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IMPAIRED SOCIAL FUNCTIONING AND SYMPTOMS OF PERSONALITY DISORDERS ASSESSED BY PEER AND SELF-REPORT IN A NONCLINICAL POPULATION

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Data regarding the connection between personality disorders (PDs) and impaired social functioning are often difficult to interpret because both sets of variables are influenced by depressed mood and both are usually assessed using self-report instruments. We studied PD symptoms in a nonclinical population and examined whether these symptoms are associated with social dysfunction, after controlling for current mental state. Participants were 577 undergraduate students who completed self-report measures of social functioning, PD symptoms, depression, and anxiety, as well as a peer-report PD inventory. As expected, self-reported PD scores and social dysfunction were both correlated with current levels of anxiety and depression. Both self- and peer-reported PD symptoms contributed to the prediction of level of social functioning above and beyond the influence of depressed mood. Overall, our results complement those from clinical samples and provide further evidence that there is an association between PD traits and impaired social functioning.

The concept of social dysfunction plays a somewhat ambiguous role in the definition of personality disorders (PDs). Clinically significant impaired social and occupational functioning is part of the general definition of personality disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, American Psychiatric Association, 2000) but it is not specifically included in the criterion sets for individual PD diagnoses. Of course, some of the individual criteria necessarily implicate social dysfunction. Examples include "a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation (borderline PD)" (p. 710) and "consistent irresponsibility, as indicated by repeated failure to sustain consistent work behavior or honor fi-

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nancial obligations (antisocial PD)" (p. 706). People who fit these descriptions must necessarily experience some significant social impairment. However, some criterion sets include features that might not be automatically associated with social dysfunction. One example is, "is unusually reluctant to take personal risks or to engage in any new activities because they may prove embarrassing (avoidant PD)" (p. 721). Another is, "consistently uses physical appearance to draw attention to self (histrionic PD)" (p. 714). One can imagine people who fit either of these latter descriptions and nevertheless manage to function at a relatively high level in both their occupational and social world.

Because of the ambiguous role of social dysfunction in many criterion sets for Axis II disorders, primary emphasis in diagnostic decisions may be given to the number of specific traits the person exhibits rather than to determining whether a composite set of traits explicitly leads to significant social or occupational problems. The presumed association between PDs and social dysfunction is nevertheless quite important. It provides a large part of the justification for defining PDs as mental disorders. If the personality characteristics identified in DSM-IV criterion sets typically interfere with the person's ability to get along with other people and perform social roles, then they become more than a collection of eccentric traits or peculiar habits. They may then be viewed as a form of harmful dysfunction (Livesley, Schroeder, Jackson, & Jang, 1994; Wakefield, 1992). In their critique of the DSM-IV clinical significance criterion, Spitzer and Wakefield (1999) argued in favor of dropping the requirement of role impairment for most disorders, with the exception of PDs. This exception was made because role impairment should be required in order to diagnose PDs, as they are inherently tied to social functioning. Spitzer and Wakefield did point out, however, that the addition of this criterion to the DSM-IV was not based on empirical data.

Funtowicz and Widiger (1999) generated data addressing this question by asking clinicians to rate the level of impairment or distress associated with each criterion for each PD. They found considerable differences across disorders and criteria regarding the level of impairment required for a diagnosis. They concluded that PDs such as obsessive-compulsive and histrionic could be diagnosed with only minimal impairment because the diagnostic criteria for these disorders were only related to mild impairment and distress. This study was based on clinician opinion and may or may not reflect the true level of dysfunction experienced by those persons who have the traits suggested in the diagnostic criteria.

Are pathological personality traits reliably associated with impaired social functioning when it is measured directly? Several studies have examined this question but relations among these constructs remain uncertain for several reasons. Perhaps most important in this regard is the fact that social functioning has been studied primarily in clinical samples, where it is particularly difficult to separate effects associated with Axis I and Axis II disorders (Abrams, Spielman, Alexopoulos, & Klausner, 1998; Rey, Singh, Morris-Yates, & Andrews, 1997; Skodol et al., 2002). Consider the results of several recent studies. Leader and Klein (1996) reported a detailed assessment of social functioning and personality disorders in three samples of patients with mood disorders and a normal control group. They concluded

that comorbid PDs were associated with social impairment but only through their relation to current depressive symptomatology. Carpenter, Clarkin, Glick, and Wilner (1995) examined social adjustment in a sample of patients with bipolar mood disorders. They found greater social impairment among patients who also met criteria for a personality disorder but these patients also exhibited more severe mood disorder symptoms. Alpert, Uebelacker, McLean, and Nierenberg, (1997) found that depressed patients who also meet criteria for avoidant personality disorder are particularly likely to experience social dysfunction. Unfortunately, it is difficult to attribute increased functional impairment directly to the PD because patients with both kinds of disorder also had an earlier age of onset and more comorbid Axis I diagnoses. All of these studies suggest that, in clinical samples, the relation between PDs and social impairment might be driven, at least in part, by features of comorbid Axis I pathology.

We do not mean to suggest that the correlation between PDs and impaired social functioning is necessarily spurious or that the level of depression would necessarily need to be removed or held constant in all studies. As Meehl (1971) pointed out, the decision to control "nuisance variables" depends on the causal model held by the investigator. A seriously depressed mood might be responsible for both impaired social functioning and elevated scores on a measure of personality disorders. It is also possible, however, that the presence of a personality disorder might lead to both a depressed mood and social dysfunction. Both hypotheses are reasonable. We believe that further investigation of PDs and social functioning in a nonclinical sample is warranted because the former argument provides a possible explanation for the results of studies in clinical samples and not because it is the only correct interpretation of previous results.

Relatively few studies have examined the relation between PDs and social functioning in nonclinical samples. One interesting report of this type examined, over a 2-year period, young adults with features of borderline PD (Trull, Useda, Conforti, & Doan, 1997). These features were associated with poorer outcome, even if the person did not meet full criteria for a DSM-IV diagnosis. Another study of this type focused on the relation between PD traits and social impairment among the relatives of probands participating in a family study of mood and personality disorders (Lara, Ferro, & Klein, 1997). This study is particularly valuable because it examined data from a large sample of people who were not in treatment and because information regarding social functioning and personality disorders were obtained from different sources; social functioning was assessed by self-report and personality disorder diagnoses were established on the basis of informant interviews. People who received a PD diagnosis described themselves as having poorer social adjustment. This result complements those reported previously in clinical samples. It also serves to emphasize another important and troublesome issue in this field of study—method variance.

Most studies have relied on self-report measures to establish a diagnosis and as an index of social impairment (we consider interviews to be a type of self-report measure). Therefore, subjective mood states may lead to a spurious correlation between these variables. A depressed mood state could in-

fluence answers on self-report measures of PDs and social functioning. For example, Weissman and Bothwell's (1976) Social Adjustment Scale-Self Report (SAS-SR) includes items such as "Have you been ashamed of how you do your work?" and "Have you been interested in dating?" We would expect depression levels to be related to levels of social dysfunction but empirical evidence regarding the connection between diagnosis and impaired social functioning would be more persuasive if these domains were measured by information obtained from independent sources and if current mood was considered in analyses.

One approach to this problem that has not been explored previously would be to ask other people to make judgments regarding the target person's personality. In the context of comparing peer and self-report measures of personality disorder, we asked people in peer groups to nominate those members who exhibited certain characteristics, focusing mostly on features of DSM-IV PDs (Oltmanns, Turkheimer, & Strauss, 1998; Thomas, Turkheimer, & Oltmanns, in press). These nominations represent a different type of informant report than that used in the Lara, Ferro, and Klein (1997) study because they provide information from several informants who know the target person well.

The present study seeks to examine relations between social functioning and PD traits in a nonclinical sample. We wanted to know whether people who exhibit features of personality disorders (identified either by self-report or by their peers) are more likely to describe themselves as having problems in social functioning. We measured social impairment using two different self-report questionnaires and measured PD traits with a self-report questionnaire and a peer nomination procedure.

METHOD

PARTICIPANTS

Participants were 577-first year, undergraduate students (72% female) who were part of a larger study on peer assessment of personality traits and pathology. Groups (average size 11 people) were recruited from single-sex dormitories. Each group was one floor of a dorm and students were paid for their participation. At the time of the study, groups had been living together for 5 to 8 months. The participants were 79% Caucasian, 9% African American, 6% Asian, and 6% "other," which included Native American, Hispanic, and biracial. We asked participants if they had received treatment for a mental health problem in the past year to provide an estimate of the proportion of the sample that might be distressed or possibly suffering from an Axis I disorder. Of 577 participants, 5.4% (N = 29) endorsed this question. This is probably a low estimate of the percent of people in our sample with mental disorders of one kind or another because most people with mental health problems do not enter treatment.

MATERIALS

Schedule for Nonadaptive and Adaptive Personality (SNAP). The SNAP is a factor analytically derived, self-report questionnaire with 375 true/false

items designed to assess trait dimensions in the domain of personality disorders (Clark, 1993). Categorical and dimensional scores can be obtained on 34 scales: 12 trait scales, three temperament scales, six validity scales, and 13 diagnostic scales. We used dimensional scores on 10 diagnostic scales for the DSM-III-R Personality Disorders.

Social Adjustment Scale—Self Report (SAS-SR). The SAS-SR is a 54-item instrument that assesses role functioning during the previous 2 weeks (Weissman & Bothwell, 1976; Weissman et al., 2001). A global measure of social functioning can be calculated along with six role area scores. Higher scores indicate greater social impairment. The SAS-SR was developed and tested with depressed outpatients but has been useful in a wide range of populations, including psychiatric and community samples (Weissman, Prusoff, Thompson, Harding, & Myers, 1978). We used the role performance scores for three areas: (a) occupational performance (as a student, called School Role); (b) social and leisure functioning (Social Role); and (c) relations with extended family (Family Role). An example of a School Role question is, "How well have you been able to keep up with your school work in the last 2 weeks?" Scores on this item range from 1 "(*I did my schoolwork very well*) to to 5 (*I did my schoolwork poorly all the time*).

Social Functioning Questionnaire (SFQ). The SFQ is an eight-item, self-report measure of general social functioning (Tyrer, 1993). Participants rate their functioning according to how they have been feeling over the past 2 weeks on a scale of 1 to 4 (1 = Most of the time, 2 = Quite often, 3 = Sometimes, 4 = Not at all). Only half (N =338) of the participants completed this measure because it was added in the second year of our study. The eight items are as follows:

1. I complete my tasks at work and at home satisfactorily.
2. I find my tasks at work and at home very stressful.
3. I have no money problems.
4. I have difficulties in getting and keeping close relationships.
5. I have problems in my sex life.
6. I get on well with my family and other relatives.
7. I feel lonely and isolated from other people.
8. I enjoy my spare time.

This measure has adequate internal consistency (Cronbach's $\alpha = .64$, based on our data) and has shown to be useful in detecting changes in social functioning over time (Tyrer, 1993).

Beck Depression Inventory (BDI). The BDI is a 21-item, self-report measure that has been widely used to measure the severity of depressive symptoms in clinical, nonclinical, and research settings (Beck & Steer, 1987). The BDI has adequate psychometric properties and utility in a wide range of populations (Beck, Steer, & Garbin, 1988).

Beck Anxiety Inventory (BAI). The BAI is a 21-item, self-report measure of the severity of anxiety symptoms (Beck, Epstein, Brown, & Steer, 1988). These items reflect cognitive, affective, and somatic symptoms of anxiety that are rated on a 4-point scale of experiential severity. The BAI has ade-

TABLE 1. Frequencies for BDI and BAI

	BDI		BAI	
Score	**Male**	**Female**	**Male**	**Female**
< 9	143	335	137	291
10 to 14	14	43	9	63
15 to 19	2	16	7	27
20+	2	15	5	26
Total	161	411	158	407

*Note. N*s vary due to missing data.

quate psychometric properties and the scale has been found to be useful in measuring anxiety in a wide age range and in populations ranging from a nonclinical community sample to adult outpatients (Beck, et. al., 1988; Bordon, Peterson, & Jackson, 1991).

Peer Inventory for Personality Disorders (PIPD). The PIPD was developed for a study regarding peer assessment of personality disorders (Oltmanns & Turkheimer, 1998). It is composed of 81 items based on the features of the 10 PDs listed in DSM-IV and 24 supplementary items. The inventory is administered to groups and each participant is presented with a list of all group members. For each item (trait), the participant nominates members of his or her group who exhibit the characteristic in question. The participant can nominate an unlimited number of group members for each characteristic and scores are derived by dividing the number of nominations by the number of people in the group. To standardize these scores, we take the log of each score. Further details regarding this procedure and the factor structure of the PIPD have been reported by Thomas, Turkheimer, and Oltmanns (in press).

Number of Friends as an Indication of Social Functioning. Before completing the Peer Inventory for Personality Disorders, participants were asked to nominate people in their group whom they considered to be a close friend. We expected that participants who reported good social functioning on the self-report measures would also be identified as being a close friend by a relatively high proportion of their peers (and vice versa). One important element of good social functioning is presumably being able to form and maintain mutually beneficial and satisfying relationships with other people. Of course, each person would be expected to have additional friends who did not happen to live with them on their dormitory floor. This measure is not a complete or exhaustive measure of friendships, but it does reflect the extent to which these students had been able to get to know the people with whom they shared living accommodations in addition to the degree to which the other people liked them.

RESULTS

Analyses were initially performed separately for men and women but no differences were found. The results reported here are for all participants. To

TABLE 2. Correlation Coefficients (Pearson's *r*) for Social Functioning and Mood Scores (*N* = 577)

Scale	BDI	School Role[a]	Social Role[a]	Family Role[a]	SFQ[b]
BAI	.59*	.26*	.22*	.22*	.46*
BDI	—	.35*	.32*	.28*	.63*
School Role[a]	—	—	.70*	.69*	.50*
Social Role[a]	—	—	—	.66*	.54*
Family Role[a]	—	—	—	—	.47*

Note. [a]Role scores from Social Adjustment Scale – Self Report (SAS–SR; Weissman & Bothwell[comma here] 1976). [b]SFQ = Social Functioning Questionnaire (Tyrer[comma here] 1993). A total of 338 participants completed the SFQ. *$p < .0001$.

ensure a normal distribution for all variables, scores were standardized for all questionnaires, including the peer measure.

SOCIAL FUNCTIONING AND CURRENT MOOD STATE

The correlation between the BDI and the BAI was 0.59 (Pearson's *r*, $p < .001$). Overall, women scored higher on both the BDI and BAI, with means of 5.52 (*SD* = 5.91) and 7.23 (*SD* = 7.62), respectively, compared with men, with means of 4.25 (*SD* = 4.97) and 5.06 (*SD* = 6.09), respectively. Both men and women produced a wide range of scores on the BDI and BAI, as seen in Table 1 (score frequencies).

Four social functioning scores were calculated for each participant: three SAS-SR role scores (School, Social, Family) and the SFQ. Correlation coefficients among these and with the BDI and BAI are reported in Table 2. The SFQ was highly correlated with the BDI (*r* = .63) and moderately correlated with the BAI (*r* = .46). Correlation coefficients between the three SAS-SR scores and the BDI and BAI were significant but more modest (ranging from *r* = .22 to *r* = .35).

SELF AND PEER PD MEASURES

According to the SNAP categorical PD scores, 33% of our participants (*N* = 191 of 577) qualified for a diagnosis of at least one DSM-III-R PD (see Table 3). We have also included a column in this table to indicate the number of people in our sample who fell one criterion short of each PD diagnosis. For descriptive purposes, we used the term "subclinical" to refer to these people but that expression does not reflect a concept defined in the SNAP. This table indicates that our sample did include a substantial proportion of people who exhibited several symptoms of PDs. Consistent with the use of the SNAP as a screening rather than a diagnostic instrument, dimensional scores were used in the analysis so that each participant received a score on each PD scale.

The correlations between self- and peer-reported personality disorder scores are listed in Table 4. This matrix provides evidence regarding the convergent and discriminant validity of our peer nomination procedure. In every case except one (narcissistic PD), the highest correlation between a

TABLE 3. Description of Sample based on SNAP[a] Diagnostic Scales (*N* = 577)

Disorder	Subclinical[b]	Meets Criteria
Paranoid	16 (2.8%)	7 (1.2%)
Schizoid	12 (2.1%)	7 (1.2%)
Schizotypal	18 (3.1%)	13 (2.3%)
Antisocial	13 (2.3%)	10 (1.7%)
Borderline	22 (3.8%)	8 (1.4%)
Histrionic	105 (18.2%)	9 (1.6%)
Narcissistic	40 (6.9%)	21 (3.6%)
Avoidant	51 (8.8%)	37 (6.4%)
Dependent	23 (4.0%)	32 (5.5%)
Obsessive–Compulsive	42 (7.3%)	21 (3.6%)
Any PD	—	191 (33.1%)

Note. [a]SNAP = Schedule for Nonadaptive and Adaptive Personality (Clark[comma here] 1993). [b]One criterion short of meeting criteria for the disorder.

peer nominated PD score is with the corresponding self-report score (e.g., r = .36 between peer and self-report for schizoid PD and r = .26 for dependent PD). Reading across the diagonal in Table 4, the highest correlation across methods (convergent validity) was for antisocial PD (r = .44), and the lowest correlation across methods was for narcissistic PD (r = .16).

PD SCORES AND SOCIAL FUNCTIONING

Correlation coefficients between each PD score and each social functioning measure are listed in Table 5. Generally, self-reported PD features were significantly related to worse social functioning as indicated by the SFQ and SAS-SR. Peer-reported features of several PDs, especially Cluster A (paranoid, schizoid, schizotypal) traits were also related to more impaired functioning; however, the relation between PDs and social impairment was generally more striking when PDs were measured by self-report. Considering only those coefficients that remain significant after adjusting the α level for multiple comparisons (from $p < .05$ to $p < .0005$), self-reported Cluster A features (paranoid, schizotypal, schizoid), in addition to antisocial, borderline, avoidant, and dependent features were all consistently related to more impaired functioning. Peer-reported schizotypal and schizoid traits were related to higher (less adequate) SFQ and Social Role scores, respectively.

Self-report and peer report of symptoms of histrionic and narcissistic PDs indicated some exceptions to this pattern that are worthy of note. Self-report of more histrionic features on the SNAP was associated with better scores on the SAS-SR for Social Role and Family Role functioning. A similar finding appeared for the peer-based measure of PDs. People who received more nominations for exhibiting histrionic features described themselves as having better Family Role functioning. For narcissistic PD, higher SNAP scores were associated with better social functioning as reflected on the SFQ. People who received a larger number of nominations for symptoms of

TABLE 4. Correlations Between Self–Reported and Peer–Reported PD Features

	Self PD (SNAP)									
	Paranoid	**Schizoid**	**Schizotypal**	**Histrionic**	**Narcissistic**	**Borderline**	**Antisocial**	**Obsessive–Compulsive**	**Dependent**	**Avoidant**
Peer PD (PIPD)										
Paranoid	0.24**	0.01	0.13*	0.13*	0.17**	0.22**	0.11*	0.12*	0.12*	0.06
Schizoid	0.20**	0.36**	0.29**	–0.19**	0.03	0.11*	0.04	0.13*	–0.02	0.26**
Schizotypal	0.24**	0.22**	0.31**	–0.04	0.11*	0.21**	0.09	0.14*	0.06	0.20**
Histrionic	0.10	–0.18**	0.01	0.35**	0.20**	0.16**	0.15**	0.04	00.13*	–0.15**
Narcissistic	0.03	–0.15	–0.06	0.31	0.16	0.08	0.10*	0.05	0.06	–0.15**
Borderline	0.24**	0.001	0.18**	0.17**	0.17**	0.35**	0.21**	0.08	0.17**	0.04
Antisocial	0.22**	–0.06	0.08	0.35**	0.31**	0.39**	0.44**	0.00	0.11*	–0.09
Obsessive–Compulsive	0.01	0.11*	0.04	–0.10	0.01	–0.14*	–0.22**	0.28**	–0.03	0.10*
Dependent	0.02	–0.20**	–0.01	0.19**	0.05	0.11*	–0.02	0.02	0.26**	–0.06
Avoidant	0.08	0.14*	0.13*	–0.19**	–0.10*	–0.03	–0.17**	0.12*	0.11*	0.20

Note. SNAP = Schedule for Nonadaptive and Adaptive Personality. PIPD = Peer Inventory for Personality Disorders. *$p < .01$; **$p < .0001$ (meets correction for multiple comparisons).

TABLE 5. Correlation Coefficients Between Self and Peer–Reported PD Features and Social Functioning Measures

	Self PD (SNAP)				Peer PD (PIPD)			
	School[a]	Social[a]	Family[a]	SFQ[b]	School[a]	Social[a]	Family[a]	SFQ[b]
Paranoid	.25**	.31**	.26**	.56**	.10*	.04	.02	.13*
Schizoid	.11*	.34**	.13*	.32**	.01	.12**	.03	.16*
Schizotypal	.20**	.32**	.19**	.54**	.09*	.16*	.08	.21**
Antisocial	.21**	.09*	.13*	.37**	.13*	–.05	.03	.10
Borderline	.26**	.20**	.17**	.56**	.09*	.04	.05	.19*
Histrionic	–.03	–.20**	–.08*	.09	.04	–.08*	–.01	.01
Narcissistic	.05	.05	.06	.32**	.03	–.15**	–.05	–.06
Avoidant	.19**	.40**	.23**	.50**	–.04	.05	–.001	.07
Dependent	.13	.13*	.17**	.40**	.04	–.03	.004	.02
Obsessive–Compulsive	–.03	.11*	.06	.17*	–.009	.09*	–.004	.02

Note. SNAP = Schedule for Nonadaptive and Adaptive Personality. PIPD = Peer Inventory for Personality Disorders. SFQ = Social Functioning Questionnaire. [a]Role scores from Social Adjustment Scale – Self Report. [b]A total of 338 participants completed the SFQ. *$p < .05$; **$p < .0005$ (meets correction for multiple comparisons).

narcissistic PD from their peers described themselves as having better functioning on the Social Role scale. These correlations were in the opposite direction to what we expected to find.

Because we were interested in relations between PD traits and social functioning independent of mood state, we included both BDI and BAI scores in further analyses. Separate regression models, predicting the four social functioning scores from both BDI and BAI scores, were run first. The BAI did not explain significant variance in addition to the BDI for any of the social functioning scales and was excluded from subsequent analyses. The four regression equations were again calculated with only the BDI in the model (see Table 6). Next, SNAP PD dimensional scores were added simultaneously. Rather than add 10 correlated scores to the equation, we created cluster scores by summing the standardized SNAP scores within each cluster. Next, we added PIPD scores to the equations using PD cluster scores. The additional reduction in error (R^2) attributable to the self- and peer-reported PD cluster scores, over and above depression, was then calculated for each social function measure.

BDI scores explained significant variance for all social functioning scales. SNAP scores explained significant additional variance for the Social Role score (additional $R^2 = 0.09$), and the SFQ (additional $R^2 = 0.10$). Much less additional variance was accounted for in the School and Family Role scores (additional $R^2 = 0.01$ and .02, respectively). Peer-reported PD scores explained an additional 2% of the variance in Social Role scores, an additional 1% in SFQ and School Role scores, and no variance in the Family Role scores. Overall, PD scores plus BDI explained substantial variance for the Social Role scores ($R^2 = 0.21$) and the SFQ ($R^2 = 0.51$). Somewhat less variance was accounted for in the School and Family Role scores ($R^2 = 0.14$ and 0.09, respectively).

TABLE 6. Effect Sizes (R^2) for Predicting Social Functioning from Personality Disorder and Depression Scores (N = 577)

Regression Equations Predicting Social Functioning	School Role[a]	Social Role[a]	Family Role[a]	SFQ[b]
BDI Only	.12	.10	.07	.40
BDI and SNAP[c]	.13	.19	.09	.50
BDI and SNAP[c] and PIPD[d]	.14	.21	.09	.51

Note. [a]Standardized role scores from Social Adjustment Scale–Self Report (SAS–SR; Weissman & Bothwell[comma here] 1976). [b]SFQ = Standardized Social Functioning Questionnaire (Tyrer[comma here] 1993). A total of 338 participants completed the SFQ. [c]SNAP = Standardized Schedule for Adaptive and Nonadaptive Personality—PD Cluster scores. [d]PIPD = Peer Inventory for Personality Disorders—PD Cluster scores.

We were interested in knowing which PD symptoms contribute to the prediction of social functioning scores. Unique effect sizes were calculated for each PD cluster score in the regression equation. Table 7 lists the PD clusters that contributed a significant ($p < .05$) reduction in error in the prediction of social functioning, independent of BDI scores.

NUMBER OF CLOSE FRIENDS, SOCIAL FUNCTIONING, AND PDS

Each participant received a score based on the percentage of group members who indicated that the participant was a close friend. The mean number of nominations for this item was 6.74 (SD = 5.45), meaning that the average person had seven group members (of an average group size of 11) who indicated that they were a close friend.

Scores on the close friend item were negatively correlated with all three role area scores on the SAS-SR (Social Role r = -.30; School Role r = -.23; Family Role r = -.23; $p < .01$), but not with the SFQ. People who were more frequently nominated as being a close friend also tended to describe themselves as having better social functioning (i.e., lower scores on the SAS-SR).

We also examined the relations between number of close friends (as indicated by peers) and the participants' self-report PD scores on the SNAP. There was a significant negative correlation between the number of close friends and SNAP diagnostic scores for avoidant PD (r = -.23), schizotypal PD (r = -.17), schizoid PD (r = -.16), and paranoid PD (r = -.12). People who described themselves as being higher on these particular diagnostic scales were less likely to be rated by their peers as being a close friend. There was also a significant negative correlation between the number of peer nominations for PD symptoms and number of close friends for schizoid PD (r = -.22), schizotypal PD (r = -.19), avoidant PD (r = -.13), and paranoid PD (r = -.09).

DISCUSSION

We studied the relation between pathological personality traits and social functioning in a nonclinical population. Previous studies in clinical samples leave questions about the possibility that depression might be primarily responsible for the apparent connection between Axis II features and social functioning. Although our participants were not identified through a clini-

TABLE 7. Personality Disorder Scores Contributing to Prediction of Social Functioning

PD Scores	School Role[a]	Social Role[a]	Family Role[a]	SFQ[b]
Self	—	Cluster A Cluster B (+)	Cluster A	Cluster A Cluster B Cluster C
Peer	Cluster B Cluster C (+)	Cluster A	—	Cluster A

Note. (+) = higher PD score predicts better social functioning. [a]Role scores from Social Adjustment Scale–Self Report (SAS–SR; Weissman & Bothwell, 1976). [b]SFQ = Social Functioning Questionnaire (Tyrer, 1993). A total of 338 participants completed the SFQ.

cal facility, they did include a relatively substantial proportion of people who exhibited symptoms of personality disorders. The results indicate that impairment in social functioning is associated with many forms of personality pathology, even when depressed mood is controlled. Participants who described themselves as having more symptoms of Cluster A PDs (paranoid, schizoid, and schizotypal PD) also reported poorer social functioning in all areas. This connection is most apparent when self-report instruments are used to measure PD symptoms and social functioning. Nevertheless, a peer nomination procedure for PDs also showed some associations with self-report of impaired social functioning. Peer reports of symptoms associated with schizoid and schizotypal PDs were also significantly correlated with greater self-reported impairment in social functioning.

While confirming previous studies that have reported correlations between PDs and social impairment, our results also raise a number of important measurement issues. One involves reliance on self-report measures as the exclusive source of information regarding PDs. Correlations between our self- and peer report measures of PDs were modest, at best. There is some convergence between sources of information but peers clearly provide information that is not redundant with that provided by the self. We have previously reported similar findings in a sample of 2,075 military recruits who were assessed at the end of 6 weeks of basic training (Thomas, Turkheimer, & Oltmanns, in press). In that study, correlations between self-report and peer nomination scores for symptoms of personality pathology ranged between .21 and .30. Our results also resemble those from studies that have compared self-report PD measures with information obtained from a single informant who was identified by the target person. Our review of that literature indicates that the median correlation between self and informant PD scores is .36 (Klonsky, Oltmanns, & Turkheimer, 2002). Therefore, it seems reasonable to suggest that exclusive reliance on self-report PD measures may provide a limited or one-dimensional view of personality problems.

In the present set of data, we found stronger connections between symptoms of PDs and social impairment when we used a self-report measure of PDs. Of course, our measures of social impairment were all based on self-report as well. The more robust relation between social functioning and self-report of PD symptoms may be a reflection of common method variance. People who perceive themselves (and are willing to describe themselves) as

having personality problems may also be more willing to admit difficulties in the performance of various social roles. The fact that peer-based PD scores demonstrated a less robust relation to these self-report measures of social functioning does not necessarily mean that people identified in this fashion are not socially impaired. The apparent absence of social impairment may indicate that these people are not aware of (or willing to report) the difficulties that they encounter in social situations or in relationships with their families.

The interesting contrast between peer and self-report measures of PDs and their relation to social functioning is most obvious in the case of narcissistic PD. People who identified themselves as showing symptoms of narcissistic PD also described themselves as having less adequate social functioning, especially on the global SFQ measure. Conversely, people who were described by their peers as having more narcissistic features produced significantly better (lower) scores on the self-report measure of social role functioning. Peers clearly see something different than the target person when it comes to the symptoms of narcissistic PD. These patterns of results beg for additional analyses, such as a closer examination of the individual criteria that make up the diagnosis. Unfortunately, those analyses would require a much larger sample size than we have in the present study. The contrast between self and peer measures of narcissistic PD would also be easier to understand if our knowledge of each person's level of social adjustment was not based exclusively on self-report.

Future studies of this issue should include additional measures of social functioning that are based on either the reports of other people (friends, family members, co-workers, etc.) or the use of observational procedures. Analogue observational methods have been used in the assessment of social functioning, particularly in the study of people with psychotic disorders and social anxiety (Norton & Hope, 2001). Some of these procedures might easily be adapted for use with Cluster A PDs or with Cluster C PDs, where issues such as assertiveness and ability to communicate effectively with other people are particularly important.

Our results also have implications with regard to the self-report measures of social functioning that we did use, including the School, Social, and Family Role measures from the SAS-SR as well as Tyrer's Social Functioning Questionnaire (SFQ). As expected, scores on all self-report social functioning measures were significantly correlated with depressed mood at the time of assessment. This was particularly true for the SFQ. Correlations with the number of people who indicated that the target person was a close friend provided additional support for the validity of the SAS-SR scores but they were not correlated with the SFQ. These results raise some questions about the validity of this measure of social functioning.

The Social Adjustment Scale (SAS-SR) also has the advantage of describing three different areas of functioning, whereas the SFQ provides only one global score. Widiger and Costa (1994) have suggested that it is important to assess specific types of role impairment for each form of PD. Our data are consistent with the notion that areas of dysfunction do vary with the type of disorder. For example, symptoms of avoidant, schizoid, and schizotypal PDs were associated most strongly with impaired Social Role functioning.

For antisocial PD, the most obvious difficulties involved School Role performance (regardless of whether the PD scores were derived from peers or self-report). Our results complement those of Funtowicz and Widiger (1999) who found that according to clinician opinion, the PD criteria sets vary in the level of social and occupational dysfunction that they represent. This deserves further attention, with an examination of the types of dysfunction most associated with each individual disorder.

The connection between social functioning and pathological personality traits is significant but the correlations that we observed were not always in the expected direction. People who reported higher levels of histrionic PD symptoms described themselves as showing better functioning in their social and family roles. Do symptoms of histrionic PD actually predict improved social functioning? We doubt it. Consider the kinds of questions that are included on the SAS-SR. One item on the social and leisure role scale asks: "How many friends have you seen or been in contact with in the last 2 weeks?" Others ask, "How many times in the last 2 weeks have you gone out socially with other people?" and "How often have you been able to talk about your feelings and problems with one of your friends during the last 2 weeks?" People who exhibit a number of symptoms of histrionic PD would be expected to produce low scores on these items (i.e., they would spend more time with their friends and would have less trouble expressing feelings). This pattern would not necessarily imply that histrionic PD is associated with improved social functioning. It suggests instead that a different type of social impairment is associated with this disorder. For example, DSM-IV-TR suggests that people with histrionic PD are likely to have superficial relationships with other people (not necessarily fewer social relationships). The SAS-SR was not designed to probe for this kind of problem. Future studies of social functioning in histrionic PD (and other types of PD) should consider these issues carefully.

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