INVESTIGATING THE EFFECT OF SELF-ESTEEM ON RELATIONAL AGGRESSION

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Abstract

The purpose of the present study was to examine the cause of relational aggression. I hypothesized that when participants experienced a decrease in their self-esteem, they would be more likely to act in a relationally aggressive manner (i.e., give low donations) during the Money Game than participants' in a high self-esteem condition. Results showed a marginally significant interaction, suggesting that participants in the HSE condition donated more money than participants in the LSE condition. Researchers need to continue to study this topic in order to produce more conclusive findings regarding the relationship between self-esteem and relational aggression. Findings have implications for teachers, parents, and other individuals who wish to decrease or eliminate the occurrence of relationally aggressive behaviors within the social network.

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Investigating the Effect of Self-Esteem on Relational Aggression

In Walt Disney's animated film, *The Lion King,* Scar, a second-born son, laments his inferior status in the Pride Lands of Africa, as it is not Scar, but his older brother Mufasa, who reigns as king. When Mufasa dies in a stampede, Scar convinces Mufasa's son Simba to not assume his rightful role as king and to run far away from the Pride Lands. Scar proceeds to let the rest of the kingdom think of Simba as a coward (Allers, Minkoff, & Morake, 1994). By harming Simba's relationship with the rest of the Kingdom, Scar intentionally lowers Simba's social status, a manipulative behavior that researchers have termed *relational aggression*. Scar, whose self-esteem is threatened by his lack of power in the Kingdom, uses relationally aggressive tactics to help him feel better about himself. Thus, Scar's treatment of Simba is a perfect example of the effect self-esteem may have on the occurrence of relational aggression. In the present study I investigated the reason why individuals may act relationally aggressive; in particular, I examined how manipulating a person's self-esteem can affect the occurrence of relationally aggressive behaviors.

Relational Aggression

Researchers define aggression as any behavior that is intended to harm or hurt another individual (Coie & Dodge, 1998). Historically, most of the research on aggression has focused on physical aggression, which occurs when an easily identifiable aggressor uses physical harm (e.g., punching, hitting, kicking) to injure a victim. In recent years researchers began to question the lack of overt aggressiveness in girls' peer interactions and consequently began to study a more covert type of aggression that girls often exhibited known as relational aggression (RA) (Crick & Grotpeter, 1996). Relational aggression is defined as harm through injury to or manipulation of a relationship and occurs when an aggressor tries to indirectly lower a victim's

social status by harming the victim's relationships with others (Crick & Grotpeter, 1995). For example, like Scar does in *The Lion King*, aggressors may gossip, exclude others, and spread rumors to manipulate relationships (Werner & Crick, 1999). In comparison to physical aggression, much less is known about relational aggression, which makes it an important topic to explore and study (Crick & Grotpeter, 1995).

Relational aggression includes both overt (direct) behaviors and covert (indirect) behaviors and can be categorized as either reactive or proactive. Overt relational aggression is blatant and unambiguous. For example, if Tom victimizes his peer Gary by telling Gary that he cannot play with him unless Gary helps him cheat on a test, Tom is utilizing overt relational aggression. More discrete behaviors such as ignoring, backbiting, and socially excluding others are examples of covert behaviors (Dettinger & Hart, 2007). Relational aggression also can be reactive or proactive. Reactive aggression is a defensive response to a provocation, such as the response people have when they feel threatened or angry. In contrast, proactive aggression is goal-directed and deliberate, such as when someone uses RA to get a better grade on a group project (Young, Boye, & Nelson, 2006). Recent studies show that aggressors use both reactive and proactive aggression, whereas victims only typically show evidence of using reactive aggression (Camodeca & Goossens, 2005).

In contrast to physical aggression, parents and educators often do not recognize and respond to acts of relational aggression. Thus, identifying RA can be problematic. When someone is purposely excluded from a peer-group activity or is the target of rumors or gossip it is often difficult to identify the source (Young et al., 2006). Furthermore, individuals who use relational aggression typically use it when other people will not be able to witness the act, which makes it even more difficult for others to observe and identify relational aggressors. Research

suggests that approximately 71% of girls and 20% of boys who are victimized in this way are not included in the data on relational aggression because of its discreet nature (Young et al., 2006). Though it may be difficult to identify a relational aggressor initially, once a teacher, parent, or other individual identifies him or her, it is likely the aggressor will use relational aggression again, as the occurrence of relational aggression is stable over both the short- and long-term. Acting relationally aggressive is not a phase that a person goes through; a person who is relationally aggressive as a child is likely to be relationally aggressive as an adult (Young et al., 2006).

Ways Relational Aggression Has Been Measured

Researchers have used a variety of methods to investigate individuals' tendency to relationally aggress. These primarily include peer nomination instruments, which allow individuals to name peers who often instigate relational aggression; teacher ratings, by which teachers rate students based on how often the teacher thinks the student engages in relational aggression (Young et al., 2006); and self-report measures such as the *Peer Relationships Inventory* (PRI), on which participants report the degree to which a person acts as an aggressor, a victim, a provider of support, and a recipient of support within the social network. With these methods, however, one must consider the issue of potential self-presentational biases, as all of these methods are subjective in nature. Researchers also utilize naturalistic observation techniques to study relational aggression; however, because relational aggressors are cautious about when they use relational aggression, observation is also a biased measurement of RA. In the present study, I used a behavioral measure of relational aggression, which allows for a greater degree of objectivity than the aforementioned methods in addition to allowing researchers to make inferences of a causal relationship.

Self-Esteem and Aggression

Researchers have consistently found a link between people's self-esteem, or the feelings of affection that people have for themselves, and aggressive behavior. High self-esteem (HSE) is characterized as having a general fondness for oneself, whereas people with low self-esteem (LSE) view themselves ambivalently or mildly positively (Brown & Dutton, 1995). In the present study researchers were interested in determining the nature of the relationship between self-esteem and relational aggression. Every person has a trait and a state form of self-esteem, upon which I will now elaborate.

Trait self-esteem. Trait, or global, self-esteem is considered to be a stable quality of a person that can accurately predict future behaviors. People maintain a similar level of trait self-esteem throughout their lives despite experiencing successes and failures. Trzeniewski, Donnellan, and Robins (2003) examined the stability of self-esteem in people ranging in age from 6-83 years. Results showed significant levels of self-esteem continuity across the decades of life, but especially during early adulthood. Their research confirms the idea that one's trait self-esteem is a relatively enduring disposition from which there is some, but not much deviation (Heatherton & Polivy, 1991).

State self-esteem. Although there is considerable evidence that self-esteem is persistent and stable, self-esteem cannot be conceptualized as entirely trait-like because momentary changes to a person's self-esteem can occur. William James described self-esteem to be like a barometer that rises and falls as a result of successful or unsuccessful experiences. For example, basking in the glow of reflected glory, which is when a person feels good as a result of close other's success, may lead to a momentary increase in self-esteem (Brown & Dutton, 1995). Conversely, comparing a performance with a better-performing other can temporarily lower self-

esteem (Heatherton & Polivy, 1991). Researchers have termed this rising and falling of a person's feelings of self-worth in response to internal and environmental events *state self-esteem* (Brown & Dutton, 1995).

People generally strive to maintain their level of self-esteem, and if possible, increase their self-esteem. The *self-enhancement motive* is the term researchers use to describe people's need to think well of themselves, which may be a force driving relationally aggressive behaviors. Typically, people are quite adept at satisfying their need to maximize their feelings of self-worth (Brown & Dutton, 1995). In the present study I expect that a person's level of state self-esteem will be inversely related to the occurrence of relational aggression, such that individuals with high state self-esteem will be less relationally aggressive than individuals with low state self-esteem. I expect that when people experience threats to their level of self-esteem they act relationally aggressive in an effort to feel better about themselves.

Measuring state self-esteem. Many researchers have focused their empirical investigations on the effects of temporary changes in self-esteem. Most of these experiments have used false personality feedback and bogus performance feedback to manipulate self-esteem. The problem with these methods, however, is that the manipulation primarily affects the participant's mood. Studies using ego-threatening manipulations such as these often do not show significant changes in self-esteem using self-report measures, but regularly find changes in mood. For example, according to Heatherton and Polivy (1991), researchers have reported finding more self-reported anxiety and less satisfaction with a performance after a failure than after a success. Thus, in the present study, I elected to use a subliminal priming manipulation of state self-esteem in the form of a computer task to study the effect of self-esteem on RA. Because it is subliminal, it is impossible for the task to have an effect on the participant's mood.

HSE versus LSE individuals and aggression. There are some inconsistencies regarding whether those with HSE or LSE engage in more aggressive acts. In a literature review, Baumeister, Smart, and Boden (1996) argue against the traditional view that low self-esteem causes aggression, making the case that those with less modest self-appraisals have a tendency to be more violent. Baumeister et al. argue that those who aggress typically have an inflated high self-esteem and are often characterized as confident, arrogant, and proud and that a threatened egotism will lead them to aggress. No researchers, however, have ever empirically proven this claim (Baumeister, Bushman, Campbell, 2000). In addition, in the present study I identify people with high self-esteem as healthily adjusted and well-adapted to life, not as proud and arrogant. Research does not consistently suggest that healthily-adjusted individuals are more aggressive than individuals who are not well-adjusted (Baumeister et al., 1996).

In contrast to the view that high self-esteem individuals are more aggressive than low self-esteem individuals, researchers have found a robust relationship between low self-esteem and aggression such that people with high self-esteem were less likely to be aggressive than people with low self-esteem (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005). In a sample of young adults, Donnellan et al. (2005) found that there was a relationship between aggression and low self-esteem and that it held cross-sectionally and longitudinally; the effect of self-esteem was independent of narcissism. Similarly, Taylor, Davis-Kean, and Malanchuk (2007) found that students with low self-esteem in achievement domains were more likely to aggress at school than those with high self-esteem, although they did not find that low global self-esteem was predictive of aggression. In addition, researchers have found that aggressive children anticipate that aggressive acts will produce more positive outcomes than negative outcomes, that aggressive acts will produce tangible rewards, make themselves feel good,

increase self-esteem, and help them to avoid a negative identity (Hubbard, Dodge, Cillessen, Coie, & Schwartz, 2001). This positive view of aggression by those with low self-esteem suggests that those with low self-esteem may resort to aggressive acts more often than those with high self-esteem.

Self-Esteem and Relational Aggression

Just as there is a link between aggression and self-esteem, research also suggests that there is a relationship between relational aggression and self-esteem. According to Werner and Crick (1999) and Crick and Grotpeter (1995) high self-esteem is linked to healthy social relationships, academic achievement, positive perceptions by peers, persistence in the face of failure, and good coping skills. In contrast, Prinstein, Boegers, and Vernberg (2001) found using self-report measures that low self-esteem is linked to depressive symptoms, health problems, and antisocial behaviors, and other aspects of social-psychological maladjustment. A composite of research findings suggests that people with low self-esteem are also uncertain, confused, motivated toward avoiding loss, and lacking confidence in themselves (Baumeister, Bushman, & Campbell, 2000).

Individuals who experience social-psychological distress may act relationally aggressive in an attempt to raise their low self-esteem. For example, rejection by one's peers may precede relational aggression. Rejected children may try to harm a peer's relationship with others in order to compensate for their lack of success in their relationships and exclude a peer to make themselves feel better. If they exclude others they may feel like they are more competent individuals and more in control of their lives (Crick & Grotpeter, 1995). In contrast, individuals with high self-esteem would be less likely to act relationally aggressive for this reason because they already have healthy social relationships and good coping skills.

Previous studies confirm the existence of a relationship between relational aggression and self-esteem. In a study on the relationship between self-esteem and indirect aggression in the workplace, Dettinger and Hart (2007) found that the higher participants' reported their self-esteem to be, the less they reported behaving in a relationally aggressive manner. Dettinger and Hart suggest that those employees who reported low levels of self-esteem may be dissatisfied with their work environment, which may lead them to act relationally aggressive toward other employees, such as by talking about them behind their backs or giving them the silent treatment. Similarly, Cowan, Neighbors, DeLaMoreaux, and Behnke (1998) found that women who reported having lower collective self-esteem (i.e., one's sense of social acceptance) and low personal self-esteem were more likely to reject and exclude other women. In contrast, those with high collective and personal self-esteem were less likely to reject and exclude others.

Indeed, there is widespread agreement that people's self-esteem plays an important role in their behaviors and interactions with others (Brown & Mankowski, 1993). Differences in self-esteem have a significant effect on how people behave in their social interactions, particularly when those interactions involve a negative outcome or experience. Low self-esteem individuals respond in a complementary manner to positive and negative experiences: Positive events produce positive reactions and negative events produce negative reactions. Individuals with high self-esteem embrace positive events as LSE individuals do, but their responses to negative events are asymmetrical to those with LSE. HSE individuals reject or try to offset negative events, such as by belittling the importance of an ability for which they received negative feedback. In short, those with HSE show less severe reactions to negative experiences than those with LSE. While a negative experience may have an effect on a person with HSE, these individuals ensure that its effect on their performance is minimal; LSE individuals do not show this tendency (Brown &

Mankowski, 1993). Thus, when a person with HSE encounters an unsettling experience he or she will most likely not resort to violence or relational aggression to cope with the situation, whereas it is likely that a person with LSE will use these destructive tactics.

While there is certainly a relationship between relational aggression and low self-esteem, it is not clear whether feelings of psychological distress lead to engagement in relational aggression, or whether aggressive behaviors exacerbate feelings of social-psychological distress (Werner & Crick, 1999). In the present study I wish to clarify the nature of the relationship between self-esteem and RA by showing that levels of self-esteem can affect the occurrence of relational aggression.

The Prisoner's Dilemma Paradigm

Researchers can use the prisoner's dilemma paradigm, a two-person social dilemma game, to observe aggressive behavior, as I did in the present study. The prisoner's dilemma game earned its name because of its historical connection to a hypothetical situation in which each of two prisoners must either confess to a crime or remain silent. If both confess then they will get a moderate prison sentence. If both remain silent then they will get a much shorter sentence. If only one confesses then the person who confesses will no get any sentence, but the other person will get a long sentence. The two people cannot communicate with one another and are not aware of the other person's choices until both of them have made a decision. In the psychology lab, rather than have the consequence be an increased or a decreased prison sentence, researchers give participants a monetary reward. The game is considered a social dilemma because participants must choose between self and group interests. In order to get the highest individual payoff, a player must defect, whereas the highest total payoff to the two combined comes from cooperating (Gray, 1999).

The prisoner's dilemma and antipathy relationships. The prisoner's dilemma game presents a potentially ambiguous situation to participants, which can elicit biases in processing and thus provide an ideal forum for researchers to study relational aggression (Boone, DeBrabander, & van Witteloostuijn, 1999). Researchers have used the prisoner's dilemma extensively in theoretical and experimental research to study (non-)cooperative behavior. When an individual refuses to cooperate with the other participant during the prisoner's dilemma (a relationally aggressive act), it can lead to the formation of an antipathy relationship between the players. Research on mutual antipathy relationships suggests that individuals who are involved in antipathy relationships with their peers are more likely to show signs of relational aggression than those who are not. Murray-Close and Crick (2006) suggest that a dyadic dislike between peers can help explain instances of relational aggression. Research shows that antipathy involvement is associated with relational aggression use, even when researchers controlled for peer acceptance. Individuals' involvement in relational aggression results from experiences of victimization, which commonly results from same-sex antipathy involvement (Murray-Close & Crick, 2006). In the present study we used the prisoner's dilemma game as a forum for relational aggression in order to study the effect that an increase or decrease in self-esteem has on the occurrence of relational aggression between two same-sex individuals with a behavioral method.

Social Information-Processing and Aggression

While self-report responses are important to the study of relational aggression, observing behavioral responses to a situation, as in the present study, may prove to be a more telling method of data collection, as these behavioral responses can suggest causality. Social Information-Processing Theory (SIP) is important to researchers studying aggression through observation. SIP suggests that a person's behavioral response to a problematic social stimulus

(e.g., being socially excluded) is a result of several steps of processing (i.e., encoding the interpretation of cues, response decision, and response enactment). Biased processing will lead to possibly aggressive social behavior (Dodge & Crick, 1990). Bullies and victims both show deficits in every step of social information-processing (Camodeca & Goossens, 2005) and over 100 studies have shown significant correlations between SIP patterns and measures of aggressive behavior problems (reviewed by Coie & Dodge, 1998; Crick & Dodge, 1994; Gifford-Smith & Rabiner, in press, as cited in Dodge, 2003); findings hold using diverse measures of aggressive behavior (e.g., teacher reports of classroom aggression, parent reports of externalizing problems at home, peer reports of aggression) and across diverse groups of individuals (e.g., girls, African Americans, adolescents, young children) (Dodge, 2003). Experiments, such as one conducted by Rabiner and Coie (1989) in which researchers externally manipulated a child's processing and observed the child's subsequent behaviors, show that the way a person processes situational stimuli affects their tendency to behave aggressively. Biased or inaccurate interpretations of a situation commonly lead to problematic responses to a situation, such as incorrectly interpreting a situation as aggressive (Quiggle, Garber, Panak, & Dodge, 1992). Thus, the theory of social information-processing (SIP) plays a critical role in the examination of the link between cognitions and behavior, particularly in the study of aggressive behavior. Patterns of social information-processing may act as a moderator in the relationship between self-esteem and relational aggression in the present study (Crick & Dodge, 1994).

Indeed, it is an individual's interpretation of the provocateur's intent, and not the actual intent of the provocateur, that drives an individual's aggressive response. Individuals are more likely to interpret an event as aggressive when the provocation is intentional, foreseeable, freely chosen, and arbitrary (Dodge & Coie, 1987). Dodge and Coie (1987) found that attributional

biases and deficits were positively correlated with the rate of reactive aggression (but not instrumental aggression). This interpretation of the provocateur's intent may explain why a player in the Money Game might choose to defect rather than cooperate.

Aggressive individuals and SIP. Research suggests that aggressive individuals are more likely to interpret an action as aggressive, as they have a bias toward attending to negative cues in the environment. According to Dodge and Coie's (1987) study on attributional biases and SIP, aggressive children were more likely to report that they would engage in aggressive behavior than non-aggressive children; aggressive children also indicated that it would be easy for them to be aggressive. More often than other children, aggressive individuals attribute malicious intent to a peer perpetrator in an ambiguous situation. For those who interpret a peer's behavior as purposely harmful, aggression is a form of retaliation or a defensive act. While it is the perception of threat pushes an individual toward an aggressive retaliation, it is the anticipated outcome that promotes the behavior (Dodge & Coie, 1987). In addition, aggressive individuals expect positive outcomes to result from aggressing and therefore feel more confident about performing an aggressive act than their non-aggressive peers. Aggressive individuals are less likely to search for social cues in their environment before making attributions about another's intent than non-aggressive individuals; they will also focus on aggressive cues in their environment, as they have more trouble shifting their attention away from aggressive cues and value aggressive responses more than non-aggressive individuals do (Quiggle, et al., 1992).

Depressed individuals and SIP. The behaviors of depressed individuals appear to be similar to those of aggressive individuals, as both aggressive and depressed individuals show a bias toward attending to negative cues in their environments. Beck (1967) proposed that depressed individuals have negatively biased schemata that lead them to selectively sort positive

information from negative information and to exaggerate negative information (as cited in Quiggle, et al., 1992). Depressed individuals then make dangerous cognitive errors that lead them to develop a negative view of the self, their current circumstances, and their future. The biased attributional styles of depressed individuals may lead them toward retaliatory behavioral responses (Quiggle, et al., 1992). Because depressed individuals typically have low self-esteem, I expect that the participants in the present study who experience decreases in their state self-esteem will show attributional biases similar to depressed and aggressive individuals and will be more likely to act relationally aggressive toward a confederate in the Money Game.

Gender and Relational Aggression

In addition to developing a better understanding of the causal relationship between self-esteem and relational aggression, I also seek to examine gender differences in relational aggression. The dynamics of male relationships and female relationships are unique and aggressive behavior manifests itself in different ways among men and among women. While research does not yield consistent patterns regarding gender differences and RA, studies show that women engage in proportionally greater amounts of relational aggression than men, which suggests they women are much more likely to use relational than physical aggression. Men, in contrast, appear to use relational and physical aggression equally (Nelson, Hart, Yang, Olsen, & Jin, 2006). Recent findings suggest that relational aggression is as prevalent among men as it is among women (Prinstein et al., 2001).

The most effective forms of aggression in women are those that are harmful to their social relationships. When women perceive a threat to their relationships, they are more likely than men to react in a relationally aggressive manner (Lento-Zwolinksi, 2007). However, Lento-Zwolinksi (2007) found that men were more likely than women to self-report relationally

aggressive acts. Interestingly, results also suggest that exclusivity led to more relational aggression in women, and that relational aggression in men is linked to a lack of empathetic concern. I will perform some exploratory analyses to gain a better understanding of gender and relational aggression in the present study.

The Present Study

The purpose of the present study was to develop a better understanding of the cause of relational aggression by providing a behavioral measure of relational aggression that will eliminate self-presentational biases and allow for an objective measurement of relational aggression. Participants were exposed to a subliminal self-esteem manipulation and then had the opportunity to behave in a relationally aggressive manner in the Money Game, which is a prisoner's dilemma-type paradigm. I hypothesized that when participants experienced a decrease in their self-esteem, they would be more likely to act in a relationally aggressive manner toward a confederate (i.e., give low donations) during the Money Game than those who experienced an increase in their self-esteem; likewise, I expected that participants who experienced an increase in self-esteem would be less likely to respond in a relationally aggressive manner when victimized.

Method

Participants

Fifty-nine college students (14 men, 45 women) participated in this study. They ranged in age from 18-21 years (M = 18.86, SD = 1.07). Participants received Opus money and extra credit in their psychology class for participation in the study. All data were anonymous.

Measures

Single-item self-esteem scale. I used Robins, Hendin, & Trzensniewski's (2001) single-

item self-esteem scale, which has convergent validity with the Rosenberg Self-Esteem Scale, to assess students' trait self-esteem. Students had to rate how true the statement "I have high self-esteem" was of them on a scale ranging from 1 (not very true of me) to 5 (very true of me). I included four additional items on the scale that were unrelated to self-esteem and titled the questionnaire "Who are you?" to decrease the measure's external validity. For example, I also asked whether students' vision was corrected with glasses or contacts and how many siblings the students had (see Appendix A).

State Self-Esteem Scale (SSES). Participants also completed Heatherton and Polivy's (1991) measure of state self-esteem; the measure was sensitive to manipulations that alter self-esteem temporarily. The SSES consisted of 20 items that were modified from the Janis-Field (1959) Feelings of Inadequacy Scale, which address appearance, social, and academic performance, and general self-esteem. Thirteen of the items on the scale were reverse-scored. (see Appendix B).

Peer Relationships Inventory (PRI). Participants completed the PRI (see Appendix C) at the beginning of their freshman year of college. The PRI is a self-report measure that researchers use to investigate participants' peer relationships and experiences with relational aggression. The PRI consists of 20 items that relate to one of four subscales (i.e., relational aggression, victimization, receipt of support, provision of support), such that there are five statements per subscale. Items pertaining to a particular subscale are distributed throughout the 20 items and not grouped together. Participants responded to the items using a scale ranging from A (never) to D (very often). The four subscales help researchers to determine the degree to which participants act as a relational aggressor (e.g., You spread a rumor about a classmate), act a victim (e.g., Classmates made fun of you or teased you), are the receiver of support (e.g., A

classmate was friendly to you when others were ignoring you), and provided support (e.g., You were friendly to a classmate who was being teased) in their relationships with their peers. A higher score for a subscale indicates a higher frequency of the behavior being assessed.

Trust questionnaire. Participants also completed a two-item questionnaire about their expectations of how the other participant will play the Money Game and their expectations of how they think the other player expects them to play. Participants rated their expectations on a scale ranging from 1 (will donate generously) to 9 (will not donate generously). See Appendix D.

Materials

Self-esteem manipulation. Researchers manipulated participants' self-esteem using a subliminal priming technique similar to Riketta and Dauenheimer's (2003) technique, which was referred to as the Simon Task in the study. We used Riketta and Dauenheimer's procedure because it was found to be a successful manipulation of self-esteem that did not have an effect on participant's mood. For the manipulation, participants were randomly assigned to one of four conditions (i.e., positive self-referent, negative self-referent, positive non-self-referent, negative non-self-referent). Then, the experimenter explained the instructions for the task, which also appeared on the screen before the task began. Each participant performed the task in a separate experimentation room. To the participant, the manipulation appeared to be a simple reaction time task. Participants sat in front of the computer screen and focused their attention on an asterisk that appeared in the middle of the screen for 500 milliseconds (the experimenter explained that doing so allowed them to react most quickly). Participants indicated using either the 'z' or the '/' key on the keyboard whether the "flash" that appeared on either side of the computer screen was on the left- or the right-hand side. The flashes were actually words, but

because the participant was focusing his or her attention on the asterisk, and it takes 140 milliseconds for the eye to move in the direction of a parafoveally presented stimulus, the participant was not be able to detect what the words were, which were only on the screen for 60 milliseconds (Rayner, 1978, as cited in Riketta & Dauenheimer, 2003). A string of random and meaningless letters masked the words (e.g., JZBMPLKXF), appearing on the screen for 60 milliseconds after the presentation of the stimulus.

The experimenter randomly assigned participants to a positive self-referent condition, a positive non-self-referent condition, a negative self-referent condition, or to a negative non-self-referent condition. In the non-self and self-referent conditions, the flash participants were exposed to was either 'Leo,' an uncommon American name or 'I,' respectively. In the positive conditions, the adjectives 'good,' 'great,' and 'valuable' were paired with the referent word in each trial. In the negative conditions, the adjectives 'bad,' 'lousy,' and 'worthless' were paired with the referent word. For each condition, there was a total of 75 trials for the participant to complete. A message on the computer screen instructed participants to "take a break" and relax for a moment after every 25 trials. After the 75 trials, a message on the computer screen appeared that thanked participants and informed them that they had completed the task.

The Money Game. The Money Game was based on the prisoner's dilemma paradigm. It consisted of five rounds of money exchanges between two participants with the goal of the game being to accumulate as much money as possible throughout the five rounds. Participants each started with five dollars and could donate anywhere from zero to one dollar to the other participant during each round, but they could not communicate with the other participant during the game. If they wished, participants could donate the same amount every time. The experimenter told participants that they would indicate on slips of paper how much money they

wanted to donate and that they always receive 1.5 times what the other participant decided to donate to them; they would do a simple calculation after each donation to determine how much money they had at the end of each round. The researcher explained to participants that the amount of money they would go home with at the end of the experiment was dependent on the outcome of the game.

Procedure

When participants signed up for the experiment through Sona System Research Management System they completed the measure of trait self-esteem (i.e., Robins, Hendin, & Trzensniewski's (2001) single-item self-esteem scale). The experimenters ran one participant during each session, but a confederate also posed as a participant during each session. The confederate and the participant were of the same sex.

Before the participant arrived, the experimenter randomly assigned the participant to one of the four experimental conditions. After the participant and the confederate arrived and signed consent forms, the researcher told participants a cover story, leading the participants to believe that the participants were taking part in two different senior thesis studies, one immediately after the other. The researcher explained that the first experiment, the Simon Study, was a computer task on the Simon Effect, and was a simple reaction time task. In actuality, however, this task was a self-esteem manipulation. After the participant went to the separate testing rooms and completed the computer task, the experimenter gave the participant and the confederate the measure of state self-esteem. When the participants completed the measure, the first experimenter left the room, the participants came out of the separate experimentation rooms,. and another experimenter explained what the participants would be doing for the second experiment on decision-making.

The second experimenter asked the students to sit down together at a table and then explained the rules of The Money Game. After having an opportunity to ask questions, participants returned to the separate experimentation rooms and wrote down the amount of money they wanted to donate to the other participant on the slip of paper that the experimenter gave to them, which they then gave back to the experimenter. The researcher gave this slip of paper to the other participant. At the end of each round, the participants calculated how much money they had using the calculation guide and calculator that the experimenter gave to them (i.e., for the first round, this calculation would be $5-what the participant decided to donate to the other player + (1.5 X what the other participant decided to donate to them) = amount of money at the end of round one). During each trial the confederate always donated 20 cents to the participant. After completing the five rounds of the Money Game, participants completed the measure of state self-esteem again.

Before the participant left, the experimenter debriefed the participant, explaining that the two studies were actually two parts of a single study and that the true purpose of the study was to determine a causal relationship between self-esteem and relational aggression. During debriefing the experimenter explained that the computer task was a self-esteem manipulation that would temporarily increase, decrease, or have no effect on the participant's self-esteem, that the Money Game was a forum for measuring relational aggression, and that the other participant was actually a confederate who was instructed to act a certain way throughout the experiment. The experimenter then thanked and compensated the participant with a $5 gift certificate.

Results

I hypothesized that there is a causal relationship between state self-esteem and relational aggression; in particular, I hypothesized that participants in a high state self-esteem condition

would be less likely to behave in a relationally aggressively manner (i.e., their donations in the Money Game would be higher) than those individuals who were in a low state self-esteem.

Trait Self-Esteem

I conducted a 2x2 between-subjects Analysis of Variance (ANOVA) with two levels of word connotation (positive, negative) and two levels of word reference (self-referent, non-self-referent) to maintain that global self-esteem scores were not significantly different in the four conditions prior to the self-esteem manipulation. I found all effects to be statistically non-significant at an alpha level of .05, suggesting that scores on the global self-esteem measure did not differ among the conditions.

The main effects of word connotation yielded an *F* ratio of $F(1, 57) = .01$, *n.s.*, suggesting that the means for the positive ($M = 3.69$, $SD = .71$) and the negative ($M = 3.67$, $SD = .99$) conditions did not differ significantly.

The main effects of word reference yielded an *F* ratio of $F(1, 57) = .01$, *n.s.,* suggesting that the means for the self-referent ($M = 3.67$, $SD = .92$) and non-self-referent ($M = 3.69$, $SD = .81$) conditions did not differ significantly.

I analyzed the interaction effects, $F(1, 57) = .24$, *n.s.*, using interaction comparisons based on an overall alpha level of .05. As expected, I did not find the interaction comparisons to be statistically significant. The positive self-referent group ($M = 3.93$, $SD = .49$) did not show significantly higher levels of trait self-esteem than the negative self-referent group ($M = 3.81$, $SD = .47$). Thus, I can conclude that the four conditions showed similar scores of trait self-esteem prior to the study.

Self-Esteem Manipulation

I also conducted a 2x2 between-subjects Analysis of Variance (ANOVA) with two levels

of word connotation (positive, negative) and two levels of word reference (self-referent, non-self-referent) to examine the effects of the self-esteem manipulation. I found all effects to be statistically non-significant at an alpha level of .05 for the pre-Money Game measure of state self-esteem, suggesting that the state self-esteem measures did not differ by the self-esteem manipulation.

The main effects of word connotation yielded an *F* ratio of $F(1, 54) = .095$, *n.s.*, suggesting that the means for the positive ($M = 3.98$, $SD = .53$) and the negative ($M = 3.93$, $SD = .47$) conditions did not differ significantly.

The main effects of word reference yielded an *F* ratio of $F(1, 54) = 1.99$, *n.s.,* suggesting that the means for the self-referent ($M = 3.87$, $SD = .48$) and non-self-referent ($M = 4.05$, $SD = .51$) conditions did not differ significantly.

I analyzed the interaction effects, $F(1, 54) = .368$, *n.s.*, using interaction comparisons based on an overall alpha level of .05. The positive self-referent group ($M = 3.93$, $SD = .49$) did not show significantly higher levels of state self-esteem than the negative self-referent group ($M = 3.81$, $SD = .47$). Thus, I cannot conclude that the state self-esteem manipulation affected the participants' self-esteem. See Figure 1.

Money Game Donations

Although there was no effect of the self-esteem manipulation, I was still interested in seeing if there were differences among the conditions based on participants' donations in the Money Game. Because I was primarily interested in comparing the donations in the two self-referent conditions (positive, negative), I conducted an independent samples *t* test to compare donations in the positive self-referent condition of the first round of the Money Game ($M = .80$, $SD = .22$) with donations in the negative self-referent condition in the first round of the Money

Game (M = .62, SD = .31). This test approached significance, $t(27) = -1.88$, $p < .08$. The strength of the relationship between gender and donations in round three, as indexed by eta^2 was .12, indicating a weak to moderate relationship.

I conducted another independent samples t test to compare donations in round two of the Money Game in the positive self-referent condition (M = .56, SD = .29) with donations in the negative self-referent condition (M = .28, SD = .22). As expected, the test was statistically significant, $t(28) = -2.94$, $p < .01$, indicating that participants in the positive self-referent condition donated more than participants in the negative self-referent condition. The strength of the relationship, as indexed by eta^2, was .24, indicating a moderate effect.

To see if there was any effect of the non-self-referent groups, I conducted a two-way between-subjects ANOVA with two levels of word connotation (positive, negative) and two levels of word reference (self-referent, non-self-referent). I found a marginally significant effect of word connotation and a marginally significant interaction in round two of the Money Game at an alpha level of .05.

The main effects of word connotation yielded an F ratio of $F(1, 54) = .09$, $p < .09$, suggesting that there was a marginally significant difference between the means for the positive (M = .47, SD = .29) and the negative (M = .33, SD = .29) conditions. The strength of the relationship, as indexed by eta^2, was .05, indicating a weak effect. The main effect of word reference yielded an F ratio of $F(1, 54) = .56$, *n.s.*, suggesting that there was no significant difference between the means of the non-self-referent (M = .38, SD = .31) and the self-referent (M = .42, SD = .29) groups.

I found a marginally significant interaction between word connotation and word reference, $F(1, 54) = .056$, $p < .06$. As hypothesized, participants in the positive self-referent

condition donated more money to the other participant than participants in the negative self-referent condition did (.56 - .28 = .28), whereas participants in the positive non-self-referent condition did not donate more money to the other participant than participants in the negative non-self-referent condition (.37 - .38 = -.01). The strength of the overall interaction effect, as indexed by eta^2, was .06, which suggests a weak relationship. See Figure 2.

Peer Relationships Inventory (PRI)

I conducted Pearson correlations among the subscales of the PRI and the donations in the Money Game. I found the donations in Money Game round one (M = .65, SD = .31) and the aggression subscale (M = 1.55, SD = .36) to be significantly correlated, $r(44) = -.34$, $p < .03$, indicating that the two variables are negatively related such that those who donate less in the Money Game had higher aggressiveness scores on the PRI. See Table 1.

I also found the donations in Money Game round two (M = .40, SD = .30) and victimization (M = 1.66, SD = .47) to be significantly correlated, $r(44) = -.30$, $p < .05$, indicating that the two variables are negatively related such that participants who donated less in the Money Game had higher victimization scores on the PRI. The donations in round three (M = .23, SD = .27) were also significantly correlated with victimization, $r(44) = -.38$, $p < .02$, indicating that the two variables were negatively related such that those who donate less in the Money Game had higher victimization scores on the PRI. See Table 1.

I conducted a multiple regression analysis to see if aggression was a better predictor of donations than the self-esteem manipulation variables. I entered PRI aggression scores, self-reference, word connotation, and the interaction of self-reference and word connotation into the equation to predict donations. The model was marginally significant at an alpha level of .05, $F(4, 40) = 2.18$, $p < .09$ and accounted for 8% of the variability in the donations ($R = .42$, $R^2 =$

.18, Adjusted R^2 = .08). Aggression appeared to be a marginally significant predictor variable, $t(44) = -2.01$, $p < .06$; the other variables did not approach significance. The standardized beta coefficient for aggression was -.30.

I conducted two more multiple regressions to see if victimization was a better predictor of donations in rounds two and three than the self-esteem manipulation variables. I entered PRI victimization scores, self-reference, word connotation, and the interaction of self-reference and word connation into the equation to predict donations. The model was statistically significant at an alpha level of .05, $F(4, 40) = 3.41$, $p < .02$ and accounted for 18% of the variability in the donations ($R = .50$, $R^2 = .25$, Adjusted $R^2 = .18$). The standardized beta coefficient for victimization was .40. Victimization, however, did not appear to add any variability independent of the variables associated with the self-esteem manipulation. In round three, the model approached significance at an alpha level of .05, $F(4, 40) = 2.39$, $p < .07$ and accounted for 11% of the variability in the donations ($R = .44$, $R^2 = .19$, Adjusted $R^2 = .11$). Victimization appeared to be a marginally significant predictor variable, $t(44) = -1.69$, $p < .10$; the other variables did not approach significance. The standardized beta coefficient for victimization was -.27.

Exploratory Analyses

PRI Victimization. I conducted a 2x2 between-subjects ANOVA with two levels of word connotation (positive, negative) and two levels of word reference (self-referent, non-self-referent) to explore whether PRI victimization scores differed among the four conditions. I found a main effect for word connotation, a marginally significant main effect for word reference, and a non-significant interaction at an alpha level of .05.

The main effects of word connotation yielded an F ratio of $F(1, 44) = 6.75$, $p < .05$, suggesting that the means for the positive ($M = 1.49$, $SD = .09$) and the negative ($M = 1.83$, $SD =$

.09) conditions were significantly different. The strength of the relationship, as indexed by eta^2, was .13, indicating a weak to moderate effect.

The main effects of word reference yielded an F ratio of $F(1, 44) = 3.74$, $p < .06$, suggesting that there was a marginally significant difference between the means of the non-self-referent ($M = 1.79$, $SD = .09$) and the self-referent ($M = 1.54$, $SD = .09$) groups. The strength of the relationship, as indexed by eta^2, was .07, indicating a weak to moderate effect.

I found a non-significant interaction between word connotation and word reference, $F(1, 44) = .32$, *n.s*. Participants in the positive self-referent condition did not have significantly different scores on the PRI victimization scale than participants in the negative self-referent condition (1.33 – 1.74 = -.41). Likewise, participants in the positive non-self-referent condition did not have significantly different scores on the PRI victimization scale than participants in the negative non-self-referent condition (1.66 – 1.92 = -.26).

PRI Aggression. I conducted a 2x2 Analysis of Variance (ANOVA) with two levels of word connotation (positive, negative) and two levels of word reference (self-referent, non-self-referent) to examine whether PRI aggression scores differed among the four conditions. I found all effects to be statistically non-significant at an alpha level of .05.

Post-Money Game state self-esteem measure. I conducted a correlated groups t test to examine whether the mean score of the measure of state self-esteem was significantly different after playing the Money Game ($M = 3.96$, $SD = .50$) than it was before playing the Money Game ($M = 3.97$, $SD = .52$). There was no significant difference in the means, at an alpha level of .05, $t(57) = -.39$, *n.s.*, suggesting that participants' self-esteem did not change as a result of playing the Money Game.

Trust measure. I conducted a correlated groups t test to compare the mean rating of trust

question one with the mean rating of trust question two. I found this test to be statistically significant at an alpha level of .05, $t(57) = -2.68$, $p < .02$, suggesting that participants believed that the other player would be significantly more generous in the game ($M = 4.17$, $SD = 2.07$) than participants believed that the other player would expect them to be ($M = 4.72$, $SD = 2.38$). The strength of the relationship between questions one and two was, as indexed by eta^2, was .11, suggesting a weak to moderate relationship.

As would be expected, trust question one was significantly correlated with donations in rounds one, $r(57) = -.59$, $p < .01$; two, $r(57) = -.36$, $p < .01$; and three, $r(57) = -.35$, $p < .01$, suggesting that the more generous participants believed the other participant would be, the more the other participant donated. Trust question two was significantly correlated with donations in rounds one, $r(57) = -.63$, $p < .01$; two, $r(57) = -.32$, $p < .02$; and three, $r(57) = -.34$, $p < .02$ as well, suggesting that the more generous the participants believed the other participant expected them to be, the more the participant donated.

Gender differences. I did not find any significant gender differences with the exception of the donations in the third and fourth rounds of the Money Game. I used an independent samples *t* test to compare men's Money Game donations in round three ($M = .36$, $SD = .41$) with women's Money Game donations in round three ($M = .19$, $SD = .20$). This test was found to be statistically significant at an alpha level of .05, $t(57) = 2.04$, $p < .05$, indicating that men donated significantly less than women. The strength of the relationship between gender and donations in round three, as indexed by eta^2, was .07, indicating a weak to moderate relationship.

I also used an independent samples *t* test to compare men's Money Game donations in round four ($M = .40$, $SD = .45$) with women's Money Game donations in round three ($M = .16$, $SD = .17$). I found this test to be statistically significant at an alpha level of .05, $t(54) = 2.88$, $p <$

.05, indicating that men donated significantly less than women. The strength of the relationship between gender and donations in round three, as indexed by eta^2, was .13, indicating a weak to moderate relationship.

Discussion

There is widespread agreement that people's self-esteem plays an important role in their behaviors and interactions with others (Brown & Mankowski, 1993). Research suggests that people with low self-esteem are more likely to use relational aggression than those with high self-esteem (see Dettinger & Hart, 2007). The purpose of this study was to further examine the relationship between self-esteem and relational aggression through an investigation of participants' behaviors after undergoing a self-esteem manipulation to increase, decrease, or have no effect on self-esteem. I tested the hypothesis that self-esteem is the cause of relational aggression; in particular, that those individuals with low state self-esteem would show more evidence of relationally aggressive behaviors than participants with high state self-esteem.

Hypotheses

Hypothesis I. I hypothesized that state self-esteem is causally linked to the occurrence of relational aggression. Contrary to my hypothesis, I was unable to conclude that there is a causal relationship between these two variables, as the self-esteem manipulation was statistically unsuccessful.

My failure to find a difference between the state self-esteem of participants in the positive self-referent and the negative self-referent conditions may be reflective of the type of self-esteem that the measure was assessing. Karpinski and Steinberg (2006) suggest that measures of self-esteem comprise three main types: explicit, association based, and implicit. Explicit measures are self-report measures that assess individuals' conscious self-evaluations. Association-based

measures (e.g., the Implicit Association Task (IAT)) assess individuals' automatic, nonconscious self-evaluations. Implicit measures are hybrid measures that address aspects of both implicit and explicit self-esteem (e.g., the name-letter preference task) (Greenwald & Banaji, 2005). Implicit and explicit measures of self-esteem are typically uncorrelated with one another, as they predict different kinds of outcomes (Bosson, 2006). In the present study I used a self-report measure to assess effects of the self-esteem manipulation, thus, I was measuring changes in explicit self-esteem. It is possible, however, that I did not successfully manipulate participants' explicit self-esteem, but rather, their implicit self-esteem. Therefore, participants may have been unable to accurately portray their self-esteem on a self-report measure because aspects of their self-esteem operate in an implicit mode (Bosson, 2006). Because participants' self-esteem was subliminally manipulated, it is likely that the implicit nature of the manipulation affected their ability to accurately self-report their self-esteem on an explicit measure of self-esteem.

Explicit measures are direct and high in face validity, which may further explain why the self-esteem manipulation appeared to be unsuccessful. If a measure is direct, what the measure is assessing is likely fairly transparent to respondents. As a result, self-presentation motives may compel people to report that their self-esteem is higher than it actually is. People have high control over how they score on self-report measures, which raises the possibility that self-reported self-esteem does not actually represent a person's true feelings (Tafarodi & Ho, 2006).

While the self-esteem manipulation was unsuccessful in the present study, Riketta and Dauenheimer (2003) were able to manipulate participants' explicit self-esteem with the subliminal self-esteem manipulation; they found significant results for their subliminal self-esteem manipulation using the same explicit measure of state self-esteem that I used in the present study. There are a number of possible explanations for why I was unable to find a

significant effect while they were. For example, Riketta and Dauenheimer conducted their study at a large university in a city in Germany. The words that I used in the present study were translated from German and may have slightly different meanings and connotations in English. In addition, cultural differences may have affected results, as researchers have not yet shown the results of the study to hold cross-culturally.

In addition to language and cultural differences, Riketta and Dauenheimer also conducted their study at a large city university. Thus, they likely tested a more heterogeneous pool of participants than I tested in the present study, as I conducted my study at a small liberal arts college in central New York. While the average global self-esteem score in the present study was about 3.68 (*SD* = .86), I suspect that Riketta and Dauenheimer's participants had more variability in their global self-esteem scores and that the average global self-esteem score was lower than the average self-esteem score of participants in the present study. Because the population with which I was working had a high self-reported self-esteem, it may have been more difficult to manipulate their explicit self-esteem, as people have a fundamental desire to achieve a positive self-image and preserve current self-views, especially those individuals with high self-esteem (Brown, 1993). In my study, I had a large sample of participants with high self-esteem, who I expect were striving to maintain a positive view of themselves. Thus, it is possible that the self-presentation motive affected participants' responses on an explicit measure of state self-esteem. An implicit measure of self-esteem would be a better measure of the effect of the self-esteem manipulation in the present study.

Hypothesis II. In addition to my initial hypothesis, I also hypothesized that those individuals with low state self-esteem would show more evidence of relational aggression than those individuals with high state self-esteem. Even though the self-esteem manipulation check

failed to yield significant results, a marginally significant interaction in round two of the Money Game suggests that there may have been some influence of the self-esteem manipulation that affected participants' donations in the low and high self-referent conditions but did not affect participants in the non-self-referent conditions in the same way.

As expected, the participants in the negative self-referent (LSE) condition in round two of the Money Game gave lower donations in the Money Game than participants in the positive self-referent (HSE) condition, whereas there was no difference between participants' donations in the positive and negative non-self-referent conditions. The results of the present study suggest that participants in the low self-esteem condition were more likely to act relationally aggressive toward a confederate in the Money Game than individuals in the high self-esteem condition. As previous research suggests, those with low self-esteem have a positive view of aggression, which may explain their increased tendency to behave in this way (Hubbard et al., 2001). This behavior may also have been the result of flawed processing of the ambiguous social situation. Just as depressed individuals (who typically have low self-esteem) have retaliatory behavioral responses when presented with an ambiguous situation, participants in the low self-esteem condition may have behaved in a relationally aggressive manner for a similar reason (Quiggle et al., 1992). In the future researchers could include measures of reactive and proactive aggressive in order to better understand the reason why participants donated in the way that they did.

My finding regarding the donations in the Money Game across the four conditions corresponds with self-report studies of the relationship between low self-esteem and relational aggression that suggest that those with low self-esteem are more likely to be relationally aggressive than those with high self-esteem. For example, Dettinger and Hart (2007) found that the higher participants' reported their self-esteem to be, the less they reported behaving

relationally aggressive; Cowan et al. (1998) found a similar relationship between self-esteem and relational aggressive behaviors with female participants.

Though the results of the present study were approaching a desirable level of significance, the interaction effect was only marginal. The effect may not have reached significance for a variety of reasons. For example, it may be that the adjectives to which participants were exposed in the self-esteem manipulation were unintentionally self-referent. While adjectives such as *bad* and *good* are not particularly self-descriptive unless paired with a self-referent word such as *I*, words like *worthless* and *valuable* may be independently self-referent. People often think of a word such as *worthless* in relation to themselves, which could have affected the manipulation and may also explain why I did not see a significant interaction effect.

Limitations

Although my study produced important results that should be further researched, there are some limitations to consider. As discussed previously, some limitations of the present study include possibly having manipulated implicit self-esteem (while assessing participants' explicit self-esteem), testing a small sample of participants' from a privileged background who have high self-esteem that they would wish to maintain, and using words in the self-esteem manipulation that may be independently self-referent.

In addition to these limitations, the distribution of participants in the four conditions is a potential confound. As the results of an ANOVA suggest, by chance, participants were grouped such that there were significantly more victimized participants in the negative conditions than in the positive conditions. Thus, it is possible that participants' experience with victimization affected donations rather than the self-esteem manipulation. In the future researchers should take

victimization (and aggression) PRI scores into account when assigning participants to conditions in order to ensure that experiences with victimization are evenly distributed across the conditions.

Other limitations may result from the time lag between the two parts of the experiment. There were approximately two to three minutes between the completion of the self-esteem manipulation and the beginning of the Money Game, as the experimenter had to explain how to play the game. Because the effects of subliminal self-esteem manipulations are only temporary, the effects may have worn off during the Money Game, which may have affected the results.

Future Research

Regardless of these limitations, my results are promising and suggest that researchers should conduct further research on this topic to address some of these limitations and to learn more about the behavioral relationship between self-esteem and relational aggression. In the future researchers should purposely manipulate implicit self-esteem, as studies suggest that implicit self-esteem is a better predictor of people's spontaneous or affectively-driven reactions than explicit self-esteem (Franck, De Raedt, & De Houwer, 2007

In the future, researchers may consider using a nonreactive measure to assess self-esteem. Because of their indirectness, nonreactive measures may be reflective of participants' implicit self-esteem and may be better at capturing self-evaluations that an individual wants to keep hidden (Greenwald & Banaji, 1995). Thus, the indirectness of these measures gives them an advantage over self-report measures. A nonreactive measure would be particularly important to use if researchers continue to conduct this study with a privileged population that has a relatively high level of explicit self-esteem that they would want to maintain.

Researchers may consider assessing self-esteem using nonreactive measures like the

Single Category Association Test (SCAT; Karpinski & Steinman, 2005), which is a modified version of the IAT that measures the strength of positive and negative associations with a single attitude object (i.e., the self), the Self-Appreciation Test (Aidman, 1999), or the extrinsic affective Simon task (De Houwer, 2003). Fazio and Olsen (2003) discuss other implicit measures that may be adapted to assess state self-esteem. These measures are indirect and therefore their purpose is not blatantly apparent to respondents (as cited in Bosson, 2006).

In addition to possibly changing the assessment of self-esteem in the future, I propose some further modifications to the present study. For example, in the future it may be optimal to only conduct three rounds of the Money Game rather than five, use real money in the Money Game, and administer measures of reactive and proactive aggression at the end of the game. Three rounds would be ideal because we saw the largest differences in donations in the first three rounds. After round three the donations seemed to level off to around twenty cents, which was the fixed donation of the confederate. If we had fewer rounds, the experiment would take less time, it would be easier to run a greater number of participants, and we could be more confident that the self-esteem manipulation has not worn off by the end of the game. In addition, many of the participants in the present study noted during debriefing that they did not actually believe that they were going to get any of the money at the end of the game and, as a result, did not take the study very seriously. If we gave participants real money, participants would likely take the game more seriously and be more invested in the game. Measures of reactive and proactive aggression would help researchers to better understand the participants' reasoning for donating in the way that they did.

In addition to changing these elements of the experiment's design, I also propose changing the nature of the experimental conditions in the study. Although Riketta and

Dauenheimer (2003) did not find an effect for the non-self-referent condition, presenting words in these conditions was a potential limitation to the research that should be eliminated in future studies of this nature. It would be far more telling to compare a low self-esteem, a high self-esteem, and a no-word control condition, as then there would be less ambiguity in the findings. As previously mentioned, words (e.g., valuable, worthless) can be self-referent without being paired with a self-referent word like *I*. If researchers used a control condition they could be sure that the self-esteem manipulation was not having an effect on the participants' self-esteem.

A particularly intriguing prospect for future research would be to examine the tendency for participants' with defensive self-esteem to relationally aggress. People with defensive high self-esteem actively guard against failure, whereas those who have a more authentic high self-esteem are not as concerned about failure because they do not view failure as threatening. People with defensive self-esteem will find ways to self-enhance in public presentations in order to lessen threats to their self-esteem (Schneider & Turkat, 1975). One form of self-enhancement may be to act relationally aggressive. Researchers could examine the relationship between defensive self-esteem and relational aggression by comparing the behaviors of individuals with high defensive high self-esteem, low defensive high self-esteem, high defensive low self-esteem, and low defensive low self-esteem. After participants experience failure, such as by receiving false feedback on an exam, participants could be given an opportunity to relationally aggress as a means of self-enhancement. Researchers could then compare the degree to which participants in the four groups act in a relationally aggressive manner.

Implications

Future research should continue to be conducted, as there are many valuable implications of researching the relationship between self-esteem and relational aggression. While relational

aggression has only recently begun to appear in psychological research, it is not a new behavior and is not uncommon. In fact, relational aggression likely occurs in schools and among siblings more frequently than physical aggression, as it is a discreet behavior that teachers and parents often fail to recognize or reprimand. Because of its discreet nature, relational aggression often goes unnoticed (Young et al., 2006). For this reason, it is particularly important to understand the cause of relational aggression in order to possibly eliminate its occurrence.

A better understanding of relational aggression could help improve the effectiveness of the anti-bullying programs that many schools are beginning to implement. Bullies have a history of using relationally aggressive tactics in their interactions with others (Camodeca & Goossens, 2004). If schools have a better understanding of the reason why bullies relationally aggress then they can tailor interventions to a known cause of the behavior. For example, if future research shows that low self-esteem causes relational aggression then schools could make sure to address the issue of self-esteem in their anti-bullying programs and perhaps initiate programs or strategies to increase students' self-esteem.

Parents could also benefit from better understanding the cause of relational aggression. If parents understand that it is their children's low self-esteem that is leading them to behave in a relationally aggressive way, then parents can better address the behavior. Parents may be more encouraging of their children as a way to increase their self-esteem or enroll their children in sports or other activities that may have a positive influence on self-esteem.

Concluding Remarks

The study of the relationship between self-esteem and relational aggression has important implications, particularly for teachers, parents, or other individuals who wish to eliminate the occurrence of this behavior. Although I did not find significant results, this study has helped to

further the study of relational aggression, as few experiments have been conducted on this topic. Researchers should continue to study the relationship between relational aggression and self-esteem in the future; in particular, researchers may consider studying defensive self-esteem as a potential cause of relational aggression. Further demystifying relational aggression is necessary in order to make social interactions more constructive and profitable within the entire social network.

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Appendix A

Who are you?

1. I am a native English speaker

Yes No

2. How many siblings do you have? _____

3. I have high self-esteem

1 2 3 4 5
not very true of me very true of me

4. What is the marital status of your parents? _____

5. Is your vision corrected using contacts or glasses?

Yes No

Appendix B

How do you feel?

Using the following scale, place a number on the line to the right of the statement that indicates what is true for you at this moment:

1 = not at all, 2 = a little bit, 3 = somewhat, 4 = very much, 5 = extremely

1. I feel confident about my abilities. _____
2. I am worried about whether I am regarded as a success or failure._____
3. I feel satisfied with the way my body looks right now. _____
4. I feel frustrated or rattled about my performance._____
5. I feel that I am having trouble understanding things that I read. _____
6. I feel that others respect and admire me. _____
7. I am dissatisfied with my weight. _____
8. I feel self-conscious. _____
9. I feel as smart as others. _____
10. I feel displeased with myself. _____
11. I feel good about myself. _____
12. I am pleased with my appearance right now. _____
13. I am worried about what other people think of me. _____
14. I feel confident that I understand things. _____
15. I feel inferior to others at this moment. _____
16. I feel unattractive. _____
17. I feel concerned about the impression I am making. _____
18. I feel that I have less scholastic ability right now than others. _____
19. I feel like I'm not doing well. _____
20. I am worried about looking foolish. _____

Appendix C

Peer Relationships Inventory

Listed below are behaviors that may be observed between classmates. Please rate how often each of the listed events has occurred since starting **high school** by circling the appropriate letter.

A – Never B – Occasionally C – Often D – Very Often

1. A classmate spoke up for you when others were being mean to you.
A B C D

2. You tried to make a classmate with no friends feel better around you.
A B C D

3. Classmates made fun of you or teased you.
A B C D

4. You left out, or were asked to leave out, a classmate from the group.
A B C D

5. A classmate was kind to you even though others were not.
A B C D

6. You were friendly to a classmate who was being teased.
A B C D

7. Classmates spread a rumor about you.
A B C D

8. You teased or made fun of a classmate.
A B C D

9. You were left out or felt left out by your classmates.
A B C D

10. A classmate was nice to you when you were being teased.
A B C D

11. You revealed a classmate's secret(s) to other people.
A B C D

12. You spoke up because you felt others were being mean to another classmate.
A B C D

13. A classmate tried to make you feel better when you felt you didn't have a lot of friends.
A B C D

14. You spread a rumor about a classmate.
A B C D

15. A classmate was friendly to you when others were ignoring you.
A B C D

16. A classmate was mean to you but would not admit to being angry.
A B C D

17. You were friendly to a classmate when others were ignoring them.
A B C D

18. You were mean to a classmate you were mad at but would not admit to being angry.
A B C D

19. Classmates revealed your secret(s) to other people.
A B C D

20. You were kind to a classmate when others would not be.
A B C D

Appendix D

Self-Reported Trust Questions

Now that you understand the game, please answer the following questions before you play.

Rate your expectations for how the other player will play the game:

1	2	3	4	5	6	7	8	9
Will donate generously								Will NOT donate generously

How do you think the other player expects you to play?

1	2	3	4	5	6	7	8	9
You will donate generously								You will NOT donate generously

Table 1

Correlations among the subscales of the PRI

Round Number	Aggression Subscale	Victimization Subscale
Round 1	-.35*	-.25
Round 2	-.19	-.30*
Round 3	-.18	-.38*
Round 4	-.03	-.09
Round 5	-.13	-.25

* significant, $p < .05$

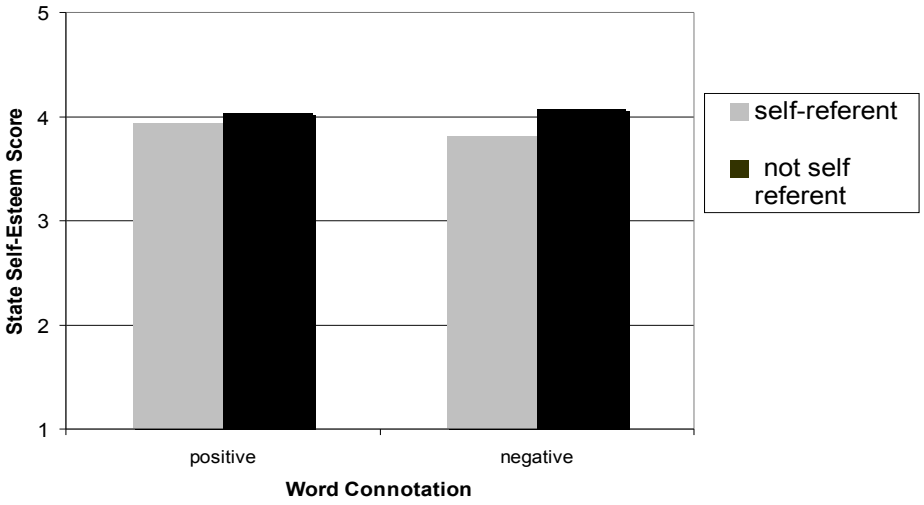
Figure Captions

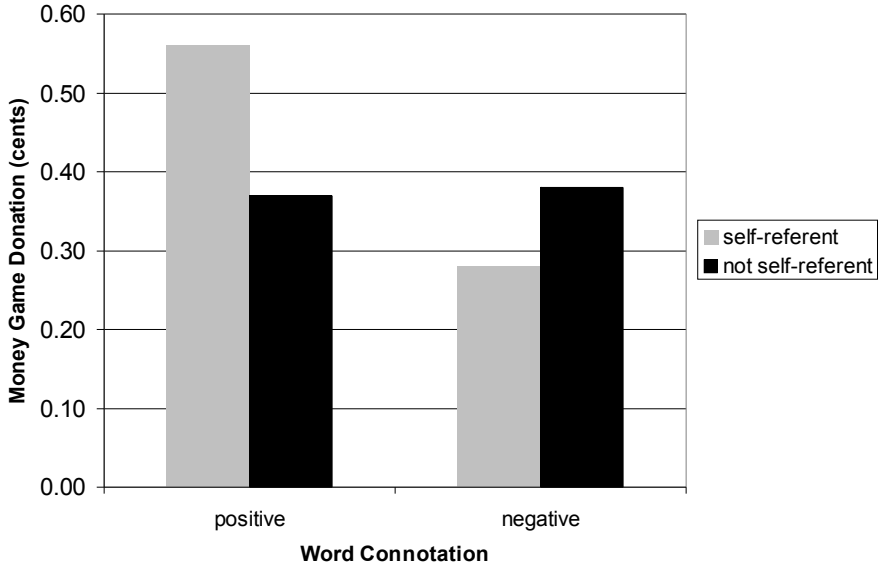
Figure 1. Pre-Money Game scores of state self-esteem across conditions.

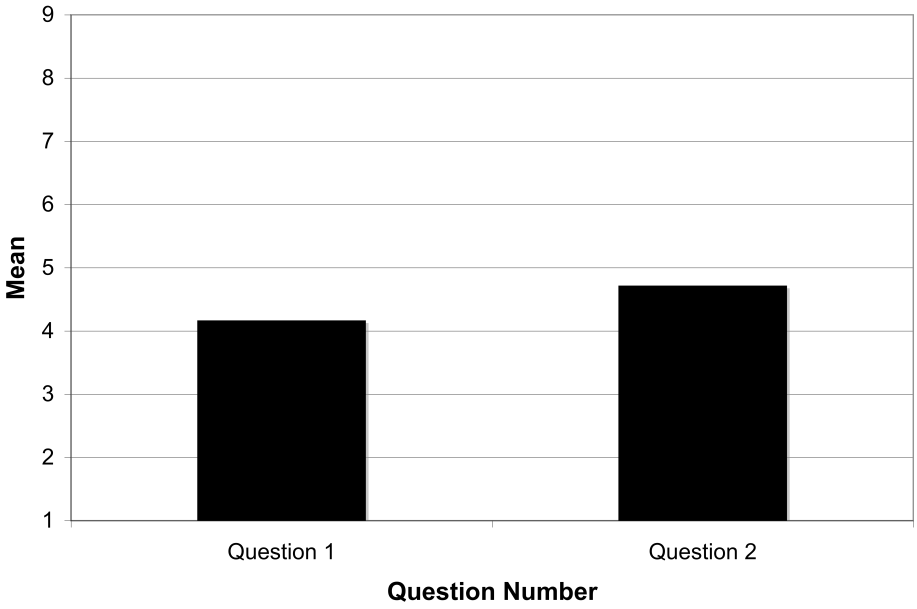
Figure 2. Round 2 Money Game donations across conditions.

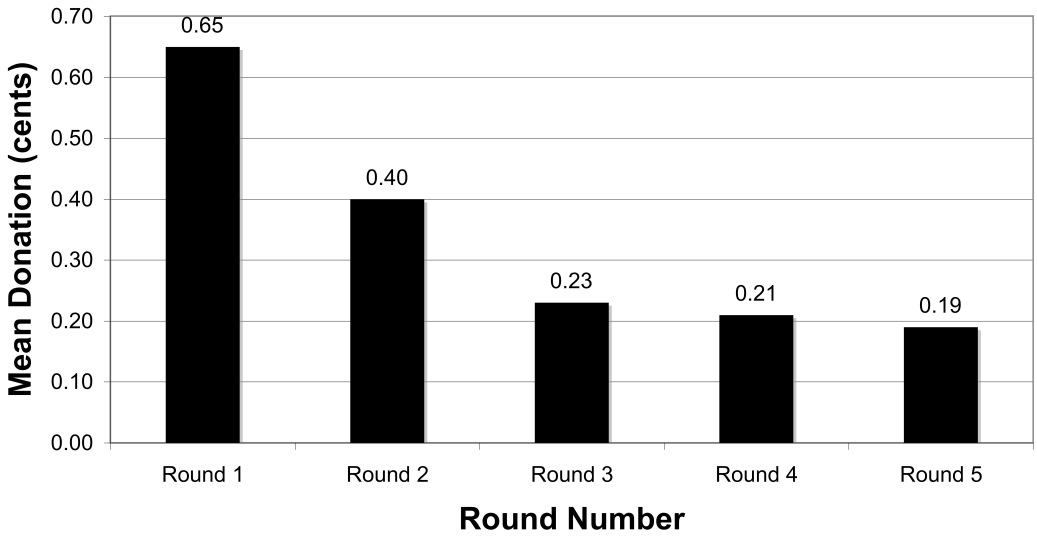
Figure 3. Means of trust questions.

Figure 4. Mean money donations across the five rounds of the Money Game.


5
4
3
2
1
State Self-Esteem Score
positive
negative
Word Connotation
self-referent
not self referent


0.60
0.50
0.40
0.30
0.20
0.10
0.00
Money Game Donation (cents)
positive
negative
Word Connotation
self-referent
not self-referent


9
8
7
6
5
4
3
2
1
Mean
Question 1
Question 2
Question Number


0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Mean Donation (cents)
0.65
0.40
0.23
0.21
0.19
Round 1
Round 2
Round 3
Round 4
Round 5
Round Number