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The narcissistic teammate: effects of narcissistic subtypes on self-serving attributional biases

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THE NARCISSISTIC TEAMMATE: EFFECTS OF

NARCISSISTIC SUBTYPES ON SELF-SERVING ATTRIBUTIONAL BIASES

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By

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MASTER'S THESIS

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Abstract

The self-serving attributional bias in collaborative group efforts is the tendency for individuals to take more personal responsibility for the group's success and less personal responsibility for the group's failure. Much previous research has linked narcissism with self-serving behavior. Narcissism can be broken down into the grandiose subtype, characterized by superiority and entitlement, and the vulnerable subtype, characterized by low self-esteem and preoccupation with others' opinions. The purpose of the current study was to investigate whether grandiose and vulnerable narcissists engage in self-serving behavior differently in various situations. College students completed a team activity, which involved completing cognitive tasks on private computers, and received randomly generated feedback of team success or failure. Participants then took a short questionnaire with the supposed opportunity to make either public or private attributions regarding how much they contributed to the group's outcome. I predicted that grandiose narcissists would be more self-serving when making public attributions about a success, while vulnerable narcissists would be more self-serving when making private attributions about a failure. Overall, the results showed some evidence of greater narcissism being associated with more self-bias in the public-success condition, but this pattern was driven more by the vulnerable than the grandiose form of narcissism. These results have important implications for any individual who must work with a narcissist in a team activity; for example, in a work environment. The complexities regarding distinctions between the different forms of narcissism are discussed.

Keywords: narcissism, grandiose narcissism, vulnerable narcissism, self-serving attributional bias, public vs. private attributions

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The strength of any team depends in part on the bonds between its members. These bonds can be tested, weakened, and even broken when one member of the team displays narcissistic tendencies. For example, Wallace and Baumeister (2002) describe the theoretical example of a narcissistic football player who barely participates in team practices but hoards the ball and performs as well as a professional player at the game. The other members of the team regularly and actively contribute to the team during practices, only to have their limelight stolen at the big event. Though the narcissistic player is an asset to the team during games, he can easily rub the other players the wrong way, fostering feelings of resentment and negatively affecting morale and team spirit. Wallace and Baumeister's example sums up the potential effects of a narcissistic teammate in a team sport setting, but these negative effects can occur in any situation where a non-narcissistic individual works together with a narcissistic individual to produce a collaborative result.

The purpose of the current research was to study the relationship between narcissism and self-serving attributional biases in group success or failure situations and when making public or private attributions. Specifically, I am interested in the differences in self-serving bias between individuals high in grandiose narcissism, which is characterized by entitlement and superiority, and vulnerable narcissism, which is characterized by low self-esteem and preoccupation with the opinions of others (Miller, Hoffman, Gaughan, Gentile, Maples & Campbell, 2011). To better understand the

potential relationship between grandiose and vulnerable narcissism and self-serving bias, we must first examine each construct in further detail.

Self-Serving Attributional Bias in Group Settings

The self-serving attributional bias is the tendency for individuals to assume greater personal responsibility for success and less personal responsibility for failure than they truly deserve (Campbell & Sedikides, 1999; Greenberg, Pyszczynski, & Solomon, 1982; Miller, 1976; Miller & Ross, 1975; Zuckerman, 1979). According to the theory of self-serving bias, people tend to attribute successes to internal causes, like personal ability, but attribute failures to external causes, such as the difficulty of the task (Campbell & Sedikides, 1999; Weary-Bradley, 1978; Zuckerman, 1979). This bias is thought to be driven at least partially by the individual's need to maintain their own self-esteem (Schlenker, 1975).

The self-serving bias can be found in individual as well as group settings. People often make self-enhancing attributions after collaborative group successes and failures; specifically, they tend to overestimate their own contribution and causal effect in a group success or collaborative finished product (Thompson & Kelly, 1981). According to a 1977 study by Forsyth and Schlenker, individual participants in group success situations attribute more responsibility for the success to themselves than to the other group members, and cite personal ability as the cause of the success. Individuals in group failure situations cite their own personal performance as higher than that of their group members; they also take less personal responsibility for the group's failure and attribute the failure to more external causes, including task difficulty (Forsyth & Schlenker, 1977).

Situational factors may influence the self-serving attributional bias. One such factor is self-threat, which magnifies self-serving bias. In their meta-analytic review of self-serving bias and self-threat, Campbell and Sedikides (1999) loosely defined self-threat as an experience of failure. More specifically, the authors posit that an experience of self-threat occurs when one experiences a condition which is perceived as unfavorable to the self, in that it contradicts, challenges, or mocks one's self-concept. Upon reviewing 14 studies which included identifiable situations which could invoke self-threat in participants, the authors found that self-threat does significantly magnify the self-serving attributional bias.

In sum, people generally take more credit for their successes and less credit for their failures than they deserve. In group situations where individuals must work together to produce an outcome, individual participants also claim more personal responsibility and contribution for the group's success and less personal responsibility and contribution for the group's failure. Instances of perceived self-threat magnify this tendency, which may indicate that the nature of the situation may influence how much self-serving bias individuals exhibit.

Narcissism and the Narcissistic Subtypes

The goal of the present study is to investigate the links between narcissism and the self-serving attributional bias. Narcissism has been traditionally defined as a pattern of grandiose behaviors and fantasies, lack of empathy, and extreme need for the admiration of others (American Psychiatric Association, 2000). The DSM-IV-TR outlines nine criteria for diagnosing Narcissistic Personality Disorder (NPD) in adults, five of which must be met to diagnose the disorder; these criteria include the belief that

one is unusually special or unique, arrogant behaviors and attitudes, lack of empathy for others, the need to be excessively admired, and interpersonal exploitation.

Narcissism is defined categorically by the DSM-IV-TR; individuals either meet the criteria for NPD or they do not. Contrastingly, much recent research supports the conceptualization of narcissism as a personality trait (Foster & Campbell, 2007; Miller & Campbell, 2008; Miller & Campbell, 2010; Widiger, 2010). Trait narcissism may be viewed as continuous rather than categorical, where individuals fall on a spectrum for trait narcissism rather than meeting a cutoff point for the pathological disorder. Most published research on narcissism focuses on trait narcissism rather than the clinical disorder; indeed, the most widely used measure of narcissism, the Narcissistic Personality Inventory (Raskin & Hall, 1979), is a measure of trait narcissism (Miller & Campbell, 2010). Likewise, the present study explores individual differences in trait narcissism rather than the pathological disorder.

Previous research suggests that narcissism can be broken down into two separate subtypes, which are often referred to as grandiose narcissism and vulnerable narcissism (Dickinson & Pincus, 2003; Miller & Campbell, 2008; Miller et al., 2011; Rose, 2002). Many researchers argue that because the two narcissistic subtypes involve different characteristics, studies which lack the distinction between subtypes of narcissism allow for reliability issues and error because the experimenter is measuring two different types of narcissism with one narcissism measure (Besser & Priel, 2010; Miller et al., 2011). Narcissists of both subtypes share aggressive schemas and antagonistic interpersonal behavior including exploitation of others, but differ in other ways (Miller et al., 2011).

Grandiose narcissists tend to display more grandiosity, aggression, and dominance (Miller et al., 2011) as well as arrogance and self-absorption (Besser & Priel, 2010). Grandiose narcissists tend to embody the characteristics most often associated with the construct of narcissism. Individuals with high grandiose narcissism tend to score high on standard measures of narcissism, including the Narcissistic Personality Inventory (Miller et al., 2011).

In contrast, vulnerable narcissists display more defensive and insecure grandiosity, typically hiding feelings of inadequacy and incompetence (Miller et al., 2011). According to Miller and colleagues (2011), these narcissists are thought to be shame-ridden, making them overly sensitive to criticism and failure. Vulnerable narcissists are likely unable to modulate their own self-esteem and rely greatly on the feedback of others. These individuals seem to experience more anxiety and fears of separation in personal relationships than do grandiose narcissists.

Narcissistic Subtypes and the Self-Serving Attributional Bias

Much previous research has linked narcissism with self-enhancement (Farwell & Wohlwend-Lloyd, 1998; John & Robins, 1994; Miller & Campbell, 2010; Sedikides, 1993; Stucke, 2003). In their 1994 study, John and Robins asked participants to take part in a managerial group discussion task. Narcissism was assessed in participants by a combination of observer-based reports, which involved the research associate interacting with and rating participants on traits associated with Narcissistic Personality Disorder, and scores on two traditional measures of narcissism. John and Robins found that narcissistic individuals displayed the most unrealistically positive self-evaluations of their own performance on the task.

Narcissistic individuals also show more self-serving attributional bias than non-narcissistic individuals (Campbell, Reeder, Sedikides & Elliot, 2000; Stucke, 2003). Stucke (2003) found that narcissists displayed more self-serving attributions regarding their own performance on an intelligence test than did non-narcissistic participants. In particular, narcissists were more likely than non-narcissistic individuals to attribute success to their own ability and failure to the difficulty of the task.

Grandiose and vulnerable narcissists may engage in self-serving behavior differently as a result of their differing personal characteristic as well as differences in self-esteem levels. Miller and colleagues (2011) suggest that although both types of narcissists behave antagonistically toward others when their self-view is challenged, their motivation may be different. This difference in motivation may be due to the relationship between self-esteem and the narcissistic subtypes. Rose (2002) found that grandiose narcissists generally reported high self-esteem. Some research on self-esteem suggests that individuals with high self-esteem often engage in self-enhancement and consistently look for ways to draw attention to their skills and accomplishments (Baumeister, Tice, & Hutton, 1989). Indeed, Miller and colleagues (2011) suggest that grandiose narcissists tend to engage in more self-enhancement than vulnerable narcissists in interpersonal situations.

Vulnerable narcissists, on the other hand, typically report low levels of self-esteem (Rose, 2002). Research on individuals with low self-esteem in general suggests that they aim for self-protection rather than self-enhancement (Arkin, 1981; Raynor & McFarlin, 1986; Tice, 1991; Wolfe, Lennox, & Cutler, 1986). Rather than capitalizing on their strengths, individuals with low self-esteem try to minimize their weaknesses

(Schlenker, Weigold, & Hallam, 1990). According to Schlenker and colleagues (1990), individuals with low self-esteem tend to avoid challenges which they might excel at but might also fail at, as this type of situation has the potential to reveal the person's flaws to others. This may also be true of vulnerable narcissists, given their lower self-esteem.

These findings suggest that it is possible that grandiose narcissists are more concerned with self-enhancement in general than vulnerable narcissists. However, this tendency may depend upon the situation the individual experiences. For example, it is possible that the grandiose narcissist may be especially concerned with engaging in self-enhancing behavior, like making self-serving attributions, after experiencing a success. Grandiose narcissists tend to look for opportunities to show off their abilities and accomplishments, so they may make self-serving attributions in order to capitalize on their success. Conversely, vulnerable narcissists may be particularly concerned with self-protection in a situation where they have experienced a failure, as they are primarily concerned with hiding their weaknesses and flaws from others. One way to protect the self after experiencing a failure is to make self-serving attributions which distance the self from the failure.

Differences between the subtypes of narcissism extend to which situations they find personally threatening. Besser and Priel (2010) conducted a study in which they asked participants to imagine a self-threatening hypothetical situation which was either achievement-based (e.g., a promotion at work which the participant was eligible for was given to their opponent) or interpersonal (e.g., the participant came home early to find their significant other in bed with another person). The authors then measured negative mood and anger in participants and assessed grandiose and vulnerable narcissism. They

found that grandiose narcissists were more susceptible to achievement setbacks than to

shaming interpersonal experiences, which suggests that these individuals may be more

concerned with agentic traits than communal traits. The authors suggest that grandiose

narcissists may be primarily concerned with the exposure of personal deficits and a

perceived inability to keep up with the competition. Besser and Priel suggest that

grandiose narcissists may be less concerned with interpersonal failures because they tend

to attribute this type of failure to the negative characteristics and shortcomings of others.

In contrast, Besser and Priel (2010) found that vulnerable narcissists were more

negatively affected by shaming interpersonal experiences than achievement setbacks.

This suggests that vulnerable narcissists care about what other people think of them to a

greater degree than do grandiose narcissists. Based on these results, Besser and Priel posit

that vulnerable narcissists are less able than grandiose narcissists to use self-enhancing

strategies to maintain their self-esteem; instead, they tend to rely on the feedback of

others. Because vulnerable narcissism in particular is characterized by high sensitivity to

criticism and negative feedback, vulnerable narcissists may have the most self-serving

attributional bias when experiencing self-threat in the form of an experience of failure.

Public and Private Attributions and Narcissism

Though research indicates that most people will be more self-serving when

offered private recognition for their contributions and less self-serving when offered

public recognition, this trend may not be true for both grandiose and vulnerable

narcissists. According to the results of a study by Riess and colleagues (1981), the self-

serving attributional bias is a stable, accurate representation of the private perceptions of

individuals. This suggests that most people inwardly take more personal responsibility for

success and less responsibility for failure than they truly deserve, regardless of whether

they vocalize those feelings. Social concerns may also keep individuals from making

such vocalizations. Exline and colleagues (2004) found that most non-pathological

individuals highly prefer private recognition for accomplishments rather than public

recognition. According to the results of the study, individuals anticipated that public

recognition for their successes would lead to greater negative labeling by their peers. This

implies that the social cost of public recognition is taken into account by most

individuals, leading them to prefer private recognition for their accomplishments.

　　However, narcissists may not have the same concerns. The same study found that

narcissism was associated with a greater desire for public recognition, along with lower

concern about negative peer responses (Exline et al., 2004). The authors used the NPI to

assess narcissism, and as previously noted, individuals with grandiose narcissism tend to

score high on such standard measures of narcissism (Miller et al., 2011). Therefore, the

link between narcissism, desire for public recognition, and lack of concern about negative

peer responses may be an accurate reflection of the true trend for grandiose narcissists.

　　In another study utilizing the NPI, Wallace and Baumeister (2002) found that

narcissists performed better on tasks when the opportunity for self-enhancement was high

than when it was low, while non-narcissists performed no differently based on

opportunity for self-enhancement. The authors suggested that the opportunity for self-

enhancement includes the presence or absence of an audience. Wallace and Baumeister

explained that narcissists are likely to value a great public performance much more

highly than a great private performance. Because grandiose narcissism is highly related to

scores on the NPI, it is possible that grandiose narcissists will be generally more self-

serving than non-narcissists, and will be especially self-serving in public situations in order to capitalize on their success or distance themselves from failure.

The connection between vulnerable narcissism and public and private attributions is less clear. However, predictions may be made based on key differences between grandiose and vulnerable narcissism. As previously noted, Exline and colleagues (2004) found that narcissism was associated with a greater desire for public recognition and negatively correlated with concern about negative peer responses; this trend may be true for grandiose narcissists in particular. However, vulnerable narcissists tend to be very concerned about negative peer responses and situations involving interpersonal distress or failure (Besser & Priel, 2010; Miller et al., 2011). This suggests that vulnerable narcissists may take into account the social cost of public recognition while making public attributions. However, both grandiose and vulnerable narcissists are generally more self-absorbed and concerned with personal superiority than non-narcissists, which suggests that even vulnerable narcissists are likely to be more self-serving than non-narcissists when making private attributions. Therefore, although both subtypes of narcissists are likely to engage in more self-serving behavior than non-narcissists, they may do so differently depending on whether their attributions are made public or kept private.

The Current Study

In general, narcissists engage in self-serving attributional biases to a greater degree than do non-narcissists. Grandiose and vulnerable narcissists may differ in their motivations for engaging in self-serving attributional bias. Therefore it seems logical to assume that they may also differ in how they display the self-serving bias in group task

situations where their group succeeds or fails. I predicted that the current study would find positive correlations across the board between both subtypes of narcissism and self-serving behavior in both failure and success situations (Hypothesis 1). Because grandiose narcissists are most concerned with dominance, superiority, and self-enhancement, I hypothesized that grandiose narcissism would be the most related to self-serving bias when participants had experienced a collaborative group success than when they had experienced a collaborative group failure (Hypothesis 2). Because vulnerable narcissists are sensitive to criticism and failure, have highly fragile self-esteem which greatly depends on the feedback of others, and experience significant anxiety in interpersonal relationships, I hypothesized that vulnerable narcissism would be the most related to self-serving bias when participants had experienced a collaborative group failure than when they experienced a collaborative group success (Hypothesis 3). I also predicted that grandiose narcissists would be more self-serving when making public attributions than when their attributions would be kept confidential, while vulnerable narcissists would be less self-serving when making public attributions than when their attributions were kept confidential (Hypothesis 4).

Method

Participants

Participants were 138 students at Eastern Washington University. This sample consisted of 46 males and 92 females, with a mean age of 20.25 ($SD = 3.15$). The participant sample was 72.5% White/Caucasian, 10.1% Asian, 9.4% Hispanic, 4.3% multiracial, 1.4% African American, 0.7% Middle Eastern, and 1.4% undisclosed. All

participants received partial class credit or extra credit in a psychology course for their

participation in the study.

Design

I employed a grandiose narcissism × vulnerable narcissism × feedback condition

× attributional context design. Each subtype of narcissism was measured and treated as a

continuous predictor variable. Participants were randomly assigned to the feedback

conditions (success or failure) and to the attributional context conditions (public or

private). There were 3 continuous measures of self-serving bias, which were analyzed

separately.

Procedure

Participants arrived at the lab in groups of six or fewer. Each participant was

seated at a computer in a small room within the lab and asked to follow the directions on

the screen. The doors to each small room were then closed. Participants were informed

via the computer screen that they would be working on a series of cognitive tasks on the

computer with a partner, who was already working on the tasks in separate rooms; in

reality, these rooms were empty or contained other participants from the study.

Participants were led to believe that their performance on the task would be assessed in

conjunction with their partner's performance. Participants were told that the purpose of

the study was to gain a better understanding of the way people perceive themselves,

others, and situations, and that they would be participating with their partners in a

competition involving all participants in the lab as they worked on the cognitive tasks.

Participants read a short blurb on the computer screen instructing them that their

first task was to come up with as many uses for a brick as they could. After reading the

instructions, participants began typing possible uses for the brick. After two minutes had

passed, the program advanced to the next screen, which instructed the participant to

unscramble as many scrambled words as they could within a three-minute time frame.

Once the unscrambling task was complete, the program advanced to the next screen,

which instructed participants that their next task would be a memory recall task.

Participants were shown a short string of numbers for one to four seconds depending on

the length of the number string (which varied from two to nine digits), then a blank

screen for one second, and then a box with instructions for them to enter in the string of

numbers they had seen. With each trial of this memory recall task, the string of numbers

grew longer. There were 19 trials of the memory recall task. After the last trial of the

memory recall task, the computer screen displayed a message instructing the participant

to wait to receive feedback for their team's performance on the tasks.

     After 10 seconds, the computer screen displayed a message with randomly

generated feedback indicating that the participant and their partner had performed either

very well or very poorly; this feedback represented the success and failure conditions. In

the success feedback condition, the screen congratulated the participants on their team's

strong performance and informed them that they had won a lab-wide competition. In the

failure feedback condition, the screen informed the participants that their team had

performed poorly and had lost a lab-wide competition. The wording in both conditions

was nearly identical, save for wording specific to winning or losing.

     The next few screens contained questions for the participant to answer regarding

their experience in the team effort. Half of the participants were informed that their

responses would remain private and would not be shown to the experimenter or their

partner (private attributional context condition). The other half of the participants were

informed that their responses would be made public to the experimenter and to their

partner (public attributional context condition). The questions asked at this point assessed

participants' perceptions of their personal contributions to their team's results as opposed

to their partner's contributions. After completing these questions, which served as the

dependent variables, participants also completed the PNI, demographic questions, and a

brief suspicion measure. Once all supplemental items had been completed, participants

were debriefed about the study.

Materials

   Attributions of results. A self-report questionnaire containing three items was

designed for the current study to assess self-serving attributional biases. In the measure,

participants were asked to indicate 1) their perceptions of personal and partner

contributions to the team's success or failure, 2) the amount of bonus research credit the

participants felt they personally earned based on their own performance, and 3) the

amount of bonus research credit the participants chose to distribute to themselves and

their partner. The first item read: "What percentage of your team's result was due to your

own personal contributions, as opposed to your partner's contributions?" For this first

item, hereafter called the self-serving bias item, participants selected percentage scores a

scale response from 1-11, with a response of 1 representing "100% me – 0% partner," 11

representing "0% me – 100% partner," and the remaining options ranging in increments

of 5%. Participants' responses in the success conditions were reverse-scored to reflect

self-serving attributional bias, given that bias would be indicated by "100% me – 0%

partner" in the success condition but "0% me – 100% partner" in the failure condition. This self-serving bias dependent variable had a mean of 6.17 ($SD = 1.75$).

The second item, hereafter called the credit earned item, included a general statement indicating that the experimenter had 30 minutes worth of bonus research credit to distribute between the two participants for their participation in the study, which only took each participant about 30 minutes to complete. This bonus credit was introduced as a prize for performing well in the success condition and as a consolation prize for performing poorly in the failure condition. The second item read: "Based on your performance on the tasks as opposed to your partner's performance, how much bonus credit do you feel like you have earned?" Participants made their responses to this question on a scale with seven preselected options, with a response of 1 representing "30 me – 0 partner," a response of 7 representing "0 me – 30 partner," and the remaining options ranging in increments of 5 minutes. This credit earned dependent variable had a mean of 3.28 ($SD = 1.33$).

Lastly, participants were informed that they had been randomly selected to actually divide up the bonus credit. The third item read: "How would you like to split up the research credit?" In this third item, hereafter called the credit allocated item, participants made their responses based on the same response scale as item two, ranging from "30 me – 0 partner" to "0 me – 30 partner" in increments of 5 minutes. This credit allocated dependent variable had a mean of 3.89 ($SD = 0.83$). All three of these dependent variables were assessed as measures of self-serving attributional bias. They were treated independently, rather than averaged together, because the correlations between the three were not as strong as anticipated, with correlations ranging from -.05 to

.38. After participants answered this question, they were informed that they would

receive 15 minutes of bonus credit regardless of how they had answered.

Participants were considered to have attributional biases to the degree that they

rate themselves as contributing more than their partner to the group's success or less than

their partner to the group's failure, as earning more of the bonus credit based on their

performance as opposed to their partner's performance, and as allocating more of the

research credit to themselves than to their partner.

Grandiose and vulnerable narcissism. Grandiose and vulnerable narcissism

were measured using the Pathological Narcissism Inventory (PNI; Pincus, Ansell,

Pimentel, Cain, Wright, & Levy, 2009). The PNI is a 52-item questionnaire for which

responses were made on a scale ranging from 0 (not at all like me) to 5 (very much like

me). According to Pincus and colleagues (2009), the seven dimensions of narcissism

assessed by the PNI are exploitative tendencies (e.g., "I find it easy to manipulate

people"), self-sacrificing self-enhancement (e.g., "I try to show what a good person I am

through my sacrifices"), grandiose fantasy (e.g., "I often fantasize about being admired

and respected"), contingent self-esteem (e.g., "When people don't notice me, I start to

feel bad about myself"), hiding of the self (e.g., "I often hide my needs for fear that

others will see me as needy and dependent"), entitlement rage (e.g., "I typically get very

angry when I'm unable to get what I want from others"), and devaluing (e.g., "I

sometimes feel ashamed about my expectations of others when they disappoint me"). The

exploitative tendencies subscale has 5 items ($M = 2.41$, $SD = 0.91$, $\alpha = .69$), self-

sacrificing self-enhancement has 6 items ($M = 2.56$, $SD = 1.14$, $\alpha = .81$), grandiose

fantasy has 7 items ($M = 2.93$, $SD = 0.95$, $\alpha = .77$), contingent self-esteem has 12 items

(M = 2.03, SD = 0.95, α = .87), hiding the self has 7 items (M = 2.63, SD = 0.83, α = .64),

entitlement rage has 8 items (M = 1.93, SD = 0.90, α = .79), and devaluing has 7 items (M

= 1.89, SD = 0.94, α = .75). These seven dimensions load onto two higher-order factors

usually referred to as grandiose narcissism (exploitative tendencies, self-sacrificing self-

enhancement, and grandiose fantasy) and vulnerable narcissism (contingent self-esteem,

hiding the self, entitlement rage, and devaluing). In the current study, the grandiose

subscale had a mean of 2.63 (SD = 0.79, Cronbach's α = .70) and the vulnerable subscale

had a mean of 2.12 (SD = 0.74, Cronbach's α = .84). The PNI subscales which measure

grandiose narcissism are correlated positively with the NPI, while the PNI subscales

measuring vulnerable narcissism are correlated negatively with the NPI (Pincus et al.,

2009). That same research found that the internal consistency of the PNI grandiosity

subscale is .88, and the internal consistency of the PNI vulnerability subscale is .85.

In a 2010 article dedicated to testing the reliability and validity of the PNI, three

different models of the PNI were tested for fit (Wright, Lukowitsky, Pincus, & Conroy,

2010). One model involved combining all 52 items together as a single narcissism

average score. The second model reflected the factor structure proposed in the original

construction and validation of the scale, with the exploitative tendencies (EXP),

entitlement rage (ER), and grandiose fantasies (GF) subscales loading on grandiose

narcissism and the contingent self-esteem (CSE), self-sacrificing self-enhancement

(SSSE), hiding the self (HS), and devaluing (DEV) subscales loading on vulnerable

narcissism (Pincus et al., 2009). The third model reflected an alternate factor structure

proposed by Wright and colleagues based on the theoretical conceptualization of

grandiose and vulnerable narcissism, with the EXP, GF, and SSSE subscales loading on

grandiose narcissism and the CSE, HS, DEV, and ER subscales loading on vulnerable

narcissism. All three models showed good fit. Only one criterion out of the four used, the

AIC (Akaike information criterion), indicated that the third model showed a slightly

better fit than the other two models; this third model was used in the current study to

compute the grandiose and vulnerable subscales.

Because multiple models of the PNI showed good fit, data in the current study

were analyzed multiple ways. In one analysis, I averaged all 52 items of the PNI together

to create a single measure of pathological narcissism ($M = 2.30$, $SD = 0.69$, Cronbach's α

= .93). Additionally, because two different arrangements of the seven subscales to form

the grandiose and vulnerable scales showed nearly equally good fit (Wright et al., 2010),

data from the current study were also analyzed by examining each of the seven subscales

separately to determine effects.

Demographic questionnaire and suspicion measure. At the end of the study,

participants were asked to fill out a brief questionnaire which asked for demographic

information, including gender and age. For the final question, participants were asked

"What do you believe to be the purpose of this study?" No participants' data were

excluded due to the content of their response to the suspicion measure.

Results

In this study, I predicted that I would find positive correlations across the board

between both subtypes of narcissism and self-serving behavior, regardless of attributional

context or feedback condition (Hypothesis 1). To test this hypothesis, I conducted

Pearson product-moment correlations between grandiose narcissism, vulnerable

narcissism, and the three dependent measures (see Table 1). These correlational analyses

revealed that grandiose narcissism was positively correlated with credit earned, $r(138) = -.17$, $p = .046$. Higher scores on the credit earned item indicated that participants felt their partners had earned more of the bonus credit; therefore, this negative correlation indicated that more grandiose narcissism was related to participants' perceptions of earning more of the bonus credit. There was also a marginally significant correlation between vulnerable narcissism and the self-serving bias measure, $r(138) = .15$, $p = .077$, but it showed a general trend of more vulnerable narcissism actually relating to feelings of earning less of the bonus credit. No other significant correlations were found. Therefore, my first prediction that both subtypes of narcissism would be related to self-serving bias across the board was not supported with the exception of one relationship mentioned above.

Because the remaining hypotheses had opposing predictions for grandiose and vulnerable narcissism, I chose to simplify the analyses by computing a grandiose-vulnerable narcissism variable by subtracting vulnerable narcissism scores from grandiose narcissism scores to produce difference scores which were treated as a continuous variable. Negative scores on this variable indicated more vulnerable narcissism, whereas positive scores indicated more grandiose narcissism. This approach seemed appropriate, given that numerous previous studies utilizing the PNI tended to generate opposite effects for the grandiose and vulnerable subscales (Besser & Priel, 2010; Miller et al., 2011). The grandiose-vulnerable-difference subscale had a mean of 0.51 ($SD = 0.69$). Overall the data in my sample seemed to be almost normally distributed, showing only a slight positive skew with the highest difference score indicating more grandiose narcissism of 2.48 and the highest difference score indicating

more vulnerable narcissism of -1.51. To test my remaining three hypotheses, a grandiose-vulnerable narcissism × feedback condition × attributional context General Linear Model was performed on each of the three dependent variables assessed. The grandiose-vulnerable narcissism variable was treated as a continuous predictor variable, while both the feedback condition and attributional context variables were treated as categorical predictors. I created a custom model in SPSS which included main effects for each predictor as well as all interaction terms. The model was run once with each dependent variable.

Self-Serving Bias

When examining the self-serving bias dependent measure, a significant main effect of feedback condition emerged, $F(1, 130) = 12.68$, $p = .001$, with participants displaying more self-serving bias in the success condition ($M = 6.87$, $SD = 1.66$) than in the failure condition ($M = 5.46$, $SD = 1.54$). A significant grandiose-vulnerable narcissism × attributional context interaction also emerged, $F(1, 130) = 6.21$, $p = .014$. As predicted, individuals with more grandiose narcissism displayed more self-serving bias in public than in private (see Figure 1 for predicted scores). However, there appeared to be no difference in self-bias based on attributional context for individuals higher in vulnerable narcissism. No other significant findings emerged.

The findings using the self-serving bias dependent variable were mixed. Although there was a main effect of feedback condition, with individuals displaying more self-serving bias in the success condition than in the failure condition, this effect was not moderated by narcissism. Thus, hypothesis 2, which predicted that grandiose narcissism would be more related to self-serving bias when participants had experienced a

collaborative group success than when they had experienced a collaborative group

failure, was not supported. Hypothesis 3, which predicted that vulnerable narcissism

would be more related to self-serving bias when participants had experienced a group

failure than when they had experienced a group success, was also not supported.

However, the findings do partially support Hypothesis 4, which predicted that grandiose

narcissists would be more self-serving when they made public attributions than when

their attributions were kept confidential. The prediction that vulnerable narcissists would

be less self-serving when making public attributions than when their attributions were

kept confidential was not supported.

Credit Earned and Credit Allocated

A significant main effect of feedback condition emerged on the credit earned

dependent measure, $F(1, 130) = 3.91$, $p = .050$. Participants tended to report that their

partner earned less of the bonus credit in the success feedback condition ($M = 2.99$, $SD =$

1.38) than in the failure condition ($M = 3.58$, $SD = 1.23$). No other significant findings

emerged. No significant findings at all emerged when examining the credit allocated

dependent variable. Thus, my hypotheses were not supported at all when assessing both

the credit earned and credit allocated dependent variables.

General Narcissism

Wright et al.'s (2010) study suggests that assessing the PNI as a single factor

representing pathological narcissism may be a valid use of the scale. Thus, I averaged the

responses of participants on all 52 items of the scale together to create a single average

PNI score which served as a single factor of pathological narcissism ($M = 2.30$, $SD =$

0.69, $\alpha = .94$). I then ran a pathological narcissism × attributional context × feedback

condition General Linear Model. The pathological narcissism variable was treated as a

continuous predictor variable, while both the feedback condition and attributional context

variables were treated as categorical predictors. I again created a custom model in SPSS

which included main effects for each predictor as well as all interaction terms. This

model was examined only on the self-serving bias dependent variable, as it seemed to be

the most sensitive to my manipulations in the previous analyses.

A significant feedback condition × attributional context interaction emerged in the

model, $F(1, 130) = 4.36$, $p = .039$. However, it was qualified by the significant three-way

interaction, $F(1, 130) = 3.94$, $p = .049$. As shown in Figure 2, participants with higher

pathological narcissism were more self-serving in the public success condition than

participants with lower pathological narcissism; the same appeared to be true in the

private success condition but to a lesser extent. This means that the more people tended to

have low empathy, low self-esteem, aggression, and shameful affect, the more self-

serving they tended to be when making public attributions, and to a lesser extent private

attributions, after experiencing a success. This finding is somewhat consistent with

Hypothesis 4, which predicted that grandiose narcissists would be especially self-serving

in the public success condition, but it appears for overall narcissism instead.

Narcissism Subscale Analyses

Because multiple models of the PNI showed good fit in assessing pathological

narcissism as per Wright and colleagues (Wright et al., 2010), I ran additional analyses

on each subscale of the PNI to see if the results for particular subscales differed from the

results with the two higher-order factors of grandiose and vulnerable narcissism. For

these analyses, I performed a PNI subscale × feedback condition × attributional context

General Linear Model for each individual PNI subscale. Each subscale was treated as a

continuous predictor variable, while both the feedback condition and attributional context

variables were treated as categorical predictors. I again created a custom model in SPSS

for each analysis which included main effects for each predictor as well as all interaction

terms. Again, these analyses were only examined with the self-serving bias dependent

variable, as it seemed most sensitive to my manipulations. When running analyses using

just the subscales rather than the higher-order factors, some interesting results did

emerge.

Contingent self-esteem. When examining contingent self-esteem (a facet of

vulnerable narcissism), a significant attributional context × feedback condition interaction

was discovered, $F(1, 130) = 5.93$, $p = .016$. However, this finding was qualified by the

significant contingent self-esteem × attributional context × feedback condition

interaction, $F(1, 130) = 6.22$, $p = .014$. The pattern of predicted scores resembled that of

general narcissism. Within the public-success condition, participants who scored higher

on contingent self-esteem displayed significantly more self-serving bias than those who

scored lower on contingent self-esteem (See Figure 3). This indicates that the more

people tended to have fluctuating self-esteem and experience dysregulation when lacking

external sources of admiration, the more self-serving they were when making only public

attributions after experiencing a team success.

Exploitativeness. When examining exploitativeness (a facet of grandiose

narcissism), a significant attributional context × exploitativeness interaction emerged,

$F(1, 130) = 3.99$, $p = .048$. Greater exploitativeness was associated with more self-

serving bias in public and less self-serving bias in private (see Figure 4). No other

significant findings involving exploitativeness in this model emerged. This indicates that the more people reflected an interpersonally manipulative orientation, the more self-serving they tended to be when making public attributions and the less self-serving they tend to be when making private attributions.

Devaluing. When examining devaluing (a facet of vulnerable narcissism), a significant attributional context × feedback condition interaction emerged, $F(1, 130) = 4.42$, $p = .038$. This interaction was qualified by the significant devaluing × attributional context × feedback condition interaction, $F(1, 130) = 4.28$, $p = .041$. As in the general narcissism interaction, participants higher in devaluing were more self-serving in the public success condition than participants lower in devaluing (see Figure 5). This indicates that the more people tended to devalue others, the more self-serving they were only when making public attributions after experiencing a team success.

Entitlement rage. When examining entitlement rage (a facet of vulnerable narcissism), a significant entitlement rage × feedback condition interaction emerged, $F(1, 130) = 6.62$, $p = .011$. Participants higher in entitlement rage were more self-serving in the success condition than the participants lower in entitlement rage (see Figure 6). This indicates that the more people tended to experience anger when faced with unmet entitled expectations, the more they tended to be self-serving only when making public attributions after experiencing a team success.

Self-sacrificing self-enhancement, hiding the self, and grandiose fantasy. No significant effects emerged for the self-sacrificing self-enhancement, hiding the self, or grandiose fantasy subscales.

Factor Analysis

Four of the seven subscales reflected the same general pattern of narcissism being associated with greater self-serving bias in either the public attributional context and/or the success condition, but not all four scales reflected the same higher-order narcissism factor. Instead, one subscale from the grandiose factor (exploitativeness) and three subscales from the vulnerable factor (contingent self-esteem, devaluing, and entitlement rage) all showed a similar pattern. Because there has been some inconsistency regarding which subscales of the PNI should constitute the two factors of grandiose and vulnerable narcissism (Pincus et al., 2009; Wright et al., 2010), I ran a factor analysis on the present data to see whether the subscales that resulted in the same general findings in this study all loaded together.

Oblique rotation was used because both factors of grandiose and vulnerable narcissism are correlated in that they both measure narcissism. Only items which had a factor loading of .50 or higher and which loaded highly on only one factor were included on a given factor. A two factor solution was requested, as the PNI is designed to split narcissism into the subtypes of grandiose and vulnerable. The factor analysis performed on the seven PNI subscales resulted in a vulnerable factor (Eigenvalue = 3.71), consisting of the contingent self-esteem subscale (factor loading = .82), the devaluing subscale (factor loading = .95), the entitlement rage subscale (factor loading = .80), and the exploitativeness subscale (factor loading = .70). This factor analysis also produced a grandiose factor (Eigenvalue = 1.22), consisting of the self-sacrificing self-enhancement subscale (factor loading = .93), the hiding the self subscale (factor loading = .60), and the grandiose fantasy subscale (factor loading = .85). Each set of subscales was averaged to

form vulnerable (M = 2.07, SD = 0.77, α = .85) and grandiose indexes (M = 2.03, SD =

0.61, α = .78).

This factor analysis is supported by the findings regarding subscales, as the four

subscales with significant interaction results in the current study all loaded onto the

vulnerable factor in my data set. To double-check whether the pattern of results for each

individual subscale was also present in the newly constructed vulnerable factor, a

vulnerable narcissism × feedback condition × attributional context General Linear Model

was performed on the self-serving bias dependent variable. A significant attributional

context × feedback condition interaction emerged, $F(1, 130)$ = 4.59, p = .034. This

interaction was qualified by the three way interaction between vulnerable narcissism,

attributional context, and feedback condition, $F(1, 130)$ = 4.15, p = .044. As would be

expected given the results presented in Figures 3 through 6, it was the public success

condition in which greater narcissism was most associated with greater self-bias.

Discussion

Generally, I predicted positive correlations between both subtypes of narcissism

and self-serving behavior regardless of condition in the current study. I also expected to

find differences in self-serving behavior between the two types of narcissism dependent

on either success or failure condition, and either public or private attributional context.

Overall, the findings in this study were mixed. The most basic prediction that either

subtype of narcissism would be related to more self-serving bias was, at best, partially

supported, as the only significant correlation was between grandiose narcissism and

credit earned, indicating that individuals with more grandiose narcissism reported feeling

like they had earned more of the bonus credit relative to what their partners had earned.

Neither grandiose nor vulnerable narcissism was significantly correlated with any of the other dependent variables assessed.

The relationship between narcissism and self-serving bias is well-documented in the literature (Farwell & Wohlwend-Lloyd, 1998; John & Robins, 1994; Miller & Campbell, 2010; Sedikides, 1993; Stucke, 2003), which suggests that my lack of findings may reflect an issue with the measurement of either narcissism or self-serving bias. It is possible that the measure I created to assess self-serving bias was not sensitive enough or simply did not accurately record bias. This seems to be true of both dependent variables which involved the 30 minutes of bonus credit, as the correlation between credit earned and grandiose narcissism, while significant, was relatively weak. It is possible that the social situation participants experienced in the study involved too much situational constraint. Because social norms would dictate in this situation that the bonus credit be split equally, participants may have capitulated to these norms, overriding any potential effects of narcissism and thus producing a lack of results. As may be predicted if this were the case, the means of both the credit earned and credit allocated dependent variables were close to the midpoint of the scale, with relatively small standard deviations. No other significant findings emerged for either of these two dependent variables in the full General Linear Model.

However, the self-serving bias dependent variable did seem to provide a more appropriate measure of self-serving bias, particularly from a theoretical standpoint. This dependent variable was measured by asking participants to choose what percentage of the team's result was due to their contributions as opposed to their partner's contributions. As self-serving bias generally involves feeling like one has more responsibility for successes

and less responsibility for failures than one truly deserves, this approach seems to be conceptually appropriate. Without asking participants to consider or allocate any meaningful credit (such as the bonus research credit in the latter two dependent variables), this item seems to have allowed participants to freely express their own opinion of how much they personally felt that they contributed to the results.

It is also possible that the measure of narcissism used in this study did not accurately conceptualize the subtypes. The PNI is a relatively new measure, though it has been analyzed multiple times for validity and reliability. As mentioned previously, there has been inconsistency when determining which subscales should load on the two factors of grandiose and vulnerable narcissism, with two different factor formations and a third model using all 52 items as one factor showing nearly equally good fit. Interestingly, nearly all significant results found in this study involved a pattern of more self-serving bias in the public success condition than any other condition. This pattern emerged regardless of the form of narcissism assessed, as results when examining the grandiose-narcissism difference scores, the pathological narcissism variable created by averaging all 52 items of the PNI together, and each of four subscales separately all tended to reflect the same general pattern.

This pattern is consistent with the predicted results for grandiose narcissism specifically, but not for vulnerable narcissism. It is possible that in the current study, the PNI may not have distinguished between grandiose and vulnerable narcissism as well as intended. Instead, it may be solely assessing grandiose narcissism. Alternately, it is also possible that the PNI is assessing the subtypes of narcissism accurately, but that grandiose and vulnerable narcissists actually do have the same pattern of behavior.

Although the two subtypes of narcissism have some very different qualities, they do also

share common features (Miller et al., 2011). It is possible that self-enhancement is one

domain in which grandiose and vulnerable narcissists do not differ greatly.

   With regard to my remaining hypotheses, the results were also mixed. Hypothesis

2 stated that grandiose narcissism would be more related to self-serving bias when

participants had experienced a collaborative group success than when they had

experienced a collaborative group failure. This was not supported, as the interaction

between grandiose narcissism and feedback condition was not significant. Instead,

individuals high on grandiose narcissism seemed to be equally self-serving when they

had experienced a success as when they had experienced a failure. This may be a result of

the generally high self-esteem of the grandiose narcissist (Rose, 2002). This high self-

esteem may serve as a protective factor when grandiose narcissists are faced with

failures, leading these individuals to show no real differences in self-serving behavior

between situations where they succeed and situations where they fail.

   Hypothesis 3 stated that vulnerable narcissism would be more related to self-

serving bias when participants had experienced a group failure than when they had

experienced a group success. This hypothesis was also not supported by the current

study, as the interaction between vulnerable narcissism and feedback condition was not

significant. This seems to contradict the conceptualization of vulnerable narcissists as

having more of a defensive self-protection style as a function of low self-esteem (Rose,

2002; Tice, 1991). The lack of support for this hypothesis suggests that vulnerable

narcissists may not be any more likely to engage in defensive self-protection strategies

than are grandiose narcissists. This supports some previous research suggesting that while

grandiose narcissists are chronic self-enhancers, vulnerable narcissists may forego the act of self-enhancement due to their deep-seated anxieties and insecurities (Rose, 2002). It is possible that experiences of failure, such as the one in the current study, may induce negative feelings in vulnerable narcissists but may not lead to any defensive self-protection after all.

Hypothesis 4 for this study predicted that grandiose narcissists would be more self-serving when their attributions were made public, while vulnerable narcissists would be more self-serving when their attributions were kept confidential. This hypothesis was partially supported, as there was a significant interaction between grandiose-vulnerable narcissism and attributional context. Individuals higher in grandiose narcissism did display more self-serving bias in the public attributional context than in the private attributional context.

This finding is consistent with previous research, including Exline and colleagues' (Exline et al., 2004) finding that narcissism was related to desire for public recognition and lack of concern about negative peer evaluation. Exline and colleagues used the NPI to assess narcissism in their study, which, as previously stated, correlates positively with grandiose narcissism, making that finding in this study consistent with past research. However, the prediction that vulnerable narcissism would be more related to self-serving bias in private than in public was not supported, as there appeared to be no significant difference between attributional contexts for individuals higher in vulnerable narcissism. This seems to contradict the conceptualization of vulnerable narcissists as being more concerned with negative peer evaluation (Besser & Priel, 2010; Miller et al, 2011), leading them to display less self-serving bias in public, but still being concerned

with engaging in self-enhancement strategies, leading them to display more self-serving

bias in private. However, had we plotted predicted scores for extreme vulnerable

narcissists (e.g., two standard deviations below the mean), then we would have observed

the predicted pattern. Future research is needed to further understand the

conceptualization of vulnerable narcissism and whether it may depend on the level of

vulnerability.

It is also possible that the private attributional context condition was simply not

private enough. Although the study was conducted entirely on a private computer behind

a closed door, participants were still seen by and briefly interacted with the research

assistants. The presence of the research assistant nearby throughout the study, and the

knowledge that their data would be analyzed by the research team, might have reduced

the level of privacy felt by the participant when making attributions. This may account

for the finding that there was no difference in self-serving behavior between the public

and private attributional contexts for vulnerable narcissists, as even the private condition

may not have felt private enough for them to make accurate attributions. However, some

public/private context effects did emerge, suggesting that participants did perceive the

two situations differently, at least to some extent.

For both the self-serving bias and credit earned dependent variables, I did find a

main effect of feedback condition. For both dependent variables, participants displayed

more self-serving bias in the success condition than in the failure condition. This

contradicts some previous research which suggests that self-serving attributional bias is

actually significantly magnified when individuals experience self-threat (Campbell &

Sedikides, 1999). As the team failure experienced in the current study may be seen as a

self-threat, the finding that participants were actually less self-serving in the failure

conditions than the success conditions goes against what might be predicted. However,

the failure experienced in the current study may not have been particularly threatening.

The tasks were introduced as measures of cognitive ability, which may have been too

abstract to be seen as threatening. Introducing the tasks as important and/or reliable

measurements of specific abilities necessary for success in college, for example, may

have been more likely to create a sense of self-threat.

Some interesting supplemental findings were identified in addition to the results

pertaining strictly to my hypotheses. One additional analysis I ran involved averaging all

52 items of the PNI together to form one variable assessing the PNI Total, which was

then called pathological narcissism. When replacing the original grandiose-vulnerable

difference scores variable with this new pathological narcissism variable, I did find a

significant interaction between pathological narcissism, feedback condition, and

attributional context. This interaction reflected a general pattern in which participants

with high pathological narcissism were more self-serving in the public success condition

than in all other conditions.

This conceptualization of pathological narcissism as a whole should reflect a

somewhat different form of narcissism than that evaluated by the NPI, which again

constitutes the majority of research on narcissism. Pincus and colleagues posited that

high scores on the PNI as a whole should reflect a pattern of low empathy, low self-

esteem, aggression, and shameful affect; high scores on the NPI indicate instead a pattern

of self-enhancement, domineering interpersonal style, and high self-esteem. However, the

pattern observed in the present study seems to be consistent with previous research on

narcissism as assessed by the NPI and self-serving bias, with narcissistic individuals being more self-serving in public than in private, and more self-serving after a team success than after a team failure. This may suggest that analyzing the PNI as a whole rather than in terms of the seven subscales and the two higher order factors may produce a measure of narcissism that is actually conceptually similar to that produced by the NPI.

When each subscale was analyzed separately, some interesting effects emerged. Four of the seven subscales produced a similar pattern, with self-serving bias increasing the most in a public context and/or in the success condition. This finding is consistent with the results of analyzing the PNI as a whole, and is consistent with my hypothesis regarding grandiose narcissism. Interestingly, however, the subscales for which this pattern emerged were not limited to the ones which load on grandiose narcissism in Wright and colleagues' conceptualization of the PNI (Wright et al., 2010). In fact, the only subscale which loads on grandiose narcissism and which produced this pattern was the exploitativeness scale.

The other three subscales for which this pattern emerged were contingent self-esteem, devaluing, and entitlement rage. These three subscales load onto vulnerable narcissism, but reflect a pattern more consistent with what might be expected for grandiose narcissism in the current study. Although this seems contradictory, it is important to recall that although grandiose and vulnerable narcissism are two separate conceptualizations of narcissism, they share many features in common. The scales which make up vulnerable narcissism load more strongly onto that factor than they do on the grandiose narcissism factor, but that does not exclude these traits from being present in grandiose narcissists. It may be that this particular task in the current study triggered

stronger trait emergences for these particular scales even in the grandiose narcissists, which may have produced these results.

The contingent self-esteem scale, for example, measures a sense of fluctuating self-esteem and dysregulation when lacking admiration and recognition from others (Pincus et al., 2009). Although grandiose narcissists are typically thought of as having generally high self-esteem, they are also thought of as chronic self-enhancers. This subscale in particular seems to measure the need for admiration and attention from others which may stimulate the tendency to self-enhance. In this case, the scale may actually be measuring some of the motivations behind grandiose narcissistic tendencies, even though it is technically measuring a facet of vulnerable narcissism. This may have helped produce the pattern of results found in the current study, where individuals scoring higher on contingent self-esteem tended to be more self-serving in the public success condition than any other.

Another subscale which produced this pattern of results was the devaluing scale. This scale should be measuring a lack of interest in others who do not admire the individual, as well as a sense of shame over recognizing that the individual needs that attention. Again, although the sense of shame may be seen as a more vulnerable trait, the devaluing of others who do not provide recognition and admiration for the individual may also be conceptualized as a grandiose trait. Individuals higher in devaluing were the most self-serving in the public success condition in the current study, which reflects a more typically grandiose pattern. This may have been produced more from individuals' apparent disdain for others who fail to admire the individual than from any shame over recognizing this need for attention.

The final subscale which produced a similar pattern of results was the entitlement rage subscale. This scale measures the occurrence of angry affect when entitled expectations fail to be met. Self-serving bias was highest in the current study when individuals scoring higher on entitlement rage experienced a success. Based on the conceptualization of this scale, it would make sense to predict the opposite pattern—that self-serving bias would be highest after experiencing a failure. However, entitlement rage was originally conceptualized as a grandiose subscale when the PNI was first developed (Pincus et al., 2009). Although this scale loads on vulnerable narcissism, it may also reflect a pattern of thinking and behavior consistent with grandiose narcissism, as even grandiose narcissists have entitled expectations and may become upset when these expectations are not fulfilled.

These unusual subscale findings can be partially explained by the factor analysis done on the data set in the current study. The oblique factor analysis I performed revealed that the four subscales with significant interactions in this study (exploitativeness, contingent self-esteem, devaluing, and entitlement rage) all loaded onto one factor, while the subscales which did not produce significant results at all (hiding the self, grandiose fantasy, self-sacrificing self-enhancement) loaded on the second factor. This is contrary to Wright and colleagues' (Wright et al., 2010) work on the PNI, which produced a different assignment of subscales to the two factors. However, as noted previously, even Wright and colleagues' assignment of subscales to factors is different from the assignment originally proposed by the author of the scale (Pincus et al., 2009). It is possible that although the PNI successfully measures facets of narcissism, those facets may not be developed or specific enough to accurately target either vulnerable or

grandiose narcissism. This lack of appropriate development and specificity may help explain why several different factor analyses have produced different loadings of subscales onto factors, and indeed may help explain why Wright and colleagues found that three different models of the PNI all had nearly equally good fit (Wright et al., 2010).

One limitation of this study may have been the use of a single narcissism measure. The PNI is a relatively new measure which is still somewhat under construction. From its initial construction and validation in 2009 to the present, the seven subscales have been assigned to the higher order factors of grandiose and vulnerable narcissism in multiple ways. Repeating the study and using more well-established measures, such as the Hypersensitive Narcissism Scale (Hendin & Cheek, 1997) and the NPI-16 (Ames, Rose, & Anderson, 2006), may be useful in analyzing the final results and seeing whether those results replicate the current study's findings. Using these or other narcissism measures in addition to the PNI could further help illuminate the validity and reliability of the PNI.

I did not include a self-esteem measure, which also may be a limitation in this line of research. Rose (2002) found that grandiose narcissists reported higher self-esteem and vulnerable narcissists reported lower self-esteem. Self-esteem is also related to self-serving bias. As Rosenfeld (1990) suggests, self-serving bias may actually share common dimensions with self-esteem concerns. Given that self-esteem is related to both narcissism and self-serving bias in these ways, measuring self-esteem might have illuminated the results. Not measuring self-esteem meant I could not control for it, and as narcissism and self-esteem seem to be so closely linked, it is possible that the effects of narcissism may have been more apparent after controlling for self-esteem.

Future research in this area might involve using a similar paradigm but including an actual partner who the participant briefly meets and interacts with. A future study conducted in this way might help illuminate the relationship between grandiose and vulnerable narcissism and self-serving bias in real-life situations, as most team situations include a component of actual physical interaction between members of the team. This might also make the attributional contexts more salient, as in the private condition participants would know that their responses were kept private from the individual they met earlier, while in the public condition participants would know that the individual they met earlier would be notified of their attributions regarding their performance as opposed to their partner's performance. Future research along this line would contribute greatly to the little existing research on the relationship between grandiose and vulnerable narcissism and self-serving bias. More generally, this line of research makes an important contribution to the study of grandiose and vulnerable narcissism as two distinct subtypes of the narcissistic personality, particularly as the results from the current study seemed to somewhat contradict previous research which either examined narcissism as a single construct or examined the two subtypes as assessed by the PNI.

The next step in this line of research might involve investigating whether the pattern of results found in this study—that vulnerable narcissists in particular seem to be more self-serving in the public and/or success condition—also apply to other settings. One way to study this might involve more real-life situations where this bias can affect people, such as in the workplace or in schools. Researchers interested in this line of study might hypothesize that they would find increased self-serving behavior from grandiose narcissists in this more real-life scenario as opposed to the laboratory setting, while the

pattern of more self-serving behavior from vulnerable narcissists might decrease,

reflecting consideration of social cost and peer evaluations, or might stay constant or

increase, reflecting a similar pattern to the current study. Research along this line would

contribute to the knowledge base on grandiose and vulnerable narcissism and might help

further illuminate similarities and differences between these two subtypes of the

narcissistic personality.

This line of research is relevant to individuals working on collaborative group

projects with narcissistic individuals, particularly in employment or school settings where

promotion, good standing, and academic success are at stake. If people with narcissistic

traits display self-serving biases in the ways stated above, this may have important

implications for the continued success of their non-narcissistic partners. For example, if

the narcissistic partner publicly takes the majority of the credit for team successes, as was

found in the current study, the narcissistic individual may be first in line to receive a

promotion in a work setting, even if their actual contribution to team projects does not

warrant the promotion. In particular, the current line of research may help in endeavors to

help narcissistic individuals adjust their tendency toward self-serving bias. Increasing

awareness of this bias may help narcissistic individuals more easily maintain successful

social and work relationships.

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Table 1

Descriptive Statistics and Correlation Matrix for Primary Variables

	Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
Predictor Variables	1. Grandiose Narcissism	2.63	0.79	—												
	2. Vulnerable Narcissism	2.12	0.74	.60**	—											
	3. Pathological Narcissism	2.30	0.69	.82**	.95**	—										
	4. Contingent Self-Esteem	2.03	0.95	.50**	.87**	.84**	—									
	5. Exploitativeness	2.41	0.91	.67**	.56**	.65**	.48**	—								
	6. Self-Sacrificing Self-Enhancement	2.56	1.14	.84**	.40**	.62**	.31**	.27**	—							
	7. Hiding the Self	2.63	0.83	.56**	.71**	.70**	.47**	.31**	.49**	—						
	8. Grandiose Fantasies	2.93	0.95	.86**	.48**	.69**	.41**	.40**	.63**	.52**	—					
	9. Devaluing	1.89	0.94	.38**	.84**	.73**	.65*	.52**	.17*	.43**	.25**	—				
	10. Entitlement Rage	1.93	0.90	.54**	.86**	.82**	.69**	.52**	.36**	.46**	.41**	.64*	—			
Outcome Variables	11. Self-Serving Bias	6.17	1.75	.06	.15^m.s.	.14	.18*	.05	.08	.04	.00	.13	.14	—		
	12. Credit Earned	3.28	1.33	-.17*	-.10	-.13	-.06	-.24**	-.10	.07	-.08	- .14	-.18*	-.06	—	
	13. Credit Allocated	3.89	0.83	.01	-.12	-.07	-.04	-.11	.08	.03	.04	-.17*	-.21*	-.05	.38**	—

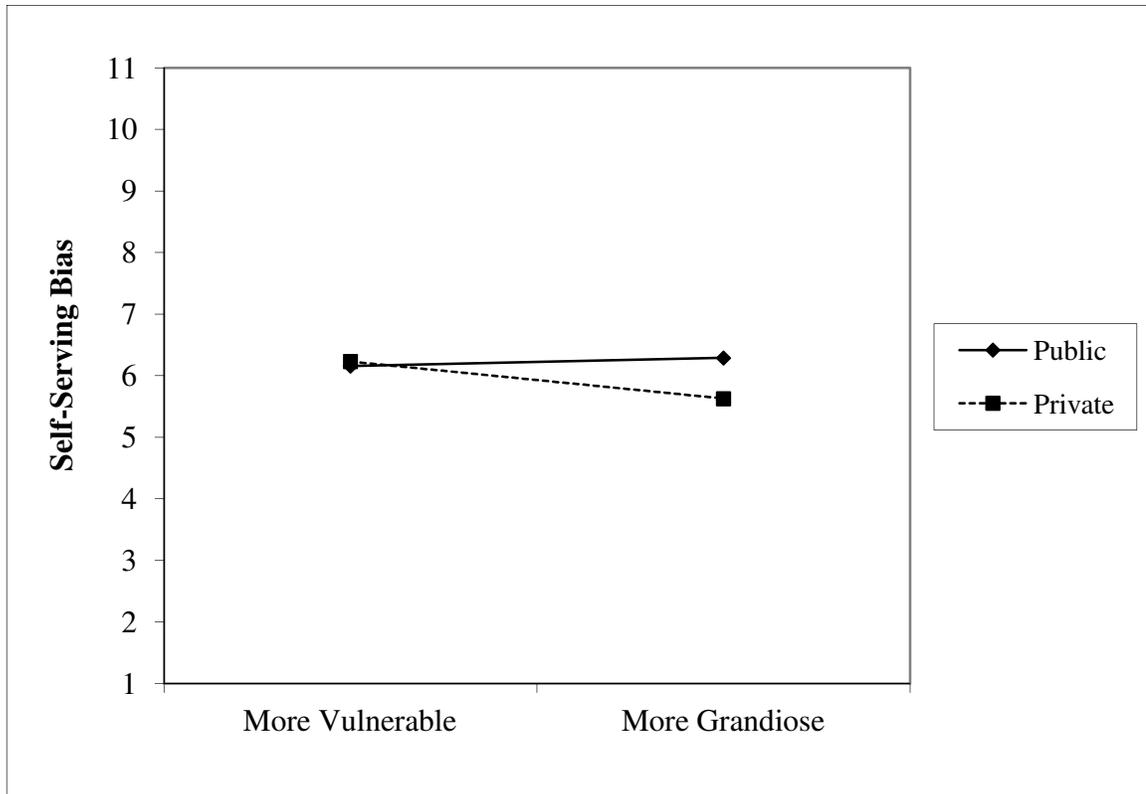Note: *p < .05, **p <. 01, ^m.s.p < .10, n = 138

Figure 1. The interactive effects of grandiose and vulnerable narcissism and attributional

context on self-serving bias. In this figure, lack of bias would reflect a self-serving bias

score of 4. The predicted scores in this graph were plotted one standard deviation below

and above the mean on the grandiose-vulnerable difference scores ($M = 0.51$, $SD = 0.69$).

Because negative scores on the grandiose-vulnerable difference scores variable indicate

more vulnerable narcissism and positive scores indicate more grandiose narcissism, the

graph is labeled as such for simplicity.
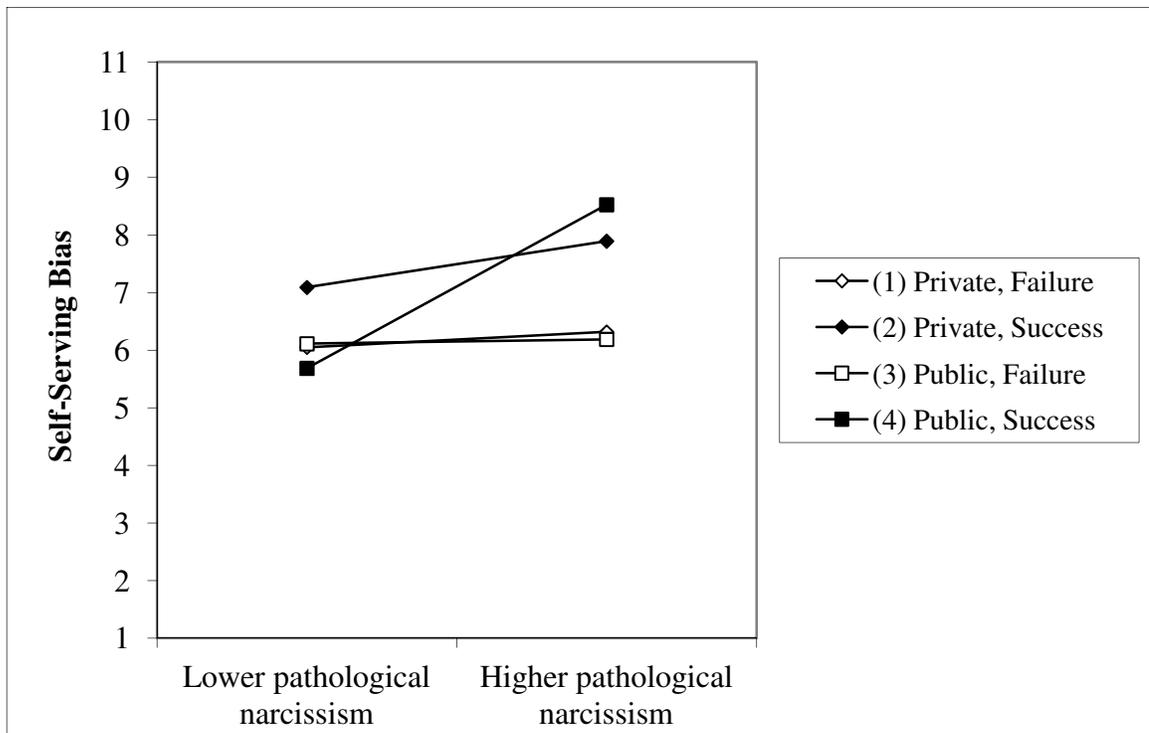
Figure 2. The interactive effects of pathological narcissism (computed by averaging all

52 items of the PNI together), attributional context, and feedback condition on self-
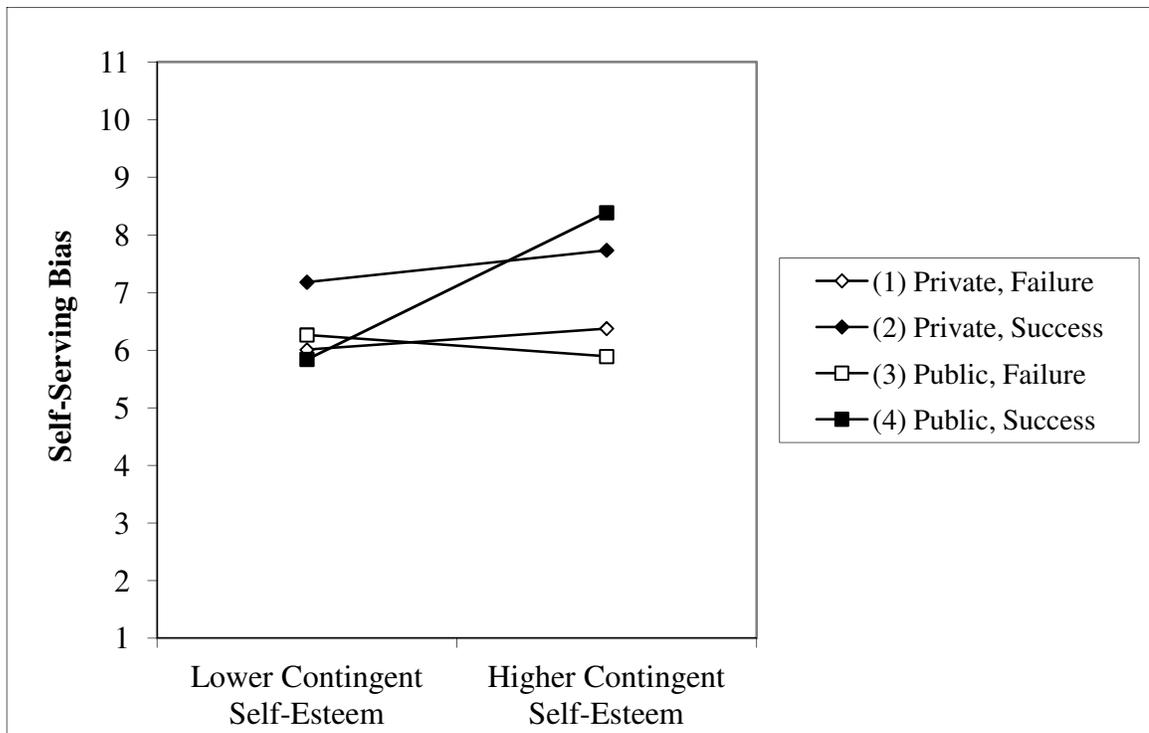
serving bias.

Figure 3. The interactive effects of the contingent self-esteem subscale of the PNI,

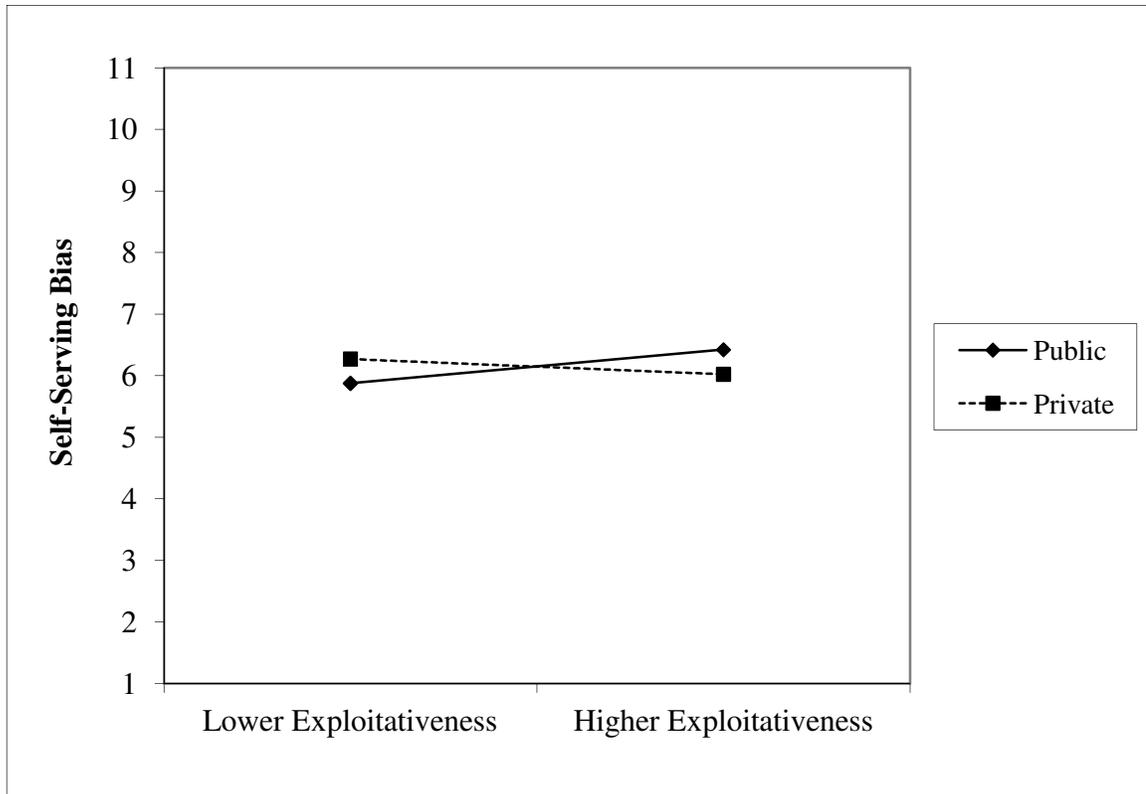attributional context, and feedback condition on self-serving bias.

Figure 4. The interactive effects of the exploitativeness subscale of the PNI and

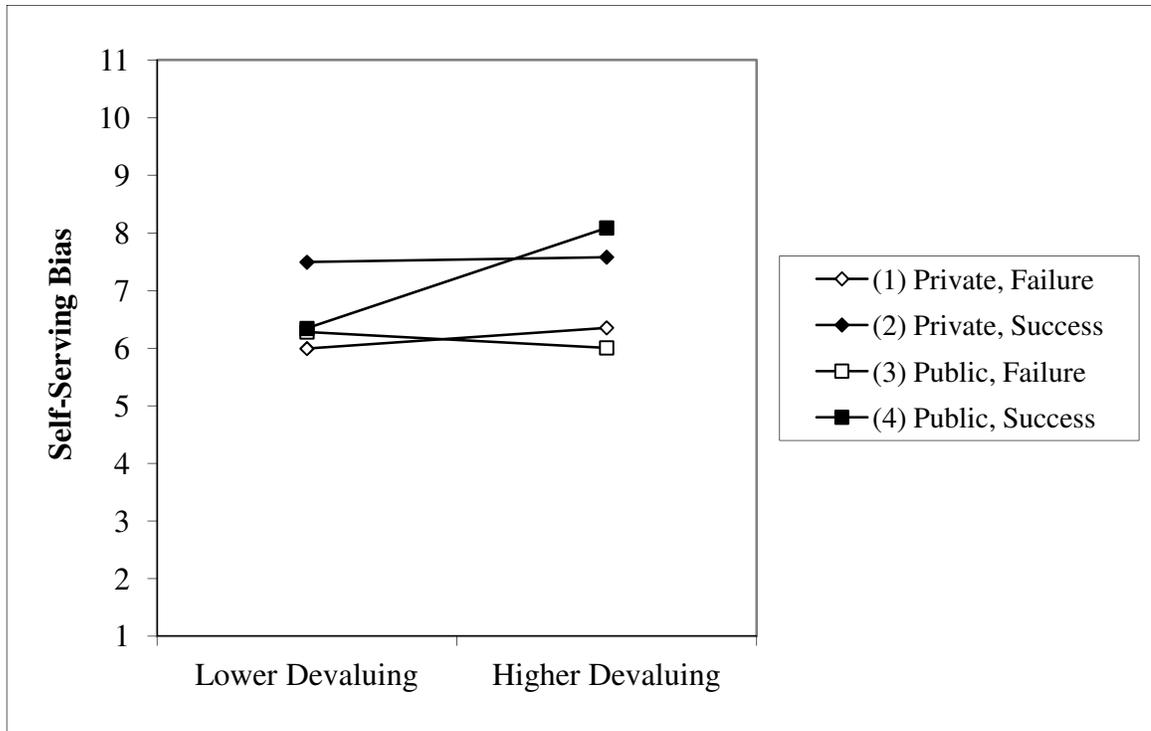attributional context on self-serving bias.

Figure 5. The interactive effects of the devaluing subscale of the PNI, attributional

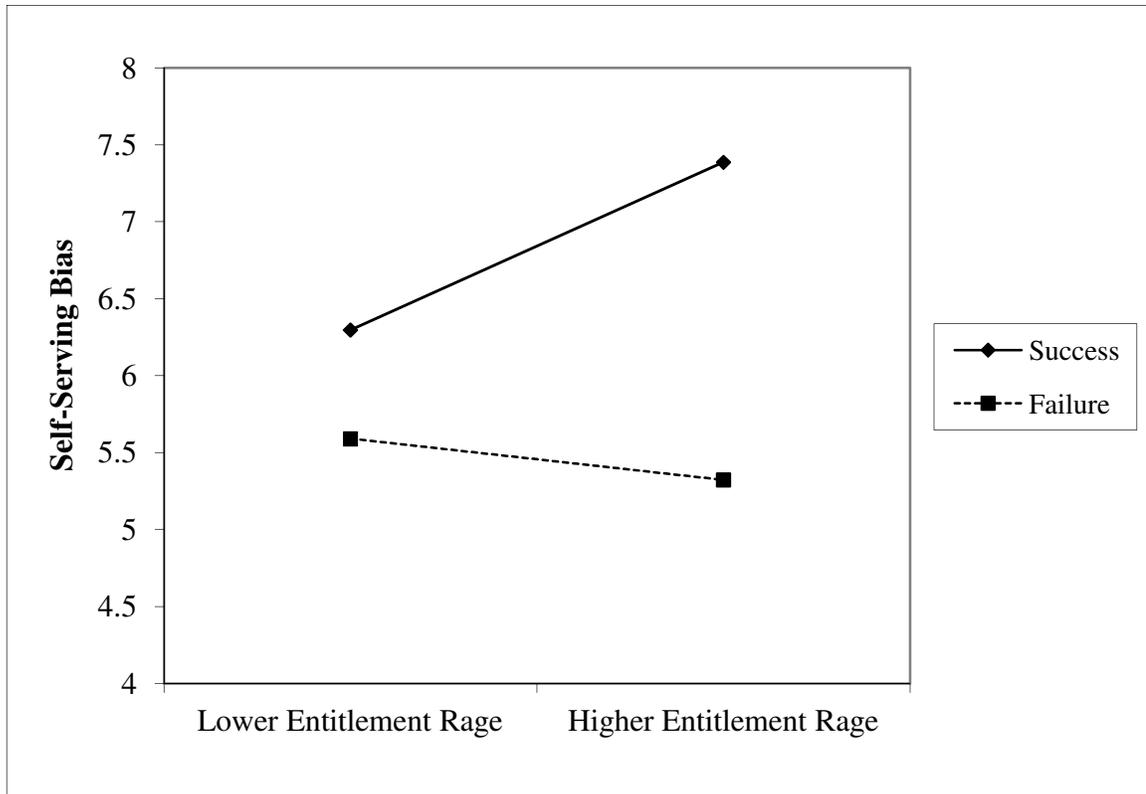context, and feedback condition on self-serving bias.

Figure 6. The interactive effects of the entitlement rage subscale of the PNI and feedback condition on self-serving bias.

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