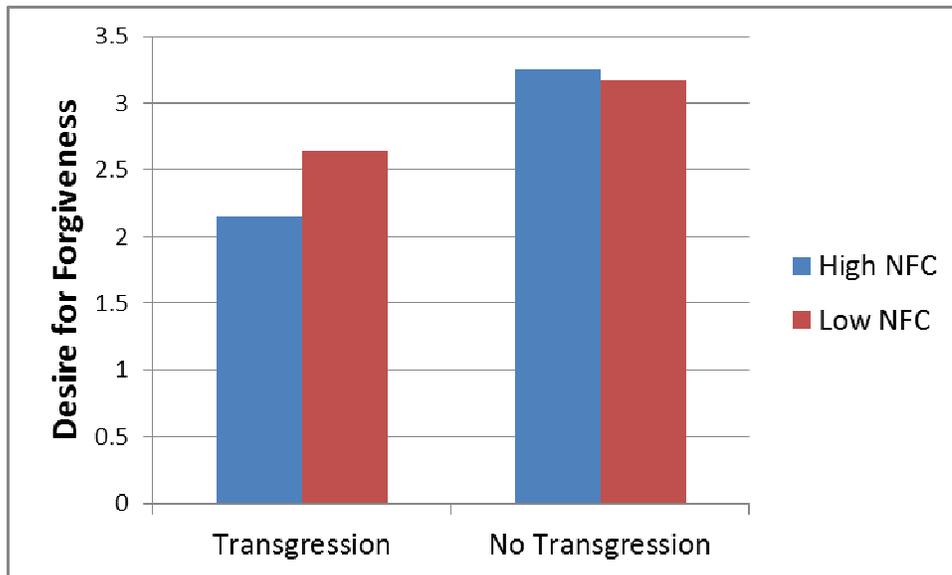


Figure 2. NFC x Transgression condition interaction on the desire for forgiveness. The NFC is represented as dichotomous for illustrative purposes; the NFC was measured and analyzed as a continuous variable. High and low values of the NFC in the figure were taken at one standard deviation above and below the mean (Aiken & West, 1991; Dawson & Richter, 2006).

A further exploratory analysis was conducted comparing revenge and forgiveness motivations within-participants using a general linear model repeated measures analysis. The NFC was dichotomized based on a median split due to the nature of the potential three-way interaction to allow for more comprehensible post-hoc analyses. The NFC was a dichotomized between-participant factor, transgression condition was a dichotomous between-participant factor, and desires for revenge and forgiveness were repeated measures within-participant factors. The results show a significant three-way interaction between the NFC, transgression condition, and desires for revenge and forgiveness ($F(1,94) = 5.18, p = .025, \text{partial } \eta^2 = .05$). Probing of the interaction revealed that within

the no transgression condition, forgiveness desires were greater than revenge desires for high NFC individuals ($M = 3.28, SE = .13$ vs. $M = 2.18, SE = .15, p < .001$) as well as low NFC individuals ($M = 3.18, SE = .15$ vs. $M = 2.50, SE = .17, p = .018$). However, in the transgression condition, individuals high in the NFC experienced greater revenge motivations ($M = 2.91, SE = .14$) than forgiveness motivations ($M = 2.28, SE = .13, p = .008$) whereas low NFC individuals' motivations for revenge and forgiveness did not differ ($M = 2.49, SE = .15$ and $M = 2.63, SE = .14$, respectively). For high NFC individuals, their desire for revenge was greater in the transgression condition (vs. no transgression, $p = .001$) while their motivations for forgiveness was lower ($p < .001$). Individuals low in the NFC experienced no difference in their desire for revenge between conditions but exhibited a lower desire for forgiveness in the transgression condition (vs. no transgression; $p = .011$) See Figure 3.

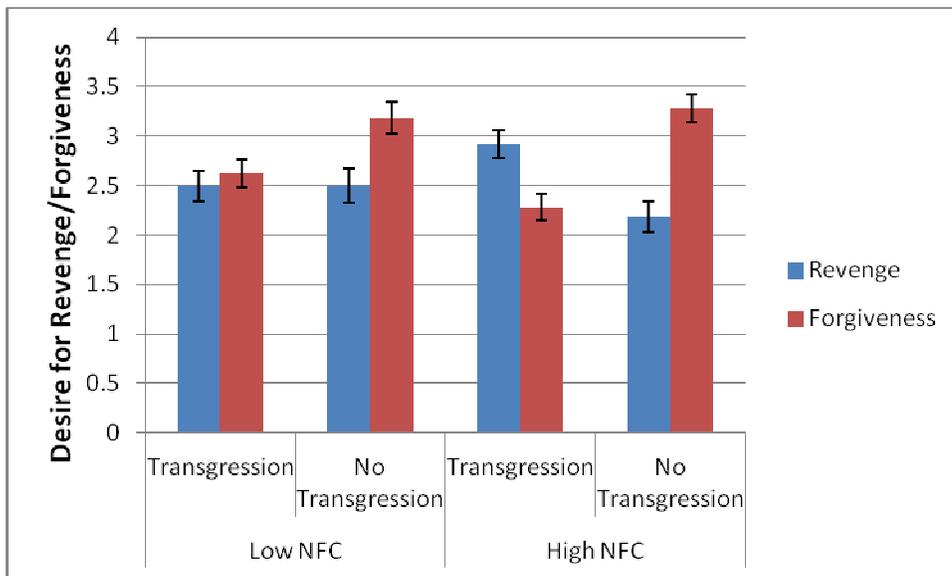


Figure 3. NFC x Transgression condition x Revenge/Forgiveness desires within-participant interaction.

Hypothesis 3 was tested using generalized estimating equation (GEE) analyses (Liang & Zeger, 1986; Zeger & Liang, 1986; Zeger, Liang, & Albert, 1988). The GEE

analysis offers several advantages. Firstly, it includes a within-participants factor which is necessary for the repeated measures lexical decision task data. Secondly, GEEs use maximum likelihood estimations instead of the least square estimations used in regression analyses which are easily biased by outliers. A third advantage of this type of analysis is that it can handle incomplete data; instead of excluding data with missing cases, it estimates parameters using all of the available data. There was a greater amount of missing data with the response latency measures than with the desires for revenge and forgiveness measures which is why the former were tested with GEEs while the latter were tested with repeated measures ANOVAs. Lastly, GEEs give me the flexibility to detect interactions between the response latencies at time 1 and time 2 as well as interactions between response latencies for revenge-related and forgiveness-related words. For all GEE analyses, the NFC was dichotomized based on a median split. This was utilized due to the nature of the analyses given that three-way interactions were expected and post-hoc analyses for dichotomous variables are more comprehensible than for continuous variables.

In the first GEE analysis, time was included as a within-participant factor and the NFC and transgression condition were between-participants factors. Response latencies for neutral words and nonwords as well as each participant's error rate were used as covariates; response latencies at time 1 and time 2 for revenge-related words were the dependent measures. The three-way NFC x Transgression condition x Time interaction was not significant ($\chi^2(1, N = 196) = .23, p = .625$). Hypothesis 3 suggests that revenge should be equally salient for high and low NFC individuals at time 1 while revenge should be more salient for high (vs. low) NFC at time 2. Planned comparison analyses

were conducted and show that following a transgression, high (vs. low) NFC participants responded slower to revenge-related words at time 1 ($M = 818.17, SE = 31.35$ vs. $M = 709.70, SE = 27.23; p = .009$) and marginally slower at time 2 ($M = 794.75, SE = 31.05$ vs. $M = 713.45, SE = 33.73; p = .091$); thus Hypothesis 3 is not supported (see Figure 4).

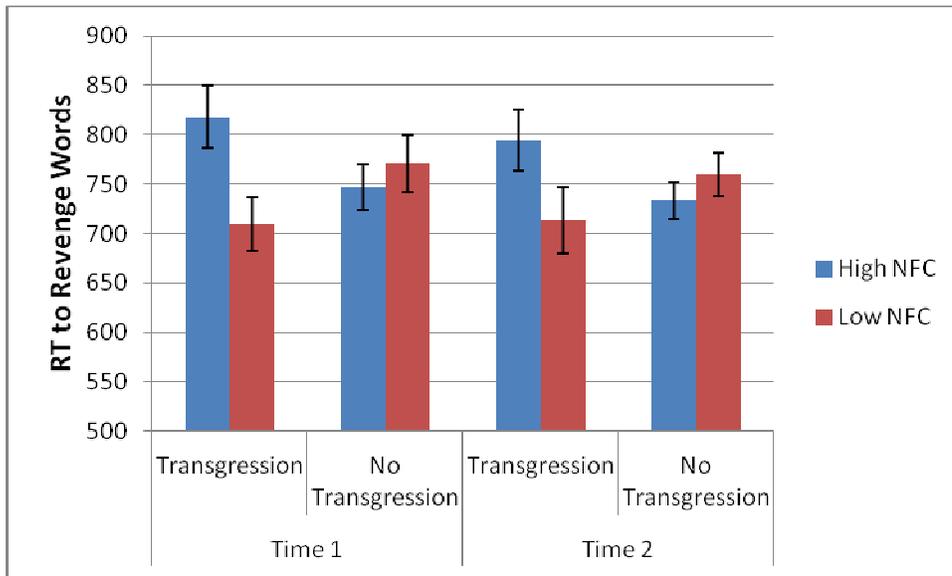


Figure 4. NFC x Transgression condition x Time within-participant interaction on response time to revenge-related words.

Hypothesis 3 also includes the implicit assumption that revenge is more salient than forgiveness. Specifically, I argue that the adaptive benefits of revenge should cause it to be the first response option that comes to mind when one experiences a transgression. To test this, two additional GEEs were conducted with the NFC and transgression condition as between-participants factors and response latencies to revenge and forgiveness as a within-participants dependent measure. As before, response latencies for neutral words and nonwords as well as each participant's error rate were included as covariates. Time 1 and time 2 were examined separately.

For time 1, the NFC x Transgression condition x Revenge-Forgiveness factor three-way interaction was not significant ($\chi^2(1, N = 196) = 1.19, p = .275$). Planned comparisons were conducted examining response latency (in milliseconds) within the transgression condition to revenge and forgiveness words separately. The results show that high NFC individuals responded significantly slower to revenge words when faced with a transgression ($M = 831.09, SE = 30.01$) than individuals low in the NFC ($M = 723.33, SE = 28.42; p = .009$); however, no difference emerged when comparing how quickly high and low NFC individuals respond to forgiveness words when confronted with a transgression (see Figure 5).

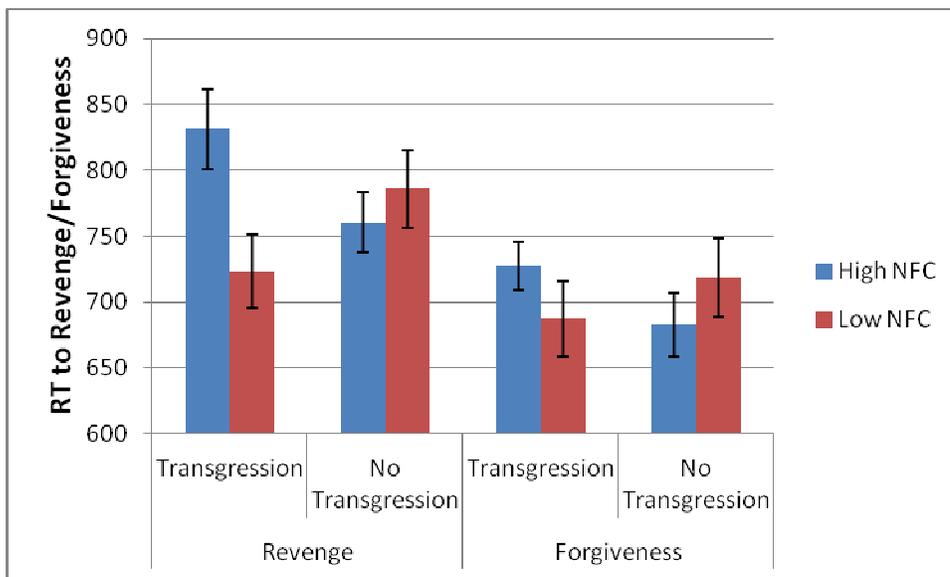


Figure 5. NFC x Transgression condition x Revenge-Forgiveness within-participant interaction at Time 1.

For time 2, the NFC x Transgression condition x Revenge-Forgiveness factor was also not significant ($\chi^2(1, N = 196) = .01, p = .924$). Planned comparisons were again conducted examining response latency within the transgression condition to revenge and forgiveness words, separately. The results show that high NFC individuals responded significantly slower ($M = 792.54, SE = 28.99$) to revenge words when faced with a

transgression than individuals low in the NFC ($M = 685.79$, $SE = 32.19$; $p = .016$).

Further, this pattern was also found for forgiveness words such that individuals high in the NFC responded more slowly ($M = 756.33$, $SE = 26.47$) than low NFC individuals ($M = 619.73$, $SE = 17.41$; $p < .001$, see Figure 6).

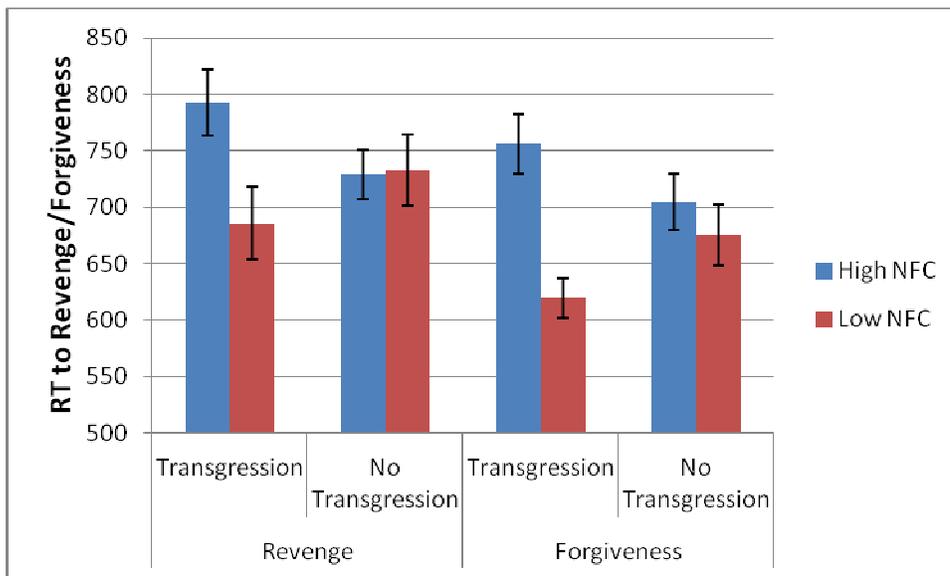


Figure 6. NFC x Transgression condition x Revenge-Forgiveness within-participant interaction at Time 2.

Discussion

Boyatzis (2011) found initial support for the positive association between the NFC and desire for revenge. However, due to the correlational nature of the relationship found in those studies (*ibid.*), one could argue that high NFC individuals may be more aggressive in general. Specifically, perhaps a transgression is not necessary to find a positive relationship between the NFC and revenge; perhaps this relationship exists naturally and is found in neutral conditions as well. The present study replicates and extends the NFC-desire for revenge association by comparing desire for revenge across transgression and control conditions. Thus, this study eliminates the potential alternative hypothesis in several ways. Importantly, the results show that high NFC individuals did

not show increased revenge desires in the neutral vignette control condition which provides support for the notion that a transgression is the catalyst for an increased desire for revenge among high (vs. low) NFC individuals. It is, potentially, the lack of closure caused by the transgression that prompts a revenge response from individuals high (vs. low) in the NFC, not a general aggressive disposition.

The present study also included trait aggression as a covariate to further eliminate the possibility that high (vs. low) NFC individuals are simply more aggressive people in general. When trait aggression was included as a covariate, the NFC x Transgression condition interaction significantly predicted desire for revenge, indicating that even after trait aggression is accounted for, the NFC still predicts one's desire for vengeance after a wrongdoing.

Additionally, one could argue based on the results of Boyatzi (2011) that the relationship directionality between the NFC and desire for revenge may be backwards (or bi-directional) such that desire for revenge leads to an increase in one's NFC or that one's vengeance desires and one's NFC affect each other in a vicious cycle. Again, however, as individuals high in the NFC did not exhibit greater revenge desires than low NFC individuals in the no transgression condition, the results eliminate the possibility that one's desire for revenge increases one's level of the NFC.

The results from Study 1 provide additional insight into how high and low NFC individuals react to a transgression by investigating the relationship between the NFC and desire for forgiveness. They show that after a transgression, but not generally, individuals high (vs. low) in the NFC desire less forgiveness.

Comparing the motivations for revenge and forgiveness within participants as an exploratory analysis yielded interesting findings. The no transgression control condition, which arguably acts as a baseline, shows that individuals in general have a significantly stronger motivation to forgive than to retaliate, regardless of their level of the NFC. This is not unsurprising insofar as one considers that humans are social beings and that the primary adaptive function of forgiveness is relationship restoration (Karremans & Van Lange, 2004; McCullough, Worthington, & Rachal, 1997).

However, high and low NFC individuals react differently when confronted with a transgression. Specifically, high NFC individuals' motivation to revenge is significantly greater (vs. no transgression) while their forgiveness desire is significantly lower which together produce a significantly greater desire for revenge than forgiveness. Thus it appears that an unambiguously-intentional transgression leads high NFC to choose revenge over forgiveness. On the other hand, individuals low in the NFC experience no difference in their revenge desires between transgression and no transgression conditions but have a significantly lower motivation for forgiveness following a transgression, resulting in no difference between their desires for revenge and forgiveness. In this sense, low NFC individuals seem not to make any decision about how to respond to an intentional wrongdoing; rather they appear conflicted with equal desires to retaliate and to pardon.

Study 1 went beyond Boyatzi (2011) further by testing the assumption that revenge is the most cognitively accessible response option following a transgression. Additionally, this study investigated (indirectly) whether high NFC individuals seize and freeze on revenge as the most accessible option and if low NFC individuals counteract

the accessibility of revenge. The response latency data do not support either accessibility hypothesis (Hypotheses 1 and 3). Specifically, I expected accessibility of revenge to be greater for high (vs. low) NFC at time 2 and I expected revenge to be more accessible than forgiveness, but the data belie these assumptions.

However, post hoc analyses show interesting and potentially meaningful trends. It seems that a transgression affects high NFC individuals differently than low NFC individuals. High (vs. low) NFC individuals are slower to respond to revenge immediately after a transgression as well as after a period of time. They are also slower to respond to forgiveness at time 2. It appears that the transgression may “stun” them; it creates a lack of closure which needs to be addressed. Considering how to address the transgression requires cognitive resources and thus seems to put the participants under cognitive load. High (vs. low) NFC individuals were more affected by the cognitive load, which may be due to a smaller resource pool (Kossowska, Orehek, & Kruglanski, 2010), leading to slower response times.

Limitations. While Study 1 replicated the main relationship of interest and extended previous research in significant ways, it is limited by its use of a low-impact hypothetical transgression. Furthermore, this study examines the extent to which one *desires* revenge and did not measure one’s willingness to *enact* retribution. One’s desire for revenge may not be similar to the likelihood of engaging in vengeful behavior as such. To address these concerns, Studies 3 and 4 will aim to replicate the relationship between the NFC and revenge through the use of a transgression experience as well as a behavioral measure of vengeance (Hypothesis 2).

Chapter 4: Study 2

The results from Study 1 show that after a transgression, low (vs. high) NFC experience greater cognitive accessibility of revenge and forgiveness. Specifically, in the transgression condition (but not the no transgression condition), low (vs. high) NFC individuals responded more quickly to revenge at both time points and responded more quickly to forgiveness at time 2. Thus it appears that individuals low (vs. high) in the NFC are engaging in additional processing by presumably considering both revenge and forgiveness following an offense.

Study 2 examined this possibility by engaging participants in a thought listing task through which the potential differences in both the quantity and quality of thoughts of high and low NFC individuals were investigated. Similar to Study 1, Study 2 incorporated a time interval after the transgression; this was intended to allow low NFC individuals to carry out additional processing presumably in order to decide how to respond to the transgression. The present study contributes to the literature by providing a qualitative examination of the cognitive processing occurring after a transgression. The thought listing task will be the first investigation to the author's knowledge in gaining a better understanding of how an individual arrives at the decision to retaliate or forgive.

Method

Participants

Participants were 101 undergraduate psychology students (17 men and 84 women) from a large university with a mean age of 19.46 years who participated in the study in exchange for course credit. Eleven participants were excluded from the data for

not following directions, leaving data from 90 participants (15 men and 75 women, with a mean age of 19.44) for the final analysis.

Procedure and Design

Participants completed the study online and were told that the researcher was interested in looking into the effect of individual differences on decision making and that the study involved responding to several questionnaires.

Study 2 utilized a correlational design with continuous measurements of the NFC, as the independent variable, and extent of information processing and desire for revenge and forgiveness, as the dependent measures. Participants were given the 15-item short version of the NFC scale (Roets & Van Hiel, 2011; $\alpha = .84$) and responded to all items on a 6-point Likert scale (1 = *Strongly disagree* to 6 = *Strongly agree*).

Participants were also presented with a vignette describing a transgression (see Appendix E). The transgression described in the vignette was ambiguous to the extent that the act could have been intentional or not; this was intended to allow participants to engage in additional processing of why the transgression may have occurred. The ambiguity of the transgression was especially meant to allow low NFC individuals the opportunity to engage in attributive processing, perhaps including perspective taking, which previous research has shown they do more so than high NFC individuals (Webster & Kruglanski, 1994; Webster-Nelson et al., 2003).

Immediately following the transgression vignette, participants completed a thought-listing task during which they were asked to list all of their thoughts. They were told to take as much time as they needed and the time they spent on this task was measured and used to test Hypothesis 4b. This time period was intended to provide low

(vs. high) NFC individuals an opportunity to counteract the accessibility of revenge as well as decide how to respond to the transgression. The thoughts listed were used to test the hypotheses that low (vs. high) NFC individuals will list more thoughts in general (Hypothesis 4a), will list more thoughts that consider the transgressor's perspective or attribute the transgression to non-dispositional factors (Hypothesis 7), and will consider a greater variety of response options to the transgression (Hypothesis 5). The listed thoughts will also be used to test the hypothesis that the amount of revenge-related thoughts will mediate the association between the NFC and desire for revenge (Hypothesis 6). Following the thought-listing task, participants completed the TRIM-18 questionnaire (McCullough et al., 2006; revenge subscale: $\alpha = .80$, forgiveness subscale: $\alpha = .81$); used to measure desires for revenge and forgiveness. Participants responded to all items on a 5-point Likert scale (1 = *Strongly disagree* to 5 = *Strongly agree*). The Aggression Questionnaire (Buss & Perry, 1992; $\alpha = .87$) was administered to control for trait aggression and all items were responded to on a 5-point Likert scale (1 = *Extremely uncharacteristic of me* to 5 = *Extremely characteristic of me*). Participants also completed a demographic questionnaire. After responding to the survey, participants were thoroughly debriefed and thanked for their participation.

Results

Gender significantly predicted desire for revenge ($t(96) = 3.49, p = .001$) such that men desired greater revenge ($M = 2.15, SD = .77$) than women ($M = 1.59, SD = .53$). In support of Hypothesis 2, the results show a positive correlation between the NFC and desire for revenge ($r(98) = .21, p = .033$) indicating that the higher one's NFC, the more s/he wishes to engage in revenge following a transgression. When gender and trait

aggression are included as covariates, this relationship remains significant ($\beta = .22$, $t(94) = 2.51$, $p = .014$, $\Delta R^2 = .04$). The results also show a negative association between the NFC and desire for forgiveness ($r(98) = -.23$, $p = .023$) suggesting that individuals higher (vs. lower) in the NFC desire less forgiveness. This relationship becomes marginal after controlling for trait aggression ($\beta = -.18$, $t(95) = -1.97$, $p = .051$, $\Delta R^2 = .12$).

An exploratory analysis was conducted comparing revenge and forgiveness motivations within participants using a general linear model repeated measures analysis. The NFC was dichotomized based on a median split for ease of comprehension. The NFC was included as a between-participant factor, gender was included as a covariate, and desires for revenge and forgiveness were included as the repeated measures. The results show a significant interaction between the NFC and motivations to get revenge and forgiveness ($F(1,96) = 9.46$, $p = .003$, partial $\eta^2 = .09$). Probing of the interaction revealed that high NFC individuals experienced greater forgiveness desires than revenge ($M = 3.43$, $SE = .09$ vs. $M = 1.85$, $SE = .07$; $p < .001$) as did low NFC individuals ($M = 3.73$, $SE = .09$ vs. $M = 1.50$, $SE = .08$; $p < .001$). However, the results also show that high and low NFC individuals differ in both their motivations for revenge and forgiveness when these desires are examined as a within-participant repeated measure. Specifically, high NFC individuals desire greater revenge ($M = 1.85$, $SE = .07$) than low NFC individuals ($M = 1.50$, $SE = .08$; $p = .002$) while individuals low in the NFC desire greater forgiveness ($M = 3.73$, $SE = .09$) than those high in the NFC ($M = 3.43$, $SE = .09$; $p = .028$). See Figure 7.

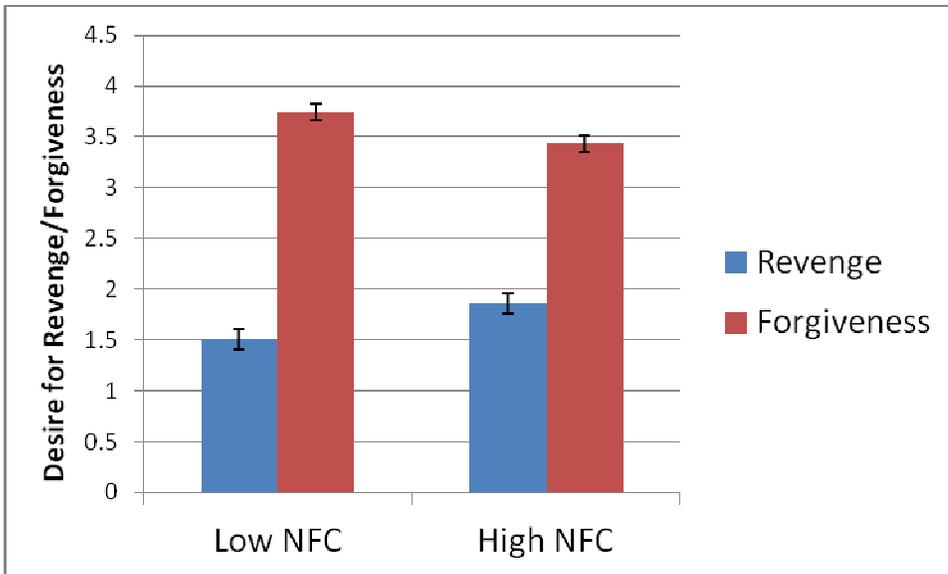


Figure 7. NFC x Revenge/Forgiveness desires within-participant interaction.

Examining the extent of information processing engaged in during the thought-listing task, the results show the expected negative relationship between NFC and the number of thoughts listed ($r(95) = -.23, p = .028$). Thus, the lower one's NFC, the more thoughts s/he listed following a transgression, consistent with Hypothesis 4a. The amount of time spent on the thought listing task was marginally negatively related to the NFC ($r(98) = -.19, p = .068$) showing marginal support for Hypothesis 4b.

To examine Hypothesis 5, the thoughts listed were categorized by content such that qualitatively distinct means of responding to the transgression (e.g., revenge, forgiveness) were coded as separate categories⁴. There was no relationship between the NFC and quantity of response options considered ($r(98) = .01, p = .906$). Exploratory analyses show that the frequency with which each response option was listed was very low for all categories, suggesting possible floor effects: 9.2% of participants mentioned forgiveness, 5.1% stated plans to avoid the transgressor, 3.1% discussed (requiring or

⁴ Thoughts were examined for any variation of these constructs. For example, any phrase objectively synonymous with "revenge" such as "get even with," "get back at," etc. would have been coded as revenge-related.

hoping for) an apology, 13.3% wrote down wanting to confront the transgressor, and 0% mentioned revenge. Thus, Hypothesis 5 received no support in these data.

Hypothesis 6 predicted that the relationship between the NFC and desire for revenge will be mediated by the amount of revenge-related thoughts listed in the thought-listing task. This hypothesis could not be tested for the simple reason that, as discussed above, not a single revenge-related thought was listed during the thought-listing task. Thus, Hypothesis 6 is not supported.

To test Hypothesis 7, the thoughts were coded for perspective taking or non-dispositional attributions for the transgression which included concern for the transgressor's well-being. The thoughts were coded by the researcher as well as a research assistant; analysis of interrater reliability revealed $\kappa = .82$ (Cohen, 1960) which exceeds the necessary level of 70% reliability for research purposes (Nunnally, 1978). The specific transgression vignette used in the present study described a situation in which one friend leaves another at a party without notice when they explicitly had a rule against doing so; thus worry for the friend indicates that s/he may be in a bad situation and unintentionally left the friend at the party without warning. These perspective taking and concern thoughts included "*I assume that my friend must have had a good reason for leaving without me if he/she had agreed not to go beforehand. Some reasons I could think of would be that he/she knew I wouldn't be interested in whatever he/she left to do, or that he/she wanted to be alone with someone.*" (Participant 66) and "*Then, I thought that perhaps [I] should be worried, that maybe [my] friend was drunk and was persuaded to leave with a guy who had bad intentions*" (Participant 76), respectively. Both types of thoughts contained non-dispositional attributions for the transgression; either the

participant took the perspective of the transgressor directly in an effort to explain the reason s/he acted that way or the participant indicated worry that the transgressor might be in unsafe situation which is why the transgression occurred. I conducted a correlation analysis of the NFC and proportion of perspective taking and worry thoughts out of the total number of thoughts. There was a significant negative relationship between the NFC and the proportion of perspective taking/concern thoughts ($r(98) = -0.30, p = .002$) suggesting that individuals lower (vs. higher) in the NFC engage in more effort to provide attributions for why the transgression occurred. Thus, Hypothesis 7 is supported.

An exploratory mediation analysis of the effect of perspective taking/worry thoughts on the relationship of the NFC and desire for forgiveness was conducted following Baron and Kenny (1986). The predictor variable, the NFC, was significantly related both to the outcome variable, desire for forgiveness ($\beta = -.23, t(96) = -2.31, p = .023$), and to the mediator, proportion of perspective taking/concern thoughts ($\beta = -.30, t(96) = -3.15, p = .002$). The relationship between proportion of perspective taking/concern thoughts and desire for forgiveness was also significant ($\beta = .29, t(95) = 2.88, p = .005$), and controlling for this effect significantly reduced the size of the effect of the NFC on desire for forgiveness ($\beta = -.14, t(95) = -1.405, p = .163$). These results suggest that the proportion of perspective taking/concern thoughts mediated the effect of the NFC on the extent to which forgiveness was desired.

Discussion

The present study conceptually replicates the findings of Study 1. Specifically, it provides converging evidence for a positive relationship between the NFC and desire for revenge and demonstrates a negative association between the NFC and forgiveness.

Unlike Study 1, however, gender significantly predicted desire for revenge in the present study. This could be due to the fact that the transgression used in Study 2 was ambiguous whereas the wrongdoing in Study 1 was unequivocal. Because of the ambiguity of the transgression in Study 2, other individual differences may have played a role in determining desire for revenge. Specifically, the generally more-aggressive nature of men compared to women (for a review, see Campbell, 2007) may have prompted the greater desire for retribution.

The results further show that both high and low NFC individuals exhibited greater motivations for forgiveness than revenge in the present study, although the significant interaction and pairwise comparisons show that high NFC individuals again desire revenge more than low NFC individuals as well as desire forgiveness less. These results show a different pattern than the results from Study 1 and thus underscore the importance of the type of transgression experienced. Study 1 manipulated an unequivocal transgression in that the transgressor intended to commit the action; Study 2 alternatively provided a transgression that was ambiguous in that it was not clear why the transgression occurred or if the action was intentional. It appears that both high and low NFC individuals prefer to give the (potential) transgressor “the benefit of the doubt” in this case. Indeed, several participants discussed in the thought-listing task requiring additional information prior to deciding how to respond (e.g., “*Information matters to infer how I would feel,*” Participant 86).

Whereas previous research has focused on the extent of information processing (e.g., Kruglanski et al., 1993; Webster & Kruglanski, 1994), the present study contributes to the literature by analyzing the content of additional processing engaged in by low (vs.

high) NFC individuals. In particular, Study 2 provided an investigation into the cognitive processes that transpire between a transgression occurring and the decision to revenge, forgive, or otherwise.

The present study provides evidence that low (vs. high) NFC individuals engaged in greater cognitive processing, both in terms of the number of thoughts they had as well as the amount of time they spent processing the transgression, supporting Hypotheses 4a and 4b, respectively. Further, Study 2 investigated the content of thoughts and found that individuals lower (vs. higher) in the NFC had significantly more thoughts pertaining to perspective taking or concern for the well-being of the transgressor, supporting Hypothesis 7. That is, lower (vs. higher) NFC individuals considered to a greater extent attributions for why the transgression occurred; these attributions ranged from a) acknowledging that everyone makes mistakes to b) suggesting that perhaps the transgressor was not of sound mind when making the decision to leave to c) wondering if the transgressor was in an unsafe situation and that is why he/she left the party without telling the friend.

The present results offered no support for Hypothesis 5, that low (vs. high) NFC individuals would consider thoughts in a wider variety of categories, such as revenge as well as forgiveness. It is possible that individuals high and low in the NFC indeed did not differ in the number of response options that they considered. Alternatively, it is possible that the instructions used for the thought listing task may not have been specific enough to elicit the full contents of participant's thoughts. In particular, there were many thoughts that were ambiguous regarding how the participant would respond. In some cases, this was due to the participant withholding judgment until s/he gathered more

information such as “*If she was totally sober and bailed on me I am going to be so mad at her, but right now I just want to make sure she’s okay*” (Participant 39) and “*Depending on what happened to him I would understand if he explained it*” (Participant 55). Other thoughts were ambiguous in that the participant could have intended revenge but did not state so explicitly, such as “[*I*] *should make sure this never happens again*” (Participant 17) and “*I would probably get fairly upset and confront my friend, possibly with anger or resentment*” (Participant 79). Likewise, there were many thoughts (26.6% of thoughts, in fact) pertaining to anger, annoyance, frustration, etc. which could subsequently fuel actions that would be considered vengeful. However, there was no way to further probe participants about their thoughts and therefore the thoughts must be taken at face-value without inference.

Hypothesis 6 was also not supported with the results in Study 2. As previously stated, not a single participant wrote down any thoughts related to revenge. This could be due to social desirability concerns since participants may not have felt comfortable about stating that they would act overtly negatively toward another person, especially since the transgressor in the vignette is described as a “good friend.” The null results could also be due to the ambiguity of some of the thoughts, as discussed above. It may be that participants had considered revenge but termed it differently (e.g., as “confrontation”); however, without making unsubstantiated inferences, these possibilities cannot be unequivocally verified.

Limitations. Study 2 contributes to the literature by providing an initial investigation into the quality of additional cognitive processing engaged in by low (vs. high) NFC individuals as well as providing further converging evidence that the NFC and

desire for revenge are positively related. However, this study is limited in several ways, including its use of a low-impact hypothetical transgression as well as a dependent measure of one's desire for revenge instead of measuring vengeful behavior more directly.

It should be noted, however, that although vignettes in general are considered "low-impact," many of the participants in the present study reported having previously experienced a similar situation, which seemed to have augmented the impact of the present procedure on the participants' reactions. However, Studies 3 and 4 will address the limitations of Studies 1 and 2 by inducing an actual transgression experience as well as employing a behavioral measure of vengeance (Hypothesis 2).

Chapter 5: Study 3

The results from Study 1 show that after a transgression, both revenge and forgiveness are more cognitively accessible for low (vs. high) NFC individuals and Study 2 shows that low (vs. high) NFC individuals engage in greater cognitive processing of a transgression by having more thoughts about the transgression, spending more time considering the wrongdoing, and having more thoughts pertaining to why the transgressor may have acted as they did (i.e., through perspective taking and concern that the transgressor may not have left the party intentionally). Specifically, the results of Study 2 suggest that perspective taking may play a unique role in bolstering one's decision to choose alternatives to revenge.

Study 3 tests this idea by investigating responses to a transgression under experimental and control conditions: a) when the extent and nature of cognitive processing is directly manipulated through perspective taking instructions and b) when individuals' cognitive processing is not influenced and thus they may respond in whichever way they choose (i.e., choosing revenge with minimal cognitive effort or deliberating among several response alternatives). My hypothesis is that the perspective taking instructions will decrease the revenge tendency of high NFC participants (Hypothesis 8). I assumed that such instructions will have relatively little effect on low NFC participants insofar as these individuals tend to engage in perspective taking anyway.

The present study also measures the accessibility of revenge using a projection task in an effort to provide evidence that revenge is more accessible following a transgression (vs. a neutral experience; Hypothesis 1) and that accessibility of revenge

varies as a function of the NFC and time (Hypothesis 3). Study 3 further extends the investigation of the relation between the NFC and the tendency toward revenge by using a higher impact manipulation of the transgression than what was the case in the two vignette studies carried out so far, namely involving an actual transgression experience (Hypothesis 2).

Participants engaged in a dictator game in which their partner took a majority of the coins in the transgression condition (vs. half of the coins in the control condition). Participants were then given the opportunity to take revenge in a subsequent round of the dictator game. I assumed that the present manipulation and behavioral measure of revenge allows for greater ecological validity and generalizability, as compared to a transgression vignette and a self-report measure of desire for revenge as used in Studies 1 and 2.

Method

Participants

Participants were 99 undergraduate psychology students (19 men and 80 women) from a large university with a mean age of 19.54 years who participated in the study in exchange for course credit.

Procedure and Design

Participants took the study online⁵ and were told that the researcher was interested in looking into the effect of individual differences on decision making and that the study

⁵ Studies 3 and 4 began as laboratory studies; however, both were ended early after a preliminary suspicion check analysis revealed that a large proportion of participants raised suspicion that their partner was not a real person. Study 3 was adapted to be an online study which required several emails to a Research Assistant in order to be set up with a partner during a scheduled participation time. A code to enter the study was utilized to prevent non-scheduled participants from taking the study. Suspicion check analyses revealed that far fewer participants were suspicious through the online format. Therefore, the online format was also used for Study 4.

involved several questionnaires and computer tasks. Additionally, they were told that one of the computer tasks involved a partner, another participant, who was located elsewhere.

The study utilized a 2 (transgression: present and absent) x 2 (perspective taking: present and neutral) x 2 (aggression accessibility at time: 1 and 2) design with transgression and perspective taking conditions as between-participants factors, time as a within-participants factor and the NFC as a continuous factor. Gender produced no significant main effects or interactions, so it will not be mentioned further.

Participants' NFC was measured via the 15-item need for closure scale, short-version (Roets & Van Hiel, 2011; $\alpha = .84$) and they responded to all items on a 6-point Likert scale (1 = *Strongly disagree* to 6 = *Strongly agree*). Participants were also given filler questionnaires described as personality measures.

To manipulate a transgression, participants engaged in a dictator task believing they were playing with another participant. All participants were assigned the role of "Observer" for the first round while their partner was assigned the role of "Delegator⁶." Participants were randomly assigned to either the transgression condition, in which the partner took 90% of the coins, or a control condition, in which the partner took 50% of the coins. Immediately following the dictator task, participants completed the first of two word completion tasks to measure the accessibility of revenge-related (i.e., aggression) words compared to neutral words. This partly constituted the measurement of the dependent variable for an additional test of the hypotheses that revenge is more cognitively accessible following a transgression (vs. no transgression; Hypothesis 1) and

⁶ A Delegator is the term used in the study for a "dictator" in the Dictator Game. This individual had full license to distribute the resources as they wished. All participants were told they were assigned the role of "Observer" for the first round in order to manipulate a transgression or neutral interaction with their supposed partner; the "Observer" had no choice but to accept the allocation, unlike in Ultimatum economic games.

that the accessibility of revenge will vary as a function of the NFC and time (Hypothesis 3). Thus, I test Hypotheses 1 and 3 across several methodologies. Participants then answered a question serving as a manipulation check for the transgression manipulation which was imbedded among other questions about the game; specifically, they rated the extent to which they agreed that their partner played fairly on a 5-point Likert scale (1 = *Completely Disagree* to 5 = *Completely Agree*).

The manipulation check was followed by random assignment to a perspective taking or neutral condition. Participants in the perspective taking condition were asked to: “Please take a minute to consider (1) how you would have acted as the Delegator in Round 1, (2) what you believe he/she was thinking and feeling when allocating the coins, and (3) how you believe he/she came up with the decision to allocate the coins” in line with previous manipulations (Galinsky et al., 2008). Participants in the neutral condition went straight to the next task.

Participants then completed a second word completion task measuring accessibility of aggression words. This was followed by a second round of the dictator task in which the participant acted as the Delegator, believing s/he was interacting with the same partner. The amount of coins the participant gave to his/her partner is the behavioral measure of revenge, with lower amounts reflecting greater revenge. Participants then completed a demographic questionnaire. After completing the survey, participants were thoroughly debriefed and thanked for their participation.

Results

Hypothesis 1 suggests that participants in the transgression (vs. no transgression) condition will have greater accessibility of revenge, regardless of their level of the NFC;

to investigate this possibility, I conducted a t test of the effect of the transgression (vs. no transgression) condition on the total number of items that were completed with aggressive words in the word completion task. The results show that individuals presented with a transgression (vs. no transgression) did not provide more aggressive words ($t(97) < 1, p = .887$), contrary to Hypothesis 1.

A test of the manipulation check shows that individuals in the transgression condition perceived their partner as having played the dictator game less fairly ($M = 2.84, SD = 1.22$) than individuals in the no transgression condition ($M = 4.56, SD = .84; t(97) = -8.08, p < .001$), while perceptions of partner fairness did not vary as a function of the NFC. Further, a manipulation check of the transgression manipulation shows that individuals presented with a transgression (vs. no transgression) gave fewer coins to their partner ($M = 41.69, SD = 26.30$ vs. $M = 50.83, SD = 18.60$, respectively; $t(97) = -1.98, p = .050$) and thus exhibited more pronounced revenge behavior. Therefore, the manipulation of transgression was successful.

To test Hypothesis 2, that higher (vs. lower) NFC individuals will be more likely to engage in revenge after a transgression, I conducted a multiple regression analysis with the NFC as a continuous predictor, transgression condition as a dichotomous predictor and their interaction on the dependent measure of revenge behavior. As noted above, revenge was operationalized as the number of coins participants gave to their partner, with fewer coins denoting greater revenge. The overall model was significant ($F(3, 95) = 4.08, p = .009, R^2 = .11$). The results show a significant main effect of the NFC ($\beta = -.21, t(95) = -2.25, p = .026, \Delta R^2 = .03$) and a trending main effect of transgression ($\beta = .80, t(95) = 1.40, p = .162, \Delta R^2 = .04$). The results also show a marginally significant

interaction between the NFC and transgression condition ($\beta = -1.03$, $t(95) = -1.81$, $p = .073$, $\Delta R^2 = .03$) A simple slope analysis revealed that in the transgression condition, higher NFC individuals gave significantly fewer coins to the partner than lower NFC individuals ($B = -13.26$, $t(95) = -2.82$, $p = .006$) while the amount of coins did not differ in the no transgression condition as a function of the NFC ($B = -1.45$, $t(95) = -.32$, $p = .748$). Thus, Hypothesis 2 is supported (see Figure 8).

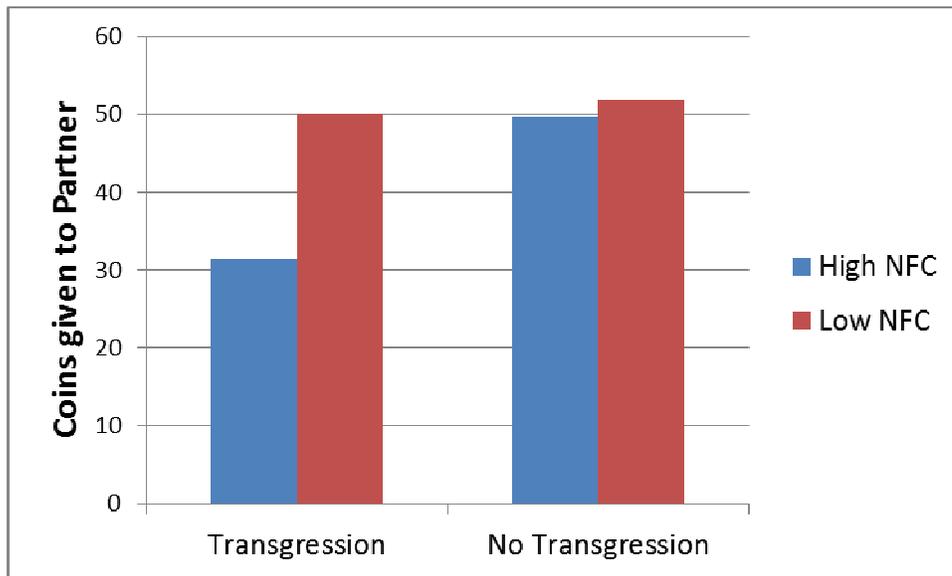


Figure 8. NFC x Transgression condition interaction on the extent of vengeful behavior. Fewer coins given to one's partner denotes greater revenge behavior. The NFC is represented as dichotomous for illustrative purposes; the NFC was measured and analyzed as a continuous variable. High and low values of the NFC in the figure were taken at one standard deviation above and below the mean (Aiken & West, 1991; Dawson & Richter, 2006).

As a test of Hypothesis 3, I conducted a general linear model repeated measures analysis wherein the NFC was a dichotomized predictor, transgression condition was a dichotomous predictor, and time was a within-participant factor. The dependent measure was the total number of items that were completed with aggressive words in the word completion task at each time (1 and 2). The NFC was dichotomized based on a median

split due to the nature of the analysis; specifically, a three-way interaction was expected and post hoc comparisons are more comprehensible for non-continuous variables. The three-way NFC x Transgression condition x Time interaction was not significant ($F < 1$, $p = .615$). Hypothesis 3 suggests that revenge should be equally salient for high and low NFC individuals at time 1 while revenge should be more salient for high (vs. low) NFC at time 2. Planned comparison analyses were conducted and show no differences at time 1 in the number of items completed with aggressive words between high and low NFC in either the transgression condition ($p = .891$) or no transgression condition ($p = .131$) nor at time 2 ($p = .580$ for transgression condition and $p = .959$ for no transgression condition). Results instead show a significant main effect of time ($F(1,87) = 42.31$, $p < .001$, partial $\eta^2 = .30$) such that more items were completed with aggressive words at time 2 ($M = 7.46$, $SD = .24$ vs. $M = 5.40$, $SD = .25$ at time 1) for high and low NFC individuals in both the transgression and no transgression conditions. Thus Hypothesis 3 is not supported.

To test Hypothesis 8, for which I expected an interaction between the NFC and perspective taking condition, I conducted a multiple regression analysis with the NFC as a continuous predictor, transgression condition and perspective taking conditions as dichotomous predictors, and revenge behaviors as the dependent measure. Revenge was operationalized as the number of coins participants gave to their partner, with fewer coins indicating greater revenge. The overall model was significant, $F(7, 91) = 2.17$, $p = .043$, $R^2 = .14$. The results show a significant main effect of the NFC ($\beta = -.21$, $t(91) = -2.16$, $p = .033$, $\Delta R^2 = .03$), a non-significant trend of transgression condition in the expected direction ($\beta = .75$, $t(91) = 1.30$, $p = .195$, $\Delta R^2 = .04$), as well as a non-significant trend of

perspective taking in the expected direction ($\beta = -.74$, $t(91) = -1.28$, $p = .203$, $\Delta R^2 < .001$). There is a marginal interaction between the NFC and transgression condition ($\beta = -.97$, $t(91) = -1.68$, $p = .096$, $\Delta R^2 = .03$), a non-significant trend in the expected direction between the NFC and perspective taking condition ($\beta = .75$, $t(91) = 1.30$, $p = .196$, $\Delta R^2 = .01$), and a non-significant interaction between transgression and perspective taking conditions ($\beta = -.69$, $t(91) = -1.19$, $p = .235$, $\Delta R^2 = .01$). The three-way interaction between the NFC, transgression condition, and perspective taking conditions is not significant ($\beta = .68$, $t(91) = 1.17$, $p = .243$, $\Delta R^2 = .01$); however, this omnibus interaction does not constitute an appropriate test of the theory because I do not expect any differences within the no transgression condition or between high and low NFC in the perspective taking condition. As I only hypothesize a difference between high and low NFC individuals in the no perspective taking condition (as the perspective taking condition was designed to remove the difference between them), I carried out planned comparisons to test this hypothesis.

As expected, the only differences in revenge behavior were found between higher and lower NFC individuals who experienced a transgression and were not provided with perspective taking instructions. Specifically, slope difference test⁷ results show that the relevant slopes differ (slopes 3 and 4 in Figure 9; $t(91) = -2.00$, $p = .047$) while no other slope pairs are significantly different. Specifically, the slopes that differ are those showing the amount of coins higher and lower NFC individuals gave to the partner in the no perspective taking condition across the transgression and no transgression conditions (see Figure 9).

⁷ I conducted the slope difference test on a worksheet provided by Jeremy Dawson (Dawson, n.d.)

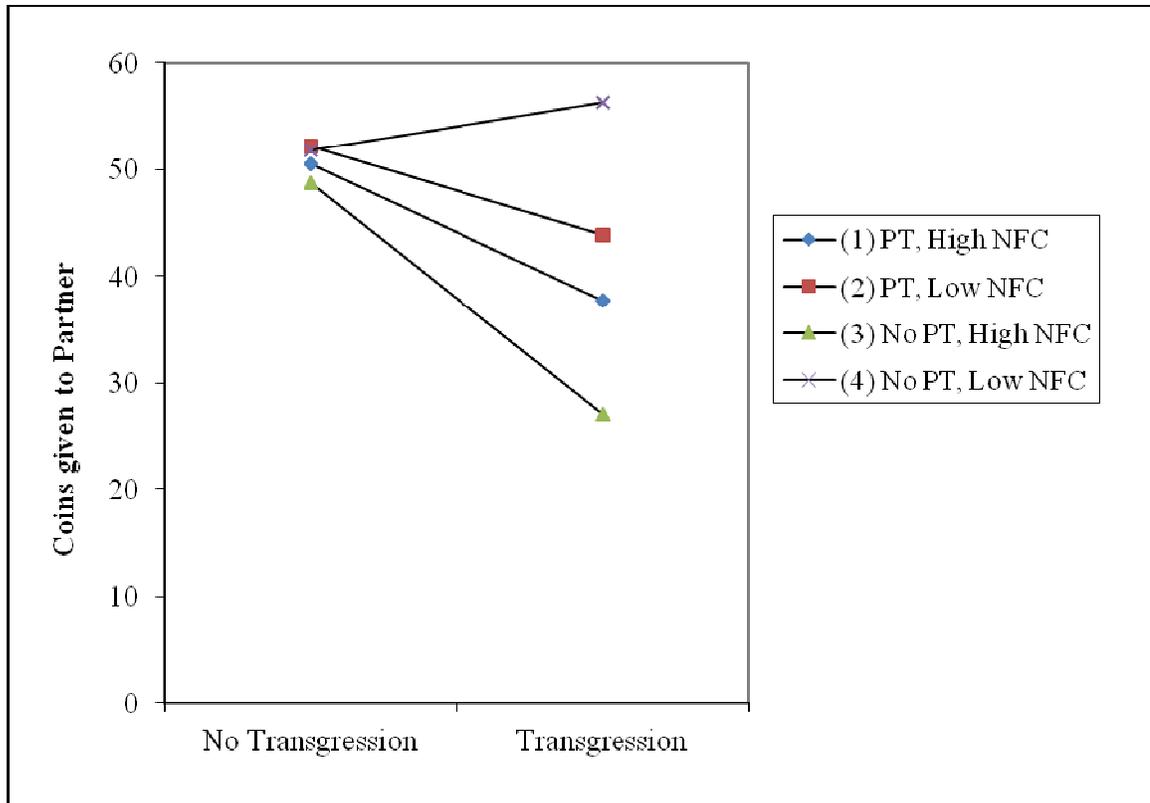


Figure 9. NFC x Transgression condition x Perspective Taking (PT) condition interaction on the extent of vengeful behavior, operationalized as the amount of coins given to one's partner with fewer coins signifying greater revenge.

Discussion

Although Studies 1 and 2 provide interesting results that are generally consistent with my theory, Study 3 addresses several methodological limitations of these earlier experiments. A primary limitation of Studies 1 and 2 is their use of hypothetical transgressions. The present study addressed this limitation by employing a stronger-impact transgression experience. The earlier studies are also limited by their dependent measure of intentions to get revenge. Study 3 contended this potential issue with its use of a behavioral measure of vengeance. In this way, the present study was able to eliminate the alternative hypothesis that the relationship between the NFC and revenge

holds only with regard to one's desire for or intention to get revenge, and is not sustained with actual retaliatory behavior.

The results of the present study, as those of Study 1, were unable to support Hypothesis 1: that revenge is more accessible for individuals in the transgression condition compared with those in the no transgression condition. However, the manipulation check of partner fairness shows that the manipulation was effective; specifically, participants who experienced a transgression rated their partner as less fair than participants in the no transgression condition. The results also show that the transgression condition led to more revenge behavior than that exhibited by participants in the no transgression condition. Consequently, it was not the weakness of the manipulation that led to the null findings.

A possible reason for the null results on the accessibility measure is that it was projective and hence arguably not sensitive enough to detect the expected effect. The task instructions required participants to respond with the first word that came to mind; however, participants may have thought of more than one word in a short time span and then chosen one over the other based on their preference.

Intriguingly, the present results show a main effect of time such that more items were completed with aggressive words at time 2 than at time 1 regardless of transgression condition and regardless of one's level of the NFC. Since different items were used for each time point, one explanation for this finding is that the items used for time 2 are generally easier to complete with aggressive words than the items used for time 1. Study 4 will test this alternative hypothesis by using Study 3's "time 2 items" for time 1 and vice-versa.

The current study was successful in providing further converging support for the relationship between the NFC and revenge; in this sense, it extends previous findings in a significant way by using more ecologically-valid measures and by showing that the relationship exists beyond intentions for revenge. The results support Hypothesis 2 by showing through a simple slope analysis that within the transgression condition, high NFC individuals gave significantly fewer coins than individuals low in the NFC, whereas coins given to the partner did not differ in the no transgression condition.

While Study 2 investigated the extent and quality of additional cognitive processing engaged in more by low than high NFC individuals, Study 3 directly manipulated cognitive processing of the transgression to examine the effects on one's retaliatory behavior. Testing this hypothesis, the results showed that increasing one's motivation to engage in perspective taking resulted in lesser revenge behaviors. Specifically, this manipulation was intended to encourage high NFC individuals to "act like low NFC individuals" and process the transgression more fully, including thinking about how the transgressor decided to act in that way. Thus, perspective taking should have eliminated the difference in revenge between individuals high and low in the NFC, and it did.

While the first three studies so far have found a reliable relationship between the NFC and revenge, all used dispositional NFC as the independent variable. Research to date, including Boyatzi (2011), has therefore only shown the relationship through measured NFC. Study 4 will address this limitation by attempting to replicate the NFC-revenge relationship through situationally-manipulated NFC.

Chapter 6: Study 4

In Study 4, I attempt to replicate and extend Studies 1, 2, and 3. Specifically, as the first three studies show consistent results that higher (vs. lower) dispositional NFC leads to greater revenge after an injustice, Study 4 aims to conceptually replicate this finding through a direct manipulation of the NFC. Manipulating the NFC, I expected that participants in the low (vs. high) NFC condition will exhibit fewer retaliatory behaviors following a transgression (Hypothesis 9).

Study 4 also provides additional tests of several hypotheses. Specifically, Study 4 tests the hypothesis that the accessibility of revenge-related words will be greater after a transgression (vs. neutral experience; Hypothesis 1) and that the accessibility of revenge-related words will vary as a function of the NFC and time (Hypothesis 3). Additionally, Study 4 tests the hypotheses that low (vs. high) NFC individuals will list more thoughts following an injustice (Hypothesis 4a), will spend a greater amount of time processing the transgression (Hypothesis 4b), will have more perspective taking thoughts (Hypothesis 7), will consider a greater variety of response options to the transgression (Hypothesis 5), and that the amount of revenge-related thoughts will mediate the association between the NFC and revenge (Hypothesis 6).

Further, Study 4 tests an alternative hypothesis regarding the accessibility measure used in Study 3. Specifically, it is possible that the items used in Study 3 at time 2 were easier to complete with aggressive words than the items used at time 1, and that this accounts for the greater accessibility of aggression at time 2 versus time 1. To investigate this possibility, Study 4 switched the order of presentation of items by

presenting Study 3's second set of items at time 1 and Study 3's first set of items at time 2.

Method

Participants

Participants were 138 undergraduate psychology students (31 men and 107 women) from a large university with a mean age of 19.48 years who participated in the study in exchange for course credit. Twenty participants were excluded for not following directions with the NFC manipulation or due to suspicion that they were not working with a partner; this left for the final analysis 118 participants (28 men and 90 women) with a mean age of 19.47 years.

Procedure and Design

Participants were told that the researcher was interested in looking into the effect of individual differences on decision making and that the study, taken online, involved several questionnaires and computer tasks. Additionally, they were told that one of the tasks involved a partner who was located separately.

Study 4 employed a 2 (NFC: high and low) x 2 (transgression: present and absent) x 2 (accessibility of aggression at time: 1 and 2) design with the NFC and transgression condition as between-participants factors and time as a within-participants factor. Gender produced no significant main effects or interactions, so it will not be mentioned further.

Participants were randomly assigned to a high or low NFC manipulation condition. The NFC was manipulated through a recall task such that items from the NFC scale (Kruglanski & Webster, 1994) were transformed into a recall task; this procedure has been followed previously (Orehek, 2009). Participants were asked to recall five

instances in which they behaved in line with a high (or low) NFC (see Appendix F). For instance, participants in the high NFC manipulation condition were asked to “Please think back and recall times when in a social conflict, you could easily see which side was right and which was wrong” and participants in the low NFC manipulation condition were asked to “Please think back and recall times when you felt comfortable even though you didn’t understand the reason why an event occurred in your life.”

To manipulate a transgression, participants engaged in a dictator task and were told that they were playing with another participant, located elsewhere. All participants were assigned the role of “Observer” for the first round while their partner was assigned the role of “Delegator.” Participants were randomly assigned to either the transgression condition, in which the partner took 90% of the coins, or a control condition, in which the partner took 50% of the coins. Participants then answered a question serving as a manipulation check for the transgression manipulation; specifically, they rated how fairly they felt their partner played when s/he acted as the Delegator.

Immediately following the manipulation check, participants completed the first of two word completion tasks which measured the accessibility of revenge-related (i.e., aggression) and neutral words. This partly constituted the measurement of the dependent variable for an additional test of the hypotheses that revenge is the most cognitively accessible option following a transgression (vs. no transgression, Hypothesis 1) and that the accessibility of revenge-related words will vary as a function of the NFC and time (Hypothesis 3).

The word completion task was followed by a thought listing task, during which participants were asked to list all of their thoughts regarding the dictator game. This was

intended to provide low (vs. high) NFC individuals an opportunity to engage in additional cognitive processing in order to counteract the accessibility of revenge and decide how to respond. The thoughts listed were used to test the hypotheses that low (vs. high) NFC individuals will list more thoughts in general (Hypothesis 4a), spend a greater amount of time processing the transgression (Hypothesis 4b), have more thoughts pertaining to non-dispositional attributions for the transgression such as taking the transgressor's perspective (Hypothesis 7), will consider a greater variety of response options to the transgression (Hypothesis 5), and that the amount of revenge-related thoughts will mediate the relationship between the NFC and revenge (Hypothesis 6).

Participants then completed the second word completion task measuring accessibility of revenge-related and neutral words. The second word completion task was followed by another dictator task which this time included the participant as Delegator, believing s/he was playing the same partner. The amount of coins the participant gave to the partner was the behavioral measure of revenge, which was used to test the hypothesis that individuals in the low (vs. high) NFC condition would exhibit less revenge (i.e., give more coins to the partner; Hypothesis 9). This was followed by a demographic questionnaire. After completing the survey, participants were thoroughly debriefed and thanked for their participation.

Results

To test Hypothesis 1, that revenge-related (i.e., aggression) words would be more accessible after a transgression than after a neutral experience, I conducted a *t* test between the transgression and no transgression conditions on the sum of items completed with aggressive words at time 1. The analysis reveals no difference between the two

conditions on accessibility of aggression ($t(117) = .50, p = .612$), thus these data do not support Hypothesis 1. However, a test of the manipulation check reveals that individuals in the transgression condition rated their partner as having played less fairly ($M = 2.70, SD = 1.17$) than in the no transgression condition ($M = 4.58, SD = .72; p < .001$); they also exhibited greater revenge behavior by giving their partner fewer coins ($M = 41.56, SD = 28.03$) than in the no transgression condition ($M = 54.24, SD = 20.38; p = .010$). Perceptions of partner fairness did not vary as a function of the NFC. These results suggest that the transgression manipulation was effective.

As a test of Hypothesis 3, I conducted a repeated measures ANOVA with the NFC and transgression condition as between-participants factors and time 1 and 2 of the word completion task as a within-participants factor. The results show a marginally significant main effect of time ($F(1,115) = 3.64, p = .059$) such that more items were completed with aggressive words at time 1 ($M = 6.93, SD = .21$) than at time 2 ($M = 6.45, SD = .23$). The interaction of interest between the NFC, transgression condition, and time was not significant ($F < 1$), thus Hypothesis 3 is not supported.

Two-way ANOVAs were conducted to test Hypotheses 4a, 4b, and 7 with the NFC and transgression condition as between-participants factors on the dependent measures of number of thoughts (Hypothesis 4a), amount of time spent on the thought listing task (Hypothesis 4b) and the number of perspective taking or situational attribution related thoughts (Hypothesis 7). The interaction between the NFC and transgression condition on the total number of thoughts was not significant ($F(1,115) < 1, p = .495$) and the planned comparisons between individuals high and low in the NFC in the transgression condition did not reveal any significant differences. Therefore,

Hypothesis 4a is not supported. Likewise, the interaction was not significant for the amount of time spent on the task ($F(1,115) < 1, p = .734$) nor were the planned comparisons within the transgression condition between individuals high and low in the NFC, thus Hypothesis 4b is not supported. Further, the interaction was also not significant for the number of perspective taking thoughts ($F(1,115) < 1, p = .327$) and the planned comparisons between high and low NFC individuals in the transgression condition did not provide any significant differences; consequently, Hypothesis 7 is not supported.

Hypothesis 5 states that low (vs. high) NFC individuals will consider a greater variety of response options. The results show that 3 participants mentioned planning to give fewer coins to his/her partner (i.e., revenge), 17 participants indicated planning to reciprocate the amount they received from their partner, and 11 participants stated intending to give his/her partner a greater number of coins than s/he received. It should be noted that these plans were found to be mutually exclusive and so no participant considered more than one response option. Thus, Hypothesis 5 is not supported.

A mediation analysis of the effect of revenge-related thoughts on the relationship of the NFC and revenge behaviors was conducted. The predictor variable, the NFC, was not related to the mediator variable, revenge-related thoughts: the interaction between the NFC and transgression condition was not significant ($F(1,93) < 1, p = .835$). Therefore, the number of revenge-related thoughts did not mediate the relationship between the NFC and revenge behaviors and thus Hypothesis 6 is not supported⁸.

⁸ A crosstabs analysis reveals that of the participants who mentioned intending to get revenge, all three were in the transgression condition and two out of three were in the high NFC condition.

To test Hypothesis 9, which states that lowering (vs. enhancing) an individual's NFC situationally will lead to lesser retaliatory behavior following a transgression but not after a neutral experience, I conducted a two-way ANOVA. The NFC and transgression conditions were between-participants factors and the dependent measure was revenge behavior, operationalized as the number of coins given to the partner with fewer coins indicating greater revenge. The overall model was significant, $F(3, 114) = 3.63, p = .015, R^2 = .08$. The results reveal a trending main effect of the NFC ($F(1,114) = 2.01, p = .159, \text{partial } \eta^2 = .01$), such that individuals in the high NFC condition gave fewer coins to the partner ($M = 44.49, SD = 3.66$) than individuals in the low NFC condition ($M = 51.41, SD = 3.21$), and a significant main effect of transgression condition ($F(1,114) = 6.06, p = .015, \text{partial } \eta^2 = .05$) such that individuals in the transgression condition gave their partners fewer coins ($M = 41.95, SD = 2.95$) and thus exhibited greater revenge behavior than participants in the no transgression condition ($M = 53.95, SD = 3.87$). The interaction between the NFC and transgression condition was not significant ($F(1,114) < 1, p = .354, \text{partial } \eta^2 = .01$); however, planned comparisons reveal the expected differences. Specifically, high NFC individuals gave fewer coins ($M = 36.23, SD = 4.03$) than low NFC individuals in the transgression condition ($M = 47.67, SD = 4.32; p = .055$) as well as gave fewer coins than high NFC individuals in the no transgression condition ($M = 52.76, SD = 6.11; p = .026$). This latter comparison between high NFC individuals in the transgression (vs. no transgression) condition provides evidence that the manipulation of the NFC was successful. High and low NFC individual did not differ in the number of coins they gave to their partners in the no transgression condition ($p = .759$). Thus, Hypothesis 9 is supported. See Figure 10.

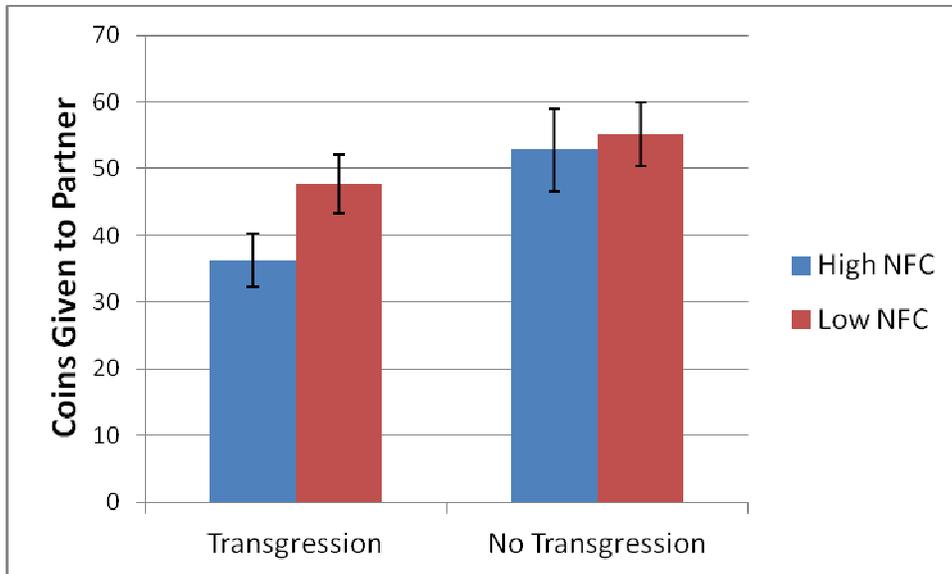


Figure 10. NFC x Transgression condition interaction on the extent of vengeful behavior, operationalized as the amount of coins given to one’s partner with fewer coins signifying greater revenge.

Discussion

The previous studies found consistent results showing that the NFC leads to greater revenge desires and vengeful behavior; however, they were limited by the use of dispositional NFC. Study 4 addressed this limitation by conceptually replicating the results through situationally-induced NFC. Thus, this study provides evidence that lowering one’s NFC through a situational manipulation leads to lesser revenge behaviors while augmenting one’s NFC leads to greater retaliatory behavior.

Studies 1 and 3 were unable to support Hypotheses 1 and 3 across different methodologies. The results from Study 3 suggest the projective word completion task may have been inherently flawed in that the second set of items may have been easier to complete with aggressive words than the first set of items. Study 4 addressed this possibility by exchanging the sets to investigate if the original second set, which was presented first in Study 4, was completed with a greater number of aggressive words than

the original first set, which was presented second in Study 4. The results confirm this hypothesis and thus the measure is intrinsically defective when the items are divided in two as was done in this investigation. Therefore, Hypotheses 1 and 3 were unable to be tested with this methodology.

The hypotheses regarding the extent and content of cognitive processing of the transgression (Hypotheses 4-7) were also unable to be supported with the data from Study 4. When considering the transgression used in the present study, however, it appears that the nature of this specific wrongdoing did not provide enough opportunity for additional cognitive processing to occur. In particular, the transgression situation included an anonymous stranger keeping a majority of coins for him/herself and consequently giving another individual a small portion of coins. This transgression was likely viewed as relatively minor in severity; indeed, nearly 40% of participants (38.1%) within the transgression condition did not even rate their partner as having played unfairly. Further, the transgression was unambiguous in that there was no uncertainty regarding if the partner intended to distribute the coins unevenly or not. Thus, there does not appear to be enough “background information” to consider when processing the transgression, nor does there seem to be any opportunity for low NFC individuals to give their partner “the benefit of the doubt” regarding the present transgression experience.

Chapter 7: General Discussion

The purpose of the present research was to examine how individuals low (vs. high) in the NFC respond to a transgression and specifically, how they refrain from engaging in vengeful behaviors. In four studies I investigated the cognitive processes that these individuals undertake following their suffering an injustice. I have argued that a transgression signifies that one is vulnerable to harm; specifically, a transgression may introduce an uncertainty as to how a person will react to injustice, and thus may be viewed as a lack of closure. I further argued that revenge could represent the most accessible response after a transgression because it provides adaptive benefits. Therefore, individuals high in the NFC should seize and freeze on revenge in order to provide quick and lasting closure by “answering” the transgression with revenge. Low NFC individuals should not seize and freeze on revenge, as they are not motivated by the same urgency and permanency goals characterized by high NFC. Boyatzi (2011) found a significant positive association between the NFC and desire for revenge; however, the mechanism that links the NFC and revenge remained untested until the present investigation. Thus, the current paper addresses this gap by examining how high and low NFC individuals decide how to respond to transgressions and what factors may influence the decision.

Throughout the present studies, I tested my theory that low (vs. high) NFC individuals counteract the accessibility of revenge after experiencing a transgression and proceed to engage in more elaborative cognitive processing of the situation before making a decision about how to respond to the transgressor. I further tested my assumption that time is required for low (vs. high) NFC individuals to counteract revenge and cognitively process the transgression by measuring accessibility of revenge both

immediately following the injustice as well as at a later time point. Lastly, I tested my premise that encouraging additional cognitive processing of the transgression through perspective taking should lead to lesser revenge behaviors.

Support for Hypotheses

Across all four studies, I found support for the general relationship between the NFC and revenge: that individuals high (vs. low) in the NFC are more likely to desire revenge and engage in retaliatory behaviors (Hypotheses 2 and 9). Study 1 found that the NFC interacted with transgression condition such that within the transgression condition but not in the no transgression condition, individuals higher (vs. lower) in the NFC desired revenge to a greater extent after trait aggression was included as a covariate. Study 2 found that the NFC predicted the desire for revenge such that individuals higher (vs. lower) in the NFC desired revenge to a greater extent, even after trait aggression and gender were controlled for. Study 3 also found the expected interaction between the NFC and transgression condition to provide a replication of Study 1's results: in the transgression condition only, higher (vs. lower) NFC individuals engaged in greater revenge behaviors. In Study 4, the NFC was situationally induced and the relationship between the NFC and revenge was conceptually replicated such that individuals in the high (vs. low) NFC condition exhibited greater revenge behavior following a transgression but did not differ when no transgression was present. Further, individuals in the high NFC condition who experienced a transgression exhibited greater revenge than high NFC individuals in the no transgression condition.

These findings are important because they demonstrate a reliable relationship between the NFC and revenge such that individuals high (vs. low) in the NFC are both

more likely to desire revenge as well as engage in retaliatory behaviors following a transgression. Further, Studies 1 and 2 eliminate the alternative hypothesis that high NFC individuals are generally more aggressive, thus showing that a transgression acts to create a lack of closure which high (more so than low) NFC individuals are more likely to address with revenge. Across the four studies, the pattern of results is consistent and in the hypothesized direction; to provide further evidence for the reliability of the relationship between the NFC and revenge, the results of each study were combined in meta-analytic fashion following the chi-square model of Jones and Fiske (1953). The results revealed that the combined results of the four studies are significant, $\chi^2(8, N = 405_{\text{total}}, 276_{\text{transgression}}) = 38.96, p < .0001$ and thus provide additional substantiation that the NFC-revenge relationship is robust.

Study 2 investigated more precisely how lower (vs. higher) NFC individuals refrain from revenge by examining the additional cognitive processing that was hypothesized to occur. The results show that when faced with a relatively ambiguous transgression, lower (vs. higher) NFC individuals have more thoughts, spend a marginally greater amount of time processing the transgression, and provide a greater number of perspective taking or non-dispositional attributive thoughts for why the transgression occurred. The findings are notable because they support my theory that lower (vs. higher) NFC individuals engage in more cognitive processing of the transgression (Hypotheses 4a and 4b) and that this processing may be how they abstain from desiring and engaging in revenge. Specifically, the support of Hypothesis 7 shows that individuals lower (vs. higher) in the NFC provided more attributions for the transgression and considered the transgressor's perspective to a greater extent.

Perspective taking of the transgressor was directly manipulated in Study 3 to examine if this form of additional cognitive processing may be one way that lower (vs. higher) NFC individuals choose to respond to transgressions through means other than revenge. When individuals were given instructions to take the perspective of the transgressor, the difference in revenge behaviors between high and low NFC individuals was eliminated. This suggests that perspective taking may be a type of additional cognitive processing naturally engaged in by individuals low (vs. high) in the NFC following a transgression experience (Hypothesis 8).

Interpreting Negative Results

Across three studies (1, 3, and 4) and two methodologies (a response latency measure and a projective word completion task), I was unable to find support for Hypothesis 1, that revenge is more accessible following a transgression (vs. no transgression). These null results prompt the question: Is revenge always the most accessible response to any situation? If so, then individuals high (vs. low) in the NFC may seize and freeze on it following a transgression because the injustice causes a lack of closure; they would not seize and freeze on revenge, however salient it may be, in the absence of a transgression, because there would be no closure to achieve. However, the response latency results of Study 1 show that in both the transgression and no transgression conditions, participants responded to forgiveness significantly more quickly than to revenge, regardless of the individual's level of the NFC. Thus, these findings do not support the suggestion that revenge is always salient. Further, if seizing and freezing on the most accessible option was the mechanism, individuals high (vs. low) in the NFC

should be more likely to forgive following a transgression since forgiveness was more cognitively accessible than revenge.

The results described above reveal that a transgression does not cause revenge to be more accessible. The remaining accessibility hypothesis, suggesting an interaction between the NFC and time on the accessibility of revenge, was also not supported across Studies 1, 3, and 4. The accessibility measure used in Studies 3 and 4 appears to be inherently flawed (discussed below) and consequently, Hypothesis 3 was only truly tested in Study 1. The results from this study showed that high (vs. low) NFC individuals were slower in responding to revenge-related words following a transgression at both time points. The findings further revealed that after a transgression, these individuals were also slower to respond to forgiveness-related words at time 2. These results imply that a transgression cognitively “stuns” high, but not low, NFC individuals by causing a lack of closure which requires a response. Contemplating how one should address the transgression necessitates cognitive work and thus requires resources; this cognitive processing appears to put the participants under load. Given the slower response times for high (vs. low) NFC individuals, it seems that they were more affected by the cognitive load, which may be due to a smaller resource pool (Kossowska et al., 2010).

Considered collectively, the lack of support for the accessibility hypotheses (Hypotheses 1 and 3) suggest that the mechanism leading high (vs. low) NFC individuals to have greater desire for revenge may not be seizing and freezing on revenge as the most accessible option. It is important to note that these accessibility results do not correspond to the results regarding desires for revenge and forgiveness. Specifically, while accessibility of revenge was not greater following a transgression (vs. no transgression),

the desire for revenge *was* greater. And while accessibility of forgiveness was greater than revenge for all individuals after an ambiguous transgression, the same cannot be said regarding a clear-cut transgression. Following a transgression for which the intent is unequivocal, high NFC individuals desired revenge more than forgiveness, and among low NFC individuals, the desires were not statistically different.

It was expected that low (vs. high) NFC individuals refrain from engaging in revenge due to more elaborative cognitive processing which was expected to include consideration of a variety of alternative response options, such as forgiveness. The results were unable to support this prediction (Hypothesis 5) in either Study 2 or Study 4. Given the unambiguous nature of the transgression in Study 4, I will discuss it separately below. In Study 2, it is possible that individuals high and low in the NFC indeed did not differ in the number of response options that they considered. On the other hand, it is possible that the instructions used for the thought listing task may have been too general in asking for “thoughts about the transgression” instead of asking about specific thoughts that relate to how to respond to the transgression. The results reveal that there were many thoughts that were ambiguous regarding how the participant would respond. Some cases highlight that the participant was withholding judgment until s/he gathered more information while other thoughts were ambiguous in that the participant may have intended retribution but did not explicitly state planning to get revenge.

Relatedly, Hypothesis 6 was also not supported by the results of Study 2. As previously stated, no participants wrote down revenge-related thoughts. The null results may be due to the ambiguity of some of the thoughts, as previously discussed. It may be that participants contemplated revenge but described it differently (e.g., as

“confrontation”). These results may also be due to social desirability concerns in that participants may have felt uncomfortable boldly stating that they would act aggressively toward another person, especially since the transgressor in the vignette was described as a “good friend.”

Methodological Issues

Two methodologies used in the current investigation presented issues regarding analyses and interpretation. The first problematic methodology is the word completion task used as an accessibility measure of revenge-related (i.e., aggression) words (Anderson et al., 2003) in Studies 3 and 4. The measure in its entirety includes 98 items, 50 of which can be completed with aggression words. I separated the measure in half, keeping the first half of items for one part of the measure and the second half of the items for the other part. Unfortunately, the results of Studies 3 and 4 provide evidence that the second half of items may simply have been easier to complete with aggression words than the first half of items. Therefore, this measure cannot be used to accurately test for accessibility of revenge-related or aggression words across time (Hypothesis 3).

The second methodological issue arose with the transgression used in Study 4. In this case, the transgression was manipulated through the dictator allotting 10% (vs. 50%) of the coins to the participant. This was an unambiguous transgression for which there was no question about whether the Delegator intended to allocate the coins in that manner. Further, the Delegator was an anonymous stranger (unlike the “good friend” in Study 2) and thus there was no history of friendship or norms within the relationship to be taken into account; there was also no future relationship (i.e., relationship maintenance) to be concerned about. In general, it seems there was not enough

background information or uncertainty about the transgression to allow low (vs. high) NFC individuals the opportunity to thoroughly process the transgression as they did in Study 2. In fact, the average number of thoughts about the transgression in Study 4 was 1.64 and ranged from 0-5 thoughts whereas the average number of thoughts in Study 2 was 4.92 and ranged from 1-20 thoughts. Since the transgression did not appear to require much cognitive processing, it is a less appropriate manipulation with which to test the hypotheses regarding extent and content of additional cognitive processing (Hypotheses 4a, 4b, 5, 6, and 7). Thus, while the data from Study 4 are unable to provide additional support for these hypotheses, it is possibly because of the nature of the transgression that was presented to participants and not due to an inherent flaw in the theory.

Implications, Limitations and Future Directions

This research has implications for understanding the NFC and its effects on socially-relevant behavior. The present results show that low NFC individuals approach judgment formation differently than individuals high in the NFC, consistent with prior research showing that they take more information into account when making decisions. This different approach can lead to more pro-social outcomes, as is the case in the present investigation with low (vs. high) NFC individuals engaging in more elaborative cognitive processing, desiring greater forgiveness, and desiring and engaging in less revenge.

Specifically, low NFC is associated with open-mindedness which can include perspective taking (Kruglanski & Webster, 1994). As shown through the manipulation of perspective taking in Study 3, encouraging perspective taking can be accomplished with relatively quick and simple instructions. In fact, previous research has had much success in teaching individuals how to take another's perspective. For example, Gehlbach,

Young, and Roan (2011) implemented a successful social perspective taking program to US Army personnel who often deal with individuals of other cultures. This program was taught over a period of 6 hours spread across two days and included several steps: a) assessing others' biases, b) generating a large number of attributional hypotheses for the other's behavior, and c) adapting hypotheses as new information arises. However, much shorter perspective taking training has also been successful. Galinsky et al. (2008) found that even taking a few minutes to engage in another's perspective while preparing to negotiate with him/her lead to enhanced individual and joint outcomes. These two perspective taking inductions are only a small sample of the available successful perspective taking instructions and programs (e.g., Batanova & Loukas, 2011; Galinsky & Moscovitz, 2000; Okimoto & Wenzel, 2011; Todd, Bodenhausen, Richeson, & Galinsky, 2011). Thus, perspective taking is a fast and easy method to improve social relations as it can reduce biases, aggression, and punishment, as well as improve negotiation outcomes.

In the current investigation, the perspective taking manipulation included three prompts: to consider (1) how you would have acted as the Delegator in Round 1, (2) what you believe he/she was thinking and feeling when allocating the coins, and (3) how you believe he/she came up with the decision to allocate the coins. Although this type of manipulation has been used successfully in previous research (Galinsky et al., 2008), it is unclear if one prompt may have driven the effect more strongly than the other cues. It may be that different prompts have varying effects on individuals high (vs. low) in the NFC. Specifically, since high (vs. low) NFC individuals are more likely to be self-focused and ego-driven (Webster & Kruglanski, 1994; Webster-Nelson et al., 2003), they

may be more likely to focus on the cue asking how one would have acted in the Delegator role rather than the prompts that require understanding the other individual's thoughts and feelings. Future research may gain understanding of the multifaceted nature of perspective taking and its relationship with the NFC by investigating each of the perspective taking prompts listed above in separate experimental conditions. This design would allow researchers to test the potential differential efficacy of each aspect of perspective taking as well as how each may vary as a function of the NFC.

The aforementioned perspective taking studies measured the benefits of perspective taking only a short while after the manipulation. Future research should be conducted to examine how long the effects of perspective taking inductions last and should work toward creating an induction that continues in the long-term. Along these lines, future research may also profit from a more thorough understanding regarding the encouragement of open- (vs. closed-mindedness). The present study did not examine the duration of the impacts of the NFC manipulations and so it is unknown if such a simple and brief task would have effects outside of the laboratory.

A possible limitation of the current studies is that the NFC was induced only through a motivational manipulation by instructing participants to recall times when they had acted closed-mindedly, for the high NFC manipulation, or acted with an open mind, for the low NFC induction. However, the NFC is often situationally manipulated via cognitive resources and therefore it remains to be tested if resource depletion (i.e., high NFC induction) or resource replenishment (i.e., low NFC manipulation) would produce the same effects. This is an empirical question that future research could easily address;

in fact, there is already preliminary evidence that depleting resources does lead to greater revenge (DeWall et al., 2007).

Another general methodological limitation of Studies 3 and 4 is that the transgression experience manipulated through the dictator task was relatively minor and performed by an anonymous stranger; it was therefore likely a low-impact manipulation. While these studies included a manipulation check, which asked participants to rate how fairly they perceived their partner to have played, neither study included a question about the severity of the transgression. Thus although this methodology was strong enough to produce the expected results, the theory would benefit from support with stronger and more ecologically-valid manipulations.

An example of a manipulation that has greater ecological validity is one that includes a transgression by a friend, which could be done through a recall task of a previous wrongdoing or through an actual transgression committed by one friend to another in the laboratory. A key aspect of these manipulations is that they allow social and group norms to play a role in the extent to which an individual may seek revenge. The present studies are limited in that the role of norms was not measured or manipulated. As high (vs. low) NFC individuals are more likely to adhere to group norms as well as punish ingroup members who deviate from norms (Kruglanski, Pierro, Mannetti, & De Grada, 2006), they may be more likely to revenge against an ingroup transgressor because s/he violated ingroup norms by committing the injustice against another ingroup member. Future research would gain greater understanding of revenge as it occurs in everyday life by employing these more ecologically-valid methods and therefore would provide a test of the external validity of the NFC-revenge relationship.

A notable limitation of the current research is that it was unable to find support for the hypothesized accessibility mechanism that leads high (vs. low) NFC individuals to desire greater revenge and engage in more retaliation. Neither accessibility hypothesis was supported and thus the seizing and freezing mechanism remains uncorroborated. Specifically, the results did not reveal any differences in accessibility of revenge between the transgression and no transgression conditions and further did not reveal any differences in the accessibility of revenge over time between high and low NFC individuals. However, Study 2 showed that low (vs. high) NFC individuals engage in additional cognitive processing after a transgression, including perspective taking and generation of attributions and Study 3 revealed that encouraging perspective taking reduces revenge in individuals high in the NFC to the level of those low in the NFC. Thus although the present research was unable to corroborate seizing and freezing on revenge as the mechanism for the NFC-revenge relationship, an alternative mechanism of perspective taking has preliminary support.

Specifically, I argued that a transgression prompts the victim with the question of how they will react to a transgression and if they will accept future harm; this question is viewed as a lack of closure. Thus, individuals high (vs. low) in the NFC should be particularly motivated to respond to the injustice in some manner in order to achieve closure. They may “answer the question” with revenge or forgiveness and the current package of studies provides evidence that the extent of perspective taking determines how one will respond. In particular, the present research showed that high (vs. low) NFC individuals engaged in less perspective taking and generated fewer attributions for a transgression and subsequently desired more revenge. The results further reveal that

when explicitly encouraged to engage in perspective taking, high and low NFC individuals did not differ in the extent to which they engaged in retaliation. Therefore, perspective taking is shown to be a possible mechanism that explains why high (vs. low) NFC individuals desire greater revenge and engage in more retributive behavior. Future research should investigate perspective taking as it influences low (vs. high) NFC individuals to refrain from revenge to bolster support that the extent of engaging in the transgressor's perspective is the mechanism for the relationship between the NFC and revenge.

Another future direction indicated by the results of the current research package is a possible moderating variable: the ambiguity or clarity of the transgression. Attribution of the wrong-doing seems to play an especially important role. For example, Study 1, which used a clear-cut transgression, showed that high NFC individuals desired revenge more than forgiveness whereas individuals low in the NFC did not differ in the extent to which they desired each. On the other hand, Study 2, which employed a transgression of ambiguous intent, revealed very different results. Specifically, all individuals in this study, regardless of their level of the NFC, had greater desires for forgiveness than revenge. It is possible that the specific transgression vignette used in Study 2 may have suggested alternative goals to participants, such as maintaining a friendship, which could have led to the findings that forgiveness was desired to a greater extent than revenge regardless of NFC. Future research would improve our understanding of whether an alternative relationship maintenance goal was present by having a transgression for which intentionality is ambiguous but the transgression is committed by a stranger to see if the

elimination of the possible alternative goal of friendship maintenance would produce results showing that revenge is desired more than forgiveness.

Chapter 8: Conclusion

The current package of studies tested two major aspects of my theory to explain the relationship between the NFC and revenge. The first aspect deals with the accessibility of response options to a transgression; it suggests that revenge is most accessible following a transgression and that high NFC individuals seize and freeze on vengeance to achieve closure. The results were unable to support this particular accessibility explanation. The second feature of my theory regards the additional cognitive processing undertaken by low (vs. high) NFC individuals. This greater cognitive processing may include perspective taking of the transgressor. The present research found support that greater cognitive processing, perspective taking, and open-mindedness (vs. closed-mindedness) reduce desire for revenge and lead to lesser retaliation behavior across three studies. This research is particularly important as it demonstrates a consistent positive relationship between the NFC and revenge, which has significant implications for interpersonal behavior and conflict resolution. The present research is also notable by showing that perspective taking can be easily induced and that it eliminates the effect of the NFC on revenge behavior, thus leading to more prosocial outcomes.

Appendix A

Kruglanski and Pierro's (2008) short version of the NFC scale

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, using only one number for each statement.

- | | |
|-------------------------|----------------------|
| 1 – Strongly Disagree | 4 – Slightly Agree |
| 2 – Moderately Disagree | 5 – Moderately Agree |
| 3 – Slightly Disagree | 6 – 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 B

Transgression Vignette used in Study 1

“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 from 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.”

Appendix C

Neutral Vignette used in Study 1

“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 you are a finalist Scholarship A and that you will hear the final decision in about two weeks. You find out from a friend that the fellow student was selected for Scholarship B.”

Appendix D

Revenge, forgiveness, neutral and non words used in response latency task in Study 1

Revenge Words

justice
payback
penalty
punishment
reckoning
reprisal
retaliation
retribution
sentence
vengeance
justice

Neutral Words

although
because
hence
however
moreover
since
therefore
thus
whereas
while

Forgiveness Words

apology
blessing
excuse
forget
mistake
pardon
plead
remorse
repentance
sorry
apology

Nonwords

abreac
acess
bild
choult
courdial
eperence
ernest
fruther
ghoull
grimba
impli
kratfe
pagie
phoult
rhount
skring
snould
studous
thounn
turbtent

Appendix E

Transgression Vignette used in Study 2

“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 F

NFC manipulation used in Study 4

All participants: "Please think back and recall times when..."

High NFC:

1. ...in a social conflict, you could easily see which side was right and which was wrong.
2. ... you quickly became impatient and irritated when you did not find a solution to a problem immediately
3. ...you felt uncomfortable when you didn't understand the reason why an event occurred in your life.
4. ...you didn't like to be with people who were capable of unexpected actions
5. ...you saw only one solution to a problem that you faced.

Low NFC:

1. ...in a social conflict, you can see how both sides could be right.
2. ...you would rather sleep on a decision rather than find a solution to a problem immediately.
3. ...you felt comfortable even though you didn't understand the reason why an event occurred in your life.
4. ...you enjoyed being with people who were capable of unexpected actions
5. ...you saw many possible solutions to a problem that you faced

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