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**INTERPERSONAL PERCEPTION OF PATHOLOGICAL NARCISSISM AND
INTERPERSONAL PROBLEMS: A SOCIAL RELATIONS ANALYSIS**

A Dissertation in

Psychology

by

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ABSTRACT

The current study aimed to gain a better understanding of interpersonal perception associated with personality pathology. A large sample of moderately acquainted individuals assigned to small groups completed the Pathological Narcissism Inventory (PNI; Pincus, Ansell, Pimentel, Cain, Wright, & Levy, 2009) and the Inventory of Interpersonal Problems-Short Circumplex (IIP-SC, Hopwood, Pincus, DeMoor, & Koonce, 2008) in a round robin design whereby each individual in the group served as both a target and judge. Kenny's (1994) Social Relations Model (SRM) was used to partition the variance in dyadic ratings in order to investigate several hypotheses about interpersonal perception of pathological narcissism and interpersonal problems. Results indicated evidence of assimilation and consensus for pathological narcissism and interpersonal problems and modest self-other agreement on the PNI. Systematic differences in interpersonal perception were also investigated to help better understand the source of disagreement in self-other ratings of pathological narcissism. Results from three different tests suggested that although individuals high in pathological narcissism tended to report a range of interpersonal problems indicative of general interpersonal distress, peers generally tended to associate pathological narcissism in others with dominant interpersonal problems and not with general interpersonal distress. Results also indicated that individuals high in pathological narcissism tended to assimilate others according to a rather rigid set of assumptions suggesting that systematic differences in interpersonal perception may stem in part from distortions in interpersonal perception.

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Dedication

To my family

Mayta, Daniel, and Matthew

&

Mom, Dad, and Alyssa

Chapter 1

INTRODUCTION

Studies of personality often rely on self-report data acquired through questionnaires or interviews. Given that the self is believed to possess unique access to internal states and private experiences, it is no wonder that self-report questionnaires are widely used as an important source of information for understanding personality and for predicting important outcomes (Kolar, Funder, Colvin, 1996; Osberg & Shrauger 1990; Vazire, 2006; Ozer & Benet-Martínez, 2006; Wiggins, 1973). However, self-report measures and questionnaires may also include biased, distorted, or otherwise misleading information (Anastasi, 1988; Wiggins, 1973). In addition, for a variety of reasons, some individuals may lack insight into their personality or may be unwilling to report on aspects of themselves, particularly if it involves socially undesirable or evaluative traits (Allport, 1958; Bernstein et al., 1997; Greenwald, 1980; John & Robins, 1993; Paulhus, 1998; Shedler, Mayman, & Manis, 1993). Thus, while self-report data may provide important information about individuals, it may not provide a complete picture.

Clinical psychologists have long recognized that individuals with psychopathology may be unable to make accurate and realistic self-evaluations. For example, individuals with depression may over exaggerate undesirable aspects of their personality and may present an overly negative and pessimistic view of themselves (Beck, 1967; Hirschfeld et al., 1983; Gara et al., 1993; Peselow, Sanfilippo, & Fieve, 1994; Stuart, Simons, Thase, & Pilkonis, 1992). Similarly, state anxiety has been shown to affect the accuracy of self-report measures of personality (Reich, Noyes, Coryell, & O’Gorman, 1986), as have mood states in general (Loranger, et al., 1991; Thomas, 1996). Personality disorders (PDs) are often conceptualized by distortions in self-perception and thus may be particularly prone to defensiveness or self-

presentation strategies that yield inaccurate reports of their personality and behaviors (Oltmanns & Turkheimer, 2006; Westen, 1997). Individuals with personality disorders may also lack insight into their personality style, may attribute their interpersonal difficulties to others and, may otherwise be unaware of how others view them adding to the concerns associated with the validity of their self-report measures (Oltmanns & Turkheimer, 2009). Indeed, reviews suggest that, at best, there is only a modest relationship between the way individuals with personality disorders view themselves and the way they are viewed by others with narcissistic personality disorder (NPD) being particularly prone to self-other discrepancies (Klonsky, Oltmanns, & Turkheimer, 2002).

A primary feature of personality disorders is impaired social functioning and many clinical investigators have proposed that personality pathology is often expressed through disturbed interpersonal relations (e.g., Benjamin, 1996; Livesley, 2001; Pincus, 2005). In support of this a number of studies have consistently demonstrated a relationship between personality disorder traits and maladaptive interpersonal behavior within both clinical and nonclinical samples (e.g., Clifton, Turkheimer, & Oltmanns, 2005; Pincus & Wiggins, 1990; Soldz, Budman, Demby, & Merry, 1993; Rodebaugh, Gianoli, Turkheimer, & Oltmanns, 2010; Wiggins & Pincus, 1994). Interpersonal theorists have proposed that one potential source of interpersonal dysfunction in personality disorders comes from distortions in perception of the interpersonal situation (Pincus, 2005; Pincus, Lukowitsky, & Wright, 2010). These distortions may lead individuals to misperceive the behaviors and intentions of others resulting in inappropriate responses that maintain chronic interpersonal difficulties (Pincus, Lukowitsky, Wright, & Eichler, 2009b). Distortions in the perception of the interpersonal situation are likely to be associated with a variety of misconceptions about others and the self in relation to others and

thus would also be expected to contribute to biased responses to self-report questionnaires that ask individuals to describe their personality and interactions with others. As such, a more complete assessment of pathological personality traits should include descriptions and observations provided by others (Oltmanns & Turkheimer, 2006).

Despite their importance for understanding both normal and disordered personality traits and behaviors, to date most studies that have utilized self and other ratings of personality have come from investigations of normal personality (Klonsky et al., 2002). Indeed, investigations of the association between self and peer reports of pathological personality traits have only recently begun in earnest and, as already noted; have tended to yield low levels of agreement between the sources. However, rather than interpreting this discrepancy as strictly error, information from both sources has been used in order to make more informed diagnoses and predictions (e.g., Fiedler, Oltmanns, & Turkheimer, 2004; Klein, 2003; Miller, Pilkonis, & Clifton, 2005; Oltmanns, Melley, Turkheimer, 2002; Ready & Clark, 2002; Ready, Watson, & Clark, 2002). Recently, a few studies have also interpreted discrepancies in self-and peer-ratings as a means to better understand the distinctive and systematic ways individuals with pathological personality traits view themselves in comparison to the way they are viewed by others (Oltmanns & Turkheimer, 2006, 2009). Using self and other ratings in order to understand the characteristic beliefs that people have about each other's personality and behaviors lies at the heart of interpersonal perception and offers several opportunities for understanding how people perceive personality traits in themselves and others (Kenny, 1994).

The current study aimed to gain a better understanding of interpersonal perception associated with personality pathology. This was studied in small groups of moderately acquainted students who rated each other in a round-robin design on multiple measures of

maladaptive personality traits. This investigation allowed for several interrelated goals. First, in light of past research that has found NPD to be particularly susceptible to self-other rating discrepancies, the current study used the Social Relations Model (SRM; Kenny, 1994; Kenny, Kashy, & Cook, 2006) as a novel approach for investigating self-other agreement in ratings of pathological narcissism. Second, because of the close relationship between interpersonal dysfunction and personality disorders the current study also used the SRM to explore interpersonal perception of problematic interpersonal behaviors and its systematic relationship to interpersonal perception of pathological narcissism. Finally, given that one potential source of interpersonal dysfunction in personality disorders comes from distortions in perception of the interpersonal situation (e.g. Pincus et al., 2009b) the current study used the SRM to empirically investigate distortions in interpersonal perception theoretically associated with pathological narcissism in order to understand one potential source of discrepancies in interpersonal perception.

To this end, the current paper first briefly reviews studies that have investigated convergence and divergence in self-other ratings within studies of normal personality traits. It then reviews studies that have investigated self-other agreement of pathological personality traits with special attention given to findings relevant to narcissism. This is followed by a review of studies that have extended those analyses to investigations of interpersonal perception and highlights results suggestive of distortions in interpersonal perception associated with narcissism. Finally, this paper presents the results of a study that used the SRM to investigate several hypotheses related to the interpersonal perception of pathological narcissism and interpersonal problems.

Self and Other Agreement of Normal Personality Traits

Several self-other report methodologies have been developed (Kane & Lawler 1978; Funder, 1999; Kenny 1994). In most investigations of self-other agreement a self-report measure is given to the person being evaluated (target) and a modified version of the same measure usually written in the third person is given to a peer or other informant and researchers look for agreement between the two sets of collected data using appropriate statistical analyses. Numerous studies have investigated self-other agreement within normal personality (e.g., Connolly, Kavanagh, & Viswesvaran 2007; McCrae & Costa, 1989a; Mount, Barrick, & Strauss, 1994) and ratings provided by others have frequently been used in the development of self-report inventories (e.g. Gough, 1965; Jackson, 1984) and as an important criterion for validating self-ratings (Watson & Clark, 1991; Watson, Hubbard, & Wiese, 2000). Overall, personality theorists studying normal traits have considered personality judgments provided by peers, spouses, parents, and other acquaintances to be a critical methodological tool in normal personality assessment (e.g. Craik, 1986) and have recognized that data collected from both sources provides information about the person that could not be gained by either assessment alone (McCrae, 1994).

Early studies failed to find consistent agreement between targets and peers on normal personality traits (e.g., Jackson, 1967; Newcomb, 1931; Shrauger & Schoeneman, 1979). However, more recent studies have corrected this “error paradigm” (Funder, 1995) by utilizing more carefully conducted research designs and paying careful attention to the types of people and traits that are being evaluated. For example greater correlations (some as high as 0.7) have been found when spouse ratings are substituted for peer ratings or when multiple peer ratings are aggregated (Cheek, 1982; Costa & McCrae, 1992; 1988; Kenny, 1994; McCrae & Costa, 1987; 1989; Watson, 1989; Watson & Clark, 1991). Studies have also consistently demonstrated a

strong effect for the level of acquaintanceship, with agreement between close acquaintances being much stronger than levels of agreement between strangers (Colvin & Funder, 1991; Funder & Colvin, 1988; Funder, Kolar, & Blackman, 1995; Jackson, Neill, & Bevan, 1973; McCrae & Costa, 1989a; Norman & Goldberg, 1966; Paunonen, 1989; Watson, 1989; Watson & Clark, 1991; Watson, Brock, Wiese, 2000). In addition, studies have consistently found greater agreement for neutral traits as compared to traits that are considered highly evaluative suggesting, perhaps, that self-perceptions become more distorted when a trait is affectively charged (Funder, 1980; Funder & Colvin, 1988; Funder & Dobroth, 1987; John & Robins, 1993). Finally, studies have demonstrated that agreement is higher for more observable traits than for less observable ones pointing to the greater difficulty peers have in rating other's private experiences. For example, numerous studies using different measures, methods, and samples have consistently found the highest level of agreement for the trait of extraversion and the lowest level of self-other agreement for the trait of neuroticism (e.g., Funder & Colvin, 1988; Funder & Dobroth, 1987; Harkness, Tellegen, & Waller, 1995; Oltmanns, Friedman, Fiedler, & Turkheimer, 2004; Paulhus & Bruce, 1992; Paunonen, 1989; John & Robins, 1993). Overall, data accumulated for normal personality traits has led to the consensus that substantial agreement exists between self and other reports (Costa & McCrae, 1988; Funder, 1980; 1989; Funder & Dobroth, 1987; Marsh & Byrne, 1993; McCrae, 1982; McCrae & Costa, 1987; 1989; Mutén, 1991; Piedmont, 1994). Indeed, a recent meta-analytic review (Connolly, et al., 2007) of the convergent validity of self and observer ratings of the Big Five dimensions of personality found a high degree of convergence that ranged from 0.46 (Agreeableness) to 0.62 (Extraversion).

Self and Other Agreement of Pathological Personality Traits

The majority of studies of personality disorder traits have relied almost exclusively on data acquired either via self-report or interviews (Klonsky et al., 2002). In an analysis of self and informant reports of personality disorder diagnoses, Klonsky et al.(2002) could find only 30 published studies between the years 1887 and 2001 that included both self and informant data. Of those 30 studies, only 17 reported the level of agreement between self and informant reports of personality disorder traits. Their analysis of the level of agreement between self and informants found that the median correlation for studies using continuous measures was .36 while the median kappa for studies that used categorical diagnoses was .14. The median correlation found for personality disorder clusters was .35 for Cluster A, .45 for Cluster B, and .35 for Cluster C. A similar pattern of results emerged when examining the disorders using kappa coefficients. Median kappa was .18 for Cluster A, .20 for Cluster, B, and .11 for Cluster C. Across studies, the median self/informant correlations for individual personality disorder diagnoses ranged from .29 (narcissistic) to .56 (antisocial). These modest correlations led the authors to conclude that for personality disorders, “self/informant concordance is modest at best” (Klonsky, et al., 2002; p. 303) and that narcissism might be a disorder that is particularly prone to self-other disagreement.

Given the recognition in normal personality of the usefulness of peer reports (Connolly, et al., 2007; McCrae, 1994; McCrae & Costa, 1987), the consistently modest self-other correlation for neuroticism (Connolly, et al., 2007; Kenny, 1994), the finding that affectively charged or evaluative traits are more prone to self-other disagreement (John & Robins, 1993), and the fact that self-reports from patients are often considered questionable (Ready & Clark, 2002) it is surprising that so few studies have utilized self and peer reports to investigate disruptions in normal personality and adult psychopathology more generally. Despite the limited

amount of research, several investigators have recognized and argued for the importance of obtaining informant ratings of adult psychopathology (e.g., Achenbach, Krukowski, Dumenci, & Ivanova, 2005; Clark, Livesley, & Morey, 1997; Grove & Tellegan, 1991; Klonsky, et al., 2002; Meyer et al., 2001; Westen & Shedler, 1999; Zimmerman, 1994).

Contrary to expectations, some studies investigating heterogeneous samples of psychiatric patients have found a moderate degree of overlap between self and other reports. Using a sample that included both inpatients and outpatients and both Axis I and Axis II psychopathology, Ready and Clark (2002) found few mean level differences between self and informant ratings on a variety of personality measures and moderate self-other correlations. For example, self-other agreement between psychiatric patient and informant ratings averaged .43 on the Big Five Inventory (BFI; Benet-Martinez & John, 1998) and averaged .34 on a 32 item short-form version of the Inventory of Interpersonal Problems (IIP; Horowitz, Rosenberg, Baer, Ureno, & Villasenor, 1988). In the same study, correlations on a self and other version of the Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1993) averaged .34. It is notable that the SNAP Entitlement factor had the lowest overall self-other agreement in the study given that entitlement is a construct often associated with narcissism. In another study, Bagby et al. (1998) administered the Revised NEO Personality Inventory (NEO-PI-R; Costa & McCrae, 1992) and found that correlations between self and peer ratings in a sample of depressed outpatients actually exceeded those typically reported in nonpatient samples and, in a study that utilized the Five-Factor Model (FFM) prototype-matching technique for DSM personality disorder diagnoses Miller, Pilkonis, and Morse (2004) found that the correlations between self and other rated FFM prototype scores ranged from .29 (paranoid) to .64 (obsessive-compulsive) with a median correlation of .47. Agreement for the FFM prototype score of narcissism was .44, substantially

higher than what was reported by Klonsky et al. (2002). Overall, these results suggest that self-other ratings of normal personality traits in psychiatric populations are comparable to those found in nonclinical samples and suggest that the overall effect of psychopathology is minimal.

While some studies have not found psychiatric illness to influence self-reports of personality as much as would be expected, other studies have found more modest associations between self and other reports within psychiatric populations. Soldz, Budman, Demby, and Merry (1995) investigated the correspondence of the 50 Bipolar Rating Scales (50-BSRS; Goldberg, 1992) as rated by personality disordered patients in group psychotherapy, their therapists, and other group members. Results revealed substantial agreement between group members and between group members and therapists but less agreement between the target and the therapist or other group members. However, therapists and other group members agreed with the target regarding ratings of Extraversion and Emotional Stability. Furthermore, the level of agreement between targets and the other raters increased as a function of the degree of the target's personality pathology as assessed by the total number of symptoms met on the Personality Disorders Examination (PDE; Loranger, 1988) suggesting that people with more severe forms of personality pathology may be more willing to endorse socially undesirable behavior.

Similar self-other discrepancies in clinical populations have been found using a variety of self-report diagnostic instruments. Davidson, Obonsawin, Seils, and Patience (2003) found that patient and clinician agreement was poor across personality disorder diagnoses when using a modified version of the Shedler Westen Assessment Procedure (SWAP-200; Westen & Shedler, 1999). Likewise, Modestin and Puhan (2000) found that diagnostic agreement was poor between patient's self-reports of personality disorder criteria assessed by the Structured Clinical Interview

for DSM-III-R Axis II Personality Questionnaire (SCID-II-PQ; Spitzer, Williams, & Gibbon, 1987) and a peer version completed by the parents and brother or sister of the patient. Median kappa was .13 for patients versus parents and .14 for patients versus brothers/sisters while agreement was somewhat higher between informants (kappa .29). Interestingly, in this sample of patients agreement was relatively high for NPD between patients and parents (kappa .44) though it was much lower between patient and sibling (kappa -.09) and also modest between parents and patient sibling (kappa .11). Results also suggested distinct differences between patients and nonpatients with regard to personality disorder diagnosis frequencies. For example, patients were more likely to be self diagnosed with a paranoid, schizoid, antisocial, compulsive and, self-defeating personality disorders whereas narcissism was among the diagnoses least likely to be self-diagnosed as compared to both groups of informants suggestive of greater self-report bias associated with narcissism compared to other personality disorders.

Given estimates that as much as 13% of community samples meet criteria for a personality disorder (Lenzenweger & Clarkin, 2005; Mattia & Zimmerman, 2001), researchers have also investigated personality disorder traits in nonclinical samples. Overall, studies investigating disordered personality traits in nonclinical samples have found self-other agreement to be comparable to clinical samples (Klonksy, et al., 2002). For example, Coolidge, Burns, and Mooney (1995) administered a 200-item self-report personality disorder inventory (Coolidge Axis II Inventory, CATI; Coolidge, 1984; Coolidge & Merwin, 1992) to 52 high functioning married couples as well as a friend of the target. The mean correlation between target and spouse across the 13 personality disorder scales was .46 and ranged from .27 (paranoid) to .63 (histrionic) and for the target and friend was .35 and ranged from .20 (passive-aggressive) to .61 (obsessive compulsive). Although narcissism did not have the lowest level of agreement it was

.29 between target and spouse and .22 between target and friend thus consistently one of the personality disorder scales with the least agreement. Finally, all 13 personality disorder scales had significant interjudge correlations suggesting that although both the spouse and friend differed from the target with regards to seeing pathological personality traits, there was significant agreement between how the spouse and the friend viewed the target adding to results from other studies which suggest that when it comes the perception of pathological personality traits and, narcissism in particular, self and others tend to see things very differently.

Some studies have also used self and other ratings to investigate concordance of information gathered from diagnostic interviews within clinical samples and have consistently reported that agreement between personality disorder diagnoses based on direct patient and informant interview is low (e.g., Bernstein et al., 1997; Dreessen, Hildebrand, & Arntz, 1998; Ferro & Klein, 1997; Riso, Klein, Anderson, Oiumette, & Lizardi, 1994; Zimmerman, Pfohl, Coryell, Stangl, & Corenthal, 1988; Zimmerman, Pfohl, Stangl, & Corenthal, 1986). Some studies have also used self and other ratings to investigate concordance of information gathered from diagnostic interviews within nonclinical samples and have reported similar conclusions (e.g., McKeeman & Erickson, 1997; Ouimette & Klein, 1995). For example, McKeeman & Erickson (1997) used self-other ratings of college students to examine the validity of the Structured Interview for DSM-III-R Personality Disorders (SCID-II). Although results were skewed towards an absence of item endorsement they found that correlations between self and informant rating for narcissism was .20 and that correlations ranged from .08 (schizoid) to .42 (histrionic). Results also suggested that participants with a high need for positive self-presentation gave themselves lower ratings on nearly all personality disorder scales as compared to individuals with a low need for positive self-presentation indicating that the need for positive

self-presentation may significantly bias self-ratings. Such a conclusion has important implications for the assessment of narcissism where self-enhancement and a need to present oneself in a positive light is a defining feature of the disorder.

Systematic Relations Between Self and Other Reports

The data on self and other reports of pathological personality traits clearly indicates that there is only a modest to moderate degree of overlap between the way individuals view themselves and the way they are viewed by others with narcissism being particularly prone to self-other discrepancies. A number of researchers have now recognized the need to move beyond consensus and straightforward self-other agreement in order to investigate explanations for these discrepancies. Mutén (1991) phrases this need best by stating, “both sets of scores are valid, even when they disagree markedly. It is the business of the clinician to figure out what the discrepancy means” (quoted in McCrae, 1994, p. 159). Oltmanns & Turkheimer make a similar point when they state plainly, “The important question is no longer whether they agree. We know they don’t. The ultimate question is: When do peer and self data tell us something meaningful about the person?” (Oltmanns & Turkheimer, 2006, p. 73). In other words, investigators have become interested in exploring systematic and predictable patterns of associations in the way people view themselves as compared to the way they are viewed by others.

Costa & McCrae (1990) investigated systematic links between normal personality and personality pathology using self and other reports provided by peers or spouses on the MMPI personality disorders scales (Morey, Waugh, & Blashfield, 1985) and the NEO-PI. Results from the self-reports were consistent with previous studies that have investigated the association between normal and pathological personality traits (e.g. Wiggins & Pincus, 1989). Although

generally of smaller magnitudes due to smaller sample sizes many of the correlations were replicated when looking at the spouse and peer ratings. For example, schizoid PD was associated with low extraversion and avoidant PD was associated with low extraversion and high neuroticism. Consistent with other studies narcissism demonstrated poor consistency between self and other ratings. For example, although both self and other reports associated narcissism with high extraversion, only other reports related narcissism with neuroticism. In contrast, narcissists saw themselves as emotionally stable and only self-reports linked narcissism with being disagreeable.

In a similar study, but using a clinical sample, Miller, Pilkonis, and Clifton (2005) investigated the relationship between self and informant reports in order to determine if information provided by patients related to information provided by significant others in a systematic and congruent way. Patients and significant others completed self and peer versions of the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985) and several structured Axis II diagnostic interviews including the PDE (Loranger, 1988). Levels of self-other agreement for both the NEO-PI and personality disorder diagnoses were moderate and consistent with previous research. Importantly, results also suggested that ratings of Axis II psychopathology generally related to self and other ratings of personality data from the FFM in a theoretically consistent way. For example, individuals rated as meeting criteria for antisocial PD were characterized as being low in agreeableness by both self and peer report. Similarly, individuals meeting criteria for avoidant PD were rated low on extraversion by both self and peer report. In contrast to most disorders, narcissism demonstrated low correspondence to FFM ratings at both the facet and domain level. For example, individuals who were rated by others as high on narcissism viewed themselves as being extraverted and generally adjusted. However, in addition to not seeing them

as extraverted, informants viewed narcissists as being generally neurotic and prone to depression. They also rated them as having feelings of shame and embarrassment, having difficulty dealing with stressful situations, and acting impulsively, distrustful, and exploitative. However, both self and other reports linked narcissism with low agreeableness. Results also suggested that in general, informants reported a significantly greater amount of narcissistic PD than did the patients. Overall, these results suggest that individuals with narcissism are particularly prone to distortions in self-perception and generally lack insight regarding the undesirable qualities associated with their behaviors and traits (Miller et al., 2005).

Robbins and Dupont (1992) investigated systematic differences in interpersonal behaviors associated specifically with narcissism by studying 78 clients participating in group therapy. Patients completed the Superiority and Goal Instability Scales (Robins, 1989; Robins, & Patton, 1985), which were designed to assess grandiosity/exhibitionism, and identity issues theoretically associated with narcissism. Patients and their therapists both completed the Checklist of Interpersonal Transactions-Revised (CLOIT-R; Kiesler, Goldston, Schmidt, 1991), a 96-item checklist of interpersonal behavior that measures interpersonal behaviors consistent with the interpersonal circumplex model (Kiesler, 1983). The CLOIT can be used for both self and transactant (other) ratings and are otherwise identical with the exception that self-forms assess self-perceptions of interpersonal behavior when with others and transactant forms assess the target's interpersonal behavior when one is in their company. Canonical analyses revealed that individuals with grandiose-exhibitionistic needs tended to view themselves as dominant yet affiliative whereas their therapists observed only dominant behaviors in these individuals. In addition, individuals with strong idealizing needs tended to view themselves as hostile-submissive whereas therapists only saw submissive behaviors in those patients. Overall, these

results add to findings on self-other discrepancies associated with narcissism and specifically point to systematic differences in the perception of interpersonal behaviors.

Interpersonal Perception

Studies that have begun to look for systematic differences in self-peer reports mark an important step in trying to discover predictable patterns of associations that can help explain the discrepancy in the way that individuals with personality disorders view themselves in comparison to how they are viewed by others. However, a limitation of nearly all of the studies reviewed thus far is that they rely on information provided by a single, often self-selected informant. Klonsky et al. (2002) noted that of the 30 studies they reviewed that included informant data, 26 of them gathered information from only one informant while none of the remaining 4 used more than 2 informants. Furthermore, in 29 of those studies the target selected the informant. However, for a number of reasons relying on only one self-selected informant may limit what can be learned about self-peer discrepancies. As noted by Klonsky et al. (2002) relying on only one self-selected informant can be problematic as a single informant is not only less reliable than multiple informants but also only provides one (often biased) perspective.

Studies that utilize multiple informants typically take two forms: peer rating or peer nomination within groups. In a peer rating study each person is asked to rate each member of his or her group on every item of the measure. In a nomination study, each member of a group nominates a certain number of group members as being most representative of the particular trait or behavior. Kane & Lawler (1978) describe the relative merits and limitations inherent in both designs. For example, peer ratings are more time intensive for raters, particularly for large groups, but are useful for obtaining information about each group member. In contrast, peer nominations are less time intensive but tend to provide information about only the extreme

members of the group. Both designs differ from traditional investigations of self-other agreement described above in that each person interacts with and rates multiple targets in a group and is in turn rated by each of those targets allowing researchers to study several interrelated questions about interpersonal perception beyond self-other agreement (Kenny, 1994). Kenny (1994) calls designs in which each individual in a group serves as both perceiver and target a round-robin design and suggests that it provides the most powerful design for studying interpersonal perception. In contrast to the number of studies that have investigated interpersonal perception of normal personality traits (for a review of these studies see Kenny, 1994 and Kenny, Mohr, & Levesque, 2001; Kenny & West, 2010) relatively few have examined interpersonal perception of pathological personality traits.

Interpersonal Perception of Personality Pathology. Oltmanns, Turkheimer, and Strauss (1998) investigated interpersonal perception using a peer nomination procedure in order to examine self-other agreement and consensus associated with narcissistic, dependent, and obsessive-compulsive PD in a sample of undergraduate women belonging to sororities. Participants completed a reworded inventory of DSM-III-R diagnostic criteria created especially for the study called the Peer Inventory for Personality Disorders (PIPD) and were asked to nominate the member of their sorority that best characterized the criteria. Participants also completed a self-report measure containing similarly worded diagnostic criteria. As expected, results suggested modest correlations between self and peer measures. OCPD showed the highest self-peer correlation (.30) while both DPD and NPD showed substantially lower correlations at .12 and .13 respectively. Despite the low overall self-peer correlations, results suggested that there was considerable consensus among the judges regarding the expression of personality disorder traits. In addition, an examination of the individual items suggested that individuals

often denied pejorative items but were more willing to endorse other more neutrally sounding items that were created to assess other personality disorders and thus may have ended up endorsing a subtler personality disorder characteristic for that diagnosis. For example, although participants identified by peers as exhibiting NPD traits denied NPD items involving preoccupation with fantasies of power they did endorse two items in the negative direction that were intended to capture DPD (“allowed others to make important decisions” and “agreed with others when they were wrong”). Similar findings emerged when examining the pattern of correlations for the other personality disorders.

One limitation of the Oltmanns et al. (1998) study is that it relied on participants who had known each other for a variable amount of time and had self-selected their group (all were members of the same sorority). Utilizing information provided by multiple peers that are not self-selected is likely to be particularly important when assessing personality disorder traits as an informant selected at random is more likely to provide an unbiased account of another’s personality pathology than a self-selected peer (Clifton, Turkheimer, & Oltmanns, 2007). In line with this reasoning Clifton, Turkheimer, & Oltmanns (2004) recruited 2013 military recruits who were previously unacquainted and who had known each other for the same amount of time in order to investigate self-other agreement using a peer nomination process. All recruits completed a self-report version of the SNAP (Clark, 1993) and the PIPD (Oltmanns et al., 1998). Overall, self and peer reported diagnostic categories from the measures correlated minimally and ranged from 0.11 (Paranoid) to 0.22 (Histrionic). Self and peer rated narcissism correlated .15. However, a qualitative examination of “supplemental items” which were items in one domain (self or peer) that best predicted each diagnostic category in the other domain over and above the corresponding scales provided information about systematic differences in the interpersonal

perception of personality pathology. One type of difference was characterized by a correlation between items that included similar content but which had been developed to describe different disorders. For example, self-report diagnostic ratings of schizoid PD correlated negatively with peer supplemental items that described histrionic and narcissistic PD. Another type of systematic distinction reflected differences in the perception of the trait. For example, individuals who were identified by their peers as paranoid described themselves as angry though not suspicious while people who described themselves as paranoid tended to be seen by others as cold and unfeeling. Finally, some individuals were more likely to endorse less pejorative items that still reflected personality disorder traits. Again, this trend was particularly apparent for participants who were nominated by their peers as being narcissistic as their self-reports tended to reflect items that suggested that they were extremely outgoing, gregarious, and likeable. Overall, these results offer some predictable and systematic patterns for understanding differences in self and peer reports of personality disorder traits. Furthermore, although the results point to some important distinctions in the interpersonal perception for several personality disorder traits, narcissism, more than any other personality disorder reflected a greater distortion in interpersonal perception that was characterized by putting a positive and self-enhancing spin on their personality.

Although several studies have shown that personality disorders are associated with impaired social functioning most of these studies have relied on self-report measures. Recognizing this Clifton, Turkheimer, and Oltmanns (2005) used a peer nomination process to examine how self-perception of personality disorder traits and interpersonal problems related to others' perceptions of personality disorder traits and interpersonal problems. Results from canonical analyses suggested that self-reported personality disorder traits and interpersonal problems were significantly related and that specific personality disorders were associated with

interpersonal problems in ways that were consistent with previous research (e.g. Alden & Capreol, 1993; Pincus & Wiggins, 1990). Relationships between peer reported personality disorder scales and interpersonal problems were even more robust and suggested that peers identified similar patterns of associations between personality disorder traits and interpersonal problems. In contrast to the results from the within source comparisons (self-self and peer-peer), the canonical analyses across source demonstrated less predictive ability but did reveal some consistent and systematic relationships between personality disorder features and interpersonal problems. For example, individuals who endorsed antisocial and narcissistic personality disorder traits were described by peers as domineering, vindictive, and intrusive. Similarly, individuals who reported having interpersonal problems associated with being socially inhibited and nonassertive tended not to be identified by their peers as being antisocial or narcissistic. The consistent associations between personality disorder traits and problems within and, to a lesser extent across sources led the authors to conclude that individuals and their peers do recognize similar patterns of relationships between personality disorder traits and interpersonal problems. However, the small amount of shared variance across sources also led the authors to conclude that individuals with personality disorders have differing perceptions of pathological personality traits and interpersonal behaviors and little awareness of how they are perceived by others. These results contribute important preliminary information regarding peer perceptions of interpersonal problems and their association to personality pathology and thus warrant further replications with other methodologies and measures of personality disorders.

John and Robins (1994) focused specifically on levels of narcissism and its association to distortions in interpersonal perception by studying a sample of 102 MBA students participating in small group discussion tasks. In addition to completing the Narcissistic Personality Inventory

(NPI; Raskin & Terry, 1988) and Wink and Gough's (1990) Narcissism scale, participants also evaluated their own and their teammates performance by rank ordering each teammate on the basis of their overall effectiveness in the group. Participants were also observed and rated by a team of trained psychologists in order to provide an additional ecologically valid criterion for which effectiveness and narcissism could be compared. Across groups, results suggested that individuals rated higher in narcissism from both a self and observer perspective tended to rank themselves higher than either the assessment staff or fellow peers suggesting a significant self-enhancement bias in their group performance. Importantly these results also suggest that an ego-involving task may provide a relevant context in which to better understand distortions in interpersonal perception and self-other discrepancies associated with narcissism.

The literature reviewed above suggests that narcissism is consistently associated with low self-other agreement and that narcissists tend to view themselves in ways that systematically differ from how they are perceived by others. An important limitation of these studies is that they have tended to focus on the assessment of narcissistic grandiosity. Indeed, with few exceptions (e.g., Dickinson & Pincus, 2003; Wink, 1991) the vast majority of research on narcissism from both a self-report and peer-report perspective has tended to focus on the assessment of narcissistic grandiosity (Cain, Pincus, Ansell, 2008; Levy, Reynoso, Wasserman, & Clarkin, 2007). However, recent reviews suggest two broad themes of narcissistic expression, one that reflects grandiosity and another that reflects vulnerability (Cain, et al., 2008; Miller & Cambell, 2008; Pincus & Lukowitsky, 2010; Pincus & Roche, in press). Expressions of narcissistic grandiosity are characterized by entitled expectations, interpersonally exploitative acts, aggression, and, exhibitionism. In contrast, vulnerable expressions of narcissistic pathology are marked by conflicts around entitled expectations and behaviors leading to shame, interpersonal

distress, and social avoidance (Dickinson & Pincus, 2003). Thus, while research investigating interpersonal perception and convergence in self and other ratings of narcissistic grandiosity have provided important information about NPD, conclusions about interpersonal perception associated with pathological narcissism are necessarily limited if they do not also include information about narcissistic vulnerability.

Recently, Pincus et al. (2009a) have developed the Pathological Narcissism Inventory (PNI). Unlike measures of narcissism that assess only the grandiose themes of the disorder, the PNI was developed as a multidimensional measure of pathological narcissism that includes scales assessing problems associated with narcissistic grandiosity and narcissistic vulnerability. Pincus and colleagues assesses both narcissistic grandiosity and narcissistic vulnerability. Pincus and colleagues demonstrated that PNI subscales were associated with a range of interpersonal problems in theoretically meaningful ways, and correlated negatively with self-esteem and empathy, and positively with shame, interpersonal distress, aggression, and borderline personality organization indicative of the pathological nature of the disorder described by clinical theory. Although the PNI appears to be a valid measure of pathological narcissism it has thus far never been used to investigate self-other agreement or interpersonal perception in general. Such investigations are warranted given that there is limited knowledge about interpersonal perception associated with pathological narcissism that spans both grandiose and vulnerable themes and given that self-report alone is unlikely to provide a complete understanding of personality pathology (Oltmanns & Turkheimer, 2006). Kenny's (1994) Social Relations Model (SRM) provides such an opportunity.

The Social Relations Model

Studies examining the systematic and predictable patterns of associations between self and other ratings (e.g., Clifton et al., 2004; 2005; John & Robins, 1993) have proven to be a fruitful area of investigation for understanding discrepancies in how people with personality pathology view themselves in comparison to how they are viewed by others. Several of these studies have utilized round-robin designs that make use of peer ratings, peer nominations, or some combination of the two and have provided important insights into interpersonal perception associated with personality pathology. Kenny and his colleagues (Kenny, 1994; Kenny & La Voie, 1984; Malloy & Kenny, 1986; Warner, Kenny, & Stoto 1979) developed the Social Relations Model (SRM) as a statistical model for studying interpersonal perception. Though other models for examining interpersonal perception exist (e.g. Funder, 1995; 1999; Rodebaugh et al., 2010), the SRM is particularly suited for analyzing data collected in round-robin designs and provides unique opportunities to investigate the various factors that contribute to how people make judgments about each other.

An important advantage of the SRM is that it accounts for statistical difficulties inherent to group data such as round-robin designs. Chief among these difficulties is that group data often violates a basic statistical assumption of analysis of variance and regression analyses that observations be independent (Kenny & Judd, 1986). Data from group designs are well known to be *nonindependent*, a concept which suggests that people in the same group are more similar to one another than people who are in different groups leading to the possibility that associations between observation are artificially inflated (Kenny & Judd, 1986). Kenny and colleagues (Kenny & Judd, 1986; Kenny, Mannenetti, Pierro, Livi, & Kashy, 2002) described three factors that may contribute to nonindependent data within group designs. The first is called a *compositional effect* and occurs when people are not randomly assigned to groups. This is, of

course, a major reason why experimental designs implement random assignment. However, it may also occur naturally such as when marriage partners are found to more similar to one another on a host of variables (e.g. education, political views, etc.). A second factor that may contribute to nonindependence is *common fate*. This describes a situation in which people come together or are linked by a third variable. For example, due to their similar academic interests students in an upper level psychology class may be more similar to each other than they are to students enrolled in an upper level business course. Finally, *mutual influence* is a process that is particularly problematic in round-robin designs and describes a process in which two members of a group mutually influence one another leading to more similar or more dissimilar behaviors or ratings. Malloy and Kenny (1986) point out that when two scores emerge in an interactive context they are likely to be correlated resulting in nonindependence. Kenny and colleagues (Kenny et al., 2002; Kenny, et al., 2006) describe statistical tests for determining if data collected from small group designs are nonindependent and offer strategies that address issues of nonindependence thereby allowing researchers to study individual and group effects in group designs.

Despite the development of statistical strategies that account for nonindependence in data researchers have often avoided these strategies and have attempted to circumvent issues of nonindependence in a number of other ways (Hoyle, Georgesen, & Webster, 2001; Malloy & Kenny, 1986). For example, a common strategy is to aggregate dyadic data when there is a moderate degree of consensus (McCrae, 1994; Piper, Ogradniczuk, Lamarche, and Joyce, 2006), an approach that was used in several of the studies reviewed above. While, this does resolve issues of nonindependence it also limits the number of questions that can be answered about interpersonal perception (Malloy & Kenny, 1986). For example, there are likely multiple

interacting and dynamic forces that contribute to a person's perception about an interpersonal situation (Pincus et al., 2010; 2009b). However, their investigation is necessarily precluded from study when dyadic data are aggregated as this strategy effectively removes the sources of variance involved in making an interpersonal judgment (Cronbach, 1955). Thus, among several advantages of using the SRM is that it preserves the reciprocal interacting elements that contribute to a person's perception of another by disentangling the sources of nonindependence that are found in round-robin data. Furthermore by decomposing the variation into several components it makes them important sources of information in their own right (Kenny, 1994; Kenny et al., 2006). Thus, in essence the SRM allows for the analysis of nonindependent data by separating and modeling the different sources of variance that contribute to the perceptions people make about each other.

The SRM Components. The SRM is a random effects model that focuses on the sources of variance in dyadic data by taking an ANOVA-like approach to the study of interpersonal interactions (Kenny, 1994). In this analysis interpersonal perception is decomposed into four substantive components and an error term (Kenny, et al., 2001). Given that round-robin designs utilize groups the first SRM component models a *group* effect. The group effect is analogous to the grand mean in the analysis of variance and reflects the average level of outcome in the group (Malloy & Kenny, 1986). The group component therefore models the fact that some groups might on average score higher on a given variable than others. For example, some groups might on average score higher on levels of friendliness than other groups. Thus, one factor that may contribute to a person's rating of another is the relative amount of friendliness in the group as a whole.

At the individual level there are two main effects and their interaction that contribute to a person's perception of another individual's behavior or personality trait. The first individual source of variation in an individual's rating of another is called the *perceiver* effect (also called the actor effect). The perceiver effect reflects a person's tendency to see or perceive people similarly and to rate them as such. The *target* effect (also called the partner effect) reflects consistency in the way a person is perceived across interactions. Finally, the *relationship* effect is the perceiver by target interaction term and reflects the unique variance associated with the pairing of a particular perceiver and target (Kenny, et al., 2001; Malloy & Kenny, 1986). However, modeling the relationship effect requires that individuals rate each other across multiple interactions or rate each other multiple times during a single interaction by splitting the interaction into segments. Without multiple relationship ratings the relationship effect cannot be separated from random error or inconsistency in ratings and so the effects are often pooled (Ingraham & Wright, 1986; Warner et al., 1979).

To help make the logic behind the SRM variance components more concrete an example is often presented. Consider a group of 4 individuals: Allison, Brian, Carl, and Deb. If each person rates how friendly they find each member of their group and each member likewise rates them there is likely to be some variation among their ratings. It is possible, for example, that Allison and Brian consistently receive high ratings on a dimension of friendliness whereas Carl and Deb consistently receive low ratings. In this case much of the variance in the ratings would be attributable to the *target*. Alternatively it is also possible that Allison rates everyone as very friendly and Brian and Carl rate as everyone as moderately friendly, whereas Deb does not find any of her partners to be very friendly. In this case, most of the variance would be attributable to the *perceiver*. Finally, it is possible that there are *relationship* effects among the group members.

For example, Allison may find Brian particularly friendly, friendlier than she finds the other members of the group and more friendly than the other group members find Brian.

The SRM model thus suggests that an individual's perception of another equals the group mean plus a perceiver effect, plus a target effect, plus a relationship effect plus random error.

The SRM equation for perceiver i rating target j is:

$$X_{ij} = m + a_i + b_j + g_{ij} + e_{ijt}$$

Where X_{ij} is the score for person i rating person j , m is the group mean, a_i is person i 's perceiver effect, b_j is person j 's target effect, g_{ij} is the relationship effect, and e_{ijt} represents error in measure l for perceiver i and target j . Again, when multiple measures of a trait are not collected the relationship effect and error effect are confounded and these terms are pooled to represent one source of variation.

Interpretation of Variance Components. By partitioning the variance in a dyadic rating into these major components the SRM allows for a quantitative analysis of the relative influence of each of these components in a person's judgment about another. Variance components that are significantly greater than zero lead to special terms for describing perceiver, target, and relationship effects and describe several fundamental issues in interpersonal perception (Kenny, 1994). For example, one issue in interpersonal perception concerns *assimilation* or whether people tend to view and rate others similarly. If a significant proportion of the variance in trait ratings lies within the perceiver component of the model then this would suggest that there is a great deal of variability in the way different perceivers rate targets; some tend to consistently rate group members high on a trait whereas others tend to consistently rate them low on that trait. Kenny (1994) noted that a number of researchers from personality, social, and clinical psychology have suggested that people tend to have a generalized view of what the typical

person is like and have proposed terms that reflect assimilation. Depending on one's theoretical predilections this phenomenon could be labeled, "personal constructs", "schemas", or "internal working model" among other terms. Kenny (1994) has also suggested that assimilation reflects a stereotype that people make about each other on the basis of minimal contact. This is bolstered by evidence that assimilation tends to decrease with increased acquaintance. Two reviews of studies using the SRM have found that a nontrivial proportion of the variance (about 20%) in dyadic ratings of interpersonal perception is typically explained by perceiver variance (Kenny, 1994; Kenny et al. 2001).

Another fundamental topic in interpersonal perception concerns consensus, or the extent to which multiple raters agree in their perception and rating of another individual (Funder & West, 1993; Kenny, 1994). Consensus can be determined in SRM through an examination of the target variance. Significant target variance would suggest that there is large variability in how people in a group are perceived. Some people in a group tend to consistently elicit high ratings on a trait while others tend to consistently elicit low ratings on a trait. Significant target variance is an index of consensus in that it suggests that the raters or perceivers are making consensual distinctions as to who is high and who is low on a trait. Although the evidence for consensus is not as robust as are findings for assimilation there is nonetheless sufficient evidence across studies of consensus in ratings of targets (Kenny, Albright, Malloy, & Kashy, 1994). For example, studies have demonstrated that there is consensus even at zero acquaintance or when ratings are based on "thin slices of behavior" (Albright, Kenny & Malloy, 1988; Ambady & Rosenthal, 1992). This is particularly the case for observable traits such as extraversion (Kenny, Horner, Jashy, & Chu, 1992). Furthermore, while consensus seems to decline following short-term one-on-one interactions, it also tends to increase with greater acquaintance and short-term

group interactions (Kenny, 1994). It thus appears that at very low acquaintance stereotypes may contribute to consensus but that greater awareness of a target's traits over time produces a similar result (Malloy & Albright, 1990). Kenny (1991; 1994; 2004) has described several parameters that may contribute to our understanding of consensus. Finally, a significant relationship effect is interpreted as indicative of *uniqueness* in trait rating suggesting that perceivers are developing unique and idiosyncratic views of the targets.

Self-Target and Self-Perceiver Correlations. If researchers collect self-report data then the SRM provides opportunities to answer several additional questions associated with interpersonal perception. Most obviously researchers who collect self-report data can assess self-other agreement. As suggested by the review above several studies have reported levels of self-other agreement without using a SRM approach. However, according to the logic behind the SRM self-other agreement that is determined by correlating self-ratings with the mean of observer ratings contains both perceiver and target variance and is therefore a less precise estimate of self-other agreement (Greguras, Robie, & Born, 2001). Kenny (1996) acknowledges that results attained in studies that do not employ SRM tend to yield similar results but also suggests that those results should be interpreted with caution since they confound multiple sources of variance (Kenny, 1994; Kenny & Albright, 1987). The SRM approach to determining self-other agreement is to correlate an individual's self-rating with their target effect. Kenny (1994) notes that before self-other agreement is determined it should first be confirmed that there is consensus or significant target variance. If there is no consensus among peers about a target then there is little reason to believe that the target will agree with peers. Finally, correlations between trait self-ratings and perceiver effects provide information about individual differences associated with assimilation.

Multivariate Correlations. When more than one construct is assessed in a SRM, it becomes possible to extend the research by estimating the relationship of interpersonal perception between various traits. For example, if group members rate individuals on a measure of depression and hostility it becomes possible to correlate the SRM components associated with one variable with the SRM components of the other variable. There are four possible individual level correlations between the SRM components: perceiver-perceiver, perceiver-target, target-perceiver, and target-target. The perceiver-perceiver correlation measures the extent to which people who tend to see others as depressed also tend to see others as hostile. The perceiver-target effect assess whether people who see others as depressed tend to be seen by others as hostile. The target-perceiver effect estimates the degree to which people who are seen as depressed tend to see others as hostile, and the target-target effect measures whether people who tend to be seen as depressed also tend to be seen as hostile.

Chapter 2

THE CURRENT STUDY

The Social Relations Model (Kenny, 1994) is a statistical model that was developed explicitly for investigations of interpersonal perception when data is collected in a round-robin design and provides unique opportunities for investigating self-other agreement as well as the sources of variation that contribute to how people form impressions about each other (Kenny, 2004; Kenny et al., 2006; Kenny, et al., 2002). Given the low level of self-other agreement and the noted distortions in interpersonal perception associated with personality disorders, the SRM would seem to offer an excellent opportunity for advancing our understanding of interpersonal perception associated with personality pathology. However, although a few studies have used the SRM to investigate clinical phenomenon (e.g., Christensen, Stein, & Means-Christensen, 2003;

Christensen, Cohan, & Stein, 2004; Marcus & Askari, 1999; Marcus, Hamlin, & Lyons, 2001; Marcus & Wilson, 1996), a study conducted by Mahaffey and Marcus (2006) in which they investigated interpersonal perception in psychopathy represents the lone study to have used the SRM to investigate interpersonal perception associated with pathological personality traits. Among other findings in that study, the authors found evidence for assimilation, consensus, and self-other agreement among sex offenders in outpatient therapy groups rated high in psychopathy. That study represents an important contribution to our understanding of interpersonal perception associated with personality pathology but replications with other maladaptive traits and samples are warranted.

The literature reviewed above suggests that narcissism might be a personality disorder that is particularly susceptible to discrepancies in self-other ratings as well as distortions in interpersonal perception. These distortions include a lack of insight regarding how others perceive them, misperceiving the interpersonal behaviors and intentions of others, and misattributing their interpersonal difficulties and conflicts as external to them. Several studies have shown that these distortions become even more likely when individuals high in narcissism are engaged in an ego-involving task (e.g., John & Robins, 1994; South, Oltmanns, & Turkheimer, 2003). As such, the current study uses the SRM to better understand interpersonal perception of pathological narcissism by investigating self-other agreement in ratings of pathological narcissism, systematic relationships between interpersonal perception of pathological narcissism and interpersonal perception of interpersonal problems, and distortions in interpersonal perception theoretically associated with pathological narcissism. However, in contrast to previous studies that have focused almost exclusively on interpersonal perception associated with narcissistic grandiosity, the current study uses the Pathological Narcissism

Inventory (PNI; Pincus et al., 2009a) in order to investigate interpersonal perception of pathological narcissism that comprehensively spans grandiose and vulnerable themes. The current study also includes the Inventory of Interpersonal Problems-Short Circumplex (IIP-SC; Hopwood, Pincus, DeMoor, & Koonce, 2008; Soldz, Budman, Demby, & Merry, 1995) in order to study interpersonal perception of problematic interpersonal behavior as well as distortions in interpersonal perception associated with pathological narcissism. This is investigated in small groups of moderately acquainted undergraduate business students who rated each other in a round-robin design after working together for several weeks on an ego-involving task that involved collaborating with their teammates and competing against other teams in managing a computer simulated multimillion-dollar business.

Hypotheses & Tests

See Table 1 for a complete summary of hypotheses, tests, and expected results.

Hypothesis 1: Significant SRM Variance Components for PNI Total Score and IIP-SC

Dimensions

A preliminary test of interpersonal perception requires modeling the sources of variance in interpersonal perception. Substantively interesting in their own right in that they provide information regarding assimilation and consensus, significant perceiver and target variance also provide the components and justification for exploring several other hypotheses about interpersonal perception. As described above perceiver variance that is significantly greater than zero provides evidence of assimilation while target variance that is significantly greater than zero provides evidence of consensus within groups. The other major substantive component of the SRM is relationship variance and is an indicator of uniqueness. However, because the current study did not include ratings at multiple time points it was not possible to separate

relationship variance from random error. As such the current study only proposes hypotheses related to the perceiver and target variance components.

Test 1: Significant Perceiver Variance for PNI Total Score: Assimilation. No previous studies have used the SRM to evaluate interpersonal perception of pathological personality traits in a nonclinical sample. The only study that has used the SRM to evaluate pathological personality traits was the Mahaffey and Marcus (2006) study of psychopathy cited above. That study reported evidence for assimilation and consensus for psychopathic traits. Although that study was based on a clinical sample, which may limit its generalizability, Kenny (Kenny, 1994; Kenny et al., 2001) has noted that SRM analyses consistently support the phenomenon of assimilation and thus the more general conclusion that perceptions of others are at least partially driven by the perceiver's construction of targets' characteristics (Markus & Zajonc, 1985). Thus, it was hypothesized that modest, yet significant perceiver variance for the PNI total score would be found in the current study. Perceiver variance for the PNI total score that is significantly greater than zero would suggest that some people tend to consistently rate others as high in pathological narcissism while others tend to consistently rate others as low in pathological narcissism. Significant perceiver variance would also indicate that there is assimilation in the perception of pathological narcissism.

Test 2: Significant Target Variance for PNI Total Score: Consensus. Studies of the perception of personality traits suggest that untrained individuals are able to make fairly accurate assessments of people who have been diagnosed with a personality disorder even on the basis of minimal information (Oltmanns, Friedman, Fiedler, & Turkheimer, 2004). In addition, studies examining the factor structure of personality disorder traits from a peer perspective reveal a common understanding regarding which individuals exhibit particular traits (Thomas,

Turkheimer, & Oltmanns, 2003). Indeed there is great deal of evidence to suggest that informants tend to agree with each other in their assessment of pathological personality traits in others (Klonsky et al., 2002; Mahaffey & Marcus, 2006). Thus, it was expected that people who were moderately acquainted would be able to recognize narcissism when they saw it. It was therefore hypothesized that in the current study target variance for pathological narcissism would be significantly greater than zero. Significant target variance would suggest that some people tend to consistently be seen by others as more narcissistic while others tend to consistently be seen as less narcissistic and would be an indication of consensus within the groups as to who possesses narcissistic traits. Although consensus does not equate with accuracy it does provide an important standard that can be used to evaluate distortions in interpersonal perception (Kenny, 1994).

Test 3: Significant Perceiver Variance for IIP-SC Dimensions: Assimilation. Previous studies that have evaluated SRM variance components using circumplex-based measures have reported mixed results with some reporting significant perceiver and target variance on all dimensions of the circumplex (Marcus & Holahan, 1994) and others finding significant variance components for fewer dimensions (e.g., Marcus & Leatherwood, 1998; Moskowitz, 1988; Wright and Ingraham, 1986). However, those studies have several limitations that may limit their generalizability. For example, the Marcus and Leatherwood (1998) study only examined same sex groups and thus may limit the generalizability of those findings to mixed sex groups. The Wright and Ingraham (1986) study examined individuals who had known each other for an extended period of time and thus the nonsignificant perceiver components might reflect a consistent finding in SRM analyses of weaker perceiver variance in groups with greater levels of

acquaintance (e.g. Kenny & Kashy, 1994). Finally, the Mokowitz (1988) study had a small sample size that may have contributed to the lack of significant findings (Kenny, et al., 2001).

Despite mixed findings for perceiver variance using some circumplex-based measures, Kenny's reviews (Kenny, 1994; Kenny et al., 2001) of SRM analyses support the generally consistent phenomenon of assimilation. Thus, there was reason to believe that in the current study there would be modest but significant perceiver variance for the IIP-SC dimensions. The SRM approach was used to evaluate the perceiver variance components for the IIP-SC dominant and nurturant interpersonal problem dimensions as well as IIP-SC profile elevation, an index of general interpersonal distress (Tracey, Rounds, & Gurtman, 1996). Perceiver variance that is significantly greater than zero would suggest that there is variation between people in how they tend to rate others along the interpersonal dimensions; for example, for a variety of reasons some people would be expected to consistently rate others as having high levels of dominant interpersonal problems while others would be expected to consistently rate others as having low levels of dominant interpersonal problems. Significant perceiver variance for the IIP-SC summary dimensions would also indicate assimilation of interpersonal problems.

Test 4: Significant Target Variance for the IIP-SC Dimensions: Consensus. The target variance components for IIP-SC dominant and nurturant interpersonal problem dimensions and profile elevation were also evaluated using the SRM approach. Kenny (1994) notes that as compared to assimilation, there is less support for consensus, at least for normal personality traits. However, he also points out that perceivers do agree in their perception of others, explaining about 15% of the total variance in interpersonal perception. In addition, group interactions as well as greater acquaintance have been shown to lead to greater levels of consensus for some traits as compared to studies of one-on-one interactions or zero-

acquaintance. It also seems that consensus among perceivers is not uniform across traits (Kenny et al., 2001; John & Robins, 1993). For example, studies have shown that consensus is higher for extraversion and lower for agreeableness (Kenny et al., 2001; John & Robins, 1993).

Extraversion and agreeableness are the two five-factor model traits that most closely correspond to the dominance and nurturance dimensions of the interpersonal circumplex (McCrae & Costa, 1989b; Wiggins & Trobst, 1997). Based on these findings it was hypothesized that in the current study, which focused on moderately acquainted individuals engaged in group interactions, that there would be modest but significant target variance for the dominant and nurturant interpersonal problem dimensions and profile elevation with greater consensus for dominant interpersonal problems as compared to nurturant interpersonal problems. Target variance that is significantly greater than zero would suggest, for example, that some people are consistently more likely to be seen as having dominant interpersonal problems while others are consistently less likely to be seen having dominant interpersonal problems.

Hypothesis 2: Modest Self-other Agreement for Pathological Narcissism

Test 1: Correlate Self-Reports of the PNI Total Score with Target Effects for the PNI Total Score. A major goal of the current study was to use the SRM to investigate self-other agreement in ratings of pathological narcissism assessed by the PNI. Assuming consensus in ratings of pathological narcissism it becomes possible to test for self-other agreement on the PNI. Several studies reviewed above have found modest levels of agreement in self-other ratings of narcissism. However, as noted, the majority of those studies have limited their investigations to the study of narcissistic grandiosity. Less is known about self-other agreement regarding the full range of pathological narcissism that spans both grandiose and vulnerable themes. In light of research that has demonstrated that there is greater agreement with increasing levels of distress

and psychopathology (e.g. Coolidge et al., 1995; Mahaffey & Marcus, 2006; Soldz et al., 1995) it is possible that individuals assessed for the full range of pathological narcissism would show some agreement with their peers regarding their psychopathology. However, given the compromised self-awareness associated with personality disorders and narcissism in particular (Dimaggio et al., 2007; Oltmanns, Gleason, Klonsky, & Turkheimer, 2005) it was still expected that the level of agreement would be relatively modest. A significant and positive correlation between self-ratings on the PNI and the target effects for the PNI would indicate self-other agreement.

Hypothesis 3: Systematic Relationships Between Interpersonal Perception of Pathological Narcissism and Interpersonal Perception of Interpersonal Problems

Test 1: Correlate Target Effects for the PNI Total Score with Self-Reports of the IIP-SC Dimensions. Past research that has focused on narcissistic grandiosity has reported that self-identified and peer identified narcissists rely on various self-enhancement strategies in order to maintain a view of themselves as secure, assertive, and adjusted (Clifton et al., 2005; Dickinson & Pincus, 2003; John & Robins, 1994; Oltmanns, et al., 2002; South et al., 2003). This would suggest that individuals perceived as high in narcissism on the PNI might endorse domineering problems but would deny other interpersonal problems or generalized interpersonal distress on the IIP-SC. On the other hand, disturbed interpersonal functioning is a significant consequence of pathological narcissism (Ronningstam, 2005, 2009) and a wealth of research has suggested that narcissists do experience significant interpersonal distress and impaired social functioning (Cain, Lukowitsky, Wright, Pincus & Conroy, 2007; Clifton et al., 2005; Dickinson & Pincus, 2003; Miller, Campbell, & Pilkonis, 2007; Ogrodniczuk, Piper, Joyce, Steinberg, & Duggal, 2009; Oltmanns et al., 2002; Pilkonis, Kim, Proietti, & Barkham, 1996; Pincus et al., 2009a;

Stinson et al., 2008). Given the focus in the current study on the assessment of pathological narcissism and themes of narcissistic grandiosity and vulnerability it was hypothesized that individuals perceived by their peers as high in pathological narcissism would report significant levels of interpersonal distress that spans the entire circumplex. This would be supported by a significant positive correlation between the target effects for the PNI total score and self-reported IIP-SC profile elevation and nonsignificant correlations between the target effects for the PNI total score and self-reported IIP-SC dominant and nurturant interpersonal problem dimensions.

Test 2: Correlate Target Effects for the PNI Total Score with Target Effects for the IIP-SC Dimensions. As noted, a major effect of having pathological personality traits is disturbed interpersonal functioning. Thus, it was hypothesized that individuals who were generally seen as having pathological narcissistic personality features would also generally be seen as interpersonally distressed. This would be supported by a significant positive correlation between the target effects for the PNI total score and the target effects for IIP-SC profile elevation. However, given some of the interpersonal behaviors and unique self-enhancement strategies associated with pathological narcissism for managing self-esteem and affect described above it was hypothesized that peers would also experience individuals who they perceived as high in pathological narcissism as having more dominant interpersonal problems. It was thus expected that there would also be a strong, positive and significant correlation between the target effects for the PNI total score and the target effects for the IIP-SC dominance dimension.

Test 3: Correlate Self-reported PNI Total Score with Target Effects for the IIP-SC Dimensions. A third test was to examine the relationship between self-reported narcissism on the PNI and the target effects for the interpersonal problem dimensions. This analysis was conducted in order to determine if peers identify interpersonal problems in individuals whose self-reports

reflect high pathological narcissism. However, given the greater difficulty peers have in rating other's private experiences noted above, it was not expected that others will necessarily be able to identify the full extent of the internal conflicts and interpersonal distress of individuals who rated themselves high in pathological narcissism. Thus, in comparison to tests 1 and 2 above, it was hypothesized that there would be a nonsignificant correlation between self-ratings on the PNI and the target effects for IIP-SC profile elevation. However, because individuals with pathological narcissism are apt to angry outbursts and interpersonally exploitative acts others would be expected to experience them as having dominant interpersonal problems. This would be supported by a significant and positive correlation between the PNI total score self-ratings and the target effects for the IIP-SC dominance dimension.

Together these 3 tests would suggest some subtle but important systematic differences in interpersonal perception of pathological narcissism and interpersonal problems that may contribute to modest levels of self-other agreement in ratings of pathological narcissism. For example, consistent with past research that has reported that individuals high in pathological narcissism report general interpersonal distress (e.g. Cain et al., 2007) it was expected that individuals identified by peers as high in pathological narcissism would have some awareness of their general interpersonal distress as reflected in IIP-SC self-ratings with high profile elevation in relation to dominant and nurturant interpersonal problems. Similarly, when peers are able to identify pathological narcissism in others it was expected that they too would associate pathological narcissism with general interpersonal distress. However, peers were also expected to associate pathological narcissism with greater levels of dominant interpersonal problems. Finally, when individuals identified themselves as high in pathological narcissism it was not expected that their peers would be able to identify the full extent of their interpersonal problems

and would only experience them as interpersonally dominant. These systematic differences in interpersonal perception are likely related to the characteristic ways narcissists perceive themselves and how they relate to others, which are hypothesized to be driven by distortions of the interpersonal situation.

Hypothesis 4: Distortions in Interpersonal Perception Associated with Pathological Narcissism

Test 1: Correlate Self-Reports of PNI Total Score with Perceiver Effects for the IIP-SC Dimensions. A number of clinical psychologists have observed that clients may assimilate current interpersonal experiences based on past interpersonal experiences without regard for the current proximal situation. Psychoanalysts have referred to this phenomenon as transference (Greenberg & Mitchell, 1983), cognitive therapists have called it overgeneralization (e.g., Ellis, 1992), and interpersonal theorists have called it parataxic distortion (Sullivan, 1953). Sullivan (1953) noted that parataxic distortions in interpersonal relations could lead to non-normative interpersonal behavior such as those expressed in personality disorders. If individuals with personality disorders organize their interpersonal experiences based on representations of past internalized interpersonal experiences and to a lesser degree on the current proximal situation it is likely that the individual will assimilate each new interpersonal situation as functionally equivalent leading to a rigid and distorted interpretation of others' interpersonal behaviors and motives (Pincus, et al., 2009b). Thus, although Kenny (1994) notes that assimilation is a common finding in investigations of interpersonal perception, there is also reason to believe that greater assimilation is indicative of a distortion in interpersonal perception and would thus be expected to be associated with greater levels of pathological narcissism.

There are both theoretical and empirical reasons to believe that narcissists have a tendency to approach each new situation with a sense of personal entitlement and a perception

that all situations present opportunities to proclaim their dominance and influence over others (Brown & Zeigler-Hill, 2004; Dickinson & Pincus, 2003; Pincus & Wiggins, 1990; Raskin, Novacek, & Hogan, 1991). In line with this, research has suggested that narcissists may be particularly sensitive to self-comparisons regarding status (e.g., Campbell, Reeder, Sedikides, & Elliot, 2000) and may therefore perceive others as attempting to usurp their dominance and as a potential threat to their sense of superiority. This is likely to be particularly the case in an ego-involving context such as in the current study where students needed to negotiate with teammates who may have different ideas about how to best beat their competitors on the computer simulation. It was therefore hypothesized that in the current study greater levels of self-reported pathological narcissism would be associated with perceiving greater dominance in others. This would be supported by a significant positive correlation between the self-reported PNI total score and the perceiver effect for the IIP-SC dominance dimension. Such a finding would suggest that narcissists tend to view others as functionally equivalent and would provide evidence of a distortion in interpersonal perception associated with the disorder. No a priori hypotheses were made with regards to other circumplex dimensions.

Test 2: Correlate Target Effects for the PNI Total Score with Perceiver Effects for the IIP-SC Dimensions. Another distortion associated with personality disorders is that they may blame their interpersonal difficulties on others and may come to believe that it is the world and not themselves that are problematic (McKeeman & Erickson, 1997; Millon & Davis, 1996; Westen & Heim, 2003; 2009). This may be particularly true for individuals with pathological narcissism who despite experiencing significant interpersonal distress may still attribute their problems to others. This may ultimately lead them to feel justified in their entitled expectations, aggression, and interpersonally exploitative acts, particularly if they feel that feel that their self-

concept or status has been threatened (Bushman, & Baumeister, 1998; Kernis & Sun, 1994; Morf & Rhodewalt, 1993; South et al., 2003). It was therefore hypothesized that individuals who were seen as more narcissistic by their peers would tend to see others as interpersonally distressed and, for reasons noted in the first test of distortion above, as also having more dominant interpersonal problems. The target-perceiver correlation provides a test of this assumption. A significant positive correlation between the target effects for the PNI total score and the perceiver effects for both IIP-SC profile elevation and a strong correlation with the dominance dimension would suggest that people who are generally seen as having narcissistic psychopathology tend to see others as having interpersonal problems that span the circumplex but also as having greater dominant interpersonal problems. If supported, this would provide additional evidence of a distortion in interpersonal perception associated with pathological narcissism.

These tests of distortions in interpersonal perception may help to explain some of the systematic differences in interpersonal perception associated with pathological narcissism including low self-other agreement. For example, if individuals with pathological narcissism tend to distort and assimilate the intentions and behaviors of others as consistently domineering it is likely that they will misperceive others as a threat to their own sense of superiority and dominance. This would be expected to lead to inappropriate responses that include, for example, narcissistic rage and exploitative acts that maintain their interpersonal difficulties. However, they may also feel justified in their behaviors and thus their egocentrism and entitlement may compromise their awareness of how others perceive them resulting in low self-other agreement in ratings of their personality. Individuals with pathological narcissism may also later come to experience their narcissistic grandiosity with shame or other affective and interpersonal

difficulties associated with narcissistic vulnerability. Thus, even if they do not agree with others about their narcissism, they may acknowledge experiencing general interpersonal distress.

Chapter 3

METHOD

Participants

Participants were 869 college students (530 males and 339 females) from a large rural university who volunteered for this study for extra credit. Participants had a mean age of 21.23 (SD=1.15) and were predominantly white (80.4%) and Christian (69.7%). Participants were members of a large, senior level capstone business course that was designed to bring together students from all majors within the business department including accounting, management, finance, and marketing. A major component of the course involves students working together in multidisciplinary teams (i.e. accounting, management, finance, etc.) on a computer simulation program whereby they compete against other teams in managing a simulated multimillion-dollar company. The structure of the course is such that at the start of the semester students are randomly assigned to teams that include between 4 and 7 members each. The only provision is that each team must include at least one student from the various disciplines thus encouraging them to negotiate with perspectives and opinions that differ from their own. A total of 174 mixed sex groups with a minimum of 4 students per group were assessed for this study. Students in this course meet for lecture one day per week where they are encouraged to sit with their teammates and for lab once per week where they work together to successfully manage their company. Because students were randomly assigned to groups, compositional factors leading to nonindependence were minimized. However, given that the participants are all business majors in a senior level capstone course and interact with each other over the course of the semester it is

likely that common fate in addition to mutual influence will lead to nonindependence in the data. Thus, the SRM, which accounts for nonindependence provides an optimal strategy for analyzing this data.

Data Collection

Data collection took part in two phases. During the first phase participants completed a battery of self-report questionnaires via a professional online survey server. Several studies have now led to the consensus that online data collection is a valid means for data collection (Gosling, Vazire, Srivastava, & John, 2004; Vazire, 2006; Vazire, 2010b). The second phase of data collection took place 8 weeks into the school semester after students within teams had sufficient opportunity to get acquainted with each other and had spent a significant amount of time negotiating on the best way to run their simulated business.

During the second phase all participants provided peer-ratings of the personalities and behaviors of their teammates running the simulated company. Of the 869 participants who completed the self-report questionnaires during Phase I, 838 of them provided peer ratings at Phase II. Peer ratings were completed via the same professional online survey server. Photographs of each member of the team were posted at the top of the survey in order to facilitate facial recognition of teammates. When photos were not available the university's school logo was used in its place. Most students made photographs of themselves available and using the university logo was required in a small number of cases. Below the photographs was a questionnaire item and rating scale followed by a list of each team member's name. Participants were asked to rate each member of their team on each of the items using the appropriate rating scale. When participants came upon their own name they were asked to rate their expectation of how their teammates would rate them on the same characteristics. At the end of the battery

participants were thanked for their participation and were asked not to discuss their responses with their teammates. Asking participants not to discuss their ratings with other group members should reduce additional sources of nonindependence (Warner et al., 1979).

Self-Report Measures

Pathological Narcissism Inventory-Self-Report (PNI; Pincus et al., 2009a). The PNI was recently developed as a brief stand-alone multidimensional self-report measure of pathological narcissism and reflects the characteristic grandiose and vulnerable affect and self states described in the clinical, psychiatric, and social/personality psychology literature (Cain, et al., 2008). The measure includes 52-items that are rated on a six-point Likert scale ranging from *Not At All Like Me* to *Very Much Like Me*. The items of the PNI make up 7 factors, three of which assess narcissistic grandiosity (*Exploitativeness, Grandiose Fantasy, Self-sacrificing Self-enhancement*) and four of which assess narcissistic vulnerability (*Entitlement Rage, Contingent Self-Esteem, Devaluing, and Hiding the Self*). Confirmatory factor analyses have provided additional evidence of a higher order two-factor solution that captures the themes of narcissistic grandiosity and narcissistic vulnerability (Wright, Lukowitsky, & Pincus, 2010). As scales differ in length, they are scored based on mean item endorsement. A total score reflecting the mean item endorsement across all 7 scales can also be calculated. The measure was validated in both a normal and clinical sample indicating its appropriateness for multiple populations.

Inventory of Interpersonal Problems – Short Circumplex (Soldz, Budman, Demby, & Merry, 1995). The IIP-SC is a 32-item version of the longer 64-item Inventory of Interpersonal Problems-Circumplex (IIP-C; Alden, Wiggins, & Pincus, 1990). The short version was developed for use when constraints limit the usability of the full version such as was the case for the current study. The IIP-SC contains items related to “It is hard for me to...” and “Things I do

too much.” Respondents are asked to indicate their degree of distress associated with the problem on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). The IIP-SC assesses interpersonal problems across eight octant themes (4-items per octant) emerging around the orthogonal dimensions of Dominance and Nurturance: Domineering, Vindictive, Cold, Socially Avoidant, Nonassertive, Exploitable, Overly-nurturant, and Intrusive (see Figure 1). The measure has exhibited acceptable reliability and circumplex structural validity and has been shown to be sensitive to clinical change. Recently, Hopwood et al. (2008) provided additional evidence for validity of the measure using a college sample. Overall, the IIP-SC has been shown to be an effective alternative to the IIP-C in research with clinical and college student samples.

Peer-Report Measures

The peer report versions of the PNI and IIP-SC were identical with the exception that participants were asked to indicate how well each statement described each member of their team. They were instructed that when they saw their own name they were to rate how they thought most other people on their team rated them on that characteristic. Items were also rewritten in the third person.

Chapter 4

DATA ANALYSIS

All SRM analyses were conducted using the SOREMO V.2 computer program (Kenny, 2007). SOREMO is a FORTRAN program developed for the analysis of multivariate round-robin data using the SRM approach. SOREMO is based on a modification of a two-way random effects ANOVA, that is the set of n subjects are considered to be a very small random sample from a very large population of subjects and the interest is in sources of variation, and not about specific perceivers and targets (Warner et al., 1979). The PNI total and the IIP-SC dominance,

nurturance, and profile elevation scores were entered into the SOREMO program following the instructions for the set up file and analyses included with the SOREMO program. SOREMO requires the creation of 3 different types of records. The first file is called the *setup file* and contains the title, problem, variable names, and format records. The second file is the data file and the third file is the instructions file and simply indicates how to read the previous files and where to output the results.

Perceiver and Target Effects. The first step in the SRM is the calculation of the perceiver and target effect estimates for each subject and with these estimates SOREMO computes the variance components. The perceiver and target effects are analogous to the row and column mean of the data set respectively. However, due to the nature of round-robin designs special modifications are required. Kenny (1994, p.236) presented the following formula for the estimation of perceiver effect:

$$a_i = \frac{(n-1)^2}{n(n-2)} M_{i.} + \frac{n-1}{n(n-2)} M_{.i} - \frac{n-1}{n-2} M_{..}$$

and the estimation of the target effect:

$$b_i = \frac{(n-1)^2}{n(n-2)} M_{i.} + \frac{n-1}{n(n-2)} M_{.i} - \frac{n-1}{n-2} M_{..}$$

where n is the group size, $M_{i.}$ is the mean of scores when i is the perceiver, $M_{.i}$ is the mean when person i is the target, and $M_{..}$ is mean of all of the observations in the group. From these equations it can be seen that the perceiver effect includes the mean of the person as target and the estimate of the person as target contains the mean of the person as perceiver. This is one modification that is required in order to ensure that the estimates are not biased as a result of missing data along the diagonal (i.e. self-ratings). For instance, if person i as an perceiver rated everyone as highly dominant then they could appear to have a smaller target effect than others

only because that person does not rate him or herself. An analogous argument holds for the perceiver effect. Thus, these equations adjust the “missing target” bias by adjusting some fraction of person i 's column mean. The perceiver effect is therefore a measure of individual differences in a person's consistency in rating other members of their group. The perceiver effect cannot be large unless the individual is fairly consistent in their ratings of others. Likewise the target effect measures individual differences in a person's tendency to elicit similar ratings from others and the target effect can also not be large unless there is that consistency.

Perceiver and Target Variance Components. Based on the perceiver and target effects SOREMO provides estimates of the perceiver and target variance components. Because the SRM does not require nonindependence of the data the variance components are estimated indirectly by solving a series of seven simultaneous linear equations (provided in Warner et al., 1979). According to Kenny et al. (2006) the perceiver variance is essentially (but not exactly) the variance among the row marginal means and the target variance is essentially (but not exactly) the variance among the column marginal means. Thus, while the estimation of variance components depends on the perceiver and target effects, perceiver and target variances are not simply their variance. This is because the variances could change drastically strictly as a function of the number of individuals in a group and due to the nature of the round-robin design. To correct for this SOREMO estimates a two-way random effects ANOVA in order to estimate the perceiver, target, and error variances. Because the amount of variance depends on the number of subjects per group SOREMO attempts to estimate what the variance would be if there were an infinite number of subjects per group. Thus, the estimates of the variance components are a theoretical variance and not an actual variance of the scores. Typically, in an SRM study the proportion of total variance due to each component is computed; however significance tests are

performed on absolute variances. A presentation of the proportion of total variance thus allows one to determine what percentage of each judgment is attributed to the perceiver, target, and relationship (combined with error).

SOREMO outputs tests of the significance level of the variance components as well as their reliability. Significance of the variance components is not estimated based on an F ratio as is typical in ANOVA. The procedure used by SOREMO is to estimate the variance parameters separately across groups and then use group as the unit of analysis. The test is a one-sample t test in which the parameter estimate is tested as being significantly greater than 0 with degrees of freedom being equal to the number of groups minus one. One-tailed tests are used to test the variances, because variances are positive. SOREMO also provides reliability estimates of the perceiver and target variance components because it is possible for a component to be significant but not reliable. The reliabilities provide greater confidence with which one can meaningfully interpret the components for a given scale.

Recall that significant variance components take on special meaning in SRM. For example, consensus refers to large variation in the target effect and suggests that some people tend to elicit high ratings from others while others tended to elicit low ratings on the measure from others. This can now be seen as being reflected in the column means. A high target column mean necessarily means that most individuals gave that person a high score on the scale, whereas a low mean suggests that most perceivers were in agreement that the target was low on the trait.

Self-Perceiver and Self-Target Correlations. Although self-ratings are not included in the estimation of perceiver and target effects, self-ratings can be included in SOREMO as a separate record and correlated with the individual level SRM perceiver and target effects. Correlations are computed via an ordinary Pearson product-moment correlation, however, the computation

partials out the group effects. In addition SOREMO provides correlations that are dissattenuated. This is because within SRM theoretical variances are estimates and are based on an infinite number of people. However, the computation for the correlation is based on the actual number of targets in the group. This often results in overly small correlations. Thus, correlations are corrected for attenuation by removing their artificial lowering. However, significance testing is calculated on the raw correlations, and so it becomes possible for apparently large correlations to not be significant. When multiple groups are assessed, as is the case in the current study, correlations for each group are calculated and then pooled. The degrees of freedom are the total number of participants minus the number of groups minus one.

Multivariate Correlations. SOREMO also provides estimates for requested multivariate correlations. These are computed in SOREMO through estimations of the covariances of the perceiver and target effects for each variable yielding covariance estimates for perceiver-perceiver, perceiver-target, target-perceiver, and target-target. SOREMO computes the multivariate correlations by dividing the covariance by the square root of the product of the variances that make up the covariance. For example, test 2 of hypothesis 3, which seeks to test the target-target correlation, would be estimated by determining the target-target covariance for the PNI and IIP-SC scales and dividing it by the square root of the product of the variance for the PNI scale and the variance for the IIP-SC scale. The unit of analysis is again the group. The covariance estimate is computed for each group and the mean of these estimates is evaluated using a one-sample t test, which tests if the mean is significantly greater than 0. Tests of covariance are two-tailed.

Data Preparation

Self and peer ratings were initially organized separately using SPSS 18. Peer ratings were organized such that each data set reflected one of the 174 teams. Consistent with other SRM studies the rows for each peer rating data set represented the individuals as perceivers and the columns represented the individuals as targets. Because the data is collected in a round robin each perceiver is therefore paired with each target. Prior to analyses the items assessing the individual's expected peer rating were removed leaving a data matrix for each team that included missing data along the diagonal. Next, scales for the instruments were calculated for each team member based on the perceiver's rating of each target yielding scales for each of $(n - 1)$ team members (i.e. no self-rating scales). For example, for a 4-person team each perceiver was linked to a total of 3 PNI total scales, one derived based on their PNI ratings of each of 3 targets. A similar procedure was followed for the IIP-SC scales such that octant scales were calculated for each perceiver-target pair. These octant scores were then used to calculate scales reflecting dominant and nurturant interpersonal problems as well as profile elevation reflecting the mean octant rating.

Data Cleaning

As a rule the SRM does not allow for missing data. Thus, in order to preserve data, appropriate imputation methods were followed. In addition, because the scales of the IIP-SC are based on sums and not means octant scales cannot be calculated when there is missing data. Thus, for the IIP-SC self-ratings the mean of the corresponding octant scale was used to replace data for missing items if no more than one item per scale was missing. This was necessary for 49 subjects. Subjects missing more than 1 item per scale were subsequently deleted. This was only necessary for 1 subject. The IIP-SC was also investigated for individual items that were excessively missing across individuals. No IIP-SC item had more than .7% or more missing

values. Because the scales of the PNI are based on means it was not necessary to replace missing scores in order to derive a mean scale score. In addition because the scales of the PNI are made up of more items than the IIP-SC a more lenient approach was adopted such that only subjects who were missing more than 2 items per scale were deleted. However, no subject was missing more than 1 item per scale. In addition, no PNI item had 1.5% or more missing values across all individuals. Similar imputation methods were followed for the peer data and targets with a perceiver that did not rate them on more than one item per scale for the IIP-SC were removed from subsequent analyses. This was necessary for two individuals. No targets were deleted when evaluating missing perceiver scores when using the same imputation criterion that was used to evaluate the PNI self-ratings.

From the original sample of 869 participants 6 of them were deleted due to incomplete self-report data. After removing the 1 subject who was missing more than one item on an IIP-SC scale 862 subjects with self-ratings remained. Next, any data sets that had less than 4 participants per group as a result of removing participants due to either missing self-ratings or missing peer ratings was deleted. This was necessary because the SRM requires a minimum of four subjects per group in order to ensure that all the parameters of the model are identified (Warner et al., 1979). This was necessary for 27 different teams and led to the deletion of 115 participants. Next, 115 participants who did not provide peer data or who provided data with no variability in their peer ratings (e.g. members who responded to peer-rating items by entering the same value across all items and across all targets) were removed. In several cases the deletion of these members resulted in a team with less than 4 participants and thus the entire team needed to be deleted. This resulted in the deletion of 27 teams and to the deletion of an additional 104 subjects. Thus the final sample included 528 participants (318 males and 210 females) who were

assigned to 109 groups of between 4 & 7 students each with an average of 4.84 participants per team. The current study thus represents the largest known SRM study to date (Kenny & West, 2010). The participants who remained in the final analyses did not differ from those who were deleted on several important dimensions including: ethnicity, religion, sex, age, and interpersonal distress (elevation). However, individuals who were removed from analyses scores slightly lower on the PNI total score ($M = 3.29$; $SD = .65$) as compared to those who remained in the analyses ($M = 3.38$; $SD = .59$) $t(861) = 2.10$, $p < .05$.

Chapter 5

RESULTS

Overview of Results

The social relations analysis consisted of several steps. First, descriptive statistics were calculated which allowed for the examination of whether self-ratings differed significantly from peer ratings. Second, the dyadic ratings for the PNI total score and the dominance, nurturance, and elevation dimensions of the IIP-SC were decomposed into perceiver variance, target variance, and relationship/error variance. The partitioning of the variance then allowed for subsequent analyses which included an investigation of self-other agreement for the PNI, systematic relationships between interpersonal perception of interpersonal problems and pathological narcissism, and distortions in interpersonal perception associated with pathological narcissism.

Descriptive Statistics.

Mean Level Differences. SOREMO provides descriptive statistics, which are presented in Table 2. This includes the means of all self and dyadic variables. The mean for the self-report measures are also tested to determine if they differ significantly from the mean of the dyadic

variables using group as the unit of analysis. Like peer ratings, the self ratings in an SRM analysis also take into account the self's tendency to rate others (perceiver effect) and how they are perceived by others (target effect) and thus reflects the rater's unique perception of him or herself. Thus, these means are similar, but not exactly the same as means that do not take into account perceiver and target effects. As can be seen from Table 2 individuals rated themselves significantly higher in pathological narcissism than their peers rated them ($M = 3.38$ vs. $M = 2.84$; $t(108) = 15.54$, $p < .001$). Individuals also rated themselves as having significantly more dominant interpersonal problems ($M = .15$ vs. $M = .06$; $t(108) = 4.42$, $p < .001$) and as being significantly more interpersonally distressed in general ($M = -.13$ vs. $M = -.54$; $t(108) = 10.55$, $p < .001$) than their peers rated them. Peers also tended to rate targets as having significantly fewer nurturant problems as compared to how individuals rated themselves ($M = -.01$ vs. $M = -.17$; $t(108) = 6.51$, $p < .001$).

Gender Analyses. For the analysis of gender effects, men were coded with 1 and women were coded with a 0. As can be seen in Table 3 men were significantly more likely to report dominant interpersonal problems ($r = .12$, $p < .01$) and fewer nurturant interpersonal problems than females ($r = -.23$, $p < .01$) when examined from a self-rating perspective. There were no significant differences for self-ratings on the PNI total score or elevation dimension of the IIP-SC. Results of gender differences from a peer-rating perspective are also presented in Table 3 and suggest that males were significantly more likely than females to perceive general interpersonal distress in others ($r = .15$, $p < .01$). Results also suggested that males were significantly less likely than females to be perceived as having nurturant interpersonal problems ($r = -.37$, $p < .001$).

Intercorrelations. The correlation between the PNI total score and the IIP-SC summary dimensions was calculated using self-ratings that account for the perceiver and actor effect are presented in Table 3. These correlations are similar but not exactly the same as correlations that do not take the perceiver and actor effect into consideration. Consistent with previous research (e.g. Cain et al., 2007) the PNI total score was significantly related to the Dominance dimension ($r = .11, p < .05$) and the elevation dimension of the IIP-SC ($r = .49, p < .001$).

Variance Partitioning.

The relative variance partitioning, reliability estimates, and the absolute total variance for the PNI total score and for the IIP-SC dimensions are presented in Table 4. The relative variance components indicate what percentage of each dyadic judgment can be attributed to the perceiver, the target, and to the unique relationship (combined with error variance). Because ratings were completed only once during this study relationship variance was combined with error variance. Thus, it was not possible to conduct significance testing for the relationship variance. Variance components significantly greater than zero ($p < .05$) are indicated with an asterisk. As is the convention in SRM analyses the relative variance components are presented in Table 4. However, significance testing was calculated based on the absolute variance (i.e., relative variance multiplied by the total absolute variance for that variable), which is why some apparently small values may still be statistically significant.

As can be seen in the first column of Table 4 the perceiver accounted for a significant proportion of the variance in dyadic ratings for each of the measured traits. Specifically, the perceiver accounted for 84% of the variance in ratings of the PNI total score. With regards to the IIP-SC dimensions the perceiver accounted for 20% of the variance in ratings of the Dominance dimension, 35% in ratings of the Love dimension, and 84% in ratings of the elevation dimension.

Thus, a significant proportion of the variance in ratings of pathological narcissism and interpersonal problems was accounted for by the perceiver indicating that individuals approached the task of rating others level of pathological narcissism and interpersonal problems through the process of assimilation.

Column 2 of Table 4 reflects the proportion of the variance in dyadic ratings that can be attributed to the target. These results suggest that a smaller, but still significant proportion of the ratings in pathological narcissism and interpersonal problems is accounted for by target indicating that there was significant consensus among peers about who is high and who is low on a given trait. Specifically, the target accounted for 5% of the variance in ratings of the PNI total score suggesting modest, but significant consensus in ratings of pathological narcissism. There was greater consensus for ratings of interpersonal problems and consistent with hypotheses there was greater consensus for dominant interpersonal problems (.34) as compared to nurturant interpersonal problems (.18). Finally, a small but significant proportion of the variance (.03) in the elevation dimension was accounted for by the targets indicating that there was modest consensus across groups regarding who in the group was generally interpersonally distressed and who was generally interpersonally adjusted.

Self-Other Agreement.

Because there was evidence of consensus it was possible to test whether there was self-other agreement for the PNI total score. Consistent with the hypothesis Table 5 suggests that there was modest, but significant self-other agreement for the PNI total score ($r = .14, p < .05$) indicating that individuals who were rated by their peers as being high in pathological narcissism also tended to rate themselves as high in pathological narcissism.

Systematic Relationships Between Interpersonal Perception of Pathological Narcissism and Interpersonal Perception of Interpersonal Problems.

The first test of systematic relationships was to correlate the target effects for the PNI total score with the self-report ratings of the IIP-SC dimensions in order to test the hypothesis that individuals perceived by their peers as high in pathological narcissism would endorse interpersonal problems that spanned the circumplex. In contrast to expectations results presented in Table 5 suggest that individuals who reported general interpersonal distress were not perceived as high in pathological narcissism. Rather, results suggested that it was only individuals who reported problems along the dominance dimension ($r = .25, p < .01$) who were perceived as high in pathological narcissism.

The second test of systematic relationships was a multivariate correlation that involved correlating the target effects for the PNI total score with the target effects for the IIP-SC structural summary dimensions. This tested whether individuals who were rated by their peers as high in pathological narcissism were also rated by their peers as interpersonally distressed, but with greater interpersonal problems along the dominance dimension. As can be seen in Table 6 there was a significant correlation between the PNI total target effect and the dominance dimension target effect ($r = .91, p < .001$) and between the PNI total target effect and the nurturance dimension target effect ($r = .36, p < .01$), but not between the PNI total target effect and the elevation dimension target effect ($r = .04, ns$). Thus, this hypothesis was only partially supported and indicates that peers associated pathological narcissism specifically with dominant and nurturant problems but not with interpersonal problems that spanned the circumplex.

The third test of systematic relationships correlated the self-report of the PNI total score with the target effects for the IIP-SC dimensions in order to determine if peers identify

interpersonal problems in individuals whose self-reports indicate high levels of pathological narcissism. As can be seen in Table 7 there was a significant correlation between the PNI total score self-ratings and the target effect for the IIP-SC dominance dimension ($r = .11, p < .05$) but not for the nurturant dimension ($r = -.02, ns$) or the elevation dimension ($r = .09, ns$). Thus, consistent with the hypothesis peers experienced individuals who rated themselves high in pathological narcissisms as having specific problems with being dominant but not as having nurturant interpersonal problems or problems suggestive of general interpersonal distress.

Distortions in Interpersonal Perception Associated with Pathological Narcissism

Two tests were conducted to investigate distortions in interpersonal perception theoretically associated with pathological narcissism. The first test was to correlate the self-reports of the PNI total score with the perceiver effects of the IIP-SC dimensions in order to investigate if individuals who rate themselves high in pathological narcissism were more likely to be characterized by distorted interpersonal perceptions that include assimilating others as having dominant interpersonal problems. Results presented in Table 8 suggest that there was no association between self-reported pathological narcissism and the tendency to perceive others as having problems along the dominance dimension ($r = .01, ns$). However, an examination of the octant scales of the circumplex suggest that individuals who rated themselves high on the PNI total score tended to perceive others as having domineering problems (PA) ($r = .11, p < .05$) as well as nonassertive problems (HI) ($r = .13, p < .01$) which likely led to the nonsignificant correlation with the dominance dimension. There was also a significant negative correlation between self-reported pathological narcissism and the perceiver effect for the nurturant dimension ($r = -.15, p < .01$) indicating a tendency for individuals high in pathological narcissism to perceive others as having cold problems. Finally, as predicted there was also a

significant correlation between self-reported pathological narcissism and the elevation dimension perceiver effect ($r = .13, p < .01$) indicating that individuals high in pathological narcissism tended to perceive others as generally interpersonally distressed.

The second test of distortion in interpersonal perception associated with pathological narcissism was to correlate the target effects for the PNI total score with the perceiver effects for the IIP-SC dimensions in order to test the hypothesis that individuals who are perceived as high in pathological narcissism tend to perceive others as generally interpersonally distressed, but with problems that are focussed along the dominance dimension. As can be seen in Table 9 this hypothesis was only partially supported as individuals perceived as high in pathological narcissism tended to perceive others as having dominant interpersonal problems ($r = .15, p < .05$) but not as having problems associated with general interpersonal distress ($r = .09, ns$).

Chapter 6

DISCUSSION

Both clinical theory and research support the notion that one important quality of personality disorders is compromised self-awareness and distorted interpersonal perceptions that contribute to social dysfunction (Benjamin & Wonderlich, 1994; Pincus et al., 2009a). However, few studies have taken advantage of the unique abilities of Kenny's (1994) Social Relations Model (SRM) for investigating distortions in interpersonal perception associated with personality pathology. The purpose of the current study was to fill this important gap and to enhance our understanding of interpersonal perception associated with personality pathology. Given that narcissism has been conceptualized as a personality disorder that is particularly susceptible to distortions in interpersonal perception (Klonsky et al., 2002) the current study focused on distortions in interpersonal perception of pathological narcissism and its relation to interpersonal

dysfunction in a large sample of moderately acquainted undergraduate students who completed self and peer ratings in a round-robin design. The SRM was used to partition the variance in interpersonal ratings into perceiver and target variance, which allowed for an investigation of assimilation and consensus in ratings. Because participants provided self-ratings it was also possible to investigate several other important questions associated with interpersonal perception including, self-other agreement in ratings of pathological narcissism, systematic relations in the interpersonal perception of pathological narcissism and interpersonal problems, and finally distortions in interpersonal perception theoretically associated with pathological narcissism.

Mean Level and Gender Differences in Self- and Other-Perception

Understanding who reports more psychopathology has important implications for the interpretation of assessments that incorporate both self and informant ratings. Unfortunately, research to date has been equivocal with regards to who reports more psychopathology (Klonsky et al., 2002). Indeed there are compelling reasons to believe that either may report more psychopathology. For example, as noted by Klonsky et al. (2002) individuals may report more psychopathology given their greater access to internal experiences, but informants may be less biased when describing others socially undesirable traits. Results from the current study suggested that individuals tended to rate themselves higher than their peers rated them on both interpersonal problems and pathological narcissism lending credence to the past research which has suggested that the self may have privileged access to information about private experiences including distressing thoughts and feelings (Andersen, Glassman, & Gold, 1998; Pronin, Kruger, Savitsky, & Ross, 2001; Vazire & Mehl, 2008). Research using SRM analyses have also supported this view and have suggested that people tend to see themselves as more distressed than they see others. For example, Emotional Stability is the only Big Five factor for which there

is self-abasement suggesting that people tend to view themselves as more emotionally unstable and neurotic than they view others (Kenny, 1994). At the same time results from the current study stand in stark contrast to research examining differences in the frequencies of self and other diagnoses which has suggested that narcissism is the diagnoses least likely to be self-diagnosed (Modestin & Puhan, 2000). However, the Modestin and Puhan (2000) study used DSM-III-R criteria to assess NPD, which focus on observable behaviors associated with narcissistic grandiosity (Cain et al., 2008). Given that the PNI assesses overt and covert experiences of both narcissistic grandiosity and narcissistic vulnerability the present findings may suggest that assessments that use the PNI are more likely than DSM based assessments to also capture the internal, and perhaps more distressing experiences of someone high in pathological narcissism.

Results examining gender differences in interpersonal perception found that men were more likely to perceive others as interpersonally distressed and that women tended to be perceived as having more nurturant interpersonal problems as compared to men. These results may indicate that gender based stereotypes are involved in interpersonal perceptions. For example, if females are socialized to be more other oriented and nurturing (Bakan, 1966; Chodorow, 1989; 2004; Eagly, 1987) it follows that if others are to perceive interpersonal problems in females that they would be more likely to perceive nurturant problems. Furthermore, if one gender based stereotype of being female is that they are more nurturing and communal then they may also be more likely to be perceived as approachable and thus to have more positive social experiences leading them to perceive fewer interpersonal problems in others. Indeed, this is consistent with past research which indicates that women generally tend to

evaluate others more positively (Marcus & Lehman, 2002; Srivastava, Guglielmo, & Beer, 2010; Winqvist, Mohr, & Kenny, 1998; Wood, Harms, Vazire, 2010).

Variance Partitioning

Assimilation. In the current study participants were asked to rate their perception of each member of their team's level of pathological narcissism and interpersonal problems. This allowed for the investigation of assimilation which reflects variance between group members in their tendency to view and rate others similarly. Consistent with hypotheses ratings of both pathological narcissism and interpersonal problems were largely a function of who was doing the rating suggesting that individuals approached the task of rating others interpersonal problems and level of pathological narcissism through the process of assimilation. Specifically these results suggest that across groups some people tended to consistently rate others high on a given trait while others tended to consistently rate others low on that trait.

The perceiver variance for ratings of dominant and nurturant problems was .20 and .36 respectively. These results are highly consistent with previous studies that have used the SRM to investigate interpersonal perception based on other circumplex-based measures. For example, using the Impact Message Inventory (IMI) in the context of group therapy Marcus & Holahan (1994) found perceiver variance for the cluster of dominant traits to be .28 and perceiver variance for the cluster of friendly traits to be .36. In a subsequent study Marcus and Leatherwood (1998) investigated the structure of the circumplex in unacquainted, same sex-groups and found perceiver variance for the cluster of dominant traits to be .20 for male groups. There was, however, no evidence of assimilation for dominant traits in the female groups. They also found the perceiver variance for the cluster of friendly traits to be .20 for the male groups and .21 for female groups. The results of the current study are also in line with Kenny's (1994)

review of SRM studies which found the proportion of perceiver variance for a variety of other traits to average around 20%. However, results from the current study also found that perceiver variance accounted for nearly 85% of the variance in ratings of IIP-SC profile elevation. Thus, as compared to perceptions of dominant and nurturant interpersonal problems there was much greater variability in perceiver ratings when examining perceptions of general interpersonal distress. Thus, while some people tended to consistently view others as being quite interpersonally distressed others tended to consistently view others as being quite interpersonally adjusted. Such a result raises the question as to what may lead some people to view others as highly interpersonally distressed and others to not see people the same way. This question will be addressed below when discussing distortions in interpersonal perception.

Like the rating of general interpersonal distress, ratings of pathological narcissism using the PNI total score reached similar levels of perceiver variance suggesting that ratings of pathological narcissism are also largely in the eye of the beholder. The fact that these two global summary scores reached similar levels of assimilation may suggest that too much variability exists across perceivers when their ratings are collapsed into a summary score. It is also possible that the moderate level of acquaintance among raters contributed to the high levels of assimilation found for IIP-SC profile elevation and the PNI total score given that level of acquaintance has been shown to be a significant predictor of assimilation such that low levels of acquaintance are associated with greater perceiver variance (Albright et al. 1988; Kenny et al., 1992). Indeed a multitude of research focusing on level of acquaintance has suggested that strangers are much less capable than close friends in making accurate assessments of other's personality traits (e.g. Colvin & Funder, 1991; Funder & Colvin, 1988; Funder, et al., 1995; Letzring, Wells & Funder, 2007; Paunonen, 1989). Given that the participants in the current

study were only moderately acquainted with one another it would make sense that their judgments of others would be based in part on their own particular ways of perceiving others.

There are two additional explanations that may specifically account for the high perceiver variance associated with the PNI total score. The first relates to the construct of pathological narcissism itself. The measure of narcissism used in this study is meant to capture a more comprehensive and nuanced understanding of pathological narcissism that reflects overt and covert expressions of both its grandiose and vulnerable dysfunction (Pincus & Lukowitsky, 2010). There are thus covert aspects of pathological narcissism captured by the PNI that are likely not easily visible to others and thus people's perceptions of others' pathological narcissism may be highly subjective. Although visibility has not typically been used as a predictor of assimilation, ample research has demonstrated that peers have a more difficult time ratings other's private experiences (e.g., John & Robins, 1993; Oltmans et al. 2004; Vazire, 2010). Thus, as has been argued elsewhere (Dawes, 1990; Funder et al., 1995; Kenny & West, 2010) in the absence of relevant and visible information peers tend to rely on their own idiosyncratic ways of perceiving and ratings others which results in an increase in levels of assimilation.

The high perceiver variance associated with the PNI total score may also be explained in part by Kenny's (1994) theory of the two types of perceiver effects that contribute to assimilation. The *generalized other* interpretation of assimilation developed out of Mead's (1934) work and suggests that people form general and stable perceptions of others based in part on prior interpersonal experiences including early attachment relationships (e.g., Hazan & Shaver, 1987). The origin of the generalized other has also been explained as a function of assumed similarity (Cronbach, 1955; Kenny, 1994; Kenny et al., 1993, Malloy & Albright, 1990), which suggests that the perceiver effect reflects how a person sees him or herself. The

group-stereotype interpretation suggests that people's views of others may also change depending on the group context and as such may reflect a specific expectancy the individual has for the group the person is rating. At the same time these generalized-other and group stereotype theories are not mutually exclusive and both effects may operate simultaneously. For example, people may have come into a group with a preexisting expectation of others which may consolidate into a group-specific stereotype as people come to know their group members resulting in even greater levels of perceiver variance (Srivastava, et al., 2010). Consistent with these theories it is possible that individuals in the current study, who were high in pathological narcissism, rated others as equally high on the PNI based on preexisting schemas that include the belief that others share the same narcissistic motivations that they do. Indeed preliminary research does suggest that individuals who rate themselves high in pathological narcissism also tend to perceive others as high in pathological narcissism (Lukowitsky & Pincus, 2010). This generalized expectation of others may have further solidified as they engaged with group members in the ego-involving task of working with their peers to develop a successful business, which led to a group specific stereotype that "they are all narcissists".

Consensus. The current study also raised the question of whether moderately acquainted individuals were able to reliably detect interpersonal problems and narcissistic traits in others. As evidenced by the significant target variance for both pathological narcissism and all three IIP-SC summary dimensions group members were able to reach statistically significant levels of consensus with one another in their judgments of others level of narcissism and interpersonal problems. While a much smaller proportion of the variance in interpersonal judgments of both interpersonal problems and pathological narcissism was attributed to the target as compared to the perceiver, the proportions were not insignificant suggesting that participants were able to

reliably detect pathological personality traits in others. While it is notable that participants in the current study were able to reach significant levels of consensus given the fact that they had relatively limited interactions with one another, these results are consistent with past research which has demonstrated that untrained individuals are able to reliably detect pathological personality traits in others even on the basis of minimal information (Klonsky et al., 2002; Mahaffey & Marcus, 2006; Oltmanns et al., 2004; Thomas et al., 2003).

Consistent with hypotheses participants in the current study reached relatively greater levels of consensus regarding other's dominant problems as compared to nurturant problems. These results may speak to the visibility of dominant problems over nurturant problems given past research that has demonstrated greater consensus for traits that are highly visible compared to traits which are less visible (Funder, 1980; Funder & Colvin, 1988; Funder & Dobroth, 1987; Hayes & Dunning, 1997; Paunonen, 1989; Vazire, 2010; Watson et al., 2000). For example, research focusing on the Big Five personality factors has suggested that Extraversion is the most visible Big Five trait while Agreeableness is the least visible and consistently finds the greatest level of consensus for the trait of Extraversion and the lowest level of consensus for the trait of Agreeableness (Kenny et al. 2001; John & Robins, 1993). The results of the current study may thus suggest that dominant interpersonal problems are more visible than nurturant ones given that extraversion and Agreeableness are the two five factor traits that most strongly correspond to the dominance and nurturance dimensions of the interpersonal circumplex, (McCrae & Costa, 1998b; Wiggins & Trobst, 1997).

Low visibility may have also interacted with acquaintance to further reduce consensus for the nurturance dimension in addition to elevation and the PNI total score. Indeed research has suggested an interacting effect for low levels of acquaintance and visibility. For example, both

Neuroticism and Agreeableness, two traits with low visibility show even lower levels of agreement when there are also low levels of acquaintance (Albright et al., 1988; Kenny, 1994). Thus, these previous findings on the interaction between visibility and acquaintance offer additional reason for the modest levels of consensus found in ratings of interpersonal distress, pathological narcissism, and nurturant interpersonal problems given the moderate level of acquaintance among peers and the potentially low visibility of the traits being measured in the current study.

Self-other Agreement

Given that there was evidence of consensus in ratings of pathological narcissism it was possible to investigate self-other agreement using the PNI. The current study utilized the SRM approach for investigating self-other agreement, which accounts for the perceiver effect, or one's propensity to perceive and rate others. What remains reflects the target's tendency to elicit a particular rating over and above the perceiver's general tendency to rate others. The SRM approach for investigating self-other agreement may therefore be considered to be a more precise method than other approaches for investigating self-other agreement (Kenny, 2004). Consistent with the hypothesis there was modest yet significant self-other agreement for the PNI total score indicating that individuals who rated themselves high in pathological narcissism were more likely to be perceived by their peers as high in narcissism. As noted above, previous research investigating self-other agreement in ratings of narcissism has focused on the assessment of narcissistic grandiosity. Results from the current study are the first to present self-other agreement data on a measure of narcissism that comprehensively assesses the full range of narcissistic pathology thus adding to our knowledge about the relationship between self and other perceptions of both narcissistic grandiosity *and* narcissistic vulnerability. The modest but

significant relationship between self and other ratings in the current study suggests that despite the compromised self-awareness typically associated with narcissism (Dimaggio et al., 2007; Oltmanns et al., 2005) individuals high in pathological narcissism have some awareness of their narcissistic traits and how others perceive them. These results are thus consistent with other research that has demonstrated greater levels of self-other agreement with increasing levels of psychopathology (e.g., Coolidge et al., 1995; Mahaffey & Marcus, 2006; Soldz et al., 1995).

Although a few studies have used the SRM to investigate interpersonal perception of clinical phenomenon (e.g., Christensen, et al., 2003; 2004; Marcus & Askari, 1999), the current study represents the first SRM study to investigate self-other agreement of a pathological personality trait in a nonclinical sample. The only other study to use the SRM to study a pathological personality trait was the Mahaffey and Marcus (2006) study which investigated interpersonal perception of psychopathy using a sample of well-acquainted, male, sex offenders who were court ordered to attend group psychotherapy. That study reported self-other agreement between self-ratings on the total score on the Psychopathic Personality Inventory (PPI; Lilienfeld & Andrews, 1996) and an abridged peer-rating version of the PPI to be .58. However, as noted by the authors, strong evidence of self-other agreement in that study was not surprising given that those individuals were in group psychotherapy and were presumably working to raise awareness of their own and each other's psychopathic tendencies. As such the current study contributes to the SRM literature by providing information regarding self-other agreement of pathological traits within a moderately acquainted, mixed-sex, nonclinical sample.

Comparing the magnitude of the self-other correlation (.14) with the level of consensus (.05) for the PNI reveals that the level of self-other agreement was relatively greater than the level of consensus. While the relative target variance is not exactly a correlation, the absolute

target variance divided by the total absolute variance (relative variance) estimates the correlation for a design in which a target is judged by a different pair of perceivers (Kenny, 1994). The relative difference in magnitude between self-and peer-ratings in the current study stands in contrast to other research which has shown that peers typically agree more with each other than they do with the self (Coolidge, et al., 1995; Kenny, 1994; Modestin & Puhon, 2000). One possible explanation for the divergence in this study may relate to the variability in behavior that is often associated with personality disorders including narcissism (Pincus et al., 2010). For example, many clinical experts on NPD agree that grandiose self-states often oscillate or co-occur with vulnerable self-states (Horowitz, 2009; Kernberg, 2009; Pincus & Lukowitsky, 2010; Ronningstam, 2009). As such it is possible that peers may have experienced individuals high in pathological narcissism during different self-states leading to modest agreement between peers about the target. For example, while group members generally spent equal amounts of time with one another it is likely that smaller networks (Clifton et al., 2007; 2009; Scott, 2000) developed within the group leading some peers to be more aware of an individual's grandiose states while others became more aware of the individual's vulnerable self-states. Thus, if the individual high in pathological narcissism endorsed items consistent with both narcissistic grandiosity and narcissistic vulnerability there could have been convergence with either peer leading to self-other agreement despite more modest peer-peer agreement.

Finally, the magnitude of the self-other agreement value could have been affected by the same factors that affected consensus and assimilation. For example, the trait visibility effect (Albright et al., 1988, Funder & Colvin, 1988; Funder & Dobroth, 1987; Kenrick & Strignfield, 1980, Vazire, 2010; Watson, 1980; Watson & Clark, 1991; Watson et al., 2000) and the acquaintance effect (Funder & Colvin, 1988; Norman & Goldberg, 1966; Vazire, 2010; Watson

& Clark, 1991; Watson et al., 2000) have also been shown to be important moderators of self-other agreement. The more modest level of self-other agreement for pathological narcissism found in this study as compared to the median level of self-other agreement reported by Klonsky et al. (2002) for the diagnosis of NPD may therefore reflect the notion that the PNI assesses both overt and covert aspects of pathological narcissism while the diagnosis of NPD as assessed by the DSM focuses strictly on observable behaviors (Cain et al., 2008). Thus, low visibility of some aspects of the PNI and moderate acquaintance between peers may have also moderated the level of self-other agreement found in the current study. Despite all of these potential attenuating factors it is thus all the more impressive that there was significant convergence between self and peers in their ratings of pathological narcissism.

Systematic Relationships

Overall, results investigating systematic differences in the interpersonal perception of pathological narcissism and interpersonal problems supported hypotheses and suggested that peers tended to perceive individuals high in pathological narcissism in ways that systematically differed from the way individuals high in pathological narcissism viewed themselves. Consistent with previous research (e.g. Cain et al., 2007) individuals high in pathological narcissism tended to report a range of interpersonal problems indicative of general interpersonal distress with problems that were modestly focused along the dominance dimension. In contrast, three different tests using the SRM suggested that peers generally tended to associate pathological narcissism in others with a more limited range of interpersonal problems associated almost exclusively with dominant interpersonal problems and not with general interpersonal distress. For example, the correlations between the self-ratings on the PNI and the target effects of the IIP-C suggested that individuals who reported being high in pathological narcissism tended to be perceived by their

peers as having dominant interpersonal problems but did not tend to be perceived as interpersonally distressed. Similarly, individuals whose self-reports indicated general interpersonal distress were not perceived by peers as being particularly high in pathological narcissism, rather it was only those individuals who reported having dominant interpersonal problems who tended to be perceived as being high in pathological narcissism. Finally, correlating the target effects of pathological narcissism with the target effects of interpersonal problems suggested that individuals who were perceived as high in pathological narcissism were perceived as having dominant as well as nurturant interpersonal problems but, again not as interpersonally distressed.

Systematic differences in interpersonal perception associated with pathological narcissism can thus be understood as a mismatch between self and other in their perception of narcissistic traits and may derive from several potential sources. One possible source of discrepancy associated with interpersonal perception of pathological narcissism may relate to the type of information that is available to the self as compared to others. For example, the PNI was designed to assess overt and covert aspects of pathological narcissism and thus it is likely that when providing self-ratings individuals relied on both their overt behaviors as well as their internal, covert experiences. In contrast, it would be expected that when rating others levels of pathological narcissism peers relied more on overt expressions of pathological narcissism given their greater visibility. Thus, while covert experiences of some aspects of pathological narcissism may be associated with a range of interpersonal problems that are associated with general interpersonal distress, peers may not be privy to some of those covert, internal experiences. Indeed, the angry outbursts and interpersonally exploitive acts which are often used by the narcissist to compensate for feelings of distress or inadequacy may mask their covert conflicts thereby making it difficult for others to identify the full extent of their interpersonal distress. As

such, rather than perceiving individuals high in pathological narcissism as also high in general interpersonal distress, the defensive and self-enhancing strategies employed by the narcissist would be expected to lead peers to be more likely to perceive a more limited range of problems associated with being interpersonally dominant.

Systematic differences in interpersonal perception associated with pathological narcissism may also stem from the narcissist's lack of insight regarding how those defensive and self-enhancing strategies are perceived and experienced by others in the interpersonal situation. To take one example, from a self-rating perspective an individual high in pathological narcissism who endorses items on the PNI associated with the scale Self-Sacrificing Self-Enhancement might believe that their acts to "help" others lead to problems with being overly friendly. They may therefore be likely to also endorse items on the IIP-SC associated with the scale Overly Nurturant (LM). However, others may recognize the self-enhancing motive behind their behaviors and thus rather than experiencing them as helpful may perceive them as overbearing and interpersonally dominant. Moreover, these differences in interpersonal perception may lead the narcissist to feel misunderstood leading to acts of rage that exacerbates their sense of general interpersonal distress all the while providing others with further evidence of their dominant problems. Thus, in addition to leading to modest levels of self-other agreement, systematic differences in interpersonal perception may also be a contributing factor that gives rise to the types of interpersonal difficulties associated with pathological narcissism. In sum, these tests of systematic differences in interpersonal perception converge to suggest that individuals high in pathological narcissism tend to view themselves in ways that systematically differ from the way they are perceived by others. These systematic differences may derive in part from differences in

what is accessible to self and others as well as distorted beliefs about the self and the self in relation to others

Distortions in Interpersonal Perception Associated with Pathological Narcissism

The current study also investigated and found evidence of distorted beliefs and perceptions of others. While assimilation is a common finding in investigations of interpersonal perception (Kenny, 1994) the current study proposed that a greater tendency to assimilate others as having interpersonal problems would be indicative of a distortion in interpersonal perception associated with pathological narcissism. Two interrelated tests were conducted to explore potential distortions in interpersonal perception theoretically associated with pathological narcissism that may have also led to systematic differences in interpersonal perception including modest self-other agreement. The first test asked whether individuals who rated themselves high in pathological narcissism would be more likely to perceive others as generally interpersonally distressed, in addition to perceiving greater dominant interpersonal problems in others. The second test explored the same question but from a slightly different angle by asking whether individuals who were perceived as high in pathological narcissism would also tend to perceive others as generally interpersonally distressed as well as with significant dominant interpersonal problems. Overall, the results supported these hypotheses and suggested that individuals high in pathological narcissism tended to assimilate others according to a rather rigid set of assumptions about others. This distortion in interpersonal perception is consistent with nearly all theoretical descriptions of personality disorders which argue that individuals with personality disorders tend to hold a unidimensional representation and simplistic perception of others which often results in them misperceiving and misinterpreting the intentions of others (Westen & Heim, 2009).

The finding that pathological narcissism was statistically associated with a tendency to perceive others as interpersonally distressed is consistent with recent research investigating dispositional correlates of perceiver effects which found that individuals with personality disorders as rated by the MCMI-III and narcissism as measured by the NPI-16 were associated with perceiving others less positively (Wood et al., 2010). Those individuals were also more likely to report being more depressed and less satisfied with their lives and were liked less by their group members suggesting that individual differences in interpersonal perception can serve as an important indicator of psychopathology (Wood et al., 2010). The finding from the current study indicating a statistically significant tendency to perceive others as having interpersonal problems may also reflect a projection on the part of the narcissist that others' difficulties are the source of their problems and misery. A belief that others are to blame for their problems may subsequently lead them to feel justified in their aggression and exploitative acts and may help to explain why peers would tend to view them as interpersonally dominant.

The tendency for individuals high in pathological narcissism to assimilate others as having dominant problems may be indicative of their sensitivity to themes of status and their heightened vigilance to others' dominant behaviors (Campbell, et al. 2000). This is likely to be particularly the case in an ego-involving situation such as in the current study where students needed to negotiate with teammates who may have had different ideas about how to best beat their competitors on the computer simulation. While there was a nonsignificant correlation between the self-reports on the PNI and the perceiver effects for the dominance dimension an examination of the correlations at the octant level suggested that there was a significant correlation between self-ratings on the PNI and the domineering octant (PA) as well as the nonassertive octant (HI) which likely negated the significant correlation at the summary level.

However, the finding that individuals high in pathological narcissism tended to perceive and assimilate others as both domineering and nonassertive continues to support the assertion that individuals high in pathological narcissism are highly sensitive to themes of status and may specifically suggest that they hold a view of others as either submitting to their entitled expectations or competing for their dominant status. Results from the current study also suggested that individuals who rated themselves high in pathological narcissism tended to perceive others as having interpersonal problems associated with being cold and distant. While this was not hypothesized a priori it is consistent with theoretical assertions that narcissism reflects a defensive reaction to feelings of rejection (Kohut, 1971; 1977). It is also consistent with recent research which links pathological narcissism with early maladaptive schemas that reflect the expectation that needs for security, safety, stability, nurturance, and acceptance will not be met (Zeigler-Hill, Green, Arnau, Sisemore, & Meyers, 2011) and with a recent study that used the Actor Partner Independence Model (APIM, Kenny, et al., 2006) and found that pathological narcissism was associated with perceiving others as cold and cold-dominant (Wright, Pincus, & Conroy, 2010).

Together these tests of interpersonal distortion may help to explain what contributes to systematic differences in interpersonal perception associated with pathological narcissism including low self-other agreement. For example, if individuals high in pathological narcissism tend to hold an over-simplified representation of others such that they distort and assimilate the behaviors of others as consistently domineering then it is likely that they will misperceive the intentions of others as a threat and as attempting to usurp their own sense of superiority and dominance. This would be expected to lead to inappropriate responses that include, for example, narcissistic rage or other exploitative acts that maintain their interpersonal difficulties and lead

others to experience them as having primarily dominant interpersonal problems. Similarly, if they assimilate others as submissive then they may also use that perception as an opportunity to further demonstrate their status. However, individuals with pathological narcissism may also later come to experience their narcissistic acts with shame, depression, and anxiety and distress leading them to report experiences of general interpersonal distress (Pincus, et al., 2009; Tritt, Ryder, Ring, & Pincus, 2010). Still at other times they may feel justified in their behaviors and thus their egocentrism and entitlement may compromise their awareness of how others perceive them resulting in low self-other agreement in ratings of their personality.

Clinical and Research Implications

Assessment. The findings from this study have important implications for the assessment of pathological narcissism. Broadly these results support previous arguments that advocate for multimethod assessments that integrate self- and peer-perceptions (e.g., Achenbach, Krukowski, Dumenci, & Ivanova, 2005; Clark, Livesley, & Morey, 1997; Grove & Tellegan, 1991; Klonsky, et al., 2002; Kraemer, et al., 2003; Meyer et al., 2001; Srivastava et al., 2010; Westen & Shedler, 1999; Zimmerman, 1994). For example, the modest self-other agreement in ratings on the PNI suggest that while individuals have some awareness of their narcissistic traits there are also aspects of their personality that they are less aware of and which are perhaps better ascertained from peers. In support of this the results on systematic differences tell us that whereas individuals with pathological narcissism tend to report a range of interpersonal problems, peers tend to perceive primarily dominant interpersonal problems. This does not mean to suggest that narcissistic individuals do not *experience* general interpersonal distress. Indeed data collected from self-assessments are undeniably an important source of information and provide information about the self that is not known and perhaps cannot be known to others (Pronin, et

al., 2001; Vazire & Mehl, 2008). However, the discrepancy in self and peer ratings does suggest that the distress experienced by individuals high in pathological narcissism is perceived differently by others. Understanding how others perceive the target is perhaps particularly relevant to the assessment of pathological narcissism given research that suggests that the behaviors of narcissists also contribute to problems and distress for those with whom they interact (Miller, et al., 2007).

The results from the current study also speak to the importance of assessing individual's perceptions of others. Most assessments ask individuals to rate or describe their understanding of their own problems or personality. Fewer ask individuals to describe others in their lives despite the fact that numerous personality and clinical theorists from a variety of orientations have suggested that a person's perception and representation of others may provide equally important information about the individual (Beck, Freeman, & Davis, 2004; Clarkin, Yeomans, Kernberg, 2006; Laing, 1967; Mischel & Shoda, 1995; Reis, 2008; Wood et al., 2010). The results from the current study suggest that collecting ratings of an individual's perception of multiple others and focusing on the correlates of those perceiver effects can provide important information about a person's typical way of perceiving others. While investigations of the correlates of perceiver effects are not unique, most have limited their research to convergent correlations in order to investigate issues of assumed similarity. The current study suggests that investigating divergent correlations (i.e. correlating self-ratings on the PNI with perceiver effect of IIP-SC dimensions) can also be used as an important assessment tool that may be used to understand distortions in perceptions of others associated with psychopathology. The present research thus contributes to a burgeoning area of research which has begun to investigate the dispositional correlates of perceiver effects (Srivastava et al., 2010; Wood et al., 2010) and suggests that an assessment that

includes an understanding of a person's general tendency to perceive or judge others contributes important information to a multimethod assessment.

Treatment. A complete assessment that includes perceptions of others and by others may also have implications for developing a successful treatment plan and for providing a client with interpersonal feedback (Marcus, 2006). For example, one important goal of treatment with individuals with narcissistic pathology may be to help them develop more awareness of their distorted interpersonal perceptions. This could involve helping them understand how their behaviors are perceived by others, how other's perceptions contrast from their self-perceptions, and finally to explore the source of that disconnect with the goal of modifying their beliefs and behavior such that their self-perceptions become more congruent with the perceptions of those around them. Results from the current study also suggest that a successful treatment would be one that helps patients understand their tendency to assimilate other's interpersonal behaviors according to a rigid stereotype that others are there to submit to their status or alternatively are a threat to their sense of status and/or are both cold and distant. Such explorations may help them develop a more nuanced and empathic understanding of others interpersonal motives leading to less interpersonal distress.

Research. The results from the current study demonstrating significant self-peer agreement also provide further validation of the PNI. Ratings provided by peers have often been used to support the external validity of self-ratings (e.g. Watson & Clark, 1991). While peers are certainly not without personal biases and do not represent objective reality, their ratings of others have been shown to be accurate predictors of important outcomes and thus a valid indicator of convergent validity (Fiedler et al., 2004; Oltmanns et al., 2004; Ozer & Benet-Martínez, 2006; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). The fact that moderately acquainted peers

reached a statistically significant level of consensus on who in their group was high and who was low in pathological narcissism further attests to the validity of the PNI and suggests that self-other agreement would likely increase if self-ratings were compared to informants such as relatives, close friends, romantic partners, or trained clinicians who, in comparison to moderately acquainted peers, are likely to be a better judge and to have more information about another's internal traits and experiences (Vazire, 2010).

The strong evidence of perceiver variance suggests that researchers would be well advised to give greater consideration to the role of perceiver effects when incorporating observer ratings into a multimethod assessment or when validating instruments by correlating them with peers' ratings. The general finding that perceiver variance accounts for at least 20% of the variance in interpersonal ratings (Kenny, 1994) suggests that researchers must take into consideration the fact that peer's perceptions of others are not based strictly on the target's behavior and that a large proportion of the variance in their ratings stems from the perceivers idiosyncratic ways of judging others. By not accounting for perceiver effects researchers run the risk of attributing more to the target than might be warranted. An additional practical consideration of not accounting for perceiver effects when using peer ratings to validate an instrument is that it may actually underestimate the validity of an instrument because the validity coefficients would be attenuated by the large perceiver variance (Mahaffey and Marcus, 2006). Having multiple perceivers rate multiple targets in order to estimate the proportion of perceiver variance helps to alleviate this problem.

Limitations & Future Directions

The results of this study are tempered by several important limitations. First, the sample consisted of a mostly homogenous group of individuals. Hence, the results of this study may not

generalize to other ethnic, cultural, and age groups. Future studies with a more heterogeneous sample are clearly warranted. The current study also focused on moderately acquainted, senior level business students working together in an ego-involving context that was likely psychologically relevant to individuals high in pathological narcissism. However, more research is needed to understand whether these effects would generalize to other contexts. For example, research using the SRM to explore interpersonal perception in the context of group psychotherapy has provided both practical and theoretical implications for the treatment of patients (Mahaffey & Marcus, 2006; Marcus, 2006; Marcus et al., 2001; Marcus & Holahan, 1994; Marcus & Kashy, 1995; Markin & Kivlighan, 2008). It would thus be interesting to learn more about the processes involved in assimilation, consensus, and self-other agreement of pathological narcissism and interpersonal problems in the context of group therapy. Additional theoretically meaningful contexts and populations for investigating interpersonal perception of pathological narcissism and interpersonal problems could include family members, superiors versus subordinates, and strangers.

While there are important advantages to using the SRM there are also some important limitations. The primary limitation of the SRM is its limited flexibility in analyzing data. For example, in order for the model to be identified it does require that each group in an SRM analysis include a minimum of 4 participants. As a result there were several groups in the current study that needed to be removed from the analyses as a result of one or more participant within the group having either missing data or ratings that lacked variability. Unfortunately, in several cases this also led to the deletion of participants with complete data. Although SRM analyses have been extrapolated to allow for missing data (e.g. Snijders & Kenny, 1999) these techniques

are still being developed and have some notable limitations that currently make them not optimal for use (Kenny et al., 2006).

Researchers have also criticized the interpretation of assimilation in SRM studies as being nothing other than a methodological artifact that simply reflects a response set and a tendency for some perceivers to assign large numbers when rating others and other perceivers to rely on the low end of a scale when assigning ratings to others (Kenny, 1994). This also relates to the notion of acquiescence which has also been raised as a limitation of the interpretation of assimilation (Block, 1965; McCrae, personal communication, 2010). Many psychometricians have recommended that researchers use balanced keys to circumvent response set by keying half the items in the positive direction and the other half in the negative direction (Angleitner & Riemann, 1991; McCrae, Herbst, & Costa, 2001). Other researchers have attempted to control for response bias by ipsatizing participant's scores. While such an approach does control for acquiescence it also reduces genuine perceiver variance and may be an overly conservative approach (Marcus & Leatherwood, 1998). While acquiescence is certainly a concern in all studies, Kenny (1994) notes that in investigations that have controlled for acquiescence by using balanced keys a significant amount of perceiver variance remains indicating that acquiescence alone cannot be used to explain individual differences in interpersonal perceptions. Furthermore a recent study by Srivastava et al. (2010) using confirmatory factor analyses supported a multidimensional structure of perceiver effects over an acquiescence only model as well as a single global evaluation factor implying that perceiver effects cannot be strictly interpreted as acquiescence or a global tendency to perceive others as "all good" or "all bad". This conclusion was also generally confirmed by Wood and colleagues (2010) who, while acknowledging the possibility of a global evaluation factor in their dataset also found that it correlated with a host of

variables that were not likely subject to scale use bias such as height and G.P.A. They thus concluded that perceptions of positivity were not entirely driven by scale-use differences. In spite of this, future research on interpersonal perception may consider the use of balanced keys in order to rule out the possibility of response set bias.

Another limitation is the present study's focus on the domain level of the traits being assessed. While there are advantages for staying at the domain level in terms of ease of interpretation it also runs the risk of missing important and nuanced information. For example, the finding that individuals high in pathological narcissism did not assimilate individuals as dominant masked the fact those individuals perceived others as both domineering and nonassertive. Such a finding is not only theoretically meaningful but neglecting to examine lower order factors potentially leads to the presentation of type II errors. The current study also relied on results based off of the PNI total score and extrapolated those findings in order to make conclusion about the role of narcissistic grandiosity and narcissistic vulnerability. While these two higher order factors of the PNI are highly correlated they do have theoretically distinct implications for the assessment of pathological narcissism (Pincus & Lukowitsky, 2010; Wright et al., 2010). Future research would certainly benefit from an investigation that moved beyond the domain level of the IIP-SC and the total score of the PNI in order to clarify the relationship between interpersonal perception of interpersonal problems at the octant level and interpersonal perception of pathological narcissism at both the first order and higher order factors.

The present study's focus at the domain level of the traits being assessed was also used as one potential explanation for the high perceiver variance that was found for ratings of the PNI total score and the IIP-SC elevation dimension. However, it is also possible that the use of a nonclinical sample made it difficult for peers to identify pathological traits in others resulting in

a greater proportion of the variance being accounted for by the perceiver's unique perceptions of the target. Thus, the large perceiver variance in comparison to target variance in the current study may tell us more about how people perceive pathological narcissism than about individuals high in pathological narcissism. While, the PNI was designed to be a dimensional measure of pathological narcissism it is possible that a study that sampled from a clinical population would have resulted in a greater proportion of target variance making future research with a clinical sample clearly warranted.

The current study also only provides results from cross-sectional data. Using the SRM to analyze longitudinal data has several important advantages. First, if participants interact with the same group members at multiple time points it allows for the separation of the relationship variance from error variance and thereby allows for investigations of relationship effects. Moreover, an SRM analysis of longitudinal data could investigate the stability of perceiver and target effects. Thus far, a limited number of studies have investigated the stability of the perceptions of others and have reported mixed findings. For example, Malloy, Sugarman, Montvilo, and Ben-Zeev (1995) reported low levels of one-year stability among elementary-school aged-children while Wood et al., (2010) reported much higher levels of one-year stability among undergraduate students. Finally, Srivastava et al., (2010) found moderate levels of stability among undergraduate students over the course of one month. Investigations of the stability of an individual's tendency to perceive others in a consistent way raises several interesting questions that may have important implications for the investigation of personality disorders including pathological narcissism. For example, do peers consistently perceive individuals high in pathological narcissism as having dominant problems or do their perceptions oscillate along with the narcissist's self-state? Are the perceptions of individuals high in

pathological narcissism trait-like or do they also oscillate with self-states? Findings from investigations examining perceiver effects over time could also enhance our understanding on the development of group-specific versus generalized other stereotypes (e.g., Srivastava et al., 2010). Finally, SRM investigations that include longitudinal data may also be helpful in developing our understanding of the causal direction in the relationship of interpersonal perception. For example, results from the current study cannot answer questions such as whether consistent perceptions of others as dominant leads one to become more narcissistic or whether narcissism leads one to perceive others as more dominant. Such longitudinal investigations could prove to be an important area of future research for understanding the development of pathological narcissism.

Finally, investigations of self-other agreement inevitably lead to the question of whose data is more accurate and valid. A wealth of research on this matter has now suggested that neither source is the “expert” in all cases and that it largely depends on the trait being evaluated as both self and peer ratings have been shown to be important and accurate predictors of behaviors (Fiedler et al., 2004; Kolar et al., 1996; Oltmanns, & Turkheimer, 2009; Vazire, 2010). Future research investigating the predictive validity of self versus peer ratings of pathological narcissism and interpersonal problems is thus warranted in order to enhance our understanding of what each perspective knows about the target. Future research might use such potential criterion as G.P.A., success in the company, IQ, or observations made by clinicians using other valid assessments of pathological narcissism such as the Diagnostic Interview for Narcissism (DIN; Gunderson, Ronningstam, & Bodkin, 1990).

Conclusions

The results of the current study bring us closer into the interpersonal world of individuals high in pathological narcissism. Although perceptions of pathological narcissism and interpersonal problems were largely in the eye of the beholder, individuals were still able to reach modest levels of consensus regarding who in their group was high and who was low on a particular trait. The current study is the first to look at self-other agreement on a measure of narcissism that assesses both narcissistic grandiosity and narcissistic vulnerability and thus not only provides additional validity of the PNI but also greatly enhances our understanding of the way individuals high in pathological narcissism view themselves and how they are perceived by others. While the level of agreement between self and others on the PNI was mostly consistent with past research, this study moved beyond focusing strictly on self-other agreement by investigating systematic differences in interpersonal perception of pathological narcissism and interpersonal problems. Results investigating systematic differences in interpersonal perception suggested that individuals with pathological narcissism tend to view themselves in ways that systematically differ from those around them. Finally, results from the current found evidence of distortions in interpersonal perception theoretically associated with pathological narcissism and were understood as potentially contributing to the development of systematic differences in interpersonal perception. Finally, it is noted that these findings are enhanced by the use of Kenny's (1994) Social Relations Model which presents a sophisticated method and statistical model that allows for the investigation of nonindependent data which occurs when data is collected in a round-robin design. In sum these results echo earlier calls for the advantages of multimethod assessments of personality which include an understanding of how individuals with personality pathology perceive themselves, others, and in turn how they are perceived by others.

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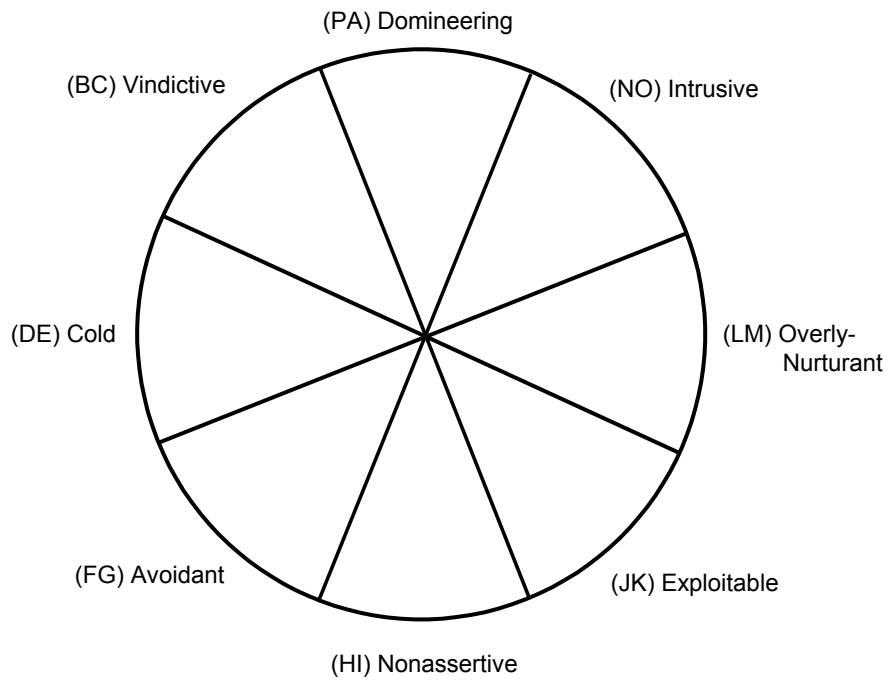
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Appendix A

Figure 1: Interpersonal Problems Circumplex



Appendix B

Table 1. Summary of Hypotheses, Tests, Expected Results, and Interpretation of Results.

Hypothesis	Test	Expected Result	Interpretation
1. Significant SRM Variance Components	1. Evaluate PNI total score perceiver variance.	Perceiver variance for PNI total score significantly greater than zero.	Assimilation - Some people tend to consistently rate others as high in pathological narcissism while others tend to consistently rate others as low in pathological narcissism.
	2. Evaluate PNI total score target variance.	Target variance for PNI total score significantly greater than zero.	Consensus - Some people tend to consistently be seen by others as more pathologically narcissistic while others tend to consistently be seen as less pathologically narcissistic.
	3. Evaluate IIP-SC perceiver variance.	Perceiver variance for IIP-SC summary dimensions (DOM, LOV, ELEV) significantly greater than zero.	Assimilation - Some people tend to consistently rate others high on an interpersonal dimension (e.g. domineering) while others tend to consistently rate others low on an interpersonal dimension (e.g. domineering).
	4. Evaluate IIP-SC target variance.	Target variance for IIP-SC summary dimensions (DOM, LOV, ELEV) significantly greater than zero.	Consensus - Some people are consistently more likely to be seen as high on an interpersonal dimension (e.g. domineering) while others tend to consistently be seen as low on an interpersonal dimension (e.g. domineering).

Hypothesis	Test	Expected Result	Interpretation
2. Modest Self-other Agreement for Pathological Narcissism	1. Correlate self-reports of PNI total score with target effects for PNI total score.	Modest significant and positive correlation between self-ratings of PNI total score and target effect for PNI total score.	Modest agreement between self and others in ratings of pathological narcissism.
3. Systematic Relationships Between Interpersonal Perception of Pathological Narcissism and Interpersonal Perception of Interpersonal Problems	1. Correlate target effects for PNI total score with self-reports of IIP-SC dimensions.	Significant positive correlation between the target effects for the PNI total score and self-reported IIP-SC profile elevation.	Individuals perceived as high in pathological narcissism report significant levels of general interpersonal distress.
	2. Correlate target effects for PNI total score with target effects for IIP-SC dimensions.	Significant positive correlation between target effects for PNI total score and target effects for IIP-SC profile elevation and a strong correlation with the dominance dimension.	Individuals perceived as high in pathological narcissism perceived as having general interpersonal distress with greater dominant interpersonal problems.
	3. Correlate self-reported PNI total score with target effects for IIP-SC dimensions.	Significant positive correlation between self-reported PNI total score & target effect for IIP-SC dominance dimension.	Individuals who report pathological narcissism perceived by others as having dominant interpersonal problems.

Hypothesis	Test	Expected Result	Interpretation
4. Distortions in Interpersonal Perception Associated with Pathological Narcissism	1. Correlate self-reports of PNI total score with perceiver effects of IIP-SC dimensions.	Significant positive correlation between self-reported PNI total score and perceiver effect for IIP-SC dominance dimension.	Individuals who report pathological narcissism assimilate others as domineering.
	2. Correlate target effect of PNI total score with perceiver effect of IIP-SC dimensions.	Significant positive correlation between target effect for the PNI total score and perceiver effects for both IIP-SC profile elevation and dominance dimension.	Individuals perceived as high in pathological narcissism see others as having interpersonal problems that span the circumplex but with greater dominant interpersonal problems.

Table 2. *Mean Level Differences in Self- and Other-Perception*

Scale	Self <i>M</i>	Other <i>M</i>	<i>T</i>
PNI			
Total	3.38	2.84	15.54***
IIP-SC			
Dominance	.15	.06	4.42***
Love	-.01	-.17	6.51***
Elevation	-.13	-.54	10.5***

Note. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex.

*** $p < .001$.

Table 3. Scale *Correlations and Gender Effects*

Scale	1	2	3	4	5	Gender Perceiver Effect	Gender Partner Effect
1. PNI Total	-					.00	-.08
2. IIP-SC Dominance	.11*	-				.05	.06
3. IIP-SC Love	.06	-.05	-			-.02	-.37***
4. IIP-SC Elevation	.49***	-.01	.04	-		.15**	-.06
5. Gender	-.08	.12**	-.23**	.03	-	-	-

Note. Males coded with a 1 and females coded with a 0.

PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4. *Relative Variance Partitioning for Dyadic Variables for the PNI Total and IIP-SC Dimensions*

Scale	Perceiver Variance	Target Variance	Relationship/ Error Variance	Total Absolute Variance
PNI				
Total	.84* (.96)	.05* (.61)	.11	.58
IIP-SC				
Dominance	.20* (.61)	.34* (.73)	.46	.27
Love	.35* (.73)	.18* (.58)	.47	.14
Elevation	.84* (.96)	.03* (.44)	.13	.36

Note. Because relationship and error variance were combined, relationship variance was not submitted to significance testing. Values represent the relative variance; however significance testing is performed on the absolute variance components. Absolute variance for each component may be calculated by multiplying the relative variance by the total absolute variance for that variable. Reliability estimates for the variance components are in parentheses. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex. * $p < .05$.

Table 5. *Self-Report (Row) by Target Effects (Column) Correlations*

Self-Rating	PNI Total Target Effect
PNI	
Total Score	.14*
IIP-SC	
Dominance	.25**
Love	.07
Elevation	.01

Note. These correlations have been disattenuated to take into account the reliability of the variance components. However, significance testing is performed on raw correlations, so significance is not directly related to magnitude. Value in bold indicates self-other agreement. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex. * $p < .05$, ** $p < .01$

Table 6. *Target by Target Effects Correlations*

Target Effect	Target Effect		
	Dominance	IIP-SC Love	Elevation
PNI Total	.91***	.36**	.04

Note. These correlations have been disattenuated to take into account the reliability of the variance components. However, significance testing is performed on raw correlations, so significance is not directly related to magnitude. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex. ** $p < .01$, *** $p < .001$

Table 7. *Self-Ratings (Row) by Target Effects (Column) Correlations*

Self-Rating	Target Effect		
	Dominance	IIP-SC Love	Elevation
PNI Total	.11*	-.01	.09

Note. These correlations have been disattenuated to take into account the reliability of the variance components. However, significance testing is performed on raw correlations, so significance is not directly related to magnitude. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex. * $p < .05$.

Table 8. *Self-Ratings (Row) by Perceiver Effects (Column) Correlations*

Self-Rating	Perceiver Effect		
	Dominance	IIP-SC Love	Elevation
PNI Total	.01	-.15**	.13**

Note. These correlations have been disattenuated to take into account the reliability of the variance components. However, significance testing is performed on raw correlations, so significance is not directly related to magnitude. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex. ** $p < .01$.

Table 9. *Target Effect (Row) by Perceiver Effect (Column) Correlations*

Target Effect	Perceiver Effect		
	Dominance	IIP-SC Love	Elevation
PNI Total	.15*	-.07	.08

Note. These correlations have been disattenuated to take into account the reliability of the variance components. However, significance testing is performed on raw correlations, so significance is not directly related to magnitude. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex. PNI = Pathological Narcissism Inventory; IIP-SC = Inventory of Interpersonal Problems-Short Circumplex. * $p < .05$.

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