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PATHOLOGICAL NARCISSISM AND AFFECTIVE REACTIONS IN SOCIAL INTERACTIONS

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ABSTRACT

This study examined the influence of narcissistic grandiosity and narcissistic vulnerability on affective valence and arousal in reaction to the interpersonal perception of others. I predicted that perceiving increased agency in others would evoke negative affect in individuals high in narcissistic grandiosity, while perceiving decreased communion would evoke negative affect in individuals high in narcissistic vulnerability. To test this I collected data from 184 undergraduate participants who completed repeated daily diary questionnaires during a 7-day period. Results found that individuals with higher levels of narcissistic grandiosity reported higher levels of negative affect in response to perceiving other individuals as more agentic than usual, consistent with our hypothesis. Within this grandiosity factor, the facet of exploitativeness was also associated with significantly more affective arousal in reaction to perceiving others as more agentic. My second hypothesis was not confirmed; although individuals with higher levels of narcissistic vulnerability had higher overall levels of negative affect, perceiving decreased communion was not associated with negative affect. I discuss the implications of these results for the broader understanding of how narcissism presents in an individual's daily life, and highlight the importance of conceptualizing narcissism more broadly (e.g. grandiosity and vulnerability).

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Introduction

Healthy interpersonal functioning is essential to creating meaningful relationships and achieving a balanced life. However, when interpersonal dysfunction dominates the majority of social interactions personality pathology results (Pincus 2005). An important way to examine and better understand interpersonal dysfunction and its links with personality pathology is through the use of event-level, naturalistic, longitudinal studies. Longitudinal research on psychopathology is now emerging as an important new avenue of investigation. The present study uses this type of data collection to examine the effects of pathological narcissism on interpersonal functioning of individuals during a 7 day repeated measures longitudinal study.

Conceptualizing Pathological Narcissism

Narcissism is a pathological condition that has been acknowledged since the late 19th century when Havelock Ellis first identified it (Pincus & Lukowitsky, 2010). Since then, the fields of psychology and psychiatry have attempted to better understand, describe, and assess pathological narcissism. One way of describing narcissism was created in the *Diagnostic and Statistical Manual* (DSM) of mental disorders, where the characteristics of narcissism were honed into the diagnoses of Narcissistic Personality Disorder (NPD). According to the DSM-IV-TR individuals with NPD are characterized as exemplifying a grandiose sense of self, lacking empathy towards others and needing constant admiration (DSM-IV-TR; American Psychiatric Association, 2000).

However, the DSM-IV definition of narcissism has been criticized for being too narrow, only highlighting the grandiose aspects of narcissism, which lead to the development of what clinical theorists have termed pathological narcissism. Pathological

narcissism is characterized by dysregulation within the self, emotions and behavior after individuals perceive threats to their ego or fail to achieve self-enhancement (Pincus & Roche, 2011). Attempting to achieve recognition and admiration are normal aspects of individuals' personalities. However, when people are unusually preoccupied with self-enhancement and unable to adapt and regulate their emotions in response to failure, rejection, and threats to their self-image, this reflects pathological narcissism (Pincus & Roche, 2011). Thus, instead of relying on the DSM-IV criteria of NPD, Pincus, Ansell, Pimentel, Cain, Wright and Levy (2009) created the Pathological Narcissism Inventory (PNI), which highlights both grandiose and vulnerable aspects of pathological narcissism. Narcissistic grandiosity is what is most commonly associated with narcissism and what is addressed in the NPD definition in the DSM, which includes seeking self-enhancement and validation from others and behaving arrogantly and conceitedly. Narcissistic vulnerability, on the other hand, is characterized by social avoidance, low self-esteem, and shame (Pincus & Roche, 2011). The addition of narcissistic vulnerability broadens the conception of narcissism and thus I am using this contemporary view in this study.

These new views on pathological narcissism and additional research on personality disorders will help to inform the development of the DSM-5. Of particular interest are diagnoses of personality disorders because they are more difficult to diagnose and less accurately diagnosed than most symptom disorders (Wiggins & Pincus, 1989). Research also shows that personality disorders are more resistant to treatment and the presence of a comorbid personality disorder negatively impacts treatment for other problems (Clemence, Perry, & Plakun, 2009). Treatment resistance and complications have also been associated specifically with pathological narcissism (e.g., Clemence, et al,

2009; Pincus et al., 2009). For example, one characteristic of pathological narcissists that likely contributes to treatment resistance is defense mechanisms, which allow the patient to avoid any challenges to their precarious self-esteem (Perry & Perry, 2004). Additionally pathological narcissism can manifest both in fleeting episodes and more consistently, causing individuals to range in functionality from relatively normal to chronically impaired (Ronningstam, 2009). In order to create more effective treatment of pathological narcissism, researchers have investigated dimensions of pathological narcissism. The hope is that by identifying these more specific dimensions, which include definitions of pathological narcissism beyond that expressed in the DSM-IV-TR conception of NPD, treatments can be adapted to be more beneficial for the individual patient.

Narcissistic Grandiosity and Narcissistic Vulnerability. Recent research supports conceptualizing two dimensions of pathological narcissism: narcissistic grandiosity and narcissistic vulnerability (Cain, Pincus, & Ansell, 2008; Pincus & Roche, 2011; Wright, Lukowitsky, Pincus, & Conroy, 2010). Narcissistic grandiosity is what is usually thought of when thinking of narcissism based on the characteristics that are identified in the DSM. It is associated with self-entitlement, arrogance and willingness to exploit others (Besser & Zeigler-Hill, 2010). These individuals often ignore evaluations of self from others and instead choose to rely on their own exaggerated self views (Pincus et al., 2009). Narcissistic grandiosity is expressed behaviorally through "lack of empathy, intense envy, aggression, and exhibitionism" (Pincus et al., 2009, p. 367). The defensiveness that characterizes narcissistic grandiosity is often triggered by challenges to the person's fragile self-esteem (Ronningstam 2009). Research has noted that the

grandiose dimension of pathological narcissism is most resistant to treatment (Clemence et al., 2009) and is negatively related to treatment utilization (Pincus et al., 2009).

Narcissistic vulnerability, on the other hand, is associated with avoidance of confrontation and withdrawal from threatening situations during interactions that challenge individuals' self-esteem (Besser & Zeigler-Hill, 2010). Individuals high in narcissistic grandiosity use hostile-dominant methods such as arguing with others when their self-assurance is challenged, whereas individuals high in narcissistic vulnerability use hostile-submissive methods including retreating from situations (Besser & Zeigler-Hill, 2010). These individuals also often feel heightened shame, low self-confidence and hopelessness (Pincus et al., 2009). These individuals more often perceive that their entitlement needs are not achieved, which leads to fewer social interactions (Dickinson & Pincus 2003; Horowitz, 2009).

Interpersonal Dysfunction and Pathological Narcissism

One core manifestation of pathological narcissism is interpersonal dysfunction. Individuals exhibiting this condition do not want their self-esteem challenged and thus become defensive (Clemence et al., 2009) and retreat from interactions (Besser & Zeigler-Hill, 2010) that may challenge their self-view. Although cross-sectional research consistently connects pathological narcissism to interpersonal dysfunction, very little research on narcissism utilizes longitudinal data collection methods. The research in this study attempts to address this deficit in the research literature by examining the influence of pathological narcissism on affective experience in interpersonal interactions. More specifically, the effects of narcissistic grandiosity and narcissistic vulnerability on socially contextualized affect are investigated.

Individuals with pathological narcissism often struggle to interact effectively in social situations. Because of their fragile self-esteem, pathological narcissists do not want others to challenge their views of self and thus often react inappropriately in interpersonal interactions. During interactions, these individuals have difficulties using self-regulation strategies so as not to elicit negative responses from others. Not only are individuals with pathological narcissism driven to protect their self-image but they are also driven to enhance their self-image. It is considered normal to want to seek out interactions that enhance the sense of self but when these intense needs become extreme and these individuals are unable to adequately regulate these needs then they become pathological (Pincus & Roche, 2011).

Narcissistic individuals are particularly sensitive to their feelings of superiority when being tested and confronted by others. They prefer to have others admire and respect their abilities and achievements, and they do not want their perception of self to be challenged in any way. This is evident in their tendency to rely on the social environment for affirmation (Pincus et al., 2009). In research conducted by McCullough, Emmons, Kilpatrick, and Mooney (2003), individuals who scored higher on the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1981), a measure of narcissistic grandiosity, reported more transgressions by others over time. Grandiose individuals are more likely to monitor their interactions for negative feedback and thus report transgressions by others because these interpersonal altercations challenge their self-image (McCullough et al, 2003). In addition, these individuals have higher standards for what should constitute a positive interaction because of their inflated, egotistical view of

self. As a result, individuals who have higher levels of narcissistic grandiosity are more likely to perceive interactions as anger provoking transgressions.

Individuals with pathological narcissism also exhibit more forms of aggression in interactions with others. When compared to individuals lower in narcissistic grandiosity, those with higher levels of narcissistic grandiosity display more aggression, particularly when their self-esteem is threatened by a negative evaluation from another (Bushman and Baumeister 1998). It is important to note that grandiose narcissists are not more aggressive towards everyone; rather, they exert their aggression interpersonally when they want to retaliate against someone who specifically challenged their view of self (Bushman & Baumeister 1998).

Another aspect of interpersonal interactions that leads to interpersonal dysfunction is lack of empathy. According to Ronningstam (2009), there are four causes for the lack of empathy in pathological narcissists. The first is high level of self-centeredness. Narcissists high in grandiosity are very focused on their own view of self and are not aware of others. The second is emotion dysregulation, where narcissists high in vulnerability are unable to regulate their own emotions or fully perceive accurately the emotions of others. The third issue that both grandiosity and vulnerability are associated with is self-esteem dysregulation. Their perceptions of others are always in relation to the self, which leads to bragging and feelings of superiority or shame and feelings of inferiority. The final cause of lack of empathy is a failure of superego regulation, where narcissists high in grandiosity do not pay attention to consequences of their actions (Ronningstam, 2009).

Individuals with pathological narcissism are also preoccupied with control both intrapersonally and interpersonally. These individuals want to garner and maintain control of other individuals during conversations in order to have control over themselves (Gabbard 1998). The control issues that these individuals experience are a key component to treatment of pathological narcissism (Westen & Shedler, 1999). Additionally Fetterman and Robinson (2010) found that pathological narcissists exhibit higher implicit self-importance following a manipulation of dominance and lower implicit self-importance after a manipulation of submission. This study emphasizes the contingence of their self-representation on the nature of the current social interaction.

Narcissistic Grandiosity, Narcissistic Vulnerability, and Agency and Communion

The Interpersonal Circumplex (see Figure 1) is a circular model with two distinct axes: agency and communion. The y-axis represents agency, which is anchored by dominance at the top and submissiveness on the bottom. Agency is considered the attempt to achieve power and authority over others and "power, mastery of the situation and a sense of differentiation from others" (Wiggins 1991; Sadikaj, Russell, Moskowitz, & Paris, 2010, p. 492). Communion is represented on the x-axis with warm as the right anchor and cold as the left anchor. Communion is the desire for and achievement of closeness and intimacy with others and represents "affiliation and connectedness" (Fournier, Moskowitz, & Zuroff, 2009; Besser & Zeigler-Hill, 2010, p. 491; Wiggins 1991). Individuals displaying high communion have agreeable dispositions and do not cause conflict with others.

Most research on the interpersonal circumplex and narcissism employs cross-sectional methodology. In an early study by Wiggins and Pincus (1989) using multiple

self-report measures of personality disorders, the narcissistic scales fell in Quadrant II of the interpersonal trait circumplex, meaning they fell closer towards dominance and coldness. Later, narcissistic grandiosity was also related to hostile-dominant interpersonal problems (Dickinson & Pincus, 2003; Pincus & Wiggins, 1990). Most recently, Pincus et al (2009) found that the grandiose subscales of the PNI correlated with "vindictive, domineering, intrusive, and overly-nurturant interpersonal problems" on the interpersonal problems circumplex (p. 373). Pincus et al (2009) also found that vulnerable subscales of the PNI correlated with "cold, avoidant and exploitable interpersonal problems" (p.373). However, these previous studies have only examined these associations cross-sectionally and this study is expanding to look at interpersonal behavior and affect longitudinally.

Grandiose and vulnerable narcissists react differently to public and private scenarios. Grandiose narcissists are more affected by public scenarios, which are situations that would make achieving the approval they want more attractive and desired (Besser & Zeigler-Hill, 2011). The public scenario is consequently seen as more of a threat because the other individuals are present could potentially change their views of the narcissistic individual as a result of the public interaction. The potential for interactions with dominant others who challenge the grandiose narcissist's sense of self during these public scenarios highlight grandiose narcissists' sensitivity to the agentic axis of interpersonal circumplex.

On the other hand, intimate private scenarios that hint at negative appraisal by a significant other may cause vulnerable narcissists to withdraw from perceived rejection. Vulnerable narcissists are more sensitive to rejection and other interpersonal traumas than

grandiose narcissists (Besser & Priel, 2010). Additionally, vulnerable narcissists have more negative state mood and anger in response to interpersonal rejection from a highly significant other, for example a romantic partner (Besser & Priel, 2010). These findings are consistent with the idea that vulnerable narcissists are highly sensitive to interpersonal rejection and therefore are more affected by the communal axis on the interpersonal circumplex, which represents "affiliation and connectedness" (Fournier, Moskowitz, & Zuroff, 2009, p. 156; Besser & Zeigler-Hill, 2011).

Although no studies have used longitudinal data collection methods to examine the interpersonal circumplex and pathological narcissism, Sadikaj et al (2010) used this methodology to examine Borderline Personality Disorder. More specifically, Sadikaj et al. (2010) recently found that BPD patients had higher levels of negative affect when the other individual was perceived as being low in warmth and agreeableness. BPD patients had higher levels of negative affect because they have such unstable interpersonal relationships and have intense fear of abandonment. Individuals with personality disorders look to maintain high self-esteem through communion, which can lead to preoccupation with the other's perceptions and acceptance of them. Both individuals with BPD and narcissistic vulnerability have a strong desire to have and maintain interpersonal relationships but both types of personality disorder lead these individuals to be constantly preoccupied with being accepted and admired by others (Sadikaj et al, 2010). Therefore it would be expected that individuals with narcissistic vulnerability would have similar negative affect reactions to those of BPD individuals when others are perceived as cold. Additionally, those high in narcissistic grandiosity, also must maintain increased entitlement and grandiose views which would be more affected by a desire to

achieve autonomy and power (Sadikaj et al, 2010). Thus it is more likely that individuals with grandiose narcissism will be more affected by perceiving other as dominant.

Cognitive Affective Processing System

When addressing interpersonal interactions between two individuals, there are benefits to using the conceptual metaframework called the Cognitive Affective Processing System (CAPS), which utilizes situational factors to predict behavioral and affective reactions (Mischel, 1973). The CAPS model challenges the notion of a "general" situation, which ignores the importance of an individual reaction to a specific event and, more specifically, the interaction between the person and the situation (Moskowitz, 1994). The relationship between the specific situation and affective output are referred to as "if-then" affective signatures (Mischel & Shoda, 2008). However, of additional importance in the model are the individual's cognitive affective units (CAUs). These CAUs are dispositions, emotions, and associated individual aspects that are unique to the particular individual (Mischel & Shoda, 2008) and impact both the interpretation of the situation and the affective output (Roche, Pincus, Conroy, Hyde, & Ram, under review).

The "if-then" affective signatures have been expanded through research to include interpersonal theory (Cain & Pincus, in press; Fournier, Moskowitz, & Zuroff, 2008; Pincus, Lukowitsky, Wright, & Eichler, 2009). Within the "if-then" framework the *if* represents the situational factors while the *then* represents the affective responses. This framework has begun to be used with the Interpersonal Circumplex dimensions of agency and communion representing the *if* or the *then* components of the CAPS model and in

some cases both (Roche et al, under review; Russell et al., 2007; Russell et al., 2011; Sadikaj et al., 2010; Sadikaj et al., 2011).

Hypotheses

The goal of this study is to examine how people with pathological narcissism are affected by agentic and communal interpersonal triggers. First, I predict that high levels of narcissistic grandiosity will be associated with negative affective reactions to agentic (+) interpersonal triggers, that is, in response to perceiving others as dominant. Second, I predict that high levels of narcissistic vulnerability will be associated with negative affective responses to communal (-) triggers, that is in response to perceiving others as cold. These hypotheses are tested using a daily diary study, which provides a new, more detailed look into the effects of pathological narcissism on interpersonal interactions in naturalistic settings of daily life.

Method

Participants

Data was gathered from participants recruited from introductory psychology courses at Penn State University and who received course credit for their participation. There were 190 participants of whom 125 were women and 65 were men. The mean age for the participants was 19. Most of the participants were in their first year of college (61%) or their second year of college (25%). The majority of the participants were Caucasian (83%).

Procedure

During the data collection period, participants attended an initial meeting where the risks and procedures of the study were explained. During this initial meeting, the participants were oriented on expectations and conditions of the study. After this

explanation, the participants completed a survey that consisted of various questions that assessed the level of pathological narcissism (PNI) and several other measures not used in the present investigation. The participants were then given a daily diary that they were instructed to complete for seven consecutive days. This diary was designed to assess their affect (Affect Grid) and perception of others' behaviors (Interpersonal Grid) in response to interactions. The participants were instructed to complete an interaction survey in the diary after each interaction they had that was longer than five minutes. These interactions had to be face-to-face, not over the phone or computer. Participants were also told to complete a separate survey at the end of each day that included other measures not used in this study. Each completed diary was mailed back through the campus mail system each day. The return rate for diaries was high (96%) for all participants, with observations from 1,458 total days reported.

Measures

Affect Grid. Affect is measured using the Affect Grid (AG; Russell, Weiss, & Mendelson, 1989), a grid that participants used to describe their feelings during an interaction. Participants simultaneously rated valence, ranging from 1 (unpleasant) to 9 (pleasant), and activation, ranging from 1 (sleepy) to 9 (aroused). These two choices resulted in a grid containing 81 squares, where the participant marked an "X" to indicate the appropriate combination of valence and activation experienced. Descriptive words were included at each combination of valence and activation including: Excitement (positive valence, high activation), Stress (negative valence, high activation), Depression (negative valence, low activation) and Relaxation (positive valence, low activation).

Interpersonal Grid (Moskowitz & Zuroff, 2005). The IG is a method for assessing perceptions of the other corresponding to the dimensions of Agency and Communion

identified in interpersonal theory. The labels to define agency were assured-dominant and unassured-submissive. The labels to define communion were warm-agreeable and cold-quarrelsome. The corners of the IG were anchored by engaging (high agency, high communion), deferring (low agency, high communion), withdrawn (low agency, low communion) and critical (high agency, low communion). Each completed IG included a single X mark, corresponding to a level on the agentic axis -4 (unassured-submissive) to 4 (assured-dominant) and communal axis -4 (cold-quarrelsome) to 4 (warm-agreeable). Higher scores indicated greater agency (assured-dominant) and communion (warm-agreeable).

Pathological Narcisissim Inventory. Pathological Narcissism was measured using the Pathological Narcissism Inventory (PNI; Pincus et al., 2009). This inventory was created to look at overt and covert aspects of vulnerable and narcissistic grandiosity (Wright et al., 2010). This is a 52-item self-report, multidimensional questionnaire that measures the level of narcissistic grandiosity and narcissistic vulnerability. These self-identified states are based on research in psychiatry, clinical and social/personality psychology (Cain et al 2008; Pincus & Lukowitsky, 2010; Wright et al., 2010). The inventory contains seven factors: Contingent Self-Esteem (CSE), Exploitativeness (EXP), Self-Sacrificing Self-Enhancement (SSSE), Hiding the Self (HS), Grandiose Fantasy (GF), Devaluing (DEV), and Entitlement Rage (ER). Participants rated each item on a 6 point scale from 0 (not at all like me) to 5 (very much like me). The PNI total score was calculated by averaging all items. Subscales were calculated by averaging each item comprising that subscale. Narcissistic grandiosity (EXP, GF, and SSE) and

narcissistic vulnerability (CSE, DEV, HS, ER) were calculated by averaging the relevant subscales comprising the factor (Wright et al., 2010).

Data Analysis Plan

Data was collected from participants who completed up to eight reports a day on social interactions for seven days. The social interactions (level 1) were nested within person (level 2). I conducted multi-level modeling analyses using SAS Version 9.2. I then checked for significant interactions using simple intercepts and slopes, and also used ESTIMATE statements in PROC MIXED to test if there was significance in the simple intercept and slope estimates.

I constructed two models, which used valence and activation as separate outcome variables. I then tested baseline models (e.g. models which estimated these dependent variables as a function of the intercept and random effect at the person level) to partition the total variance into level-1 and level-2 components (see Table 1).

I centered interpersonal perceptions within person, such that positive scores indicate they perceived the person as more agentic (or communal) than their average (e.g. average across all the interactions they reported while in the study). I included the average levels of interpersonal perception at level 2 as control variables. Finally, I sample centered scores for grandiosity and vulnerability in order to facilitate interpretability.

An example of the model is defined below:

Level-1 (interaction level): $Valence_{ti} = \beta_{0i} + \beta_{1i}(A_{ti}) + u_{ti}$ (1)

Level-2 (person level):

$\beta_{0i} = \gamma_{00} + \gamma_{01}(A\_mean_i) + \gamma_{02}(NG_i) + u_{0i}$ (2)

$\beta_{1i} = \gamma_{10} + \gamma_{11}(NG_i) + u_{1i}$ (3)

Where A refers to relative levels of perceived agency for each individual (i) across each interaction (t). A_mean refers to an individual's average level of agentic perception. NG refers to narcissistic grandiosity.

The parameter β_{0i} represents a vector containing the average level of valence for each individual (i); predicted by the sample's average level of valence in the sample (γ_{00}), individual differences in agentic perception (γ_{01}), individual differences in grandiose narcissism (γ_{04}), and error (u_{0i}).

The parameter β_{1i} represents a vector containing the agentic interpersonal trigger for each individual (i); predicted by the sample's average agentic trigger (γ_{10}), individual differences in grandiose narcissism (γ_{11}), error (u_{1i}).

This model represented narcissistic grandiosity moderating the agentic trigger of valence (Table 2, left columns). We also modeled narcissistic grandiosity moderating the agentic trigger of *activation*, by simply replacing the dependent variable of valence with activation (Table 2, right columns). We further modeled narcissistic grandiosity moderating the *communal* trigger of valence (and activation), by replicating these two models described above, and replacing agentic perceptions with communal perceptions (Table 3). Finally, we repeated all of these analyses, replacing narcissistic grandiosity with narcissistic vulnerability (Table 4 and Table 5).

Results

Descriptive Statistics

Descriptive statistics are given in Table 1. As in prior studies using the same measures of affect and interpersonal perception (e.g., Moskowitz et al., 2005; Sadakaj et al., 2010, 2011) our sample reported feeling positive valence (M=28.88, SD= 35.24) and activation (M = 13.13, SD = 35.33), and perceived their interaction partner on average as

agentic (M=1.72, SD=0.71) and communal (M=2.06, SD=0.73). The intraclass correlation coefficient was used to calculate the proportion of variance occurring at the person level versus the interaction level and error. Across all persons, 18% of the variance in valence was at the person level, and the remaining variance, 82%, corresponded to the interaction level and error. Additionally, 14% of the variance in activation was at the person level, and the remaining variance, 86%, corresponded to the within-person level and error.

Narcissistic Grandiosity

Table 2 shows the effects of narcissistic grandiosity on agentic triggers of affect. The relative perception of agency was always significantly related to affective valence and activation. The main effects show that on average individuals reacted with more pleasant affect and activation (γ_{00}= 6.69, 5.97, p<.05). Average levels of interpersonal perception also significantly predicted the average level of valence (γ_{01} =0.27, p<.05) and activation (γ_{01} =0.66, p<.05) for each individual. However, narcissistic grandiosity did not predict the average level of valence or activation for each individual. The hypothesis that individuals with higher levels of narcissistic grandiosity react with higher levels of negative affect was partially supported by the results. Table 2 also shows that perceiving relative levels of agency (compared to their mean scores for agency) lead to increased valence (γ_{10} = 0.23, p<.05) and activation (γ_{10} = 0.36, p<.05). There was a significant interaction between perceived other agency and narcissistic grandiosity moderating the affective signature linking the agentic trigger and valence (γ_{11} = -0.08, p<.05) but not activation. Participants with higher levels of grandiosity reported less positive affect than participants low in grandiosity when they perceived the other person as more dominant. All participants responded to agentic perceptions with positive valence, but the

relationship is stronger for people low in grandiosity compared to those high in grandiosity (Figure 2).

Table 3 shows the effects of narcissistic grandiosity on communal triggers of affect. The overall perception of communion was always significantly related to valence and activation. The main effects show that on average individuals reacted with more pleasant affect and activation (γ_{00}= 6.69, 5.96, p<.05). Average levels of interpersonal perception significantly predicted the average level of valence (γ_{01} =0.89, p<.05) but not activation for each individual. Narcissistic grandiosity did not predict the average level of valence or activation for each individual. Results supported the prediction that there would not be a significant relationship between narcissistic grandiosity and perceptions of communion. Table 3 shows that perceiving relative levels of communion lead to increased valence (γ_{10} = 0.55, p<.05) and activation (γ_{10} = 0.16, p<.05). However, narcissistic grandiosity did not significantly moderate these affective signatures.

Narcissistic Vulnerability

Table 4 shows the effects of narcissistic vulnerability on agentic triggers of affect. The overall perception of agency was always significantly associated with changes in valence and activation. The main effects show that on average individuals reacted with more pleasant affect and activation (γ_{00}= 6.70, 5.97, p<.05). Average levels of interpersonal perception significantly predicted the average level of valence (γ_{01} =0.28, p<.05) and activation (γ_{01} =0.66, p<.05) for each individual. Additionally, narcissistic vulnerability did predict overall significantly lower valence (γ_{02} = -0.28, p<.05) but did not predict overall significant differences in activation. I hypothesized that level of narcissistic vulnerability would not affect negative affect in individuals who perceived others as agentic and this was supported. Table 4 also shows that perceiving relative

levels of agency (compared to their mean scores for agency) lead to increased valence ($\gamma_{10} = 0.23$, $p<.05$) and activation ($\gamma_{10} = 0.36$, $p<.05$). However, narcissistic vulnerability did not significantly moderate the affective signatures.

Table 5 shows the effects of narcissistic vulnerability on communal triggers of affect. The relative perception of communion was always significantly related to changes in valence and activation. The main effects show that on average individuals reacted with more pleasant affect and activation ($\gamma_{00}= 6.69, 5.96$, $p<.05$). Average levels of interpersonal perception significantly predicted the average level of valence ($\gamma_{01} =0.87$, $p<.05$) but not activation for each individual. Narcissistic vulnerability did predict significant lower levels of valence ($\gamma_{02} = -0.13$, $p<.05$) but not activation for each individual. I predicted that there would be a significant relationship between narcissistic vulnerability and communion. I predicted that individuals with higher levels of narcissistic vulnerability would react with more negative affect in response to perceiving others as cold. Table 5 shows that perceiving higher relative levels of communion lead to increased valence ($\gamma_{10} = 0.55$, $p<.05$) and activation ($\gamma_{10} = 0.16$, $p<.05$). However, narcissistic vulnerability did not significantly moderate the affective signatures.

Exploitativeness

Table 6 shows the effects exploitativeness on agentic triggers of affect. The main effects show that on average individuals reacted with more pleasant affect and activation ($\gamma_{00}= 6.69, 5.97$, $p<.05$). Average levels of interpersonal agentic perception significantly predicted the average level of valence ($\gamma_{01} =0.24$, $p<.05$) and activation ($\gamma_{01} = 0.65$, $p<.05$). However, exploitativeness did not significantly predict overall activation or valence. Table 6 also shows that perceiving relative levels of agency lead to increased valence (γ_{10}

$_{=}$ 0.23, p<.05) and activation ($\gamma_{10 =}$ 0.36, p<.05). Exploitativeness moderated the affective signatures for both valence ($\gamma_{11 =}$ -0.08, p<.05) and activation ($\gamma_{11 =}$ -0.05, p<.05). Perceiving more agency leads to more arousal in everyone, but individuals high in exploitativeness were not as aroused (Figure 3). Additionally, the positive association between pleasant affect when perceiving agency in another was significantly weaker in those higher in exploitativeness (Figure 4).

Table 7 shows the effects exploitativeness on communal triggers of affect. The main effects show that on average individuals reacted with more pleasant affect and activation (γ_{00}= 6.69, 5.96, p<.05). Average levels of interpersonal perception significantly predicted the average level of valence ($\gamma_{01 =}$0.89, p<.05) and but not activation for each individual. Additionally, exploitativeness did predict overall significantly lower activation ($\gamma_{02 =}$ -0.15, p<.05) but did not predict overall significant differences in valence. Table 7 also shows that perceiving relative levels of communion lead to increased valence ($\gamma_{10 =}$ 0.55, p<.05) and activation ($\gamma_{10 =}$ 0.16, p<.05). Exploitativeness moderated the affective signature linking perceiving others as communal and activation ($\gamma_{11 =}$ -0.05, p<.05) but not valence. In other words, perceiving more communion leads to more activation in people with low levels of exploitativeness and for people high in exploitativeness their reactions are not affected differently by others' low and high communion (Figure 5).

Discussion

This study examined the effects of pathological narcissism, interpersonal perception and affect in social interactions. I hypothesized that individuals with higher levels of narcissistic grandiosity would react with greater negative affect in response to

perceiving others as more agentic. This hypothesis was partially supported with the finding that narcissistic grandiosity moderated the affective signature linking agentic perception and valence. The results show that everyone responds to agentic perceptions with positive valence but individuals with high levels of narcissistic grandiosity respond less positively. Our hypothesis that individuals with higher levels of narcissistic vulnerability would react with greater negative affect in response to perceiving others as less communal was not supported.

Narcissistic grandiosity

The individuals with higher levels of narcissistic grandiosity in this study responded less positively when they perceived others as dominant. The general sample responded with much more pleasant mood when they perceived the other person in the interaction as dominant. The grandiose narcissists, however, may feel threatened by others acting more dominantly (a role they prefer to hold themselves) and are less comfortable with the other person being in control. Grandiose narcissists look for means to dominate and exploit others in interactions (Besser & Zeigler-Hill, 2010), and employ strategies to support feeling entitled beyond others' perceptions of them (Besser & Zeigler-Hill, 2010; Pincus et al., 2009). These mechanisms to garner control and achieve self-enhancement are challenged when others are perceived as more dominant. They feel as if they have lost control and thus do not react as positively.

Narcissistic vulnerability

Significant results were not found for individuals with higher levels of narcissistic vulnerability. They did not react more negatively, compared to the general sample, when they perceived others as more cold. However, narcissistic vulnerability was significantly

associated with perceiving others as colder overall over the course of a week's worth of social interactions. A likely reason for this null result is that the sample overwhelmingly reported on interactions with friends and truly cold and rejecting behavior was likely uncommon, leading to restriction of range. However, some theoretical speculations can be supported by the work of Ronningstam (2009), who suggested vulnerable narcissists are unable to fully perceive the emotions of others and recent research suggests they may be dominated by envy (Krizan & Johar, in press). Thus they may have trouble even accurately perceiving others as being cold and thus would not have greater negative reactions to perceiving others as cold.

Exploitativeness

Perceiving more agency lead to more activation in everyone, but individuals high in exploitativeness did not get as aroused. Exploitativeness represents a "manipulative interpersonal orientation" (Pincus et al., 2009, p. 368). These individuals look for methods to take advantage of others during interactions. They are not looking to establish a meaningful, emotional connection with others, and perceiving another as dominant would not necessarily trigger the typical arousal reaction to engage them.

Similar, and stronger, effects are seen for the communal trigger, where perceiving more communion leads to more activation in people with low exploitativeness, but does not change for people with high exploitativeness. In other words, people high in exploitativeness experience less pleasant affect and are less aroused when perceiving agency in another, and show no difference in activation when perceiving communion. Exploitativeness is the scale of the PNI that is driving the effects for narcissistic grandiosity more generally. Exploitative individuals in this sample appear to be less

emotionally reactive in social interactions, perhaps reflecting a grandiose self-absorption and objectification of the interpersonal relationship.

Limitations

Although no prior studies examine pathological narcissism using naturalistic, longitudinal data collection methods, only observing behaviors over a 7-day period may not be sufficient in capturing the true nature of these individuals' daily lives. These results cannot fairly be expanded to encompass the affect of these individuals to other weeks or with a greater diversity of interaction partners. Ideally this study would use data collection over a longer period of time to truly capture a more comprehensive depiction of these individuals' affective signatures.

Also the sample was exclusively an undergraduate population. This population is not representative of the entire population. Additionally, the vast majority of interactions reported on were with friends and family. This also limits the nature of interactions and the generalizability of the findings. In future studies the samples should include a broader age-range, SES range, and racial composition, and strive to sample a broader range of social interactions.

This study only examined face-to-face interactions, which are not the only type of interactions in modern society. The study did not look at phone conversations, texting conversations or any form of online conversations. Also all interactions needed to be five minutes or longer, which potentially could have left out important negative interactions that did not fit this criterion. Perhaps future studies should change the length criteria for interpersonal interactions.

Conclusion

Understanding interpersonal dysfunction in individuals with pathological narcissism helps to better understand the disorder as well as create better treatment methods with more successful outcomes (e.g., Anchin & Pincus, 2010; Pincus & Cain, 2008). Also being able to understand triggers allows researchers and clinicians to better understand the affect of individuals with pathological narcissism (Cain & Pincus, in press; Pincus & Hopwood, in press). Being able to examine the distinctions between the triggers linked with narcissistic grandiosity versus narcissistic vulnerability also provides a more precise and comprehensive understanding of pathological narcissism. Further studies should use the CAPS framework to understand triggers of other personality disorders using naturalistic, longitudinal data collection methods (e.g., Eaton, South, & Kruger, 2009; Roche et al, under review).

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Appendix: Tables and Figures

Table 1
Descriptive Statistics and Correlations for Variables

Variable	1	2	3	4	5	6	7	8	Mean	SD	$ICC_{b/w}$
Within person variables											
1. Activation	1								5.97	2.04	0.18
2. Valence	0.07*	1							6.68	1.96	0.14
3. Relative Agentic Perception	0.25*	0.18*	1						0.00	1.51	0.15
4. Relative Communal Perception	0.11*	0.43*	0.28*	1					0.00	1.60	0.15
Between person variables											
5. Overall Agentic Perception	--	--	--	--					1.72	0.71	--
6. Overall Communal Perception	--	--	--	--	0.37*	1			2.06	0.73	--
7. Narcissistic Grandiosity	--	--	--	--	-0.07	-0.03	1		2.86	0.67	--
8. Narcissistic Vulnerability	--	--	--	--	0.04	-0.17*	0.42*	1	2.17	0.76	--

Note. Within person n=7553. Between person n=184. *p<.05. SD= Standard Deviation. $ICC_{b/w}$= Intraclass correlation coefficient, representing variance attributed to between person effects (versus within person effects and error).

Table 2
Moderating Effect of Narcissistic Grandiosity *on Agentic Triggers of Affect*

	Valence		*Activation*	
Fixed Effects	*Parameter Estimate*	*Standard Error*	*Parameter Estimate*	*Standard Error*
β_{0i} (moderators of Affect)				
Intercept, γ_{00}	6.69 *	0.06	5.97*	0.06
Overall Agentic Perception, γ_{01}	0.27*	0.09	0.66*	0.08
NG, γ_{02}	-0.09	0.10	-0.08	0.09
β_{1i} (moderators of Agentic trigger)				
Relative Agentic Perception, γ_{10}	0.23*	0.02	0.36*	0.02
Relative Agentic Perception *NG, γ_{11}	-0.08*	0.03	-0.03	0.03

Note. Analyses were based on 7546 observations from 184 participants. Unstandardized estimates and errors. *df*= degrees of freedom. Relative Agentic Perception= person centered agentic perception. Overall Agentic Perception= Sample centered agentic perception. NG= Narcissistic grandiosity. *p < 05.

Table 3
Moderating Effect of Narcissistic Grandiosity *on Communal Triggers of Affect*

	Valence		*Activation*	
Fixed Effects	*Parameter Estimate*	*Standard Error*	*Parameter Estimate*	*Standard Error*
β_{0i} (moderators of Communal)				
Intercept, γ_{00}	6.69*	0.04	5.96*	0.07
Overall Communal Perception, γ_{01}	0.89*	0.06	0.15	0.09
NG, γ_{02}	-0.08	0.07	-0.12	0.10
β_{1i} (moderators of Communal trigger)				
Relative Communal Perception, γ_{10}	0.55*	0.02	0.16*	0.02
Relative Communal Perception *NG, γ_{11}	-0.02	0.03	-0.03	0.03

Note. Analyses were based on 7547 observations from 184 participants. Unstandardized estimates and errors. *df*= degrees of freedom. Relative Communal Perception= person centered communal perception. Overall Communal Perception= Sample centered communal perception. GN= Narcissistic grandiosity. *p < 05.

Table 4
Moderating Effect of Narcissistic Vulnerability *on Agentic Triggers of Affect*

	Valence		*Activation*	
Fixed Effects	*Parameter Estimate*	*Standard Error*	*Parameter Estimate*	*Standard Error*
β_{0i} (moderators of Valence)				
Intercept, γ_{00}	6.70*	0.06	5.97*	0.06
Overall Agentic Perception, γ_{01}	0.28*	0.09	0.66*	0.08
NV, γ_{02}	-0.28*	0.08	<0.01	0.08
β_{1i} (moderators of Agentic trigger)				
Relative Agentic Perception, γ_{10}	0.23*	0.02	0.36*	0.02
Relative Agentic Perception *NV, γ_{11}	<-0.01	0.03	-0.02	0.03

Note. Analyses were based on 7546 observations from 184 participants. Unstandardized estimates and errors. *df*= degrees of freedom. Relative Agentic Perception= person centered agentic perception. Overall Agentic Perception= Sample centered agentic perception. NV= Narcissistic vulnerability. *p < 05.

Table 5
Moderating Effect of Narcissistic Vulnerability *on Communal Triggers of Affect*

	Valence		*Activation*	
Fixed Effects	*Parameter Estimate*	*Standard Error*	*Parameter Estimate*	*Standard Error*
β_{0i} (moderators of Communal)				
Intercept, γ_{00}	6.69*	0.04	5.96*	0.07
Overall Communal Perception, γ_{01}	0.87*	0.06	0.16	0.09
NV, γ_{02}	-0.13*	0.06	0.05	0.09
β_{1i} (moderators of Communal trigger)				
Relative Communal Perception, γ_{10}	0.55*	0.02	0.16*	0.02
Relative Communal Perception *NV, γ_{11}	<-0.01	0.03	-0.02	0.03

Note. Analyses were based on 7547 observations from 184 participants. Unstandardized estimates and errors. *df*= degrees of freedom. Relative Communal Perception= person centered communal perception. Overall Communal Perception= Sample centered communal perception. NV= Narcissistic vulnerability. *p < 05.

Table 6
Moderating Effect of Exploitativeness *on Agentic Triggers of Affect*

	Valence		*Activation*	
Fixed Effects	*Parameter Estimate*	*Standard Error*	*Parameter Estimate*	*Standard Error*
β_{0i} (moderators of Valence)				
Intercept, γ_{00}	6.69*	0.06	5.97*	0.06
Overall Agentic Perception, γ_{01}	0.24*	0.09	0.65*	0.09
EXP, γ_{02}	-0.07	0.07	-0.04	0.06
β_{1i} (moderators of Agentic trigger)				
Relative Agentic Perception, γ_{10}	0.23*	0.02	0.36*	0.02
Relative Agentic Perception *EXP, γ_{11}	-0.08*	0.02	-0.05*	0.02

Note. Analyses were based on 7546 observations from 184 participants. Unstandardized estimates and errors. *df*= degrees of freedom. Relative Agentic Perception= person centered agentic perception. Overall Agentic Perception= Sample centered agentic perception. EXP= Exploitativeness. *p < 05.

Table 7
Moderating Effect of Exploitativeness *on Communal Triggers of Affect*

	Valence		*Activation*	
Fixed Effects	*Parameter Estimate*	*Standard Error*	*Parameter Estimate*	*Standard Error*
β_{0i} (moderators of Communal)				
Intercept, γ_{00}	6.69*	0.04	5.96*	0.07
Overall Communal Perception, γ_{01}	0.89*	0.06	0.13	0.09
EXP, γ_{02}	-0.02	0.05	-0.15*	0.07
β_{1i} (moderators of Communal trigger)				
Relative Communal Perception, γ_{10}	0.55*	0.02	0.16*	0.02
Relative Communal Perception *EXP, γ_{11}	-0.02	0.02	-0.05*	0.02

Note. Analyses were based on 7547 observations from 184 participants. Unstandardized estimates and errors. *df*= degrees of freedom. Relative Communal Perception= person centered communal perception. Overall Communal Perception= Sample centered communal perception. EXP= Exploitativeness. *p < 05.

Figure 1. Interpersonal Circumplex

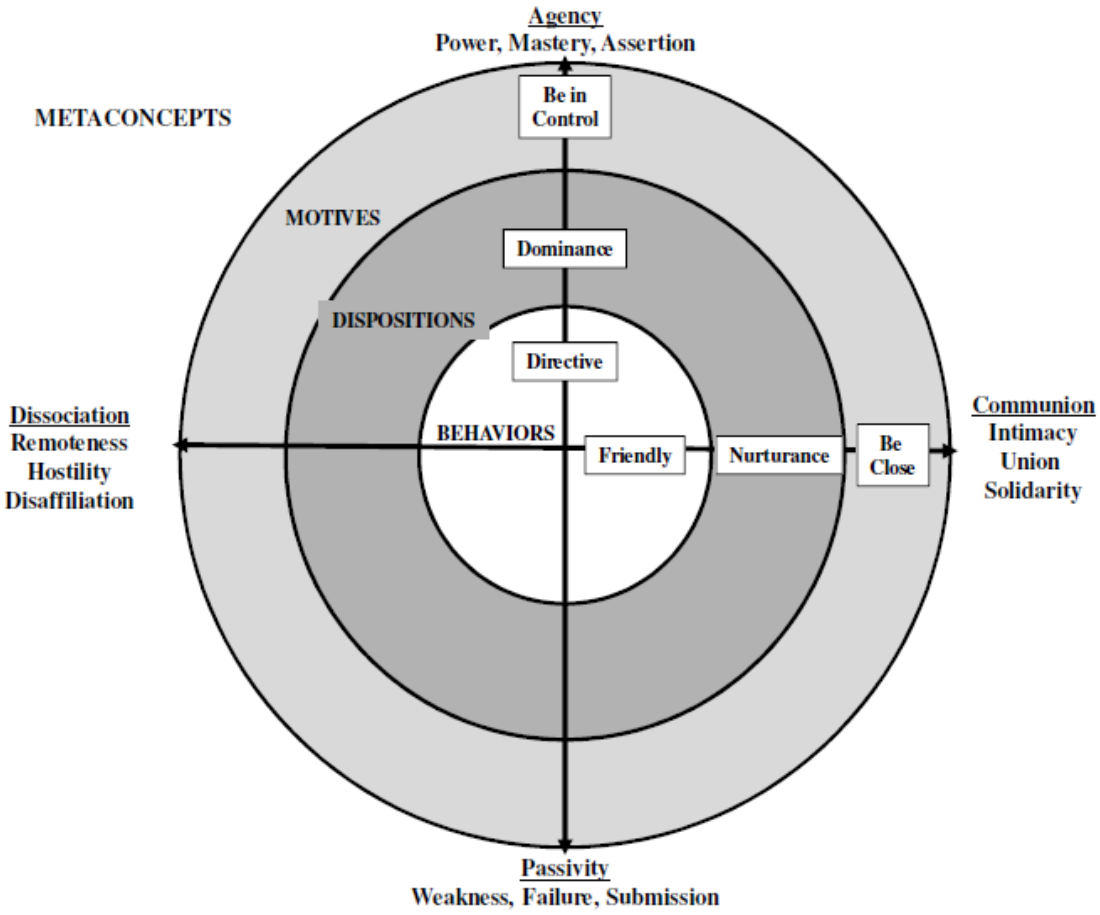


Figure 2. Valence predicted as a function of agentic perception for different levels of narcissistic grandiosity

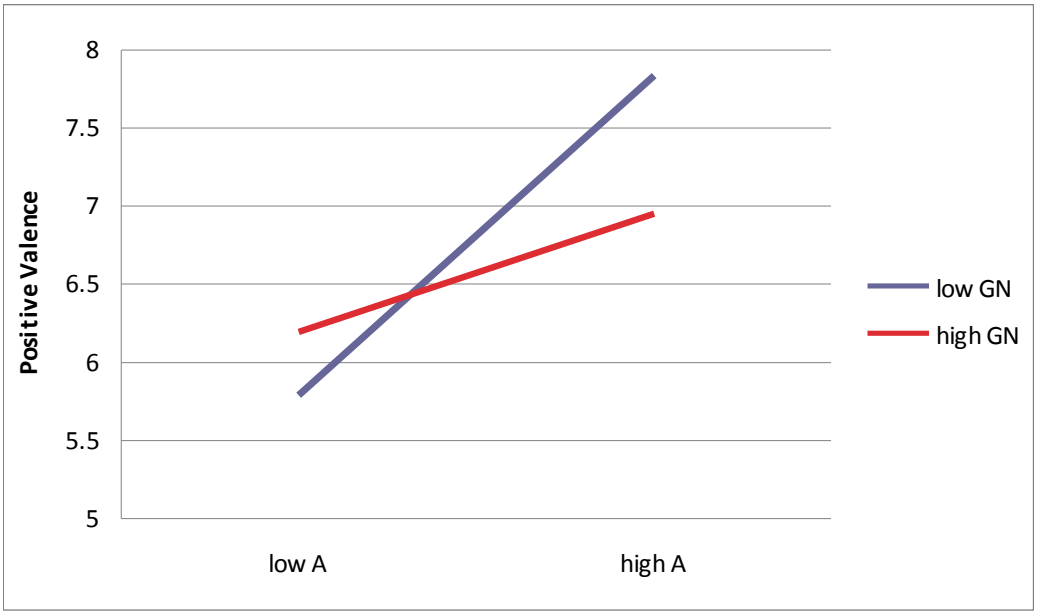


Figure 3. Arousal predicted as a function of agentic perception for different levels of exploitativeness

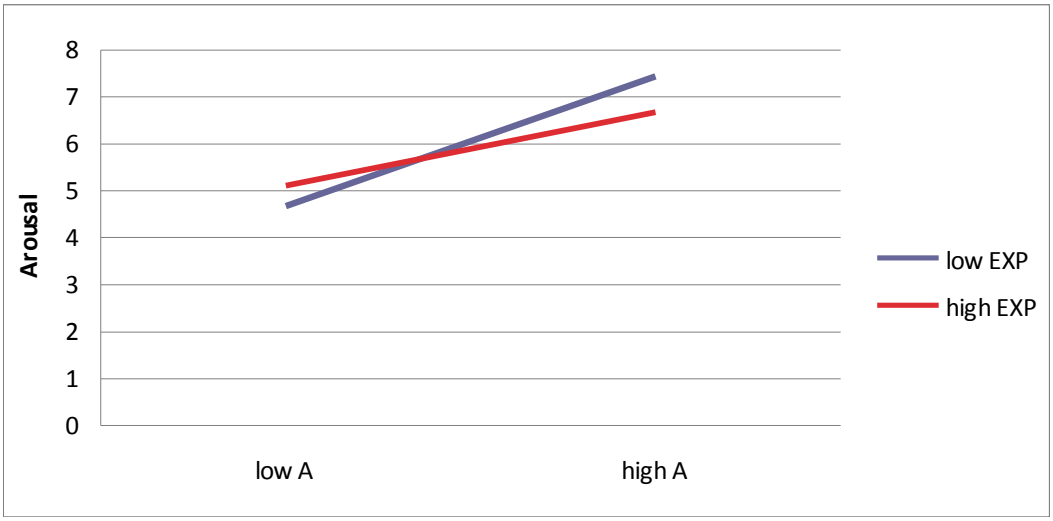


Figure 4. Valence predicted as a function of agentic perception for different levels of exploitativeness

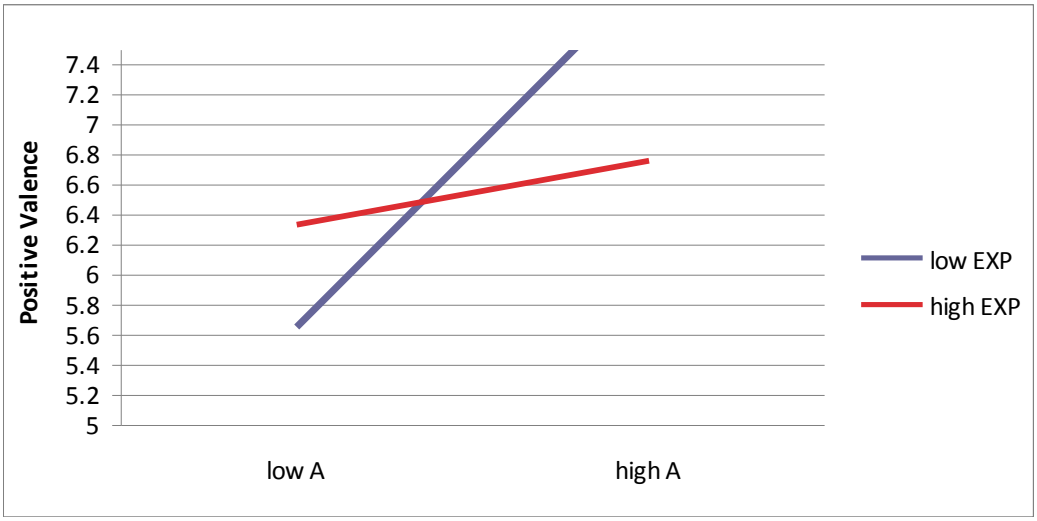
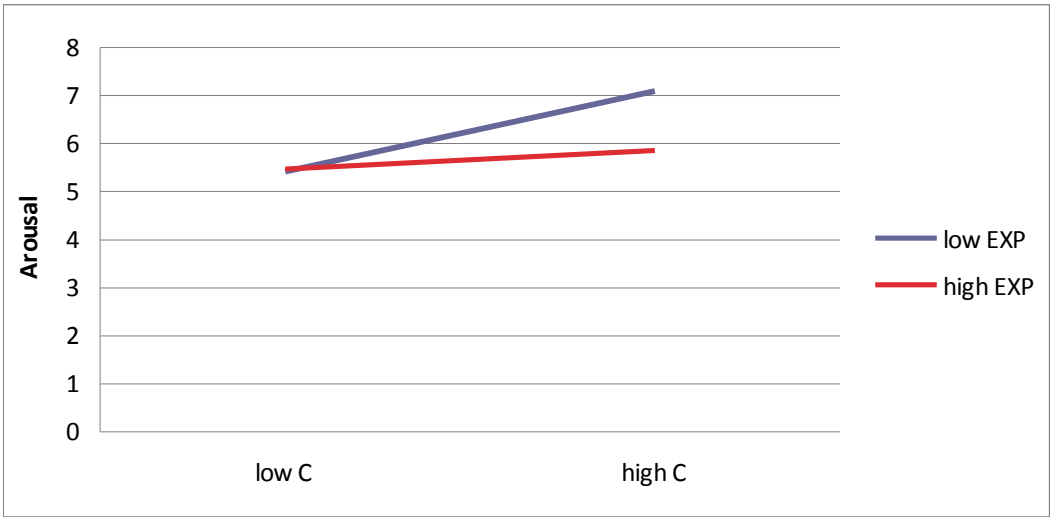


Figure 5. Arousal predicted as a function of communal perception for different levels of exploitativeness



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Honors

IES Abroad South America Merit-based Scholarship Recipient, Spring 2011
Phi Beta Kappa, selected for membership 2011
Phi Kappa Phi, selected for membership 2011
Psi Chi National Honor Society in Psychology member 2009-present
Schreyer Honors College Scholar, Penn State, University Park, PA, 2008-present
Honors in Psychology, Penn State, University Park, PA, 2008-present
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Conference presentations

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Research Experience

Pennsylvania State University, Department of Human Development and Family Studies, State College, PA
Real-Time Data Collection Lab, Research Assistant, Project Manager
Advisor: Dr. Nilam Ram, 2011-present
Organize group meetings with undergraduate and graduate students and professors from across colleges, format and write annual report for the Social Science Research Institute at Penn State, and gather information for write-ups on projects that are overseen by Dr Ram's project StudioLab (interdisciplinary space that combines research in social science, computer gaming and the arts). Assisting with programming smartphones and collecting data for a project run by Dr. Ram's graduate student.

Widener University, School of Human Service Professions, Chester, PA
Freshman Seminar Social and Emotional Learning Project Research Assistant
Advisor: Dr. Ning Wang, Summer 2011-present
Read and code freshman seminar papers for themes related to social and emotional development, attended weekly lab meetings during the summer, helped develop the coding framework, and suggested ideas for developing research reports based on the findings.

Pennsylvania State University, Department of Human Development and Family Studies, State College, PA
Intra-individual Study on Aging, Health and Interpersonal Behavior (iSAHIB)
Advisors: Dr. Nilam Ram, Dr. Aaron Pincus, Dr. David Conroy, 2009-2011
Assisted in presentations given to participants, helped design presentations to be used during orientations, compiled and edited final codebook of all the measures used in the study, helped design final participant feedback forms, collected and downloaded data from smartphone devices, input data into database format, and attended weekly meetings.

Pennsylvania State University, Department of Psychology, State College, PA
Personality Psychology Laboratory Research Assistant
Advisor: Dr. Aaron Pincus, 2008-present
Reviewed research articles for group discussion, attended weekly lab meeting, presented literature review on the effects of higher levels of pathological narcissism on interpersonal interactions, and am pursuing my senior honors research project under Dr. Pincus' supervision.

Professional/Work Experience

JFK Mental Health and Mental Retardation Center, Mental Health Volunteer, Summer 2011
Provided assistance to Dr. Ruth Kanost with patients and their families. Created pamphlets with information about mental disorders to be given to clients and their families, researched mythological stories to be compiled into a book for children dealing with physical and sexual abuse, counseled a client and set up medical appointments for

him on a weekly basis, provided assistance with children during evaluation sessions, and participated in graduate student group supervision sessions.

Psi Chi, National Honor Society in Psychology, Vice President 2011-2012
Assess interest in chapter members, help organize meetings, help obtain professors to be presenters, plan Psi Chi National Honor Society Research Conference, plan induction ceremony for new members, coordinate the mentoring program which pairs Psi Chi members with incoming freshmen psychology majors, and recruit new members.

Pennsylvania State University Study Abroad Office, Peer Adviser, 2010-present
Meet with students who are interested in studying abroad, provide insight based on my own experience, help with study abroad fairs, and give presentations to freshman classes about study abroad opportunities.

Americorp Education Works Summer Camp, Middle School camp counselor, Summer 2009
Worked with academically and socially at risk inner-city, minority middle school students enrolled in summer day camp. Designed weekly lesson plans, organized daily physical activities, helped students create a final project about urban farming, which included a trip to a local urban farm, and mentored students in reading and math.

Study Abroad Experiences

Conferences and Institutes, Salvador, Brazil, Summer 2010
Lived with a host family in Salvador, Brazil for six weeks. Took classes on Brazilian culture and the Portuguese language.

IES Abroad, Buenos Aires, Argentina, Spring 2011
Lived with a host family in Buenos Aires for four months. Took a full course load, all taught in Spanish, including a personality psychology course at a local university. Interned at the organization, Un Techo Para mi País Argentina, which included visiting poor rural areas in Argentina and building houses for families.

Extracurricular Activities

Schreyer Honors College Freshman Orientation Mentor, 2009
Selected as an orientation leader for a group of in-coming freshman. Gave advice and mentored freshmen during their transition into college life.

Pennsylvania State University Study Abroad Global Ambassador, 2009
Volunteered with a group of other students who had studied abroad to promote studying abroad to freshmen. Gave presentations to freshman seminar classes and participated in study abroad fairs on campus.

Pennsylvania State University Club Rowing Team, 2008-2009

Participated as a member of Penn State's club rowing team. Practiced daily and participated in competitions throughout the mid-Atlantic region.

Pennsylvania State University Dance Marathon, 2008-present
Volunteer as a member of one of the campus organizations that sponsors the annual dance marathon as a major fundraising event for children with cancer. Participated in many fundraising events including bake sales and soliciting contributions in many communities in the eastern part of the state.

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