

Mirror, Mirror, In the Eyes: Mental State Decoding Abilities in Pathological Narcissism

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Abstract

Objective: This study sought to examine the relationship between pathological narcissism and mental state decoding abilities. **Methods:** 145 undergraduate students participated in a laboratory experiment for course credit. Narcissism was assessed with the Pathological Narcissism Inventory (PNI) and mental state decoding abilities were assessed with the Reading the Mind in the Eyes (RME) task. **Procedure:** Participants were presented with photographs of human faces on a computer screen, and were asked to pair words to the photographs, which were cropped to the eye region of the face. The valence of each face was categorized as positive, negative, and neutral. **Hypotheses:** It was hypothesized that a negative correlation would be observed in the relationship between the PNI and the RME, such that higher levels of narcissism would be associated with decreased levels in mental state decoding accuracy. It was also hypothesized that a positive correlation existed in the PNI and in RME targets of positive valence, such that higher levels of narcissism would be associated with increased mental state decoding abilities in targets of positive valence. **Results:** Both hypotheses were not supported; however, a statistically significant quadratic relationship was found between the PNI and the RME, such that higher and lower levels of narcissism were associated with decreases in mental state decoding abilities, with moderate levels of narcissism associated with higher RME scores.

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Our modern interpretation of narcissism can be traced back to Narcissus of Greek mythology—a man who fell in love with his own reflection, disregarding all others, until his untimely death. As a construct, narcissism can be defined dimensionally (e.g., low to high levels of narcissism) and categorically (e.g., as a person who is narcissistic). The inability to empathize with other people—whether by choice, skill, or any combination of the two—is a hallmark of Narcissistic Personality Disorder (NPD) (for a review, see Carlson, Vazire, & Oltmanns, 2011). In the absence of empathy, the quality of a one’s personal, professional, and familial lives, tend to suffer (Byron, 2007). According to the Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.; DSM–IV–TR; APA, 2000), symptoms of the disorder include pervasive thoughts or fantasies of an idealized self, an unreasonable sense of entitlement over others, and haughty or arrogant behavior. Narcissists also tend to share the belief that their lives, opinions,

and thoughts are in a category all their own. People who suffer from NPD are also often willing to use or manipulate other people in a way that is advantageous to their own pursuits, disregarding the wellbeing of others. Across NPD symptomatology, interpersonal functioning deficits in particular are most severe (e.g., Magidson et al., 2012; Miller, Campbell, & Pilkonis, 2007; Ogrodniczuk et al., 2009), often resulting in many failed relationships (Kernberg, 1976; Kohut, 1984), with some citing concerns for increased risk of suicide (e.g., Kernberg, 1984; Magidson et al., 2012; Links, Gould, & Ratnayake, 2003; Ronningstam & Maltzberger, 1998; Ronningstam, Weinberg, & Maltzberger, 2008). Reports on the prevalence of narcissism as a personality disorder range from 0% to 6% in communities (APA, 2000; Ritter, 2011; Stinson et al., 2008), with higher rates of clinical prevalence, estimated to range from 2% to 16% (APA, 2000). Additionally, patients diagnosed with NPD accounted for 84% of those disciplined in the military, while narcissism in CEOs was found to be related to unstable performance (Chatterjee & Hambrick, 2007).

Historically, narcissism as a personality disorder was not a viable diagnosis for practicing clinicians until 1980, when a portrait of NPD was articulated within the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III). At present, much discussion exists within the literature about the future of narcissism. Some have argued that since the publication of the DSM-III, clinicians have faced diagnostic challenges, particularly when dealing with the disparities between the characteristics of their clinically distressed narcissistic patients and an inadequate match of their symptomatology to DSM criteria (Cain, Pincus, & Ansell, 2008; Gabbard, 1989; Gunderson, Ronningstam, & Smith, 1991; Levy, Reynoso, Wasserman, & Clarkin, 2007). Some have also argued that the elimination of certain criteria in subsequent editions of the DSM were due in large part to concerns over comorbidity with other personality disorders (Levy, Ellison, & Reynoso, 2011). Amid growing concerns regarding the dramatic changes posed by the DSM-5 committee, including the recently discarded plan to remove NPD from the latest edition of the manual (Pies, 2011), the results of one study (Zimmerman, Chelminski, Young, Dalrymple, & Martinez, 2012) argued that such an omission could have wrongfully resulted in the absence of diagnoses for a small but significant subset of patients (i.e., false-negative diagnoses).

To better articulate narcissism, clinical scholars have posed two subtypes. Like two sides of a mirror, the two sides of narcissism are known as narcissistic grandiosity and narcissistic vulnerability (e.g., Akhtar & Thomson, 1982; Cain et al., 2008; Gabbard, 1989; 1998; Gersten, 1991; Kernberg, 1967; 1984; Kohut & Wolf, 1978; Levy et al., 2007; 2011; 2012; Pincus & Lukowitsky, 2010). Grandiose narcissism can be characterized by arrogance, exploitativeness, lack of empathy, having minimal anxiety, and being envious of others (or believing that others are envious of you) (Levy, 2012). Although the grandiose narcissistic symptomatology is better in sync with current DSM-IV-TR criteria, someone in a state of grandiose narcissism tends to appear less frequently in the clinical setting. In contrast, the vulnerable manifestation of narcissism is largely absent from the DSM-IV, but prevalent in the clinical setting (Pincus et al., 2009). The vulnerable state of narcissism can both endure and inflict suffering; this is often implemented by provoking others to react to their psychological pain. They experience bouts of rage, can be quite irritating to others, and can be verbally abusive (Pies, 2011). As such, their levels of distress are significantly more visible to clinicians than that of a grandiose narcissist (Pincus et al., 2009).

Pincus et al., (2009) argued that the clinic to research disparity of NPD was a direct result of measures that failed to account for its multi-dimensional characteristics. They further argued that, despite the large research body on the two-sided nature of narcissism, the majority of researchers have continued to use measures derived from the DSM's one-dimensional grandiose-themed NPD criteria. This statement is highly congruent with the clinical literature when examining the populous Narcissistic Personality Inventory (NPI). For over 30 years, the NPI has been one of few industry standard measures for narcissism; in fact, since 1985, in 77% of research conducted on narcissism in social or personality psychology, the NPI was used as the only or a primary measure for narcissism (Cain, Pincus, & Ansell, 2008). Ultimately, the inadequacy of these measures necessitated the development of the Pathological Narcissism Inventory (PNI) (Pincus et al., 2009), which is used in the current study.

Despite the large and diverse literature on narcissism as a construct—as a personality disorder, it has the least empirical support of the other 9 personality disorders in the DSM-IV (Stinson et al. 2008). Similarly, empathic deficits in narcissism have also received little empirical attention in research (South, Eaton, & Krueger, 2011). From a perspective based in theory, clinical scholars have published many writings hypothesizing why narcissistic individuals exhibit deficits in empathy (Dimaggio et al. 2002; Gabbard, 1989; Kernberg, 1967; Kohut, 1966; Moeller, Robinson, Wilkowski, & Hanson, 2012). To briefly define the construct, empathy can be described as the ability to decode and experience the cognitive and emotional states of others, while simultaneously reflecting on one's internalized response to them (Decety & Moriguchi, 2007). Most research examining empathy in narcissism has used self-report measures for empathy; however, social desirability bias (Fisher, 1993)—defined as the tendency for participants to answer questions in favorable ways—may result when using these measures. This effect may become compounded within the narcissistic individual's personality, as clinical theory would suggest that they might exaggerate, overestimate, or otherwise inflate their empathic abilities, more so than someone who is not pathologically distressed. In contrast to the social desirability bias, other internal biases may also be at work, leading the narcissistic individual to downplay their empathic abilities for any number of reasons, including the belief that they are uninterested or bored by the minutia of interpersonal structures. Interestingly, a new thread of research suggests that narcissists are not as out of touch with interpersonal structures as once thought (Carlson, Vazire, & Furr, 2011); however, many clinical theorists suggest otherwise (Benjamin, 1993; Dimaggio et al. 2002; Gabbard, 1989; Kernberg, 1967; Kohut, 1966; Moeller, Robinson, Wilkowski, & Hanson, 2012). Thus, additional empirical research on empathy is needed, as well as a tool of measurement with greater precision.

The Reading the Mind in the Eyes (RME) task (Baron-Cohen et al., 2001) attempts to measure components of empathy, by gauging one's ability to decode the mental states of others. It is also a task that can be evaluated empirically. In it, participants are presented with photographs of faces that are cropped from the nose to the eyebrow region, along with four words, all of similar valence (to reduce ceiling effects). The task has proven to be valid across several studies, with significant differences being reported across samples of clinically distressed patients. In women with major depressive disorder, significant deficits in RME accuracy were found (Lee, Harkness, Sabbagh, & Jacobson, 2005), and in people with borderline personality disorder (BPD), increases in both overall RME accuracy (Fertuck et al., 2009) and negative RME accuracy were reported (Scott, Levy, Adams Jr. & Stevenson, 2011).

In the current study, the relationship between pathological narcissism and mental state decoding is evaluated, using the PNI as a measure for components of narcissism, and the Reading the Mind in the Eyes task as a measure for mental state decoding. The first research hypothesis is that a negative correlation will be observed in the relationship between overall PNI scores and the overall RME accuracy, such higher levels of narcissism narcissistic traits will be associated with lower levels of mental state decoding accuracy. The second research hypothesis is that a positive correlation will be observed in overall PNI scores and RME targets of positive valence, such that an higher levels of narcissism will associate with higher accuracy in decoding mental states from photos of positive valence.

Methods

Participants

Undergraduate students ($N = 145$) from a large northeastern U.S. university voluntarily participated for credit as part of their introductory psychology course. Two participants were excluded from the final sample due to invalid responses on the PNI measure, as well as 13 other participants who strongly disagreed to the statement “I have answered all of these questions to the best of my ability.” Within the sample of 130, the average age of participants was 18.99 ($SD = 1.54$, range = 18 – 32) with males accounting for 37% of participants, and females, 63%. The ethnicity of participants in the final sample was predominantly Caucasian (73%), followed by Asian (9.5%), Hispanic (7.9%) and African American (4.8%).

Measures

The Pathological Narcissism Inventory (PNI; Pincus et al., 2009) is a 52 item self-report questionnaire that contains 7 subscales: contingent self-esteem (CSE), exploitativeness (EXP), self-sacrificing self-enhancement (SSSE), hiding the self (HS), grandiose fantasy (GF), devaluing (DEV), and entitlement rage (ER). Each item is rated using a 0 to 6 Likert-Scale (0 = “Not At All Like Me,” and 6 = “Very Much Like Me”). Sample items include: “I often fantasize about being admired and respected,” and “I can get pretty angry when others disagree with me.” The EXP, SSSE, and GF subscales are averaged to an overall narcissistic grandiosity score, and specific items in the CSE, HS, DEV, and ER subscales are averaged for a narcissistic vulnerability score. An average of all 52 items results in a total PNI score.

Reading the Mind in the Eyes. The Reading the Mind in the Eyes (RME; Baron-Cohen et al., 2001) task is a computer program that is designed to measure one’s ability to decode emotional states from photographs of the human face, particularly, the eye region of the face area (i.e., the area above the bridge of the nose and below the brow line). Each photograph has been cropped to the same size. Before each trial, a white background with a centered fixation cross is presented on the computer screen, immediately after which a centered photograph is displayed. At each of the 4 corners, 4 different words are presented; 3 of which are incorrect, 1 of which is the correct target. The computerized task presents a different randomized set each time, consisting of 36 different photographs, of which all are in grayscale (i.e., shades of black and white). Before the task begins, the following instructions appear onscreen:

You will see a series of photographs of faces. Your task is to decide what each person is thinking or feeling. For each face, enter the number on the keyboard that corresponds with the number of the word that best describes what the person in the photograph is thinking or feeling. You may feel that more than one word is applicable, but please just choose one word which you consider to be the most suitable. Before making your choice, make sure that you have read all 4 words.

Performance on the RME task was electronically recorded in the E-Prime 2.0 software. Within the RME task, targets were split into 3 different categories of valence: positive, negative, and neutral. This study derived recently developed criteria (see Scott et al., 2011) for both image and word valence, which resulted in a total of 36 targets: 9 of which were positive, 10 of which were negative, and 17 of which were neutral.

Procedures

Participants were brought into the laboratory setting in groups ranging from 1 to 4 ($M = 3.43$, $SD = .79$). Each participant was randomly assigned to a computer station, where they were seated throughout the duration of the study. Each computer had been previously set up by the proctor, prior to the arrival of the participants, and spacing between each station was such that participants were not able to easily view their cohort's screen. Participants then were asked to listen to the proctor read from a script, which provided them with a brief description of the study. After participants were provided with this description, they were given the option to discontinue at any time; however, if they chose to proceed, they were asked to review and sign a document of consent. In this study, all participants willingly provided written consent. Next, they were asked to fill out a series of measures, including a demographics questionnaire and the PNI. After each individual within that group of participants had completed the measures, the proctor instructed participants to follow the instructions on their station's computer screen. After completing the computerized task, participants were debriefed and given standard IRB-approved debriefing forms, which provided them with the primary investigator's contact information. They were also provided with information on local counseling services that were available, in the event that they had any feelings of distress from participating in the study. After this point, the participants were dismissed.

Results

All analyses were conducted using the Statistical Package for the Social Sciences, version 20 (SPSS 20). The independent variables were scores on the 7 PNI subscales (CSE, EXP, SSSE, GF, HS, DEV, and ER), their aggregate totals forming two factors (Narcissistic Grandiosity and Narcissistic Vulnerability), and the mean PNI score overall. The dependent variables were RME accuracy scores of positive valence, negative valence, neutral valence, and RME accuracy overall (i.e., across valences).

Preliminary Analyses. Several statistical analyses were conducted first, including descriptive and frequency reports of the data.

Frequencies. Frequencies showed 2 participants with responses on the PNI that were outside the scope of acceptable answers (e.g., an 8 when the highest response is a 6) which led to their exclusion from the final sample. Mean RME and PNI scores and their respective standard deviations (across genders) are available for review (see *Table 1*).

Relationship between PNI factors and subscales. Pearson correlational analyses were run on for all independent variables. Most components of the PNI were significantly correlated with each other ($p < .05$), with the exception of the CSE, SSSE, and DEV subscales, which were not significantly correlated to the EXP subscale ($p > .05$). Additionally, a Pearson correlation examining the EXP subscale and the Narcissistic Vulnerability factor were also not significantly related ($p > .05$). Results from a Pearson correlation on Narcissistic Grandiosity and Narcissistic Vulnerability factor, showed a moderate and highly significant correlation ($r = .435, p < .000$).

Relationship between RME targets. Next, Pearson correlations were conducted on the valence of RME targets: positive and negative accuracy scores ($r = .262, p = .003$), negative and neutral accuracy scores ($r = .287, p = .001$), and neutral and positive accuracy scores ($r = .261, p = .003$).

Demographic differences. Next we examined the relationship between demographic variables such as age, gender, and ethnicity, and the independent (PNI scores) and dependent variables (e.g., RME targets). Gender was not found to be related to RME performance. Results from a t-test demonstrated a significant difference in RME scores between men ($M = .688, SD = .109$) and women ($M = .729, SD = .098$); $t(125) = -2.171, p = .032$. This sex difference appears to be synonymous with a trend reported by Baron-Cohen et al. (2001).

Primary analyses. We examined the relationship between PNI scores and RME accuracy using Pearson correlations. Contrary to our first hypothesis, no significant linear relationships between the two measures were found (see *Figure 2*, $R^2 = .000, F(1, 128) = .010, p = .922$), including analyses which examined the PNI and its relationship to negative RME targets (see *Figure 3*, $R^2 = .000, F(1, 128) = .012, p = .912$), neutral RME targets (see *Figure 4*, $R^2 = .003, F(1, 128) = .374, p = .542$), and positive RME targets (see *Figure 5*, $R^2 = .011, F(1, 128) = 1.484, p = .225$). Further, upon closer inspection of a scatterplot comprised of RME and PNI scores, a curvilinear relationship appeared to be present (see *Figure 6*); thus, a non-linear regression analysis was conducted, wherein a highly statistically significant quadratic relationship was found, such that lower and higher PNI scores predict lower overall RME accuracy, $R^2 = .063, F(2, 127) = 4.281, p = .016$.

Discussion

Empathy deficits have long been considered to be a hallmark of Narcissistic Personality Disorder (NPD) (for a review, see Carlson, Vazire, & Oltmanns, 2011). These deficits can reduce the quality of one's life in profound ways (Byron, 2007). Conceptualizations of pathological narcissism can be defined dimensionally (e.g., low and high levels of narcissism), and categorically (e.g., NPD). People who suffer from NPD have significant difficulties across their interpersonal functioning (e.g., Magidson et al., 2012; Miller, Campbell, & Pilkonis, 2007;

Ogrodniczuk et al., 2009), often leading to many failed relationships (Kernberg, 1976; Kohut, 1984), and increases in suicidality (e.g., Kernberg, 1984; Magidson et al., 2012; Links, Gould, & Ratnayake, 2003; Ronningstam & Maltzberger, 1998; Ronningstam, Weinberg, & Maltzberger, 2008).

The results of this study partially aligned with the first reported hypothesis (i.e., higher levels of narcissism predict lower RME scores) such higher levels of pathologically narcissism correlate with lower levels of RME accuracy. However, this study's findings also show that RME accuracy can be predicted by decreases in pathological narcissism—a finding that was not hypothesized. At first glance, these findings may not appear to be in agreement with current clinical theories; however, people who are low in self-esteem—but not necessarily low in narcissism—may be misrepresented on the PNI as having low levels of pathological narcissism. Similarly, having low self-esteem may underestimate one's ability to participate, and, subsequently, have a lower score on the RME task. It is also possible that those scoring low on the PNI are actually responding defensively (i.e., they are reporting low levels of narcissism despite being high in it). Some research suggests that people who respond extremely lowly on self-report measures are often responding defensively and could be among the most disturbed. The opposite finding in this study—that higher levels of pathological narcissism result in lower mental state decoding accuracy—appears to be in agreement with our first hypothesis, in addition to theoretical descriptions of narcissism (Dimaggio et al. 2002; Gabbard, 1989; Kernberg, 1967; Kohut, 1966; Moeller, Robinson, Wilkowski, & Hanson, 2012).

The second hypothesis was that narcissistic individuals are more likely to be able to accurately decode mental states of friendly faces (i.e., in photographs of eyes of positive valence). By manufacturing a persona of manipulation and exploitation, it would appear to be congruent with the literature to hypothesize that the narcissistic individual has an increased ability to accurately distinguish friendly faces, as this ability may lead to relations with others where their self-image stands to gain. Contrary to this hypothesis, however, no correlations between positive RME stimuli and increases in pathological narcissism were found.

Although the PNI appears to be gaining traction within the scholarly community, a potential limitation with the study is that the measure is a sub-clinical scale, and thus is incapable of diagnosing an individual with NPD (Pincus et al., 2009); however, this study was more focused on implications of dimensional narcissism than categorical definitions. Additionally, although this study sought to represent ethnicity fairly, the ethnicities of the participants used in this study's sample were predominantly Caucasian. One study suggests an intracultural advantage between Japanese and American students when given a culture-specific version of the RME task (Adams et al., 2010) Thus, it could be argued that, because the ethnicities of the participants in our sample were predominantly Caucasian, and because the people in the photographs were also Caucasian, our results may be more valid. Ultimately, however, our sample showed no significant differences in PNI and RME scores when examining Caucasians against non-Caucasians, and Asians against non-Asians. Another limitation of the study pertains to an item regarding a participant's honesty, which was added at a later time. As such, of the 130 participants, less than 30 were given the item "I have answered all of these questions honestly." Thus, those responses were ignored across the board, to maintain consistency with the rest of the sample. Another limitation to this study involves the possibility of another variable existing that was unmeasured and responsible for the significant quadratic relationship in PNI and RME scores. Lastly, the PNI and other personality disorder self-report measures tend to cast a wider

net of diagnostic criteria than necessary, meaning that more people who are not necessarily pathologically narcissistic could still potentially score in higher PNI ranges; however, in spite of this, the PNI has shown significantly more promise than its alternatives at effectively pointing out narcissistic individuals in both vulnerable and grandiose states thus far (Maxwell, Donnellan, Hopwood, & Ackerman, 2011; Pincus et al., 2009). Ultimately, both the PNI and the RME were found to be internally valid measures, further strengthening this study's conclusions.

Several implications can be derived from this study by examining the dimensionality of narcissism, as opposed to the rigidity of categorization. This study suggests that mental state decoding abilities and deficiencies lie on a continuum of narcissistic pathology. This study also suggests that clinical scholars have been largely successful in articulating deficits in empathy as a component of narcissism. It is recommended that additional studies be conducted to empirically examine empathy in narcissism using different methodologies and measures. Other areas of recommended future study include comparisons of dimensional narcissism (as measured with the PNI) to categorical NPD diagnoses. Such a study may shed new light on their differences and their efficacy.

Narcissism affects the lives of people in profoundly negative ways. It interferes with one's capacity to develop close intimate relationships and to enjoy one's accomplishments. A lack of concern for others and an over concern with oneself is a central characteristic of those high in narcissism. Although narcissism does not appear to be linearly related to mental state decoding, the current study's findings suggest high levels of narcissism is related one's ability to decode the mental states of others. This lends new empirical support to earlier clinical theories posited by Kernberg, Kohut, and other clinical scholars. Future research should examine the links between these deficits in mental state decoding and difficulties in relationship and work functioning so characteristic of narcissistic individuals.

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Table 1. Means and standard deviations of the PNI and RME variables across gender.

Gender	Male (<i>n</i> = 47)		Female (<i>n</i> = 80)		Total (<i>n</i> = 127)	
	M	SD	M	SD	M	SD
PNI						
CSE	3.03	1.08	3.09	1.00	3.07	1.03
EXP	3.81	.97	3.49	.90	3.61	.94
SSSE	4.04	.93	4.00	.77	4.01	.83
HS	3.57	.91	3.61	.94	3.60	.92
GF	4.36	1.04	3.99	.98	4.13	1.01
DEV	2.53	.95	2.44	.96	2.47	.95
ER	3.15	1.04	3.15	.94	3.15	.97
Grandiose	4.07	.72	3.83	.65	3.92	.69
Vulnerable	3.07	.84	3.07	.81	3.07	.81
Total	3.50	.68	3.40	.64	3.43	.65
Reading the Mind in the Eyes						
Negative Accuracy	.75	.15	.77	.11	.77	.16
Neutral Accuracy	.66	.14	.70	.11	.68	.12
Positive Accuracy	.68	.15	.74	.17	.72	.17
Overall Accuracy	.69	.11	.73	.10	.71	.10

Note. PNI = Pathological Narcissism Inventory; CSE = Contingent Self-Esteem; EXP = Exploitativeness; SSSE = Self-Sacrificing Self-Enhancement; HS = Hiding the Self; GF = Grandiose Fantasy; DEV = Devaluing; ER = Entitlement Rage.

Figure 1. Example from the RME task (the correct response is *thoughtful*).

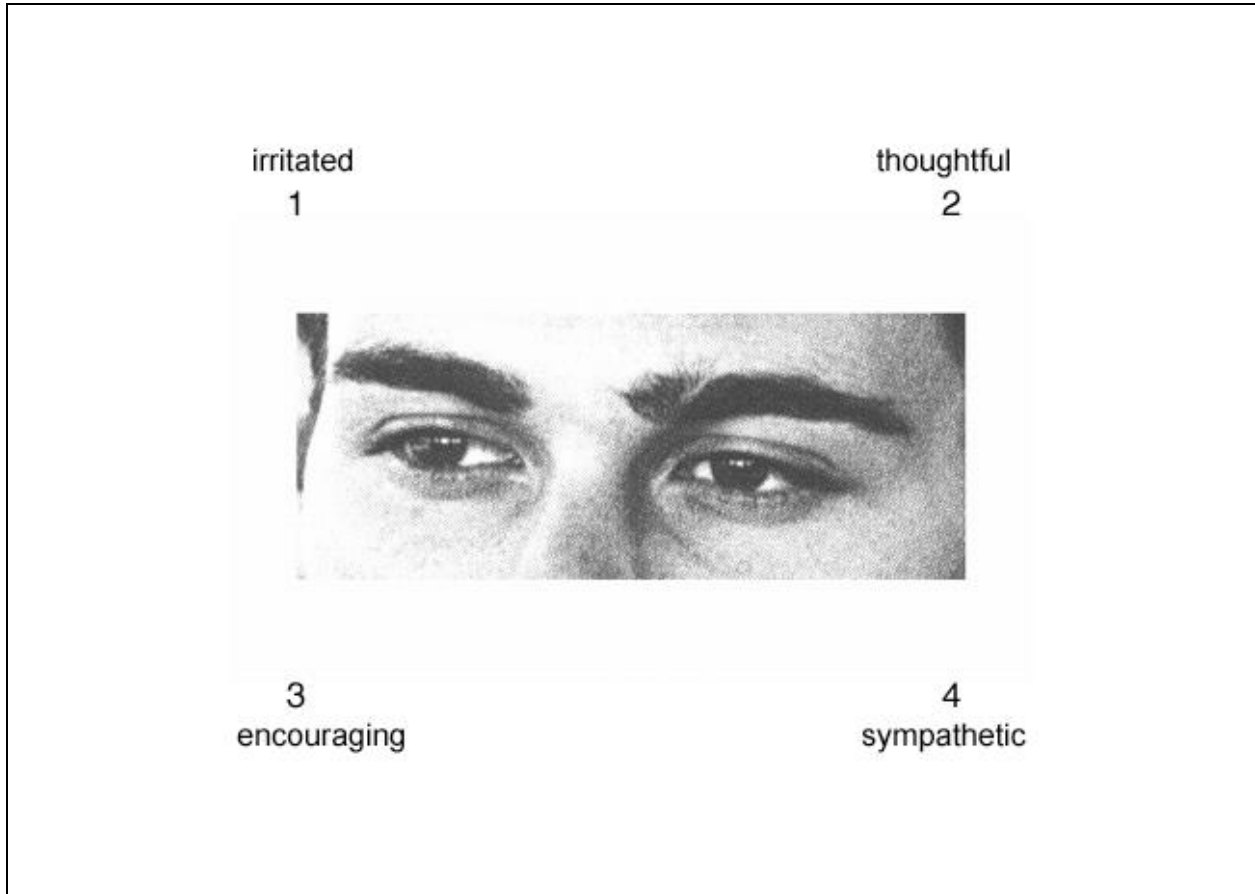
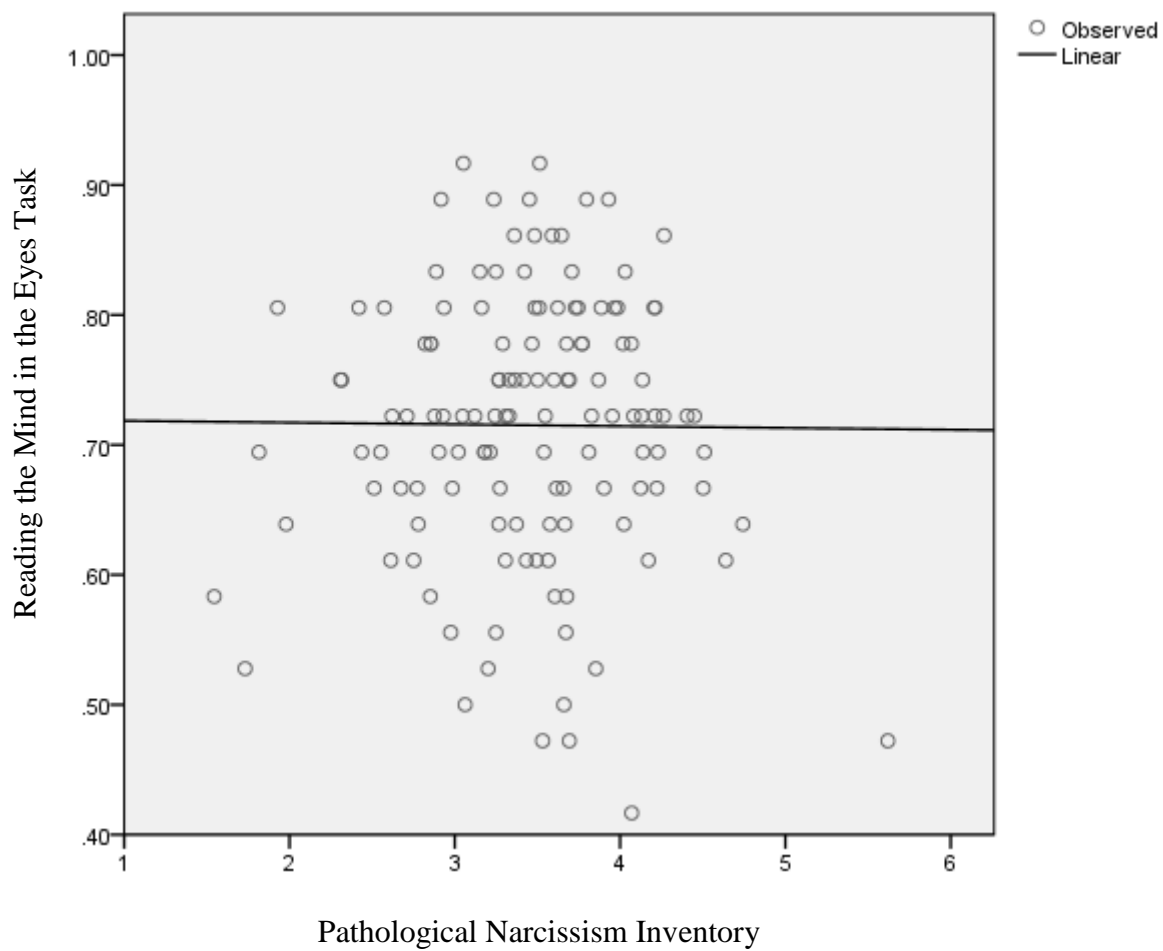


Figure 2. A linear analysis of overall RME accuracy across valences and the PNI.



Note.

Figure 3. A linear analysis of RME accuracy of negative-valence stimuli and the PNI.

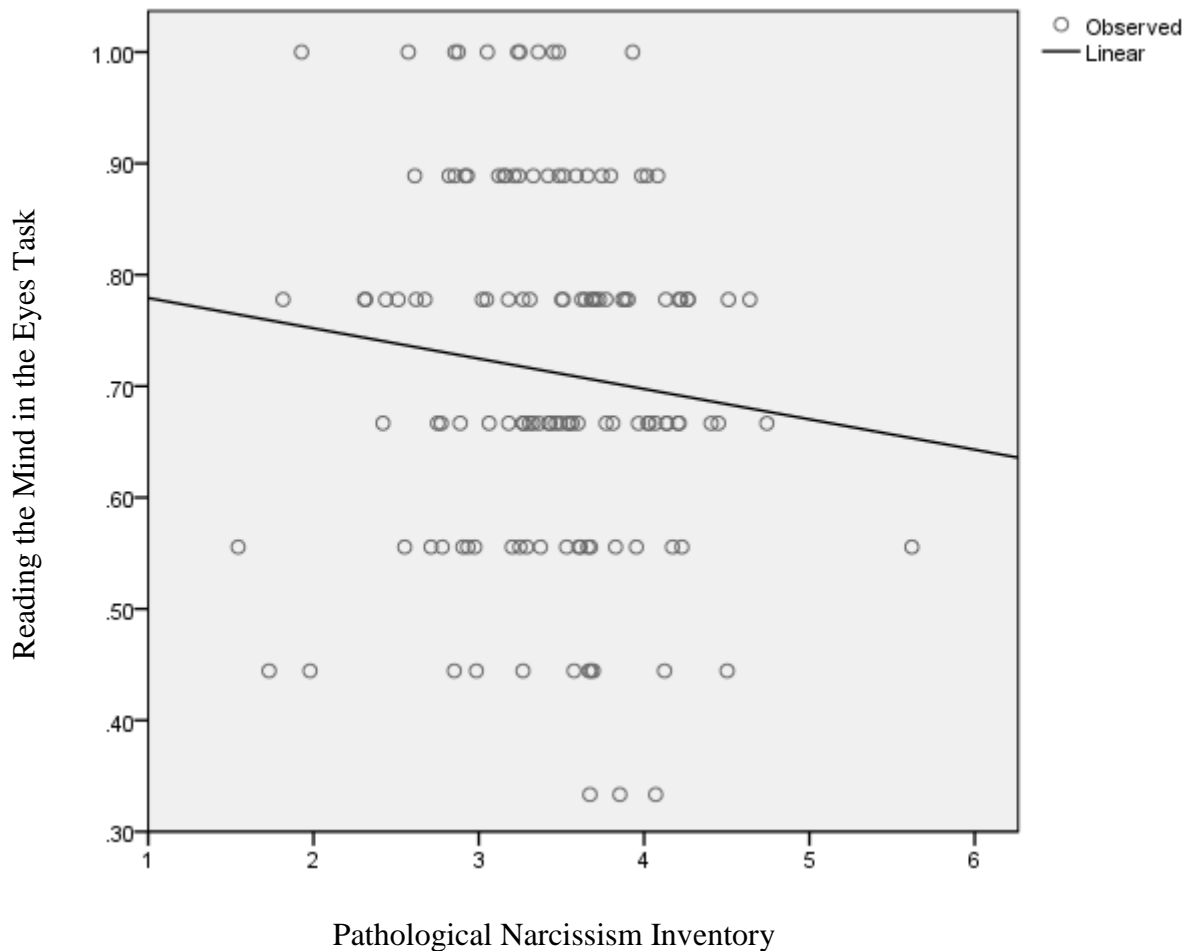


Figure 4. A linear analysis of RME accuracy of neutral-valence stimuli and the PNI.

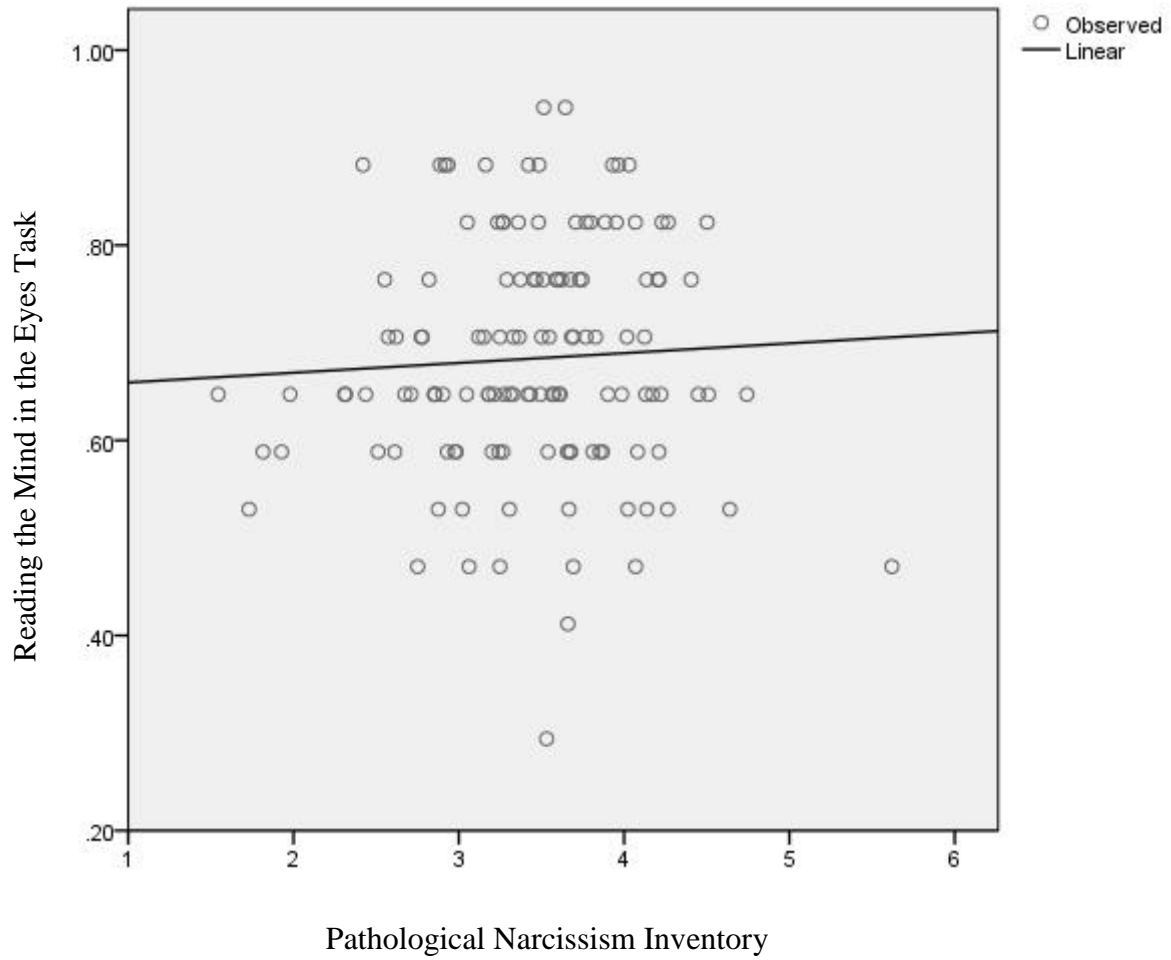


Figure 5. A linear analysis of RME accuracy of positive-valence stimuli and the PNI.

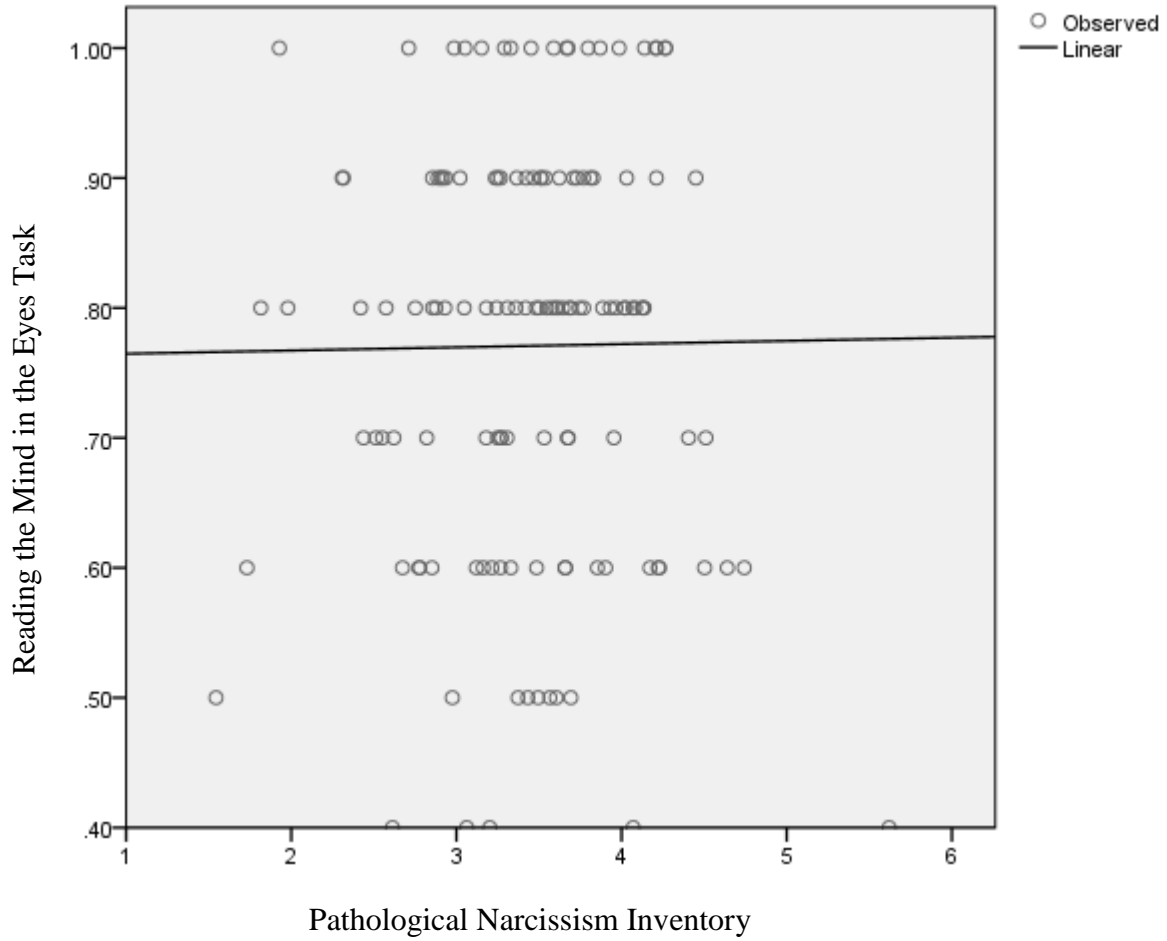


Figure 6. Results of a non-linear regression analysis of overall RME accuracy and the PNI. A significant quadratic relationship is displayed.

