STICKS AND STONES:

SELF-AFFIRMATION AS A PROTECTIVE FACTOR AGAINST REJECTION SENSITIVITY IN PEOPLE WITH DEFENSIVE SELF-ESTEEM

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Abstract

People with defensive self-esteem (high explicit, paired with low implicit, self-esteem) are sensitive to signs of personal vulnerability or rejection, and previous research suggests that self-affirmation is helpful for people with defensive self-esteem. I sought to investigate whether a self-affirmation exercise would reduce sensitivity to rejecting facial expressions for people with defensive relative to secure (high explicit and implicit) self-esteem. Participants completed measures of explicit and implicit self-esteem, and were randomly assigned to complete either a self-affirmation or control task prior to writing about a social rejection experience. Afterwards, they classified neutral faces (computerized morphs of happy and disgusted expressions) as positive or negative as quickly as possible. Results demonstrated that, contrary to the hypothesis, participants with defensive self-esteem did not classify more faces as negative than did those with secure self-esteem in the control condition. However, there was a trend such that participants with defensive self-esteem classified more faces as positive than did those with secure self-esteem in the self-affirmation condition. Implications and future directions are discussed.

Sticks and Stones: Self-Affirmation as a Protective Factor Against Rejection Sensitivity in People with Defensive Self-Esteem

"*The best lightning rod for your protection is your own spine.*"
– Ralph Waldo Emerson

Rejection hurts. Teasing, bullying, and exclusion are all common experiences in the social world, and every child at some point learns the classic maxim: "Sticks and stones may break my bones, but words will never hurt me". The point of the old adage is to affirm children's sense of self-worth; it indicates they should be secure enough in who they are that social pain cannot shake them. Unfortunately, social rejection does not end when a child grows up, nor does the sting that accompanies it. Usually the pain of social rejection is ephemeral in nature, and fades away as the memory of the event fades in time. For some people, however, the pain of social rejection does not fade as easily because of an underlying chronic sensitivity to rejection. People who have defensive self-esteem are more sensitive to rejection than others are, and a social rejection can trigger a variety of defensive behaviors in them. Affirming one's sense of self, however, can help buffer the pain of social rejection, just as it does for children repeating that classic phrase. Self-affirmation is a tool used to maintain self-integrity, especially in the face of ego-threatening events such as social rejection. Affirming the self, therefore, could be very beneficial for people with defensive self-esteem facing social rejection.

Social Rejection

Most people experience social rejection throughout life, from the sting of schoolyard bullying to the heartbreak of romantic relationships. Social rejection can elicit both adaptive and maladaptive changes in cognition. As an example of the former, following a social rejection,

people have been shown to display increased perspective-taking (Knowles, 2014) and better social memory (Hess & Pickett, 2010). Perspective-taking and social memory are adaptive because they aid people in being able to form social relationships. Perspective-taking improves social coordination and promotes social bonding (Knowles, 2014), and social memory is indicative of attunement to social domains (Hess & Pickett, 2010). Being highly attuned to the behavior of others should help to ensure future success in social domains (Hess & Pickett, 2010). These reactions are both healthy and normal responses to social rejection.

Sometimes, however, people respond maladaptively to social rejection, in a way that does not encourage future prosocial behavior. Maladaptive behaviors, cognitions, and affective responses can occur as a result of rejection. Like adaptive responses, maladaptive responses are also meant to be protective, but they prevent healthy adjustment in the long term. For example, following a social rejection manipulation in the lab, participants showed decreased desire for self-awareness, as indicated by their choosing to sit facing away from rather than in front of a mirror (Hess & Pickett, 2010; Twenge, Catanese, & Baumeister, 2003). In another study, socially rejected participants recalled fewer self-related memories (Hess & Pickett, 2010). A social rejection might trigger negative self-perceptions, so decreasing self-awareness protects against those feelings of inadequacy. However, decreasing self-awareness ultimately is not a helpful strategy for reconnecting socially because it prevents awareness of why the social rejection might have occurred, such as because of a behavioral problem or aversive personality trait.

Another maladaptive response to rejection is lack of emotion or affect. In one study (Twenge et al., 2003) researchers measured affect following a social rejection with both self-report and implicit methods to evaluate whether participants actually lacked affect or were just

embarrassed to report negative emotions. Being rejected by a group of peers did not elicit much emotional response either explicitly or implicitly, suggesting that participants experienced an emotional shutdown in response to the rejection. Shutting down one's emotional responses could help to avoid the distress that comes with meaningful thought about the experience of social pain. Furthermore, while this lack of emotion could protect against feeling the negative emotions that accompany rejection, it could also make it difficult to maintain other relationships because relationships require a give and take of emotions.

Most people are averse to social rejection and respond in both adaptive and maladaptive ways. However, there are individual differences in the extent to which people expect to be rejected (Downey & Feldman, 1996), which can lead to a particular sensitivity to rejecting social cues, causing people to interpret even ambiguous social cues as negative (Jones, Barnett, Wadian, & Sonnentag, 2016). One might argue that those people are just more attentive to social cues than others are, but research shows that chronic rejection sensitivity is unrelated to the ability to detect social cues (Kawamoto, Nittono, & Ura, 2015). Rejection sensitivity is related to perceived social exclusion experiences, but not perceived inclusion experiences, whereas the ability to detect social cues is related to both exclusion and inclusion experiences. This finding implies that chronic rejection sensitivity is associated with intense vigilance and defensive response to rejection *specifically*, rather than simply exceptional attentiveness to social cues in general. A person with chronic rejection sensitivity might also coincidentally have heightened attentiveness to all social cues, but the two traits are not related to one another. People with chronic rejection sensitivity tend to constantly perceive ambiguous social cues as negative and readily expect and receive rejection, which can be detrimental for relationships (Downey &

Feldman, 1996). These findings suggest that social rejection can potentially have wide-reaching effects, especially for those people who already have a tendency to expect rejection.

Sociometer Theory

Some researchers have theorized that humans' sensitivity to social rejection is based in our evolutionary history (Leary & Baumeister, 2000). According to sociometer theory (Leary & Baumeister, 2000), a psychological system, called the sociometer, monitors a person's social environment for cues indicating a high or low relational value to others. These cues are used to determine a person's sense of self-worth, which is why rejecting social cues can feel so damaging (Leary, 2005). Evolutionarily, the sociometer might have been used to help maintain acceptance within a group for safety reasons (Leary & Baumeister, 2000). The sociometer is really a meter of self-esteem, determining how people feel about themselves. If people are repeatedly rejected, the sociometer will inform them that they have lower relational value in society, and therefore indicate a lower sense of self-worth. When one is accepted, the sociometer will raise one's sense of self-worth by indicating a higher relational value to others. The sociometer helps to monitor social acceptance so that a person can maintain a high relational value overall. For example, in an early sociometer study, participants who were told that no one else had chosen to work with them on a decision-making task subsequently had lower self-esteem than did participants in an inclusion condition who were told that others had chosen them (Leary, Tambor, Terdal, & Downs, 1995). A later study found that when heavier women interacted with an experimenter who was wearing a t-shirt expressing acceptance of all body types, they had higher implicit self-esteem at the next test date than did lighter women (Weisbuch, Sinclair, Skorinko, & Eccleston, 2009) because the t-shirt signaled potential

belonging and acceptance. These findings indicate that the sociometer alerts individuals to rejection or acceptance, which determines feelings of self-worth.

Sociometer theory explains why people are often motivated by these feelings of self-worth. The feeling of belonging is so crucial to human functioning that Maslow (1968) classified it as a fundamental human need, second in importance only to physiological and safety needs. If people feel that they do not belong, they will never be fulfilled. People who feel that they are generally socially accepted have higher self-esteem in spite of moments of self-doubt than do people who feel that they are generally not accepted socially. For example, researchers have demonstrated that people's perceptions of their romantic partner's regard for them have a large effect on daily fluctuating self-esteem. In a daily diary study, people who chronically felt more positively regarded compensated for a day of self-doubt by perceiving greater acceptance from their partners on the following days, whereas people who felt less positively regarded tended to internalize feelings of rejection, and felt worse about themselves after a day of self-doubt (Murray, Griffin, Rose, & Bellavia, 2003). This research indicates that self-esteem is tied to sense of belonging and social acceptance, and when belonging is threatened, self-worth plummets.

In order to alleviate the stress on self-worth that follows social rejection, people tend to behave in ways that increase the chance for future acceptance. Social rejection threatens the sense of self because the sociometer uses the rejection as an indicator of alienation, which in turn indicates a lower overall sense of self-worth (Vohs & Heatherton, 2004). Researchers in one study found that during a virtual ball-tossing game, adolescents compensated for social exclusion by an unknown peer by tossing the ball more often to that player (Vrijhof et al., 2016). Although the current body of research on behavior following rejection is limited, acting in a compensatory

friendly manner following rejection might be advantageous because it decreases the possibility of further social rejection. People therefore tend to behave in socially-rewarding ways in order to avoid rejection and maintain overall high self-esteem (Leary, 2005).

Overall, or global, self-esteem is based on social environmental input from the sociometer, and denotes a value judgement about the self (Leary & Baumeister, 2000). Research has demonstrated that people with low self-esteem are more likely to behave in ways that will protect that value judgement of the self, whereas people with high self-esteem are able to take more risks socially because they already value themselves highly. In one study, participants were invited to join a group in which acceptance was either guaranteed, or was likely, but not guaranteed. The results showed that people with low self-esteem were more likely to make social decisions based on whether acceptance would be guaranteed, whereas people with high self-esteem were more likely to take risks socially (Anthony, Wood, & Holmes, 2007). This finding supports the notion that the sociometer is integral in social decision-making, and that social behavior is driven in large part by self-esteem.

Self-Esteem

Since John Milton coined the term in 1642, self-esteem has become one of the most widely studied topics in psychology (Zeigler-Hill et al., 2016). Feelings of self-worth have been implicated in many psychological phenomena, including depression and suicidal ideation, loneliness and peer rejection, academic achievement, and life satisfaction (Kernis, 2002). In general, the critical aspect of self-esteem has traditionally been whether it is high or low. However, self-esteem does not exist just on that single dimension, but rather is better understood as a multi-faceted concept (Kernis, 2002). Self-esteem encompasses both *explicit* self-esteem and

implicit self-esteem, both of which can be high or low and can contribute to global self-esteem and overall feelings of self-worth.

Explicit self-esteem. Explicit self-esteem is the type commonly portrayed in popular media and is most often thought of when the term "self-esteem" is mentioned. A person's explicit self-esteem is within conscious awareness and is easily accessible. It consists of conscious thoughts and feelings about the self (Rosenberg, 1965). Explicit self-esteem is traditionally measured through self-report scales and questionnaires, such as the Rosenberg *Self-Esteem Scale* (Rosenberg, 1965), the *Self-Liking and Self-Competence Scale* (Tafarodi & Swann, 1995), the *Self-Rating Scale* (Fleming & Courtney, 1984), or the *Self-Attributes Questionnaire* (Pelham & Swann, 1989). Each of these measures is slightly different in terms of how the questions are worded, but all involve assessing feelings of self-worth. The most commonly used measure is the *Self-Esteem Scale* (Rosenberg, 1965).

The literature on self-esteem is plagued with inconsistencies, but in general high explicit self-esteem is correlated with high academic achievement (Hattie, 1992) and life satisfaction (Huebner, 1991). Longitudinal research on explicit self-esteem shows that self-esteem increases during adolescence, young adulthood, and middle adulthood, and then peaks around age 60 before declining in old age. Additionally, higher explicit self-esteem is related to employment status, household income, and satisfaction in the domains of work, relationships, and health (Orth, Maes, & Schmitt, 2015). These findings call attention to developmental stages at which individuals might be most vulnerable due to low explicit self-esteem (such as old age and adolescence), and to factors that predict successful life trajectories.

Implicit self-esteem. Implicit self-esteem, in contrast, consists of nonconscious feelings of self-worth (Kernis, 2002) that are not readily accessible to conscious awareness and that

therefore cannot be measured on a self-report scale (Farnham, Greenwald, & Banaji, 1999). Alternative measurement strategies have been devised to assess implicit self-esteem, which does not always correlate with explicit self-esteem (Kernis, 2002). For example, the Name Letter Task (Kitayama & Karasawa, 1997) assesses implicit self-esteem by measuring the degree to which people prefer the letters in their own names more than others do. Another measure of implicit self-esteem is the Implicit Association Test, or IAT (Greenwald & Farnham, 2000). The IAT assesses implicit self-esteem by measuring reaction times for associating the self with positive versus negative words. It is only weakly correlated with the Rosenberg (1965) Self-Esteem Scale, suggesting that they measure two different aspects of self-esteem (Greenwald & Farnham, 2000).

Although implicit self-esteem exists outside of conscious awareness (Falk & Heine, 2015), these nonconscious feelings of self-worth affect people's thoughts, feelings, and behaviors (Kernis, 2002). For example, implicit self-esteem has been shown to be related to unconscious self-relevant anxiety (Rudman, Dohn, & Fairchild, 2007) and to automatic intergroup bias (Rudman et al., 2007). In general, explicit self-esteem is formed through dramatic and impactful instances that people can recall as such, whereas implicit self-esteem is formed through associations with people and events whose impact was not directly felt by the individual, but that nonetheless were influential (Kernis, 2003). These experiences form nonconscious feelings of self-worth that persist long after the experience ends.

Types of self-esteem. Given the weak correlation between explicit and implicit self-esteem, these two systems are separate, but can interact with one another (Epstein & Morling, 1995). Four types of self-esteem emerge from the interaction between these two systems: two types of non-discrepant self-esteem, in which the explicit and implicit systems correspond, and

two types of discrepant self-esteem, in which the explicit and implicit systems are at odds with one another. The developmental trajectories of these types of self-esteem are unknown, but some researchers have theorized that implicit self-esteem develops during early life (DeHart, Pelham, & Tennen, 2006), while explicit self-esteem develops later in life and is mutable (Kernis, 2003), allowing for different combinations. Secure self-esteem, a type of non-discrepant self-esteem, occurs when a person possesses both high explicit and implicit self-esteem. It is known as "optimal self-esteem" (Kernis, 2003) and is characterized by well-anchored and stable feelings of self-worth that are not contingent on success in a particular domain (Kernis, 2003). Chronic low self-esteem (low explicit/low implicit self-esteem) is also non-discrepant but is not optimal. People with chronic low self-esteem are said to have genuine low self-esteem because their feelings reflect their true self in daily life (Kernis, 2003). People with chronic low self-esteem are at a higher risk for depression and anxiety and are often much more cautious in their decision-making than are people with secure self-esteem (Zeigler-Hill et al., 2016). However, individuals with chronic low self-esteem tend to be more responsive to criticism and feedback, and generally have higher likeability than do people with secure self-esteem (Heatherton & Vohs, 2000).

Discrepant self-esteem can manifest as either damaged self-esteem or defensive self-esteem. Damaged self-esteem is defined as low explicit self-esteem in combination with high implicit self-esteem. Individuals with damaged self-esteem are more likely to internalize their problems, which in turn can lead to problems such as depression and suicidal ideation (Creemers, Scholte, Engels, Rutger C. M. E., Prinstein, & Wiers, 2013). Additionally, research has shown that, relative to people with secure self-esteem, those with damaged self-esteem have more health problems (Schröder-Abé, Rudolph, & Schüz, 2007) and are more likely to interpret

ambiguous information more positively and to pay less attention to negative feedback (Schröder-Abé, Rudolph, Wiesner, & Schütz, 2007).

Defensive Self-Esteem

Defensive self-esteem is characterized by high explicit but low implicit self-esteem. This type of self-esteem is fragile and often leads to defensive behaviors (Epstein & Morling, 1995). People with defensive self-esteem tend to feel good about themselves consciously, but not subconsciously (Kernis, 2003). They are more vulnerable to social environmental threats in daily life, as such threats bring their normally subconscious negative self-related feelings into awareness and make the discrepancy between their high explicit and low implicit self-esteem more salient. This vulnerability to threat results in greater fluctuations in self-esteem than that experienced by people with secure self-esteem (Jordan, Spencer, Zanna, Hoshino-Browne, & Correll, 2003).

Correlates of defensive self-esteem. When people with defensive self-esteem have their explicitly positive self-views challenged, their normally less conscious self-doubts may come closer into awareness, which can prompt defensiveness. Jordan et al. (2003) found that people with defensive self-esteem showed higher levels of narcissism, in-group bias, and dissonance reduction compared with people with secure self-esteem. These behaviors serve to guard the normally positive self-images of people with defensive self-esteem. Narcissism is often thought to conceal unacknowledged insecurities, making it the perfect characteristic for someone with defensive self-esteem who is experiencing discrepancy between their explicit and implicit self-esteem systems. In-group bias reflects a need to bolster the image of one's ingroup, thereby increasing one's own relational value by association. Finally, dissonance reduction is meant as a way to rationalize decisions in order to affirm the explicit positive self-view. Researchers have

also found that people with defensive self-esteem are more aggressive in childhood (Sandstrom & Jordan, 2008) and hold particularly strong attitudes, unwilling to see another point of view in order to protect their self-esteem (Haddock & Gebauer, 2011). These findings demonstrate that even in the absence of specific threats to the self, people with defensive self-esteem show defensive behaviors. In the presence of environmental threats, however, these defensive behaviors are magnified.

Effects of ego threat. Environmental events that threaten a person's sense of self-worth are known as ego threats. When faced with ego threat, negative implicit feelings become more apparent and people with defensive self-esteem show more defensive behaviors than do people with secure self-esteem (Jordan et al., 2003). Research has demonstrated that these behaviors are varied, and that they potentially affect many aspects of a person's life. Following an ego threat, people with defensive self-esteem display self-regulation failure (Lambird & Mann, 2006), increased self-handicapping behavior (Lupien, Seery, & Almonte, 2010), more self-serving biases (Kernis et al., 2005), increased verbal defensiveness (Kernis, Lakey, & Heppner, 2008), and suppression of failure-related thoughts (Borton, Crimmins, Ashby, & Ruddiman, 2012). These behaviors tend to occur because the ego threat highlights the discrepancy between a person's high explicit self-esteem and low implicit self-esteem. Defensive behaviors such as these are used as an attempt to address and eliminate that discrepancy (Borton et al., 2012).

Due to their low implicit self-esteem, people with defensive self-esteem are more sensitive to rejecting social cues than are people with stable self-esteem. One study demonstrated that people with defensive self-esteem were quicker to detect a rejecting facial expression following a social rejection ego threat than were people with defensive self-esteem who did not experience ego threat or people with secure self-esteem (Borton, Stern, & Aparicio, 2019). In

this case, the ego threat made nonconscious insecurities more salient, and the awareness of the discrepancy between the explicit and implicit self-esteem systems resulted in defensive heightened awareness of rejecting social cues. Not only do people with defensive self-esteem show defensive vigilance in the face of a social rejection, but they are also more attentive to rejecting facial cues than are people with secure self-esteem. Research demonstrated that during a rapid serial presentation task, participants with defensive self-esteem made more errors after being presented with a picture of a rejecting face than after being presented with a picture of an accepting face or a negative control image (Borton, Oakes, & Lengieza, 2017). These findings suggest that people with defensive self-esteem possess a defensive and adaptive vigilance to rejection in order to guard their conscious high self-esteem. These behaviors all occur in the face of ego threat in order to protect the sense of self, but could be maladaptive because they threaten the individual's ability to form secure, long-lasting relationships, or to succeed in important domains such as school or the workplace.

Self-Affirmation

Given the potential negative consequences of responding maladaptively to ego threat, might there be a way to reduce this defensiveness in people with defensive self-esteem? One such tool could be self-affirmation. Self-affirmation is an act that demonstrates one's adequacy in the world, which allows for adaptation to threatening information, thereby restoring a person's positive self-perception (Steele, 1988). Self-affirmation is meant to maintain self-integrity, which is a sense of global efficacy and an ability to control one's own moral outcomes in life (Cohen & Sherman, 2014). It is thought to be a fluid process, and does not necessarily respond to the threat at hand, but rather affirms the general integrity of the self. For example, in one study, women who were criticized for their driving skills responded by helping more with a food co-op,

suggesting that the act of affirming their "goodness" was enough to maintain an overall sense of integrity even though it did nothing to rebuff the original threat (Steele, 1988).

Steele (1988) originally showed that self-affirmation could effectively lower the need for dissonance reduction, and since then self-affirmation has been shown to be effective in reducing a variety of behaviors and in changing unhealthy cognitions. For example, some positive outcomes that follow self-affirmation include improvement of academic performance in minority students (Miyake et al., 2010), reduction of stereotype threat (Miyake et al., 2010), increase in openness to threatening health information (Sherman & Hartson, 2011), positive health changes (Armitage, Harris, Hepton, & Napper, 2008), reduction of stress (Keough & Markus, 1998), reduction of intergroup conflict (Cohen, 2012), and bias reduction (Cohen, Aronson, & Steele, 2000). In all of these cases, self-affirmation helps to relieve cognitive burdens such as ego threat. Under threatening circumstances, self-affirmation can buffer against threat and reduce defensiveness (Cohen & Sherman, 2014). Research has demonstrated that people can cope with interpersonal threats, such as upward social comparisons, by affirming other important aspects of the self (Spencer, Fein, & Lomore, 2001). Self-affirmation can also ameliorate defensive reactions to threat. In one study, self-affirmation reduced the tendencies to cling to one's beliefs in the face of disconfirming evidence and to interpret ambiguous information in a way that bolsters one's own beliefs (Cohen et al., 2000). Both of these tendencies are defensive reactions to information and are used to protect the self-concept. When a person self-affirms, the need to use those kinds of defensive strategies is reduced because the affirmation has already protected the self-concept in a much healthier manner.

Self-affirmation, self-esteem, and rejection. Broadening the self-concept so that a threat seems to encompass a more narrow slice of the self helps to alleviate the impact of the

threat on self-worth (Critcher & Dunning, 2015). A self-affirmation provides perspective on the self, so that self-worth is not purely defined by one aspect of the self. In a series of experiments, Critcher and Dunning (2015) found that, following a self-affirmation, participants indicated that threatened self-aspects were less all-defining of the self, and that this broader perspective mediated the palliative effect of self-affirmation on defensiveness. The threatened self-aspect remained important to participants, but did not harm their sense of self-worth due to a more expansive self-concept. These findings provide evidence that self-affirmation can work to reduce defensive behavior by providing perspective on the self.

Common manipulations of self-affirmation encourage participants to expand their self-concepts. Self-affirmation works largely outside of conscious awareness (Sherman et al., 2009), so participants experience the effects of the manipulation without knowing what is happening. The most common self-affirmation manipulation involves participants writing about their core personal values (McQueen & Klein, 2006), which helps increase their awareness of all that is important to them, instead of just focusing on a threatened domain. Recent work has demonstrated the importance of having participants self-affirm intrinsic, rather than extrinsic, aspects of the self (Schimel, Arndt, Banko, & Cook, 2004). In an extrinsic self-affirmation, participants are asked to focus on values contingent upon performance or social standards (i.e., "I am a good athlete"). In contrast, an intrinsic self-affirmation might instead focus participants on values that are unconnected to performance contingencies or societally-imposed standards (i.e., "I am happy when I am painting"). Research has demonstrated that an intrinsic, rather than extrinsic, self-affirmation exercise reduces thoughts about social rejection prior to a social interaction (Schimel, Arndt, Banko, & Cook, 2004). Social rejection threatens the sense of self, especially in domains that are contingent on approval of others, so it follows that an intrinsic

affirmation would be more effective than an extrinsic one in combating the effects of a social rejection threat on self-worth.

Self-affirmation has also been shown to attenuate the effect of negative social cues on self-esteem (Tyler, Branch, & Kearns, 2016). Among people who are high in need to belong, such as those who might be more sensitive to rejection, completing a self-affirmation task was demonstrated to raise state self-esteem following a social rejection. The same effect was not found for people who did not complete the self-affirmation exercise, who had lower state self-esteem, or for those who were not exposed to social rejection. This finding demonstrates that self-affirmation can effectively buffer the threat of social rejection on self-esteem, especially for people who might be particularly sensitive to rejection, such as those with defensive self-esteem.

Self-affirmation and defensive self-esteem. To date, only one study has examined the effect of self-affirmation on people with defensive self-esteem. The researchers found that self-affirmation reduces actual-ideal discrepancies in people with defensive self-esteem, which indicates that self-affirmation could be particularly useful for people with defensive self-esteem (Haddock & Gebauer, 2011). As noted above, people with defensive self-esteem have been shown to be more sensitive to rejecting faces than are people without defensive self-esteem. This sensitivity has a variety of implications for relationship formation and maintenance. Since people with defensive self-esteem are more sensitive to rejection than are people with secure self-esteem, a self-affirmation might be useful in alleviating the effects of an ego threat such as a social rejection for them. Self-affirmation expands the self-concept to narrow the scope of the threat. Research has demonstrated that, through this mechanism, self-affirmation exercises are effective in reducing the defensive behaviors associated with defensive self-esteem.

Ego threats make the discrepancy between implicit and explicit self-esteem more salient for people with defensive self-esteem. It is likely that self-affirmation makes that discrepancy more palatable for those individuals, in the same way that self-affirmation helps people better handle cognitive dissonance. Research has shown that when people self-affirmed, they no longer needed to adjust their cognitions in the face of cognitive dissonance (Steele, 1988). When people with defensive self-esteem are faced with their discrepant self-esteem, the self-affirmation allows them to accept it rather than to use defensive and maladaptive strategies to ameliorate it. If self-affirmation can reduce defensiveness, ameliorate the effects of social rejection, and has been useful for people with defensive self-esteem in past studies, it is not unreasonable to believe that a self-affirmation exercise could serve as a protective factor against rejection sensitivity in people with defensive self-esteem.

Overview of the Current Study

The purpose of the present research was to further examine sensitivity to social rejection in people with defensive self-esteem and to ascertain whether self-affirmation would reduce this sensitivity. Prior to arrival at the laboratory, participants completed the Rosenberg Self-Esteem Scale as a measure of explicit self-esteem as well as the Rejection Sensitivity Questionnaire (Downey & Feldman, 1996), a measure of rejection sensitivity. Once in the lab, participants completed the self-esteem IAT and were asked to write about a time when they felt excluded, unwanted, or rejected socially. The writing task was meant as a social rejection prime to get participants thinking about social rejection. Finally, participants were randomly assigned to complete either an intrinsic self-affirmation task (Schimel et al., 2004) or an equivalent control task, and then completed a novel measure of implicit rejection sensitivity in which they were presented with photos of ambiguous facial expressions for 200 ms each and told to decide

whether each expression was positive or negative as quickly as possible. I predicted that, relative to participants with secure self-esteem, those with defensive self-esteem would classify more faces as negative in the control condition, but that this difference would be attenuated in the self-affirmation condition.

Method

Participants

One hundred and five Hamilton College students (23 men, 78 women, 4 unreported gender) were recruited for a study ostensibly about personality and social experiences. Participants received extra credit in a psychology course or entry into a lottery for $40 as compensation for their time. Participants ranged in age from 18 to 22 years (M=19.5, SD=1.27), and identified as White (68%), Black or African American (5%), Asian or Pacific Islander (20%), Hispanic/Latinx (5%), and other (8%).

Materials

Explicit self-esteem. Participants' explicit self-esteem was measured using the *Rosenberg Self-Esteem Scale* (Rosenberg, 1965), a self-report measure consisting of 10 items (e.g., "I feel that I have a number of good qualities") rated on a 10-point Likert-type scale ranging from 1 (Strongly Disagree) to 10 (Strongly Agree).

Implicit self-esteem. Participants' implicit self-esteem was measured using the Self-Esteem *Implicit Association Test* (SE-IAT; Greenwald & Farnham, 2000). Participants were instructed to sort positive and negative words and self- versus other-related words on a computer screen, and were told to go as fast as possible while maintaining accuracy in their responses. The categories ("I am" or "I am not") and attributes ("positive" or "negative") appeared in the upper left and right corners of the screen with the target word appearing in the center. Participants

pressed the "e" and "i" keys to categorize words belonging to the categories "I am" (*me, my, I, self*) or "I am not" (*they, them, their, other*), or words that are either positive (*happy, joy, smile, warmth*) or negative (*agony, death, gloom, pain)*.

Participants completed 20 practice blocks in which they categorized only self versus non-self words and another 20 practice blocks in which they categorized only positive versus negative words. The practice blocks were followed by a task in which self versus non-self words and positive versus negative words were categorized simultaneously. The order of the words presented within each block was randomized.

Response latencies longer than 10,000 ms and shorter than 400 ms were recoded as 10,000 ms and 400 ms as suggested by previous research (Greenwald, Nosek, & Banaji, 2003). Implicit self-esteem was measured using the D-score measure (Lane, Banaji, Nosek, & Greenwald, 2007). People with higher implicit self-esteem (thus, higher D scores) show faster responses when self and positive words are associated through sharing a response key (i.e., are sorted to the same side of the screen) than when self and negative words are associated through sharing a response key.

Chronic rejection sensitivity. Participants' chronic rejection sensitivity was measured using the *Rejection Sensitivity Questionnaire* (Downey & Feldman, 1996), which consists of 9 scenarios (e.g., "You ask your parents or another family member for a loan to help you through a difficult financial time. How concerned or anxious would you be over whether or not your family would want to help you?"). For each scenario, participants rated how concerned they would be about being helped/rejected on a 6-point scale from 1 (very unconcerned) to 6 (very concerned) and the likelihood that the other person would help or reject them on a 6-point scale from 1 (very unlikely) to 6 (very likely). An overall rejection sensitivity score was obtained by multiplying the

level of rejection concern by the reverse-coded level of acceptance expectancy for each scenario and then computing the mean across all 9 scenarios.

Self-affirmation manipulation. The self-affirmation task, based on the manipulation described by Schimel, Arndt, Banko, and Cook (2004), allows participants to affirm intrinsic values by first ranking 12 self-definitions from 1 (most important) to 12 (least important) and then inserting the most highly valued self-definition into six sentence stems (i.e., "When I am being a(n) _____ I feel _____") to complete each sentence. The self-definitions were altered slightly from the Schimel et al. (2004) manipulation in order to reflect relevant identities to the participants in the current study. Specifically, the self-definitions "nurse", "doctor", "lawyer", "mathematician", "scientist", and "engineer" were changed to "nurse (pre-health)", "doctor (pre-med)", "lawyer (pre-law)", "mathematician (math student)", "scientist (science student)", and "writer", respectively. The sentence stems were designed to focus participants on their most valued self-definition in a way that was unconnected to performance contingencies and societally imposed standards. Participants in the control condition were asked to rank the same self-definitions in order of most valued on their campus and then completed unrelated neutral sentence stems about daily activities (i.e., "Watching television is a good way to _____").

Sensitivity to rejecting faces task. Participants' sensitivity to rejecting facial expressions was measured using an emotion perception task based on the task used by Maoz et al. (2016). Stimuli for the task were generated using Morpheus Photo Morpher v3.16. Thirty-six color photos of ambiguous faces were generated by morphing happy and disgusted (rejecting) faces from the NimStim set (Tottenham et al., 2009) to produce faces that appeared an average of happy and disgusted. The faces were selected to represent both genders equally and different races/ethnicities. Following two rounds of pilot testing (N =12 and N =14), 10 faces (5 female

and 5 male) were removed because the faces were consistently viewed as either overwhelmingly positive or negative. Positive responses were coded as 0 and negative responses as 1; faces with an average response either below .31 (too positive) or above .69 (too negative) were removed, leaving 26 faces that were perceived as positive approximately half the time and as negative approximately half the time. The task also included four attention check faces, two purely happy and two purely disgusted faces, as a way to make sure participants were following directions during the task. Data from participants who scored less than 70% on the attention check items were deleted.

The task contained five different blocks, with each block containing one of each of the 26 faces plus four attention check faces. Each of the 26 faces was presented 5 times for a total of 150 trials, and faces were presented in a random order. Each trial began with a fixation cross (randomly determined between 800-1200 ms), followed by a morphed face picture. The face was displayed for 200 ms, then masked by a scrambled face pattern mask for 200 ms. Next, a question mark was displayed until a response was chosen. Participants were instructed to press one of two designated buttons as quickly as possible to indicate whether the face was positive or negative. Two measures were derived from the task: a) the proportion of positive and negative responses, and b) the mean reaction time for positive and negative responses.

Procedure

Prior to their arrival at the lab, participants completed the explicit self-esteem and chronic rejection sensitivity measures. Upon coming to the lab, participants provided informed consent and were taken to a small testing room with a computer, where they completed the *Self-Esteem Implicit Association Test* (SE-IAT; Greenwald & Farnham, 2000). Afterwards, participants were randomly assigned to either a self-affirmation or control condition and completed the relevant

tasks. Following the self-affirmation task, participants were given a social rejection prime that required them to write a short paragraph about a time when they felt unwanted, excluded, or rejected socially. Once they finished writing, participants completed the morphed emotions perception task as a measure of sensitivity to rejecting facial expressions. Finally, participants were probed for suspicion and fully debriefed.

Results

Of the original 105 participants, I removed data from 5 people who failed attention checks, 4 who did not complete the full pre-lab survey, 1 who was knowledgeable about the research topic, 1 due to experimenter error, and 7 who did not complete the self-affirmation manipulation correctly. The final sample size was 87 (20 men, 67 women). An independent samples t-test showed that the 14 participants removed from the final sample did not significantly differ from those retained on the *Rosenberg Self-Esteem Scale*, $t(99) = 0.11$, $p = .910$, or the *Rejection Sensitivity Questionnaire*, $t(99) = 0.09$, $p = .930$.

See Table 1 for Cronbach's alphas, descriptive statistics, and correlations for all variables. Before determining the internal reliability of the scales, the 5 reverse-worded items on the *Rosenberg Self-Esteem Scale* and 9 on the *Rejection Sensitivity Questionnaire* were reverse-coded so that higher scores on the items corresponded with higher scores on each construct. Consistent with previous research, explicit and implicit self-esteem were weakly positively correlated. Explicit self-esteem was strongly and implicit self-esteem weakly negatively correlated with rejection sensitivity, indicating that higher levels of each type of self-esteem were associated with lower rejection sensitivity.

Table 1

Descriptive Statistics, Cronbach's Alphas, and Correlations for All Variables

	1	2	3	4	*M*	*SD*
1. Explicit Self-Esteem	0.92	0.30*	-0.48**	0.04	7.11	1.67
2. Implicit Self-Esteem	--	--	-0.30*	-0.12	0.76	0.37
3. Rejection Sensitivity	--	--	0.78	0.08	9.47	4.25
4. % Faces Seen as Positive	--	--	--	--	0.56	0.18

Note. Explicit self-esteem was measured on a 1-10 scale; Rejection sensitivity was measured on a 1-36 scale. Implicit self-esteem was measured using the IAT-D score, such that values above zero represent high implicit self-esteem and values below zero represent low implicit self-esteem. Cronbach's alphas are presented along the diagonal.
*$p < .01$. **$p < .001$.

Manipulation Checks

All the self-affirmation exercises were checked to make sure they were completed correctly, meaning participants used only the top-ranked identity to complete the sentence stems, rather than a different identity for each of the sentence stems. Those that were not completed correctly were removed from the data set, as reported above. To check the effectiveness of the social rejection prime, two researchers independently coded each narrative for (1) whether or not the event described was a social rejection (peer rejection rather than romantic, professional, or academic); and (2) to what degree the participant reported feeling socially rejected, excluded, or unwanted (1= a little to 3 = very). Interrater reliability for whether or not participants wrote about a social rejection was perfect (Cohen's kappa = 1.00). Inter-rater reliability was also very high for the measure of severity of expressed rejection (average measure intra-class correlation coefficient =.91; 95% CI from .87 to .94). Additionally, a one-sample t-test with "1" as the test

value revealed that the average severity rating (M = 2.14, SD = .71) was significantly greater than 1 (a little), t (104) = 16.38, p <.001.

Percentage of Faces Categorized as Positive

Six of the morphed faces were removed from the analysis because they were consistently viewed as either overwhelmingly positive or negative. Negative categorizations were coded as 0 and positive categorizations as 1; faces with an average either below .45 (too negative) or above .65 (too positive) were removed, leaving 20 faces that were perceived as positive approximately half the time and as negative approximately half the time. The parameters were stricter than the parameters set in the pilot testing to ensure enough variability in the faces used in the task. A bootstrapped moderated moderation model (using 1,000 bootstrapped samples; PROCESS macro, Model 3, Hayes, 2018) was used to examine the three-way interaction among implicit self-esteem, explicit self-esteem, and self-affirmation condition on the proportion of faces seen as positive versus negative. Analysis showed that, contrary to prediction, rejection sensitivity was not significantly correlated with the proportion of faces seen as positive, so it was not included as a covariate in the analyses. The main effects of implicit self-esteem, t(79) = -1.68, p = .10, explicit self-esteem, t(79) = .43, p = .67, and condition, t(79) = .77, p = .45, were not significant. Contrary to my hypothesis, the 3-way interaction of implicit self-esteem x explicit self-esteem x condition was not significant, t(79) = -1.32, p = .19[1].

Although the three-way interaction was not significant, I decided to probe the implicit self-esteem x explicit self-esteem interactions by condition to examine the pattern of findings. Contrary to my hypothesis, there was no significant explicit x implicit self-esteem interaction in

[1] Note that the interaction was also not significant before removal of the 6 outlier faces, t(79) = -1.16, p = .25.

the control group, $F(1, 79) = .08$, $p = .78$. Participants with defensive self-esteem and those with secure self-esteem appeared to categorize faces as negative at purely chance levels (see Figure 1). However, the explicit x implicit self-esteem interaction in the self-affirmation condition was marginally significant, $F(1, 79) = 2.82$, $p = .10$. As shown in Figure 1, the data followed the expected pattern: Participants with defensive self-esteem in the self-affirmation condition categorized fewer faces as negative than did participants with defensive self-esteem in the control condition and participants with secure self-esteem in both conditions.

Reaction Times

A bootstrapped moderated moderation model (using 1,000 bootstrapped samples; PROCESS macro, Model 3, Hayes, 2018) was used to examine the three-way interaction among implicit self-esteem, explicit self-esteem, and self-affirmation condition on the reaction time to sort faces as positive versus negative. Contrary to my hypothesis, the three-way interaction was not significant, $t(79) = .12$, $p = .91$.

Discussion

Consistent with previous research, explicit and implicit self-esteem were weakly correlated. This finding demonstrates that although the two measures are related, they assess separate aspects of self-esteem and should be treated as such. Explicit self-esteem was also correlated with the Rejection Sensitivity Questionnaire, which was also expected, as both are measured explicitly. It makes sense that those who lack of self-confidence and have a poor self-image are more likely to expect rejection. Implicit self-esteem was also negatively correlated with the rejection sensitivity questionnaire, suggesting that those with unconscious insecurities are more insecure in their social relationships. It is likely that the correlation is primarily driven by those with non-discrepant self-esteem; people with defensive self-esteem are unaware of

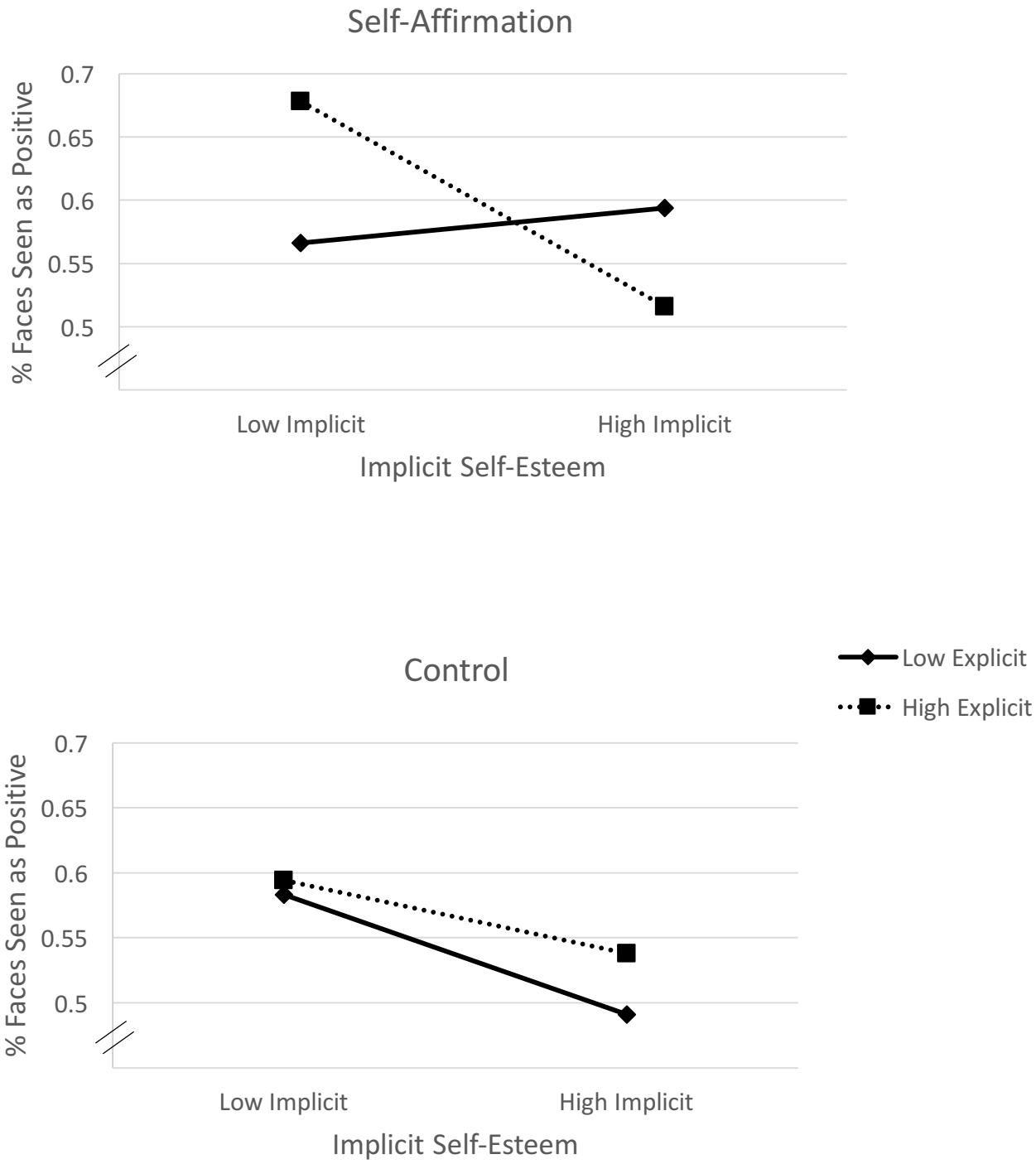

Figure 1. Proportion of faces seen as positive as a function of explicit and implicit self-esteem in the control and self-affirmation conditions.

their insecurities and thus would be unlikely to report high rejection sensitivity. Finally, in contrast to expectations, the Rejection Sensitivity Questionnaire was not correlated with the morphed face emotions task. This lack of correlation may suggest that the two measures assess distinct aspects of rejection sensitivity, but additional research is necessary to ensure that the face task is indeed a valid measure of rejection sensitivity.

Contrary to my hypothesis, participants with defensive self-esteem did not significantly differ from those with secure self-esteem in categorizing faces as negative as a function of self-affirmation condition. Of particular note, those with defensive self-esteem did not categorize more faces as negative in the control condition than did participants with secure self-esteem. These findings stand in contrast to previous research demonstrating that, under ego threat, people with defensive self-esteem tend to display defensive behaviors such as increased verbal defensiveness (Kernis, Lakey, & Heppner, 2008) and suppression of failure-related thoughts (Borton, Crimmins, Ashby, & Ruddiman, 2012), and tend to be quicker to detect the onset of a rejecting facial expression than are people with secure self-esteem (Borton, Aparicio, & Stern, 2019).

Consistent with my hypothesis, however, among participants who completed a self-affirmation exercise, those with defensive self-esteem categorized more faces as positive than did those with secure self-esteem. Self-affirmation has been shown to influence a variety of behaviors and to reduce maladaptive cognitions, especially in response to social rejection. For example, Schimel et al. (2004) found that a self-affirmation exercise reduced thoughts about rejection prior to a social interaction, and Tyler, Branch, and Kearns (2016) found that self-affirmation increased state self-esteem following a social rejection. Additionally, Haddock and Gebauer (2011) found that self-affirmation significantly reduced actual-ideal discrepancies for

people with defensive self-esteem, demonstrating that self-affirmation could be particularly useful for people with defensive self-esteem.

The results of the present study are consistent with this previous research. My finding extends that research by demonstrating that self-affirmation could help to reduce a defensive behavior, sensitivity to rejecting facial expressions, associated with defensive self-esteem. It is possible that the rejection sensitivity seen in people with defensive self-esteem (Borton, Aparicio, & Stern, 2019) is related to the actual-ideal discrepancy studied by Haddock and Gebauer (2011). When the actual self does not align with the ideal self, people might be more prone to internalize rejection because they already feel "not good enough". Self-affirmation could be helpful for those with defensive self-esteem in reducing rejection sensitivity, but more research is necessary to determine if this is actually the case.

Interestingly, participants with defensive self-esteem showed similar reaction times for categorizing ambiguous faces in both the self-affirmation and control conditions and did not significantly differ in reaction time from participants with secure self-esteem. Prior research has demonstrated that following an ego threat, people with defensive self-esteem were quicker to detect a rejecting facial expression than were people with secure self-esteem or people who did not experience an ego threat (Borton, Aparicio, & Stern, 2019). The results of the present study indicated that this was not the case. Previous research measured how fast a participant detected a change in facial expression, from neutral to either rejecting or happy. In the current study, I measured how fast participants decided that a face was negative versus positive. Although both are measurements of reaction time, they work on different cognitive processes (detection versus categorization). Although participants were not sorting faces more quickly, they were sorting them as positive at a higher rate following self-affirmation. This effect was found only for

participants with defensive self-esteem; more research would be necessary to understand why the self-affirmation exercise did not help participants with secure self-esteem. It is likely that those participants simply did not have anything to gain from self-affirmation, similar to the way that self-affirmation helps minority students with school achievement more than it helps white students (Miyake et al., 2010).

Limitations and Future Research

Although the current study has added some valuable contributions to the defensive self-esteem literature, there were several limitations. First, although the original sample size was adequate, the data from many participants had to be removed for various reasons, leaving a sample size that was not large enough to conduct powerful analyses. Continuing to collect data in the future to add to the sample size will help to address this issue. Additionally, the sample was comprised of college students at an elite college, who tend not to be representative of the average population (Landers & Behrend, 2015). The sample also tended to have a high level of explicit self-esteem and was heavily female. Although the relationship between rejection sensitivity and gender is not a widely studied topic, some research has shown that men and women respond differently to rejection in that men tend to respond in more externalizing ways, such as with controlling behavior, whereas women tend to respond in more internalizing ways, such as via rumination (Downey & Feldman, 1996). Given these past findings, it is possible that there may have been effects of gender in this study. Future research should examine these gender differences.

A second limitation is that the measure of sensitivity to rejecting facial expressions might lack validity. The measure was based on a similar one used by Maoz et al. (2016) to study social anxiety. More pilot testing of the measure could help to narrow down the faces presented, to

ensure that the average person sorts the faces as positive or negative at purely chance levels. This further testing would ensure that the task actually measures implicit rejection sensitivity, as it is designed to do.

Third, the social rejection prime might not have been a strong enough ego threat, and therefore might not have produced a strong defensive reaction for people with defensive self-esteem in the control group. The results trended towards significance, though, so an increased sample size might provide enough power to detect the effect.

Participants completed the social rejection ego threat satisfactorily, with most participants writing about a rejection that was at least moderately rejecting. The failure to elicit a defensive response to the ego threat in the present study means that it is possible that the social rejection prime was not strong or long-lasting enough to act as a true ego threat. It is also possible that people with defensive self-esteem are more likely to try to justify a rejection while writing about it in order to protect their positive self-view. However, this type of reliving manipulation was successfully used in past research (Kernis, Lakey, & Heppner, 2008; Knowles, 2014; Borton, Aparicio, & Stern, 2019), so it is unclear why the manipulation was not as strong in this study. In the face of ego threat, people with defensive self-esteem display defensive behaviors, but in the absence of ego threat those same people do not react any more defensively than do people with secure self-esteem. If my social rejection prime was not truly threatening for participants in the current study, then participants with defensive self-esteem would not have shown the expected defensive rejection sensitivity. Based on previous research, a social ego threat of that kind should have elicited a defensive sensitivity to rejecting faces in people with defensive self-esteem, but the results showed that people with defensive self-esteem did not appear to sort faces as negative at proportions greater than chance. Furthermore, some participants claimed positive effects from

the rejection experience (e.g., “it allowed me to make better friends”, “I grew as a person”, “I learned who my true friends were”), or defensively blamed others for the rejection (i.e., “I didn’t do anything wrong, he was just a jerk”). These strategies could have been used to protect the self while writing, as a result of the ego threat, but defensive strategies such as these could have rendered the ego threat ineffective for participants who engaged in that behavior. Future studies could examine this defensive justification behavior as a dependent variable to see if people with defensive self-esteem are more likely to engage in this behavior than are people with secure self-esteem.

Another limitation of the present study was the lack of a “no rejection” control group. Due to time constraints and a limited participant pool, I could not run enough participants to include an additional factor in the experimental design. However, the inclusion of this condition is crucial for determining the causal effect of social rejection.

Future research should continue to examine the relationships among defensive self-esteem, rejection sensitivity, and self-affirmation. The next natural step in this research would be to examine why self-affirmation was effective for people with defensive self-esteem in this way, and if it has anything to do with the research done by Critcher and Dunning (2015), which showed that self-affirmation moves the focus of working memory out to a broader level of the whole self, so the threatened aspect of the self becomes less important. It is possible that narrow self-concepts mediate the relationship between defensive self-esteem and rejection sensitivity. Therefore, expansion of the self-concept through a self-affirmation exercise would also help to reduce rejection sensitivity.

Future research could also examine behavioral responses to rejection rather than implicit categorization of faces. For example, responses to a socially rejecting confederate could yield

interesting results. Additionally, the amelioration of other negative consequences of ego threat as a function of self-affirmation could be examined, such as verbal defensiveness (Kernis, Lakey, & Heppner, 2008), increased self-serving bias (Kernis et al., 2005), or suppression of failure-related thoughts (Borton, Crimmins, Ashby, & Ruddiman, 2012). Previous research has shown that all of these behaviors are related to defensive self-esteem following an ego threat. Since the current study has demonstrated that self-affirmation is effective in helping people with defensive self-esteem, it is very possible that self-affirmation could also help to reduce the above behaviors that follow ego threat.

Implications

If people with defensive self-esteem are indeed more sensitive to rejection than are people with secure self-esteem, this finding could have consequences in several domains. If a person in a romantic relationship continually interprets neutral cues as negative, this negative perception may reduce relationship quality and trust (Downey & Feldman, 1996). In addition, research has shown that people who always expect rejection tend to have a decreased desire for self-awareness (Hess & Pickett, 2010; Twenge, Catanese, & Baumeister, 2003). Self-awareness tends to help people bring the self into alignment with their values because it encourages awareness of discrepancies, so a lack of self-awareness could negatively impact self-discrepancies (Phillips & Silvia, 2005). The present study builds on previous research and demonstrates that self-affirmation could be a particularly useful intervention for rejection sensitivity in people with defensive self-esteem. People who tend to expect rejection around every corner might be less likely to take risks at work, have trouble connecting with coworkers, and could have difficulty forming and maintaining close relationships because they are always questioning the quality of the relationships. People with defensive self-esteem tend to be

sensitive to rejection (Borton, Aparicio, & Stern, 2019), which could lead to these behaviors, so addressing the consequences of rejection sensitivity is especially important for this population. Interventions using self-affirmation could prove very helpful to people with defensive self-esteem for everything from relationship formation and maintenance, to self-awareness, to success in the workplace by being able to more easily navigate professional relationships. For example, if all new employees in a workplace were to complete a self-affirmation exercise on their first day on the job, it could have positive downstream effects for years to come. Those employees might be more confident in themselves and their relationships, which could allow them to ask for a promotion or a raise, which in time would lead to more success. These types of interventions could also be very effective in situations such as couples' counseling, so that one partner who always expects rejection is more trusting towards the other partner.

Rejection hurts, and people with chronic rejection sensitivity are hurt over and over again throughout their lives. That pain can trigger a variety of defensive behaviors or maladaptive responses which are ultimately harmful for a person's long-term success in relationships. Self-affirmation can help those people avoid the constant pain that stems from rejection sensitivity by allowing people to have a self-concept that is greater than the domain threatened by rejection. An intervention specifically targeted to help people with defensive self-esteem who deal with chronic rejection sensitivity would be both feasible to create and fairly simple to implement. The old adage, "Sticks and stones may break my bones but words will never hurt me", should be achievable for everybody, and self-affirmation could make that possible.

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