EFFECTS OF EGO THREAT AND NARCISSISM ON AGGRESSION

by

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(Under the Direction of Amos Zeichner)

ABSTRACT

The current investigation examined whether individuals with high levels of narcissistic traits would exhibit varying degrees of aggression across different forms of ego-threatening situations, and whether narcissisism would covary with changes in negative affect, self-esteem, and anger. One hundred and thirty-three males participated in a competitive reaction-time task, during which, they were provided the opportunity to shock or refreain from shocking an ostensible participant. Participants were assigned to one of three feedback conditions (negative, positive, no feedback) and one of two essay conditions (professional quality, poor quality). Analyses revealed that individuals with higher levels of narcissistic triats demonstrate significantly greater levels of aggression in the no feedback condition when compared to the positive feedback condition. No significant differences were found across the aggression indices between negative feedback and positive feedback for those the high levels of narcissistic traits. No significant relationship was demonstrated between narcissism and changes and state-dependent measures.

INDEX WORDS: Narcissism, Ego Threat, Aggression, Violence

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B.A., Cornell University, 2002

A Master's Thesis Defense Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

MASTER OF SCIENCE

Athens, Georgia

2006

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May 2006

ACKNOWLDGEMENTS

I would like to express my extreme gratitude to Amos Zeichner, and the members of my committee, Nader Amir and Keith Campbell, for their patient counsel throughout this process. I am also indebted to several individuals for their unwavering support over the course of many years. First, I would like to extend endless thanks to my parents, William & Joan Martinez, who have provided unwavering love and support throughout every endeavor I have attempted, regardless of success or failure. In addition to my parents' influence, I must thank my sisters, Mary, Marlene, Myra, my brother, Billy, and my godmother, Sister Do, who have all been a source of inspiration throughout my life. Secondly, I would like to thank my classmate and close friend, Dennis Reidy, for his patient and selfless counsel. Finally, and certainly not least, I would like to express endless thanks to my better-half, Kathryn Furfari, for her support, inspiration, and love. I am truly grateful beyond the written word for the roles each of you have played in my life and academic endeavors.

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CHAPTER 1

INTRODUCTION

Despite a 25.6% decline in “violent crime” noted in the Uniform Crime Statistics for 2003, which includes aggravated assault, forcible rape, robbery, murder, and non-negligent manslaughter, violence in the United States remains a serious concern with over one million cases reported annually. Notably, the greatest percentage of reported violent crimes are committed by males who are between the ages of 17 and 34. Current estimates suggest that a violent crime occurs approximately every 23 seconds in the United States (Federal Bureau of Investigation-Uniform Crime Reports, 2003). Daily, these statistics are displayed by the media through reports of gang-related shootings, homicides, and various other examples of violent behavior, which appear to have no rational cause and are restrained by no geographical borders. Therefore, it is clear why it is of utmost importance to discover what motivates, engenders, and typifies individuals who commit violent acts in order to ensure that violent crime continues to decline and be prevented.

Aggression is a complex phenomenon that has been conceptualized via numerous approaches. In current research, aggression is defined as, “any form of behavior that is intended to injure someone physically or psychologically” (Berkowitz, 1993, p. 22). Typically there are two types of aggression that are commonly discussed in the literature. They include “instrumental” and “impulsive” aggression (Cornell, Warren, Hawk, & Stafford, 1996; Kingsbury, Lambert, & Hendrickse, 1997; Zuzul, 1983). Instrumental aggression refers to behavior that is motivated by a secondary reinforcer (e.g., money, approval from others, assertion of dominance). Alternatively, impulsive aggression refers to acts solely motivated by the desire to inflict harm on another individual. Inherent within this type of dichotomous

classification is the possibility that an overlap exists between the two types of aggression. Bushman and Anderson (2001) suggest that the relationship between instrumental and impulsive aggression involves a “mixed motive” catalyst, which may be likened to a dimensional relationship between the two concepts. Drawing from an example provided by Bushman and Anderson, it was suggested that Eric Harris and Dylan Klebold, the perpetrators in the massacre at Columbine High School, were motivated to commit the shootings due to repeated provocations by athletes at their school. This reactive example of violence would suggest the presence of impulsive aggression based on an emotionally-laden reaction. However, when considering the extent of planning involved to have executed these shootings, it appears that the event may also be considered as a form of instrumental aggression. Conceptually, however, it may be most beneficial to examine initial motivating factors in order to determine whether an aggressive act is impulsive or instrumental. For example, the detailed planning by Eric Harris and Dylan Klebold conducted prior to the shootings was initially motivated by the repeated insults from athletes at their school. Therefore, it appears that Eric and Dylan’s behaviors were initially based upon an emotional reaction and would most appropriately be considered as a form of impulsive aggression. The present study operated with particular concentration on impulsive, emotionally-laden aggressive reactions that follow an ego threatening situation.

Why do people become violent? Despite the vast amount of research that has been dedicated to aggressive behavior, the answer remains elusive. Equivocal findings are often compounded by the complexity of aggressive motives and the diversity of the individuals who commit violent acts. Clearly, this complexity results from the multitude of effects that span the social, biological, and psychological domains.

Eron, Laulicht, Walder, Farber, and Spiegel (1961) suggest that severe antisocial aggression is primarily a learned behavior. Specifically, aggressive behaviors may be modeled and adopted though observation of parental interactions or through violent video games as demonstrated by Anderson and Dill (2000). Alternatively, research conducted by Crowe (1974), examined how monozygotic twins raised apart from an early age exhibit a heritability estimate of .42 for symptoms of conduct disorder and .29 for adult symptoms of antisocial personality disorder, which provides support for the heritability of aggressive behavior. Other researchers suggest that aggressive behaviors are the result of brain anomalies in areas such as the prefrontal cortex, neurotransmitter imbalances (e.g., serotonin, dopamine), and hormones (i.e., testosterone). Further research has provided evidence for the role of IQ (Hirschi & Hindelang, 1977) and certain personality traits such as trait anger (Parrot & Zeichner, 2003), hypermasculinity (Parrott, Adams, & Zeichner, 2002), and psychopathy (Serin & Amos, 1995), to name only a few, as factors in the likelihood of an expression of aggressive behaviors. Overall, research appears to suggest a matrix of possible influences and interactions that hamper the discovery of a clear relationship between predictor variables and aggressive behavior.

Additional research in the area of aggression has focused on the generalizability of laboratory-based aggression and questions pertaining to the quantification of aggressive behavior. The Taylor (1967) aggression paradigm (TAP), a broadly utilized aggression paradigm, was developed to interface between laboratory research and findings in naturalistic settings. The procedure in question typically seats a participant in front of a console containing five to ten shock switches and stimulus lights. The participant is led to believe that he/she is competing on a reaction time task against another participant (a confederate), who is seated in a nearby room. The win/lose series of reaction time trials is predetermined and presented so that

each participant "wins" half of the trials and "loses" half of the trials. Participants are informed that they will receive an electric shock from the “other participant” following "loss" trials, and that the intensities of the shocks received will be determined by the “other participant.” Participants are typically administered levels of electric shock predetermined by the experimenter to represent "high," "medium," "low,” or a combination of provocation levels, which are based on subjective ratings of pain threshold obtained from the participant prior engaging in the reaction time task. Participants are told that they must deliver a shock to the “other participant” following the "win" trials, and are allowed to select the intensity of electric shocks delivered.

A number of modifications to the TAP have been made. These include, but are not limited to, using unpleasant noise bursts in the place of electric shocks as the means of provocation (Taylor, O'Neal, Langley, & Butcher, 1991; Zeichner & Pihl, 1979), or substituting arithmetic tasks for the RT task (Butryn, 1997). Furthermore, the TAP has been modified to examine attention processes (Zeichner, Pihl, Niaura, & Zacchia, 1982), benzodiazepine medication (Weisman, Berman, & Taylor, 1998), and cognitive functioning (Giancola & Zeichner, 1994). As a reliable instrument in laboratory settings, the TAP has been documented by Bernstein, Richardson, and Hammock (1987), Giancola and Chermack (1998), Giancola and Zeichner (1995), and Taylor (1967) to posses adequate levels of validity as a measure of overt aggression.

As mentioned previously, certain personality traits (e.g., trait anger, psychopathy, hypermasculinity) have been identified with regards to their influence on the occurrence of aggressive responses. In addition to those previously identified, research has found a strong relationship between self-esteem, or a favorable, global appraisal of oneself and the likelihood of

aggressive behaviors. Theorists who examined the relationship between self-esteem and aggression initially suggested that low self-esteem increases the expression of aggressive responses. Toch (1969, 1993) referred to a, “compensatory relationship between low self-esteem and violence,” and proposed that those with lower levels of self-esteem utilize aggressive behaviors (e.g., threats, physical assaults, verbal assaults) to re-establish esteem. Nevertheless, this perspective has been broadly considered speculative due to the lack of direct evidence. Kernis, Grannemann, and Barclay (1989) argued against the initial self-esteem model by demonstrating how individuals with high, unstable ratings of self-esteem were more likely to become hostile, which was conceptualized as possessing, “a complex set of attitudes that motivate aggressive behaviors directed toward destroying objects or injuring other people” (Spielberger, Jacobs, Russell, & Crane, 1983, p. 162). Therefore, it appears that high, unstable levels of self-esteem rather than stable or low levels of self-esteem are more likely to motivate aggressive behavior.

Following from these findings, why would individuals with high but unstable self-esteem be more likely to respond with higher levels of hostility and aggression? One theory, proposed by Kernis (1993), states that those with unstable self-esteem become more responsive to negative feedback due to their susceptibility to fluctuations in self-esteem levels. Therefore, it would be expected that individuals with the high, unstable levels of self-esteem may be prone to respond aggressively in an attempt to protect themselves from experiencing a decrease in self-esteem. Baumeister, Bushman, and Campbell (2000), suggested that the link between self-esteem and aggression is best captured by the theory of threatened egotism, which illustrates aggression as a means of defending an individual’s favorable self-concept against a challenge. Ego threats, as defined in the aforementioned study, are external evaluations that attempt to discredit an

individual's unrealistic, favorable self-perception. When conceptualized in terms of cognitive dissonance, aggressive responses may function as a method to alleviate the dissonance between an unrealistic, favorable self-concept and external, negative feedback. Consequently, individuals utilize aggression as a means to dismiss negative feedback, regain/retain a high level of self-esteem, and attempt to prevent future threats from the same source.

The current study was designed to examine the relationship between narcissistic personality traits, ego threat situations, and aggressive responses, in which ego threatening situations involve explicit and non-salient provocations. The concept of narcissism was first formulated by Freud to describe individuals who exhibit "excessive self-love," and was based upon the mythical Greek character Narcissus, who fell in love with his own reflection in a pool of water (Bushman & Baumeister, 1998). This construct developed into the clinically-referenced disorder Narcissism, which is currently most widely recognized by criteria set forth in the Diagnostic and Statistical Manual (DSM-IV). These criteria include: (a) a grandiose sense of self-importance, (b) preoccupation with fantasies of unlimited success, power, brilliance, beauty, or ideal love, (c) feelings of superiority, (d) need for excessive admiration, (e) entitlement, (f) interpersonal exploitiveness, (g) lack of empathy, (h) enviousness of others or believe that others are envious of him/her, and (i) arrogant, haughty behaviors or attitudes (DSM-IV-TR, 714-717).

Research devoted to narcissism has primarily included measures pertaining to individual differences in narcissism as a personality construct and measures dedicated to trait and state-dependent self-esteem. Among the most notable contributors in this area are Raskin and Hall (1979), Rosenberg (1965, 1979), and Heatherton and Polivy (1991) who created tools that measure narcissistic personality traits, global self-esteem, and state-dependent self-esteem respectively. Specifically, Raskin and Hall (1979) developed the Narcissistic Personality

Inventory (NPI), a 40-item forced-choice questionnaire (e.g., “If I ruled the world it would be a much better place,” and “I am more capable than other people”) with excellent psychometric properties based on the criteria of the DSM-III. Notably, only extreme manifestations of narcissistic personality traits suggest a pathological nature. However, the assumption is that when displayed in less extreme forms, the behavioral manifestations of narcissism are conceptualized as a personality trait. Rosenberg (1965) and Heatherton and Polivy (1991) contributed measures targeting global and state-dependent self-esteem evaluations, respectively. Both measures have yielded good psychometric properties for assessing self-esteem.

As noted by Emmons (1987), there appear to be three theoretical trends associated with the development of narcissism. The first focuses on the construct solely as a cultural trend and argues that society has become increasingly narcissistic over time (Lasch, 1979; Mazlish, 1982; Nelson, 1977; Stern, 1980). However, critics have questioned whether there has been a true increase in the prevalence of narcissism or whether this phenomenon is the result of refinement of the construct and its classification (Dervin, 1982).

The second trend mentioned by Emmons (1987), suggests that narcissism may be related to concepts identified in the social psychological literature as self-serving bias (Harvey & Weary, 1984), attributional egotism (Snyder, Stephen, & Rosenfield, 1978), and beneffectance (Greenwald, 1980). Together, these concepts refer to the tendency of individuals to accept credit for successes and deny accountability for failures, which is significantly amplified in those with narcissism. Consequently, it is suggested that narcissistic individuals employ this type of attributional style to serve as a self-esteem enhancer, a protective function, or a combination of both.

The third trend discussed by Emmons (1987) conceptualizes narcissism as a purely clinical construct as theorized by Kernberg, Kohut, and Millon. Kernberg's (1976, 1980) approach suggests that narcissism develops as the result of parental rejection or abandonment, which causes withdraw behavior and disrupts the development of trust, reliance, and love in interpersonal relationships. Kernberg suggests that under these circumstances, a narcissistic individual's progression through the libidinal development sequence from undifferentiated libido, autoerotism, narcissism, and object love becomes fixated in the narcissism stage. Kohut's perspective (1976), argues that narcissistic libido follows its own course of development into adulthood. Disruption of this progression results from an individuals' failure to idealize their parents due to being rejected or treated with indifference and leads to the development of pathological narcissism. The clinical perspective mentioned by Emmons (1987) was developed by Millon (1981) who proposes that the development of narcissism is not a response to parental devaluation but, rather, a result of parental overvaluation. Accordingly, Millon (1981) suggests that overvaluations by parents augment the development of an inflated self-concepts that, "cannot be sustained in the outer world" (p. 165). As a result, children develop into adults with unrealistically high levels of self-esteem of a pathological nature, which increases the likelihood of discrepant external feedback.

The current conceptualization of narcissism has been developed through theoretical foundations and empirically supported research. Historically, however, it appears that the primary focus of these conceptualizations has been devoted by and large to the pathological nature of narcissism, offering little explanation to the presence of the sub-clinical traits of narcissism. Perhaps it was for this reason that Emmons (1987) stated that, "with all of the current interest in narcissism, it is unfortunate that empirical research on narcissism has lagged so far

behind" (p. 12). Therefore, researchers must continue to formulate testable hypotheses in order to explore all parameters of the expression of narcissism and provide further information and clarity to existing knowledge in the area. Through continued research of clinical and sub-clinical traits of narcissism it may become possible to implement preventative strategies that effectively identify individuals with narcissistic traits and provide them with skills to develop adaptive interpersonal relationships.

Previous social psychological theories and research have demonstrated a relationship between high, unstable self-esteem and aggressive tendencies in the presence of an ego threatening situation. Self-enhancement theory details a process by which people with favorable opinions of themselves exceed individuals with low self-esteem in the desire and pursuit of self-enhancement (Baumeister, Tice, & Hutton, 1989; Tice, 1991, 1993). Following from this theory, it is expected that those with the highest levels of self-esteem would strive toward accumulating evidence to support their inflated self-concept to increase their standing, intra- or interpersonally, and aim to discredit any attempts that thwart this pursuit. Closely related to this perspective is self-verification theory (Swann, 1987), which posits that people make active attempts to resist changes to their self-concept. Therefore, when considering these two theories in tandem, the greatest number of negative reactions to unflattering external feedback would be expected from those who possess unrealistically inflated levels of self-esteem. This outcome may occur due to the discrepancy that develops between the negative external feedback and the highly elevated internal self-concept of those with high levels of self-esteem. Evidence for this theoretical approach was exhibited by Kernis, Cornell, Sun, Berry, and Harlow (1993) who found that people with high but unstable self-esteem were more prone to respond defensively to negative evaluations. Specifically, it was found that those with high, unstable levels of self-esteem

experienced higher levels of rejection and defensiveness when provided with negative evaluations compared to those with low, unstable self-esteem. Likewise, Kernis et al. (1989) found that the highest levels of self-reported feelings of anger and hostile thoughts were more prevalent in participants who possessed high, unstable self-esteem scores following receipt of negative feedback. Therefore, congruent with social psychological theories and empirical research, those with high, unstable self-esteem appear to be sensitive to unfavorable feedback compared to those with low stable or low unstable levels of self-esteem, which may be attributed to the discrepancy created by the feedback.

Bushman and Baumeister (1998) demonstrated that individuals with high levels of narcissistic personality traits display higher levels of aggression toward an opponent following an ego threat. In the aforementioned study, an ego threat was presented through the use of criticism in reference to a participant's written essay. The criticisms received were ostensibly created by the confederate opponent. Findings suggested that individuals high on narcissistic personality traits, as measured by the NPI, were more aggressive toward their opponent after receiving criticism on their essay relative to complimentary comments. These findings suggest that individuals who possess high levels of narcissistic traits respond more aggressively when faced with an ego threat (i.e., criticism) than those with lower levels of the trait. Additionally, the findings reflect how individuals with narcissistic traits may interpret an individual's actions (e.g., critical comments on an essay) as a threat to their self-esteem or self-appraisal, and react through aggressive means towards the source of the criticism. These aggressive responses are likely to result from an actual or anticipated shift from high to lower levels of self-esteem and may serve as a protective function to discredit the appraisal (i.e., a display of dominance through aggressive actions) or to thwart future appraisals from the same source.

In another study conducted by Bushman and Baumeister (1998), individuals with higher levels of narcissistic traits were found unlikely to utilize displaced aggression. Specifically, after being provided with a negative evaluation from an individual, narcissistic individuals did not exhibit increased levels of aggressive responses toward another individual. These findings suggested that narcissistic individuals only react aggressively toward the source of a threat. However, it remains to be seen whether negative feedback based upon objective accounts of a narcissistic individual's performance relative to another individual would elicit displaced aggression.

Following findings exhibited by research completed by Bushman and Baumeister (1998), the current study aimed to assess whether aggressive reactions will occur in those high on narcissistic traits in non-explicit forms of ego-threat situations. Specifically, will an individual high on narcissistic personality traits respond in an aggressive manner when exposed to a non-salient ego-threat? Therefore, the main interest of the current research was to examine the interaction between narcissistic traits, aggression, and type of provocation. Participants were placed into a situation in which they were compared to another "participant" (confederate) on the quality of their writing sample on an assigned topic. Following a feedback announcement, which was determined by randomly assignment and based upon a fictitious "objective" measure, the participant competed against "the other participant" on a reaction time task, which involved a modified version of the *Taylor Aggression Paradigm* (Taylor, 1967). The *Taylor Aggression Paradigm* involves a competitive reaction time task with a fictitious opponent during which a participant has the opportunity to receive and administer mild electric shocks. Aggressive behavior is operationalized as shock intensities administered to the fictitious opponent under conditions of low and high provocation. As noted earlier, previous studies have established the

construct validity of Taylor's Paradigm (e.g., Bernstein, Richardson, & Hammock, 1987; Giancola & Zeichner, 1995). The present study was composed of three feedback conditions and two essay quality conditions. The professional quality essay was selected from writings composed by a professional in the field of alcohol research and the poor quality essay was written by the experimenter using poor grammar, punctuation, and limited content development.

The effects of different types of provocation were examined through the use of both explicit and non-salient ego threat situations. These types of provocation were predicted to moderate the relationship between narcissistic traits and aggressive responses. Specifically, it was predicted that non-salient, ego-threat cues would exhibit similar aggressive responses when compared to salient ego-threat cues. Accordingly, it was hypothesized that an individual, who exhibited high levels of narcissistic personality traits as measured by the NPI would respond with higher levels of aggression to an explicit, ego-threatening situation when compared to those lower on narcissistic personality traits. Second, it was hypothesized that individuals who exhibited higher levels of narcissistic traits would respond more aggressively to a non-salient provocation than those lower on levels of narcissistic traits. Third, it was hypothesized that individuals who exhibited higher levels of narcissistic traits would display a more pronounced decline in state self-esteem and increase in negative affect and state anger than those with lower levels of narcissistic traits in the negative feedback and no feedback conditions.

CHAPTER 2

METHOD

Participants and Experimental Design

One-hundred and thirty-three males were recruited from the University of Georgia Research Participant pool to take part in an experimental study as volunteers. It was determined by an automated computational power analysis prior to the outset of the research (G-Power; Erdfelder & Faul, 1992), using an alpha level set at .05 and an effect size of .15, that at least 77 participants will be needed. Participants were informed that the purpose of the study was to examine the congruence between verbal and motoric processing as measured by subjective and objective methods. All participants received research credit for their participation in the study. The exclusion of females and recruitment of males between the ages of 17 and 34 was based upon the Uniform Crime Reports (2003) documentation of the high prevalence of violent crime in this demographic group and the prevalence of narcissistic personality disorder as reported in the Diagnostic Statistical Manual (DSM-IV-TR). The racial composition of the sample was 87% White, 4.5% Asian, 4.5% Black, 2% Hispanic or Latino, 2% Other, and reflected the overall composition of the participant pool.

This study had three independent variables: narcissism (a continuous variable), feedback condition (negative, positive, no feedback), and essay condition (professional quality, poor quality). The different essay conditions were included in the experimental procedure in order to control for effects due to the quality of the essay. All participants were randomly assigned to one of six experimental groups: negative feedback/professional quality essay (n = 17); positive feedback/professional quality essay (n = 17); no feedback/professional quality essay (n = 17); negative feedback/poor quality essay (n = 13); positive feedback/poor quality essay (n = 15); no

feedback/poor quality essay (*n* = 13). Pertinent literature indicates that artificial dichotomization of quantitative measures may cause numerous negative consequences, which include the loss of information about the individual differences, loss of effect size, loss of statistical power, and loss of the measurement reliability (MacCallum, Zhang, Preacher, & Rucker, 2002). As a result, narcissism scores were not dichotomized and regression analyses were used to treat this construct as a continuous variable.

Instruments

Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988). Narcissistic personality traits were measured using the Narcissistic Personality Inventory (Cronbach α = .84), which has been shown to hold excellent psychometric properties. The NPI consists of 40 items presented using a true/false, forced-choice format. Sample items from the scale include, "I am a great person," and "If I ruled the world it would be a better place."

State Self-Esteem Scale (SSES; Heatherton and Polivy, 1991). State-dependent self-esteem fluctuations were measured using the 20-item State Self-Esteem Scale (Cronbach α = .75). In addition to identifying fluctuations in levels of self-esteem, this measure was used to serve as a potential marker of the impact of an ego-threatening situation. Each item is scored on a 5-point Likert scale (1 = *not at all*, 2 = *a little bit*, 3 = *somewhat*, 4 = *very much*, and 5 = *extremely*). Sample items from the scale include, "I feel that others respect and admire me" and "I feel as smart as others."

Positive Affect-Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS consists of 24-items that list various mood descriptors, [10 Positive Affect (PA), 10 Negative Affect (NA), and 6 Anger Hostility (AH)], and was developed in order to assess changes in positive affect, negative affect, and anger-hostility across time (Cronbach α = .84).

This questionnaire was included in order to assess fluctuations of negative affect across the proposed study and to serve as a potential marker of the impact of an ego-threatening situation. Respondents rated the degree to which they are experiencing each of the listed items using a 5-point Likert scale (1 = *very little*, 2 = *a little*, 3 = *moderately*, 4 = *quite a bit*, and 5 = *extremely*).

State Anger Scale (SAS; Spielberger, Jacobs, Russell, & Crane, 1983). The SAS was developed in order to measure fluctuations in anger across time (Cronbach α = 89). This questionnaire was included in order to identify fluctuations in anger across the course of the study and to serve as a potential marker of the impact of the ego-threatening situation. The measure is comprised of 10 statements on which respondents rate themselves using a 4-point scale (1 = *not at all,* 2 = *somewhat,* 3 = *moderately,* and 4 = *very much*) and yields a score that can range from 10 to 40.

Neuropsychological Self-Report Measure (NSM). This fictitious instrument was created in order to reinforce the deception involved in the presented study. Due to the inclusion of deception in the present study, which ostensibly examined features of motoric processing, it was deemed important to include a ruse that would reinforce the deception. The aforementioned measure used a forced-choice format and included items associated with agility, precision of movements and vision (e.g., “Do you experience any problems performing in sporting activities?”). See Appendix A.

Verbal Processing Self-Report Measure (VPSM). This fictitious instrument was created in order to reinforce the deception in the current study. Due to participant belief that his verbal processing skills were being measured, it was important to include an instrument to reinforce this deception. This particular tool used a 5-item scale (1 = *never,* 2 = *sometimes,* 3 = *often*, 4 =

always) in which questions addressed reading, writing, and communication skills. See Appendix A.

Johnson Literary Evaluation Tool (J-LET). This fictitious instrument was created in order to provide an ostensibly objective means to measure participant verbal processing performance on a writing sample. This approach was taken in order to remove any effects caused by evaluations from the confederate or the experimenter, which may be dismissed as subjective in nature. In doing so, the aim was to provide a participant with a "factually based feedback."

Response-Choice Aggression Paradigm (RCAP; Zeichner, Frey, & Parrot, 1999; Zeichner, Parrott, & Frey, 2003). Under the guise of a 24-trial reaction time competition, participants used a white, metal console fitted with a reaction time switch, as well as 10 electrical switches and corresponding light-emitting diodes. The 10 switches, numbered consecutively "1" through "10," were used by the participant, as they wish, to ostensibly deliver electrical shocks to the opponent as a means of "arousal" (the term arousal was chosen in order to provide only an ambiguous rational for the inclusion of shock delivery during the study). A modification to the original TAP (Taylor, 1967) was made in which, over the course of the reaction time competition, the participant was free to deliver fictitious shocks to the confederate following both "win" and "loss" trials rather than only following a "loss" trial. In addition, the participant was informed that he could choose not to deliver any shocks throughout the reaction time competition in contrast to the original construction, which instructed participants to administer shocks after each "loss" trial. This modification to the original TAP was developed in order to provide a participant with an option to respond aggressively. Shocks are generated using a Precision Regulated Animal Shocker (Coulbourn Instruments, Allentown, PA) and administered in a pre-determined configuration. Participants receive electric shocks on 50% of the trials.

During the first block, participants “win” six trials, “lose” six trials, and receive an equal number of low-intensity shocks set from 55% to 75% of a given participant’s “painful shock” levels (low provocation). During the second block, participants “win” six trials, “lose” six trials, and receive an equal number of high-intensity shocks set from 80% to 100% of the same “painful shock” level (high provocation).

Seven measures of physical aggression are derived from the RCAP. *Mean shock intensity* (MSI), which is calculated as the mean of the shock intensities selected across trials on which a shock was delivered. This measure is conceptualized as a measure of direct physical aggression and is based upon the selected shock intensities ostensibly delivered to the other participant (confederate). *Mean shock duration* (MSD) is based on the average duration the participant depresses and holds the shock keys across trials. This measure is representative of a less volitional expression of physical aggression. *Proportion 10* (P10) is computed as the proportion of trials on which the highest level of shock was selected, relative to the number of trials during which a shock is delivered. This represents the degree to which individuals display extreme levels of aggression when they choose to respond in an aggressive manner. All of the stated measures to this point are considered indices of magnitude of aggressive behavior.

The remaining aggression indices gathered from the RCAP relate to the ability for individuals to refrain from aggressive responses in addition to the moment at which the participant decides to aggress. *Shock Frequency* (SF) is based on the mean number of trials during which shocks are selected or not selected. *Flashpoint-Latency* (FP) pertains to the interval provided by the number of elapsed trials during which no shock is selected. *Flashpoint-Intensity* (FPI) is a measure of the intensity of the first shock selected and *Flashpoint-Duration* (FPD) is the duration of the first shock selected.

Procedure

Research volunteers responded to an advertisement for a study entitled, “Examining the congruence between verbal and motoric processing.” Gender and age inclusion criteria were used (i.e., male, age 17-35 years). After an appointment was scheduled, the participant arrived at the psychology building and was greeted by the experimenter who then showed him to the experimental chamber. The participant was allowed to view the outside of an adjacent chamber, the door of which was left open to facilitate the participant’s belief that it was to house another participant.

After entering the chamber, the participant was seated facing the reaction time/aggression console. After giving informed consent form for the experimental procedure, he was provided with general information regarding the study. The participant was told:

> “Prior studies have suggested congruence between verbal and motoric processing. Unfortunately, there have been only a few studies that have examined this relationship directly. Today, we will be attempting to examine the relationship between these two processing pathways and how they associate with certain personality types.”

Next, the participant was informed of the different components of the experiment, which included: (1) completion of questionnaires, (2) composition of a short writing sample on an assigned topic, (3) evaluation of the participant’s writing sample, (4) evaluation of “the other participant’s” writing sample, (5) assessment of the participant’s subjective pain threshold, and (6) a competitive reaction time task. The participant was then provided with a complete description of the competitive reaction time task. Specifically, the participant was told that a red LED labeled “get ready” would illuminate on the console, followed by a yellow “press” LED (at which point he was instructed to depress the reaction time button). Finally, a green “release” LED would illuminate, to signal the release of the reaction time (RT) switch. The participant was

informed that his reaction time would be determined by the latency between the illumination of the green “release” LED and the actual release of the reaction time button. Feedback regarding the outcome of each trial was displayed through the illumination of either a red LED (signifying “loss”) or a green LED (signifying a “win”).

The participant was told that he could use switches “1” through “10” to deliver varied shock intensities to the “other participant” following each reaction time trial, regardless of the outcome. The participant was informed that the range of shocks he and the “other participant” would receive would be determined by a subjective pain assessment procedure, which would be completed prior to the beginning of the reaction time task. Questions and concerns were addressed at this time.

After the information was provided, the participant was asked to complete a packet of questionnaires (Demographic form, NPI, PANAS, SAS, SSES, RSE, NSM, and the VPSM; Time 1). The participant was told that these questionnaires would allow for the evaluation of influences that may affect verbal and motoric processing. The participant was assured of the confidentiality of his information.

Following the completion of the questionnaires, the experimenter informed the participant and the “other participant” that additional demographic information would be collected. The participant was asked a number of questions (current year in school, major, etc.) and was told that he and the “other participant” would be able to hear each other’s responses. The responses of the confederate were pre-recorded (“freshman, political science,” etc.). The responses of the confederate were selected in order to promote the feeling that the confederate had no advantage in the study relative other volunteers from the research pool.

Subsequent to the demographic interview, the participant selected the position of his choice and composed a short writing sample on an assigned topic (i.e., “Should the drinking age be lowered or remain the same?”). The participant was informed that he would be evaluating his own writing and then exchange his writing sample with the “other participant,” at which point they would evaluate each other’s writing sample. At the outset of the writing composition, he was provided five minutes to develop his arguments and was then provided with ten more minutes to compose his essay. After 15 minutes have passed, the participant was asked to evaluate his writing sample using a 10-point Likert Scale, which involved a global rating of effort, development of ideas, clarity, and grammar. Once the participant assigned himself a rating, his essay was “exchanged” with the “other participant.” Depending on random assignment, the participant either received a professional quality or poor quality sample to evaluate, which represented the confederate’s sample. The reasons for the inclusion of an evaluation of the confederate’s writing sample and the randomized assignment of different quality essays was to: (1) increase the participant’s belief that there was an opponent, (2) provoke higher levels of investment in the writing sample task, and (3) to control for different levels of ego threat/provocation due to essay quality. When the participant finished evaluating the confederate’s writing sample, he was informed that the experimenter would be evaluating both samples using the Johnson Literary Evaluative Tool (J-LET). The participant was told that this literary measurement tool was sensitive to verbal processing ability and has been found to be a highly reliable and valid measure in empirical research. After a short period of time, the participant was randomly informed that his verbal processing score was either higher than the “other participant,” lower than the “other participant,” or told that he would not receive the

results of the J-LET until the end of the experiment. Following the evaluation feedback, the participant was asked to complete again the PANAS, SAS, and SSES (Time 2).

Upon completion of the second packet of state dependent measures, the experimenter attached two shock electrodes, one to each of the middle and the index fingers on the non-dominant hand of the participant. The participant was informed that the pain threshold of the "other participant" would be assessed prior to determining his own threshold. Additionally, the participant was told that he would be able to hear the "other participant's" responses over the intercom and that the "other participant" would be able to hear his responses as well. This procedure was intended to reinforce the participant's belief that he was competing against another individual. In reality, the responses for the pain threshold assessment were pre-recorded on a cassette tape. Next, the participant's low and high pain thresholds were assessed to determine the intensities of the shocks they would receive during the competitive reaction time task. This administration was done using short-duration shocks (500 msec) in an incremental fashion from the lowest available shock setting, which is imperceptible, until the shocks reach a reported "painful" level. The participant's determination of their subjective pain threshold was aided by using an analogue scale numbered "1-10" on the wall of the chamber (1 = *mild*, 5 = *moderate*, *10 = painful*).

The entire competition consisted of one block of 24 consecutive trials. Trials were spaced by 5-second intervals, with participants "winning" 12 trials and "losing" 12 trials. The win/lose sequence and shocks were presented in a randomized fashion across both "wins" and "loses." Notably, all participants received the same sequence. The win/lose sequence was predetermined and incorporated into a computer program that executed the reaction time task, administered the

shocks to the participant, and recorded the shock selections made by the participant (e.g., mean shock intensity, mean shock duration, etc.).

Following the reaction time task trials, the electrodes were detached from the participant's fingers and his belief in the deception was assessed. Each participant was asked four questions designed to determine a participant's belief that they were actually competing against another individual, that their reaction time was actually being measured, and that their writing sample was actually evaluated. If a participant expressed any doubt related to the construction of the study on any of these areas his data was not used. Following the manipulation check, the participant was debriefed, provided with research credit, thanked, and released.

Risk and Protection of Participants

Some discomfort may have been experienced when receiving electric shocks. Each participant's subjective sensitivity to the shocks encountered was assessed and no shocks higher than the participant's reported pain threshold were administered. No long-term adverse consequences have been reported with this procedure. Additionally, participants were allowed to terminate their participation without prejudice or punitive action at any time. In previous studies using competition tasks such as this one, neither immediate nor subsequent problems were encountered. Had participants reported emotional distress from their participation in this study, they would have been referred to mental health agencies.

CHAPTER 3

RESULTS

RCAP Manipulation Check

The validity of the data was determined with respect to the efficacy of deception. Individuals who did not believe that they were competing against another person during the reaction time task were excluded from the analyses and were identified through the administration of a brief interview, which preceded the debriefing of participants. Each participant was asked 1) to report his impression of the "other participant," 2) whether he believed the "other participant" acted fairly towards him during the task, 3) whether he believed the experimental task was a good measure of reaction time, and 4) whether he believed the J-LET was a fair measure of verbal processing. Furthermore, participant behavior was observed during the course of the experiment via a video camera in order to note any indications of belief in the deception (e.g., cursing at the other participant). Of the 133 participants, thirteen indicated that they may not have believed the "other participant" manipulation or the J-LET tool and, consequently, were excluded from the data analyses.

Preliminary Analyses

Excluded participants. Thirteen participants were excluded from the data analyses due to their failure to endorse a belief that they were competing against a real person or believed that the J-LET was a real tool for measuring verbal processing. Due to the distribution of the remaining participants among the six experimental groups, the power to detect differences between the two groups would not have been great enough to yield interpretable results. Therefore, evaluation of potential differences between participants who were deceived and those

who were not deceived was not undertaken. Following exclusion of the thirteen participants who were not deceived by the experimental manipulation, the sample became 120 participants.

John Tukey's (1977) work entitled Exploratory Data Analysis suggests that box plots are an adequate tool to graphically represent data (e.g., median, mean, outliers). Data outliers in the present study were identified through the use of box plots, which included each participant's standardized score on the NPI and each of the seven aggression indices. The outcome of these analyses identified 28 outlying participants over the seven aggression indices whose responses either fell below the 25th percentile or above the 75th percentile of gathered data. Further analyses of the outliers demonstrated that there was a significant difference, as determined through the use of an independent-samples t-test, with regards to the level of positive affect and narcissistic traits among the outliers when compared to the remaining 92 participants. Outliers were significantly lower on levels of narcissistic personality traits and significantly higher on their level of positive affect at the outset of the experiment. Therefore, it appears that the sample collected for the current experiment included two sub-samples that differed significantly on variables which may have influenced their reaction to the experimental manipulation. With outliers excluded from the analyses, the sample was comprised of 92 participants.

Demographic data. With the purpose of identifying any pre-existing differences on demographic variables between participants randomly assigned to the six groups, a series of one-way ANOVAs were performed that used pertinent demographic variables as dependent variables. No significant differences were revealed for years of education, $F(2, 89) = .255$; age, $F(2, 89) = .504$; income, $F(2, 89) = .068$; ethnicity, $F(2, 89) = .272$; or marital status, $F(2, 89) = 1.914$. Additionally, a MANOVA was performed on the seven indices of aggression in order to test for the presence of experimenter effects. These results displayed no significant experimenter

effects across all seven aggression indices, $F(42, 373.99) = .144$. Reported F-values can be located in Appendix B.

Group characteristics. Random group assignment was expected to ensure that experimental groups would not differ on trait characteristics (i.e., total narcissism). A one-way ANOVA was performed with the standardized value of total narcissism as the dependent variable to confirm this supposition. No significant group differences were found for total narcissism, $F(2, 89) = .406$. See Appendix B.

Essay Condition. A one-way ANOVA was performed between essay condition and each of the seven aggression indices in order to account for the influence of essay quality on aggressive responses. No significant group differences were found (all $p > .05$).

Regression Analyses

Moderating Effects of Feedback on Aggression. The primary purpose of the present study was to examine the moderating effect of feedback (i.e., negative feedback (explicit ego-threat), positive feedback (no explicit ego-threat), and no feedback (non-salient ego-threat)) on the relationship between narcissism and aggression. It was hypothesized that men with higher levels of narcissistic traits assigned to the negative feedback condition would display higher levels of aggressive responses relative to those lower on narcissistic traits. Additionally, it was hypothesized that men with higher levels of narcissistic traits, who received no feedback with regards to their essay quality in comparison to "the other participant," would respond in an aggressive manner similar to the negative feedback condition.

As narcissism was measured as a continuous construct, linear regression analyses were indicated in order to test for moderation (Aiken & West, 1991). A series of equations were computed such that the total standardized NPI scores were individually regressed onto the seven

RCAP indices, using the type of feedback as the moderator. Previous literature has recommended the standardization of predictor scores when investigating the effects of a moderator using multiple regression analyses in order to reduce multicollinearity. Furthermore, the standardization of scores allows for the interpretation of the regression coefficients using the same metric.

The standardized scores of the NPI (ZNPI_T) were first correlated with the seven aggression indices across each of the three feedback conditions. Narcissism was significantly correlated with P10 (r = .417, p < .05) and FP (r = -.447, p < .01) in the Negative Feedback condition. In the No Feedback condition, narcissism was significantly correlated with MSI (r = .491, p < .01); P10 (r = .398, p < .05); FPI (r = .460, p < .01); and FPD (r = .433, p < .01). No significant relationship was found between narcissism and the seven aggression indices in the positive feedback condition (all p > .05). All correlation results reported can be found in Appendix B.

Two contrasts were constructed in order to identify specific comparisons of interest. Contstruct1 involved a direct comparison of the No Feedback (Contrast1 = -1) and Positive Feedback (Contrast1 = 1) conditions. Contrast2 involved a direct comparison of the Negative Feedback (Contrast2 = -1) and Positive Feedback (Contrast2 = 1) conditions. These specific contrasts were selected in order to isolate the effects of each feedback condition. The utilization of contrast coding is especially useful when applied to the analysis of more than two treatment conditions (Keppel & Zedeck, 1989). A product term was computed between the independent variable of interest (i.e., standardized total narcissism score) and each contrast (i.e., contrast1 and contrast2). Moderation was then tested by entering contrast1, contrast2, narcissism, and their

corresponding interaction terms into a series of regression models for each of the seven aggression indices.

Significant Narcissism X Contrast1 interaction effects were found for the MSI, $t(88) = -1.98$, ($b = -.198$, $p < .05$); MSD, $t(88) = -1.95$, ($b = -.196$, $p < .05$); P10, $t(88) = -2.06$, ($b = -.192$, $p < .05$); FPI, $t(88) = -2.48$, ($b = -.246$, $p < .01$); and FPD, $t(88) = -3.04$, ($b = -.304$, $p < .01$) aggression indices. These results are graphically displayed in Figures 1, 2, 3, 4, and 5, respectively in Appendix C. No significant effects were found for the FP and SF aggression indices (both $p > .05$). No Significant Narcissism X Contrast2 interaction effects were found across the seven aggression indices (all $p > .05$). Reported t-values for both Contrast1 and Contrast2 can be found in Appendix B.

Relationship between Narcissism and State-dependent measures. The secondary purpose of the present study was to examine whether individuals high on narcissistic traits would display a more pronounced decline in self-esteem and increase in negative affect and anger over the course of the experimental manipulation relative to those lower on narcissistic traits in the Negative and No Feedback conditions. Partial correlations were computed between time 1 state dependent measures, time 2 state dependent measures, and standardized NPI scores in each feedback condition. In order to control for the effects of the time 1 state dependent measures, partial correlations were computed. No significant correlations were found across the two feedback conditions between narcissism and the time 2 state dependent measures (all $p > .05$).

CHAPTER 4

DISCUSSION

The present study sought to examine the effects of narcissistic personality traits on aggressive behavior as moderated by the type of feedback received. The first hypothesis posited that individuals with higher levels of narcissistic personality traits would respond similarly to explicit and non-salient ego-threatening situations. Specifically, those with high levels of narcissistic personality traits who received negative feedback and no feedback were expected to respond with higher levels of aggression relative to those lower on narcissistic traits.

Consistent with prior literature regarding narcissistic traits and concurrent increased aggressive reactions following negative feedback (Bushman & Baumeister, 1998; Baumeister, Bushman, & Campbell, 2000; Stucke & Sporer, 2002), men higher on narcissistic traits demonstrated significant correlations with FP and P10, which represents an extreme form of aggression. This relationship was not found, however, between narcissistic traits and any of the seven aggression indices in the Positive Feedback condition. This finding is consistent with Bushman and Baumeister (1998) which demonstrated how individuals higher on narcissistic traits did not respond with increased levels of aggression following favorable feedback. Individuals in the No Feedback condition with higher levels of narcissistic traits were found to have a significant relationship with MSI, P10, FPI, and FPD. Together these correlations suggest that the No Feedback condition elicits a greater amount of aggressive responses relative to the Positive Feedback condition and is similar to the responses found in the Negative Feedback condition.

Contrary to the findings reported by Bushman and Baumeister (1998), the regression analysis of interaction effects between Contrast2 (i.e., Negative Feedback vs. Positive Feedback) and Narcissism demonstrated that those higher in narcissistic traits in the Negative Feedback condition did not respond significantly different from those in the Positive Feedback condition on any of the seven aggression indices. Therefore, despite the significant correlations demonstrated in the Negative Feedback condition and lack of significant correlations in the Positive Feedback condition there was no significant difference found between the aggressive behaviors of individuals higher on narcissistic traits. The lack of a significant difference between these two conditions may be attributed to feedback being provided by the experimenter. As described in Bushman and Baumeister (1998), individuals higher on narcissistic traits only demonstrated increased aggressiveness toward the source of an insult and did not displace aggression onto an innocent third party. Instead, increased aggressive responses were evinced toward the confederate only when the participant believed that they were the source of negative evaluation. Within the current method, Negative Feedback was not provided by the "other participant," but via an "objective" tool. Thus, with regards to the present findings, the lack of significantly different aggressive responses in the Negative Feedback condition relative to the Positive Feedback condition may have been subdued due to the independent nature of the evaluation source. However, provided that participants were led to believe that evaluative measure that was used had been proven as highly reliable and valid in scientific research, the subjectivity of the feedback was reduced. Therefore, it may have been difficult for individuals high on narcissistic traits to completely disregard the feedback and, as a result, not view the confederate as possibly superior and threatening.

Findings supported the second hypothesis which predicted that individuals higher on narcissistic traits would respond with high levels of aggressive behavior in the No Feedback condition when compared to those in the Positive Feedback condition. As predicted, those with higher levels of narcissistic traits in the No Feedback Condition were found to respond with significantly greater amounts of aggression in MSI, MSD, P10, FPI, and FPD when compared to individuals in the Positive Feedback condition. It appears that individuals higher on narcissistic traits will respond with greater aggression in the presence of a non-salient ego-threatening situation when they unsure of their standing in comparison to another individual. These forms of aggressive responses may function as an assertion of dominance designed to forewarn the confederate. Furthermore, these findings may explain how narcissistic individuals deal with an anticipated ego-threat. Narcissistic individuals who are in, "a constant struggle to maintain a grandiose but fragile self-image," may anticipate a future threat and use heightened aggressive behaviors to thwart the likelihood of an ego-threat (Rhodewalt, & Morf, 1998). Individuals high on narcissistic traits may respond according to a hyper-vigilant awareness of possible threats to their self-esteem and react in hopes of *retaining* rather than *regaining* diminished levels of self-esteem. Specifically, individuals with higher levels of narcissistic traits may function in a hyper-vigilant manner that allows them to become aware of possible threats to their self-esteem before they actually occur. This form of cognitive vigilance was noted in a study conducted by McCullough, Emmons, Kilpatrick, and Mooney (2003). This study found that individuals with higher levels of narcissistic traits typically demonstrate a "biased recall or self-presentation," which may be associated with, "a heightened sensitivity regarding the actions of other people." Additional support was provided by Rhodewalt and Morf (1995), who found that scores on the NPI were directly associated with scores on the Cook-Medley Hostility Scale, which is

suggestive of a general mistrust of others. Kelsey et al. (2001) also found that narcissistic individuals demonstrate an indiscriminate and sustained mobilization of effort under the conditions of environmental uncertainty and threat regardless of actual coping demands of the availability of an effective coping response. This enhanced fight/flight reactivity and mobilization effort is thought to contribute to several characteristics of narcissism (e.g., aggression). Therefore, it appears that individuals with higher levels of narcissistic traits in the No Feedback condition may have anticipated the possibility of performance failure on the task relative to the "other participant," which resulted in higher levels of overall aggression relative to the Positive Feedback condition.

The final hypothesis, predicted that those with higher levels of narcissistic traits would display a positive relationship with negative affect and anger and a negative relationship with the self-esteem across the Negative and No Feedback conditions. This hypothesis was not supported. Contrary to expectations, no significant relationships were found between anger, negative affect, or total self-esteem. The lack of significant findings with regards to the state-dependent measures may have resulted from the failure of the experimental manipulation to provoke significant changes or the limited duration of time in which the data of the state measures was obtained. For instance, Kernis (1993) administered the SSES across a period of days in order to identify fluctuations in state dependent levels of self-esteem. Additionally, it is possible that individuals with higher levels of narcissistic traits did not experience fluctuations in state levels of anger, negative affect, or self-esteem due to a failure of the feedback to elicit such effects. If true, the lack of significant changes in the state-dependent measures of anger, negative affect, and self-esteem in the presence of significant aggressive behavior may offer further support for the present findings in that they suggest that narcissists demonstrate significant forms

of aggressive behavior toward the confederate in order to *retain* rather than *regain* affective states.

Notably, the presented findings should be interpreted with caution due to the large proportion of participants who were excluded from the analyses due to the presence of the identified sub-sample within the collected sample. Additionally, previous studies of similar format collected larger sample sizes, which may have increased the power to find effects in all conditions of interest. Furthermore, the use of an objective feedback measure may have reduced the aggression effects that may have otherwise been observed had the feedback been provided by the confederate.

Future research may allow for further discrimination between different levels of threat, which result from the combination of the type of feedback and source. It appears that providing narcissistic individuals with objective feedback elicits subdued aggressive behavior toward another deemed superior on a task despite the independent nature of the feedback. It appears that narcissists may react most aggressively toward individuals who believe they are superior (subjective) followed by diminished levels of aggression toward individuals who have proven to be superior in a task (objective). By examining the role of feedback (i.e., salient vs. non-salient) when received from a confederate who differs on level of expertise on the assigned task it may be possible to explore for the presence of difference in aggressive responses. Such an experimental manipulation would allow researchers to test whether narcissistic individuals would become aggressive toward an individual of greater expertise or continue to demonstrate lower levels of aggression due to the objectivity of their relative standing when compared to the superior confederate. In addition, if the present study had involved feedback (i.e., Negative,

Positive, No Feedback) presented by the confederate rather than an independent source it may have provided greater aggressive responses.

Overall, the present findings add to extant literature in that they suggest the presence of a hyper-sensitivity to threat in men who possess higher levels of narcissistic traits. Perhaps such men are repeatedly faced with challenges to their self-concept (i.e., self-esteem) and, as a result, are sensitive to possible challenges. As a result, these individuals may react more aggressively in response to expected threats in order to thwart the likelihood of the threat's continuation. As demonstrated by the current results, men high on narcissistic traits seem to interpret ambiguous situations as ego-threatening and act to discredit their opponent through aggressive behaviors.

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APPENDIX A

COPYRIGHTED INSTRUMENTS

NSM

	Yes	No
1. Do you experience any problems performing in sporting activities?	☐	☐
2. Have you experienced problems in the past catching objects thrown to you?	☐	☐
3. Do you experience problems throwing objects at a selected target?	☐	☐
4. Do you experience difficulties balancing on one foot for a period of 10 seconds?	☐	☐
5. Do you experience difficulties with vision?	☐	☐
6. Do you experience difficulties touching your thumb to each digit on the same hand in sequence (on both dominant and non-dominant hands)?	☐	☐
7. Did you experience any notable delays with the development of your motor writing skills?	☐	☐
8. Have you ever experienced problems with coordinating movements?	☐	☐

VPSM

		Never	Often	Sometimes	Always
1.	Do you have problems verbally communicating with others?	1	2	3	4
2.	Do you have difficulties reading fluently?	1	2	3	4
3.	Do you experience difficulties understanding others when they are talking to you?	1	2	3	4
4.	Do you mispronounce words?	1	2	3	4
5.	Do you misspell words?	1	2	3	4
6.	Do you read for leisure?	1	2	3	4
7.	Do you write for leisure?	1	2	3	4
8.	Do you experience difficulties grasping the main idea of written passages?	1	2	3	4
9.	Do you have problems enunciating words?	1	2	3	4
10.	Do difficulties with reading interfere with your daily functioning?	1	2	3	4
11.	Do difficulties with writing interfere with your daily functioning?	1	2	3	4

APPENDIX B

TABLES

Table 1

Summary of ANOVA results testing for differences among demographic variables across the different feedback conditions

Demographic Variables	*F*	*p*
Subject Age	.504	*ns*
Years of Education	.255	*ns*
Marital Status	1.914	*ns*
Ethnicity	.272	*ns*
Yearly Income	.068	*ns*
Narcissistic Traits	.406	*ns*

Table 2a.

Inter-correlations for Narcissistic Traits and Aggression (Negative Feedback)

Measure	1	2	3	4	5	6	7	8
1. ZNPI_T	--	.179	.159	.417*	-.447*	.126	-.145	.190
2. MSI		--	.453*	.671**	.204	.661**	.203	.526**
3. MSD			--	.341	.011	.346	.765**	.407*
4. P10				--	-.137	.493**	.056	.215
5. FP					--	.130	.196	-.202
6. FPI						--	.290	.224
7. FPD							--	.166
8. SF								--

Note. ZNPI_T = Standardized NPI Score Totals; MSI = Mean Shock Intensity; MSD = Mean Shock Duration; P10 = Proportion of Highest Shocks; FP = Flashpoint; FPI = Flashpoint Intensity; FPD = Flashpoint Duration; SF = Shock Frequency

Table 2b.

Inter-correlations for Narcissistic Traits and Aggression (Positive Feedback)

Measure	1	2	3	4	5	6	7	8
1. ZNPI_T	--	.052	-.123	.179	-.239	-.048	-.155	.143
2. MSI		--	.635**	.633**	.495**	.740**	.513**	.702**
3. MSD			--	.277	.292	.766**	.753**	.548**
4. P10				--	.051	.177	.167	.494**
5. FP					--	.407*	.187	.101
6. FPI						--	.562**	.539**
7. FPD							--	.371*
8. SF								--

Note. ZNPI_T = Standardized NPI Score Totals; MSI = Mean Shock Intensity; MSD = Mean Shock Duration; P10 = Proportion of Highest Shocks; FP = Flashpoint; FPI = Flashpoint Intensity; FPD = Flashpoint Duration; SF = Shock Frequency

Table 2c.

Inter-correlations for Narcissistic Traits and Aggression (No Feedback)

Measure	1	2	3	4	5	6	7	8
1. ZNPI_T	--	.491**	.308	.398*	.204	.460*	.433*	.257
2. MSI		--	.574**	.774**	.254	.838**	.305	.667**
3. MSD			--	.333	-.014	.456*	.642**	.572**
4. P10				--	-.050	.730**	.163	.397*
5. FP					--	.129	.060	-.119
6. FPI						--	.223	.413*
7. FPD							--	.189
8. SF								--

Note. ZNPI_T = Standardized NPI Score Totals; MSI = Mean Shock Intensity; MSD = Mean Shock Duration; P10 = Proportion of Highest Shocks; FP = Flashpoint; FPI = Flashpoint Intensity; FPD = Flashpoint Duration; SF = Shock Frequency

Table 3

Summary of Regression Analyses Testing Moderating Effects of Contrast1 (i.e., No Feedback and Positive Feedback) on the Relationship between Narcissistic Traits and Aggression

Dependent Variable	*b*	*t*	*p*
MSI	-.198	-1.98	.05
MSD	-.196	-1.95	.05
P10	-.192	-2.06	.04
FP	-.202	-1.95	*ns*
FPI	-.246	-2.48	.01
FPD	-.304	-3.04	.003
SF	-.048	-.459	*ns*

Note. MSI = Mean Shock Intensity; MSD = Mean Shock Duration; P10 = Proportion of Highest Shocks; FP = Flashpoint; FPI = Flashpoint Intensity; FPD = Flashpoint Duration; SF = Shock Frequency
ns > .10

Table 4

Summary of Regression Analyses Testing Moderating Effects of Contrast1 (i.e., Negative and Positive Feedback) on the Relationship between Narcissistic Traits and Aggression

Dependent Variable	*b*	*t*	*p*
MSI	.014	.130	*ns*
MSD	-.056	-.523	*ns*
P10	.007	.066	*ns*
FP	.041	.382	*ns*
FPI	-.010	-.096	*ns*
FPD	.039	.366	*ns*
SF	.022	.210	*ns*

Note. MSI = Mean Shock Intensity; MSD = Mean Shock Duration; P10 = Proportion of Highest Shocks; FP = Flashpoint; FPI = Flashpoint Intensity; FPD = Flashpoint Duration; SF = Shock Frequency
ns > .10

APPENDIX C

FIGURES

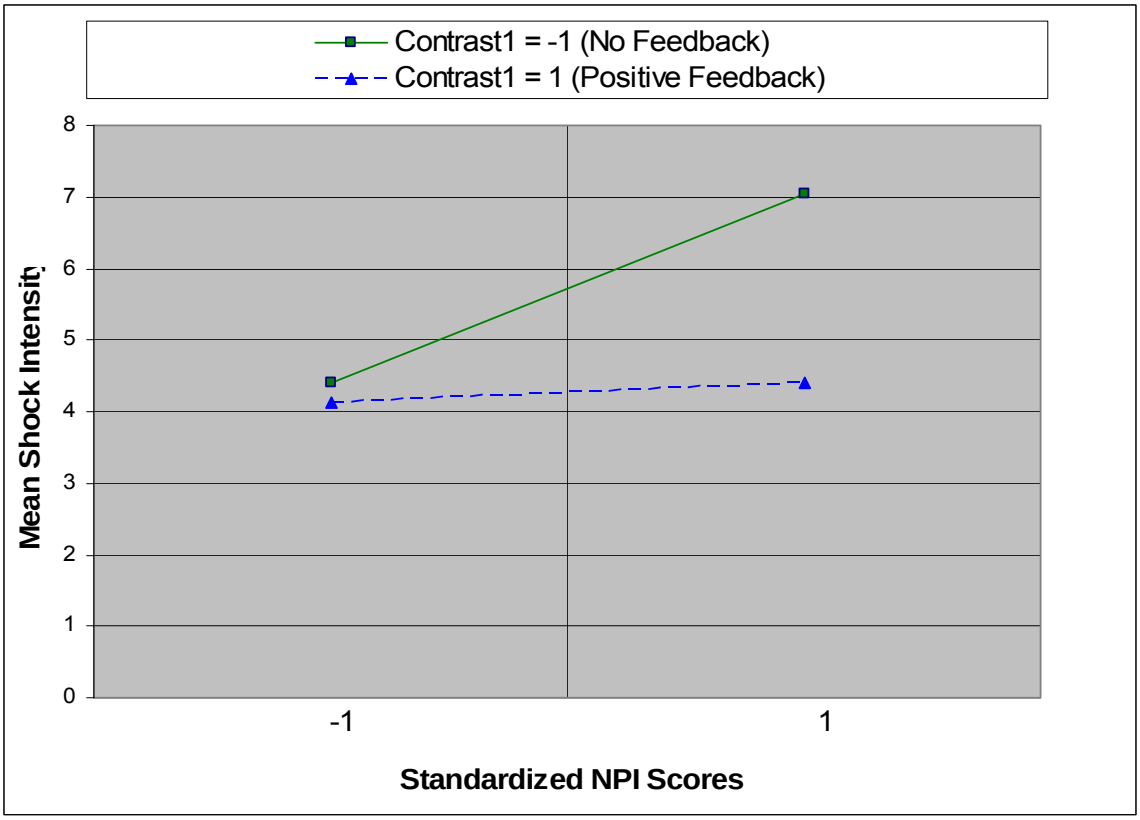

Figure 1: Moderating effects of Contrast1 (No Feedback and Positive Feedback) on the relationship Between Narcissistic Traits and Mean Shock Intensity

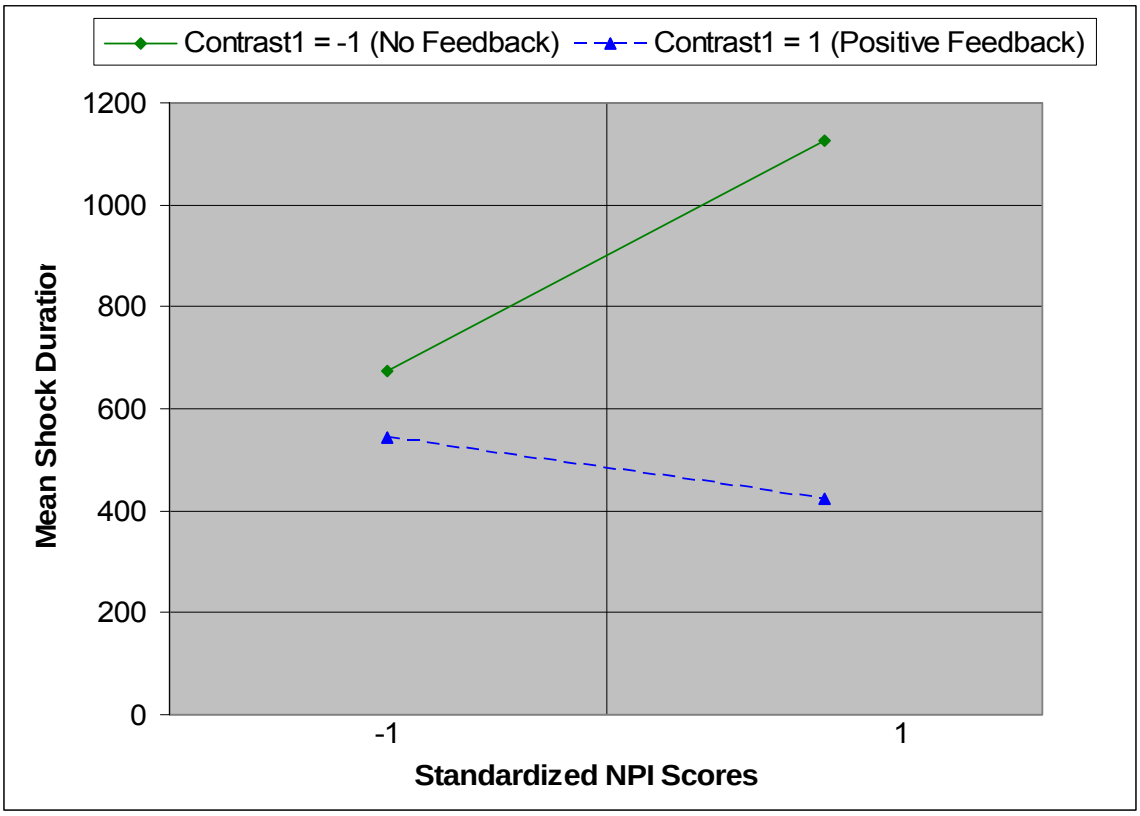

Figure 2: Moderating effects of Contrast1 (No Feedback and Positive Feedback) on the relationship Between Narcissistic Traits and Mean Shock Duration

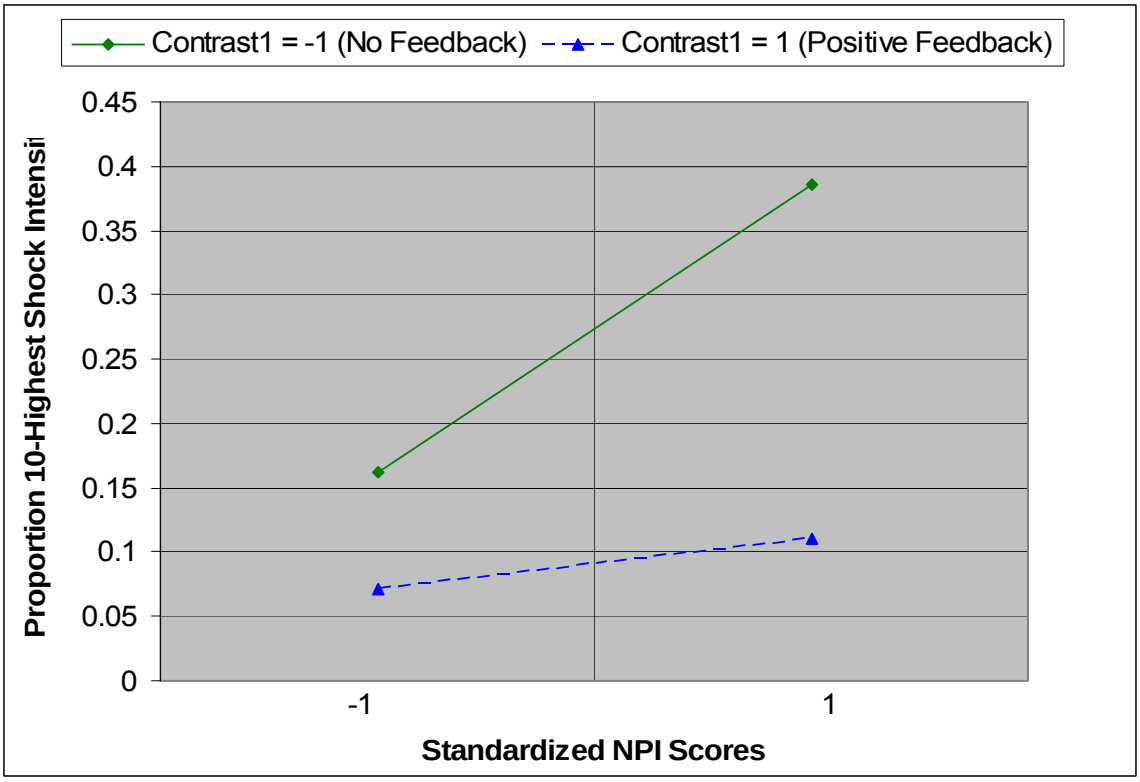

Figure 3: Moderating effects of Contrast1 (No Feedback and Positive Feedback) on the relationship Between Narcissistic Traits and Proportion 10-Highest Shock Intensity

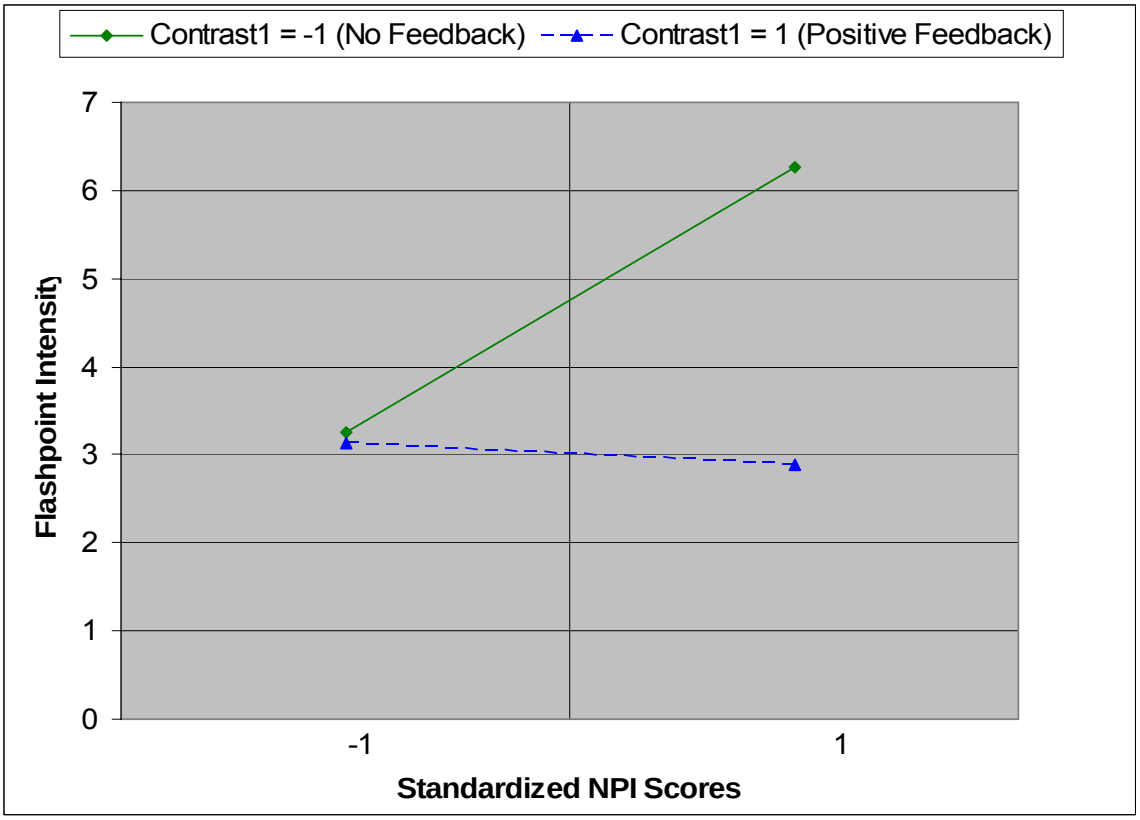

Figure 4: Moderating effects of Contrast1 (No Feedback and Positive Feedback) on the relationship Between Narcissistic Traits and Flashpoint Intensity

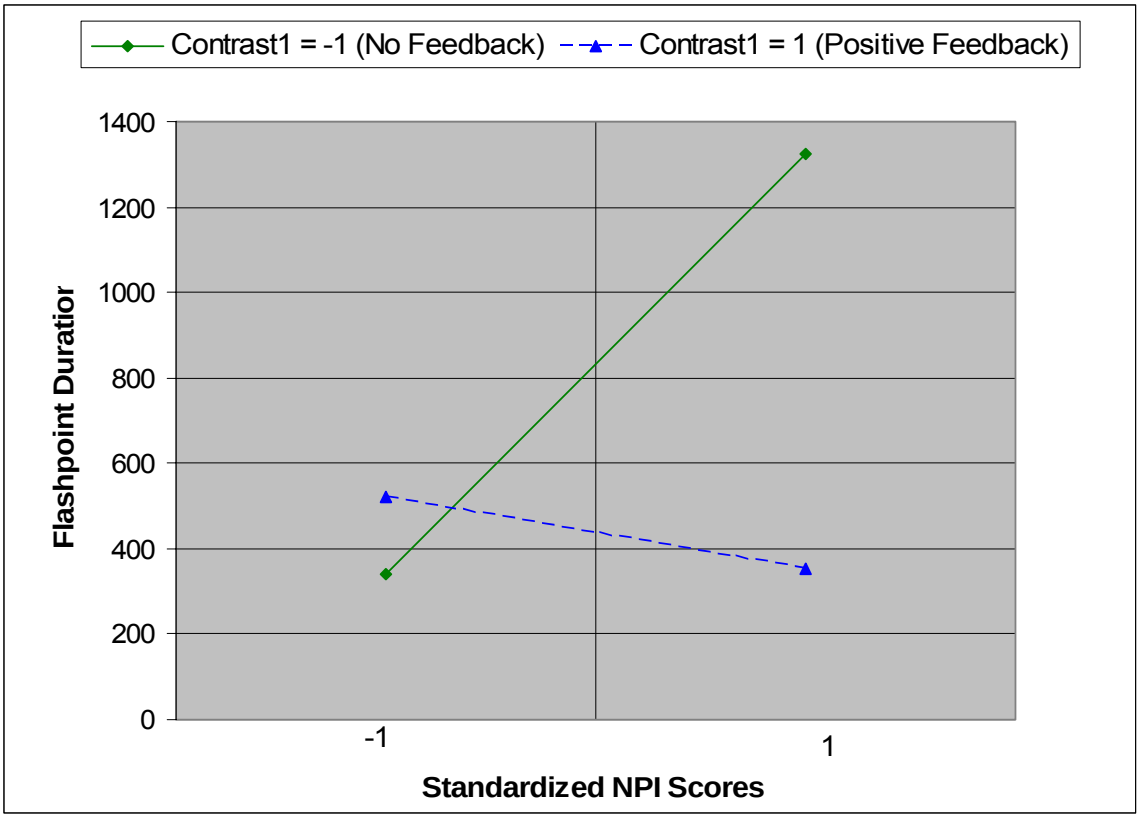

Figure 5: Moderating effects of Contrast1 (No Feedback and Positive Feedback) on the relationship Between Narcissistic Traits and Flashpoint Duration