

## Predictors of Relationship Functioning for Patients With Bipolar Disorder and Their Partners

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Previous investigations have examined family functioning, including marital functioning, as an important predictor of the course of bipolar disorder, but limited research exists identifying the factors that influence relationship functioning in patients with bipolar disorder. In the current study, 56 patients with bipolar disorder and their partners were assessed for Axis II pathology, general family functioning, and relationship distress. Patient mood symptoms and Axis II pathology variables were examined as predictors of general relationship functioning (Family Assessment Device, McMaster Clinical Rating Scale, and Dyadic Adjustment Scale) in regression models. Analyses indicated that patients' depressive symptomatology was associated with patient ratings of general family functioning and couple functioning, while patients' manic symptoms were associated with partners' ratings of the romantic relationship. Partners' total Axis II pathology, but not patients' Axis II pathology, was associated with patient and partner perception of the couple's relationship. These findings highlight the importance of mood and personality pathology to relationship functioning, and represent one of the first investigations to verify the impact of personality pathology on patients' and partners' perceptions of relationship functioning.

*Keywords:* bipolar disorder, family functioning, marital distress, personality disorder

Bipolar disorder is a serious mental health problem that occurs in approximately 2% to 4% of the U.S. population (Kessler et al., 1994; Kessler et al., 2005). The typical course of bipolar I disorder involves multiple recurrences of mood episodes, leading to significant impairment in psychosocial functioning (Gitlin, Swendsen, Heller, & Hammen, 1995; Goldberg, Harrow, & Grossman, 1995). Bipolar disorder also presents a significant risk of fatality with approximately 10% to 15% of patients dying by suicide (Goodwin & Jamison, 1990). Given the substantial costs of bipolar disorder to patients and their families, it is imperative to identify risk factors for the relapse and recurrence of bipolar mood episodes. A notable body of research has established the marked impact of impairment in family relationships on the course of bipolar disorder and treatment outcome.

Within families of patients with bipolar disorder, impairment in family relationships has been associated with in-

creased risk for relapse of mood episodes and poorer treatment outcome (Kim & Miklowitz, 2004; Kleindienst, Engel, & Greil, 2005; Miklowitz, Goldstein, Nuechterlein, Snyder, & Mintz, 1988). Furthermore, investigations have identified family relationship impairment as a predictor of polarity-specific recurrence in bipolar disorder, finding that high levels of expressed emotion (criticism or emotional over-involvement by family members or close collaterals) predict depressive, but not manic, recurrence (Yan, Hammen, Cohen, Daley & Henry, 2004). Similarly, poor social support is associated with depressive, but not manic, recurrence (Cohen, Hammen, Henry, & Daley, 2004; Gitlin et al., 1995; Johnson, Meyer, Winett, & Small, 2000). The association of family relationship impairment and depressive recurrence is of particular importance because major depressive episodes outnumber manic episodes by a factor of 3 to 1 and depression accounts for a significant portion of the morbidity associated with bipolar disorder (Judd et al., 2002). Bipolar depression is of great clinical significance, and family relationship impairment has been acknowledged as an important risk factor for bipolar depressive symptoms. As a next step in this line of research, the present study aimed to focus in more closely on impaired relationships, examining individual patient and partner characteristics as predictors of relationship adjustment and family functioning, within the population of patients with bipolar disorder.

Further research detecting predictors of family impairment is needed to identify individual patient and family member characteristics that impact family discord and can be targeted directly in family and couple interventions. In their recommendations for relationship researchers, Robins,

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Caspi, and Moffitt (2002) note that personality traits should be central to any analysis of relationship success, and these traits are appropriate targets for intervention. The investigators state that, "relationship-specific dynamics are, in part, manifestations of enduring individual differences in personality" (Robins et al., 2002, p. 955). While prior studies have identified the association of general personality traits and relationship functioning (e.g., Robins, Caspi, & Moffitt, 2000; Robins et al., 2002; Watson, Hubbard, & Wiese, 2000), relatively few investigations have examined abnormal personality traits (i.e., Axis II pathology) as predictors of relationship impairment, particularly within a psychiatric patient population. With its direct correspondence to interpersonal functioning, Axis II pathology stands as a promising predictor of the quality of intimate relationships but has not been closely examined as a correlate of relationship functioning. Identifying the adverse impact of patient and partner personality disorder symptoms on relationship adjustment and family functioning will provide valuable data for clinicians to consider when working with the patients with bipolar disorder and their partners.

One would expect Axis II pathology to predict poorer ratings of relationship quality and family functioning given the core dysfunctional patterns of personality disorders. Axis II pathology affects individuals across multiple life domains as maladaptive cognitive, behavioral, and affective patterns generate greater stress outside and within the relationship (Daley, Hammen, Davila, & Burge, 1998; Daley, Rizzo, & Gunderson, 2006). Greater instability in psychological patterns may impact the tone and productive nature of behavioral exchanges between partners. Furthermore, patients with personality disorders are likely to lack insight into the contribution of their behavior to the quality of marital, or family, interactions (Oltmanns, Gleason, Klonsky, & Turkheimer, 2005). The nature of Axis II pathology is likely to disrupt positive family functioning, but few studies have validated these assumptions about the effects of personality disorder symptoms on couple and family functioning.

Within the limited number of studies on predictors of marital and family functioning in psychiatric samples, personality pathology has been a consistent factor in explaining dysfunction. One investigation by Gutman and colleagues (Gutman, McDermut, Miller, Chelminski, & Zimmerman, 2006) examined predictors of family functioning within a sample of general psychiatric outpatients in an intimate relationship. Total number of personality disorder (PD) symptoms, as well as total number of Axis I disorders, were associated with general couple dysfunction as well as poorer within-couple communication. Miller et al. (2000) also examined psychosocial variables as predictors of family and clinician ratings of family functioning for depressed inpatients and their family members. Patients' Axis II pathology, patients' conscientiousness, and family members' global psychopathology predicted family ratings of family functioning (averaged across patients and family members). Only the patients' Axis II pathology predicted an objective rating of family functioning. To date, only one study has examined the impact of personality disorders on specific

measures of marital functioning rather than general family functioning. South, Turkheimer, and Oltmanns (2008) found that, within a community sample of married couples, higher participant ratings of total PD pathology were associated with lower marital satisfaction, as were greater informant (spouse) reports of participant pathology. These previous studies have examined the effects of personality pathology on marital and family functioning in depressed and general outpatient samples, but no studies to date have examined these characteristics in the relationships of patients with bipolar disorder. Based on clear evidence that impairment in family relationships adversely impacts bipolar outcomes, it is imperative to identify correlates of marital and family functioning, such as patient and partner Axis II symptoms, that may be targets of future family interventions.

The current study aimed to identify the impact of personality pathology on two measures of family functioning and one measure of relationship functioning for patients with bipolar disorder and their partners. In order to examine both partner effects and actor effects, patient and partner ratings of relationship functioning were examined independently (Whisman, Uebelacker, & Weinstock, 2004). With substantial prior evidence that depressive symptoms predict poorer relationship satisfaction (e.g., Bauserman, Arias, & Craighead, 1995; Whisman et al., 2004), the study evaluated the association of Axis II pathology and relationship functioning (in both the family and couple), over and above patient mood symptoms. Axis II pathology in either patients or partners was hypothesized to predict lower general family functioning and greater marital distress, as rated by each partner, controlling for patient bipolar symptoms.

## Methods

Fifty-six participants were recruited from inpatient, partial hospital, and outpatient programs at a university-affiliated psychiatric hospital to enroll in an Institutional Review Board-approved, larger clinical trial examining adjunctive family therapy in the treatment of bipolar disorder (Miller, Solomon, Ryan & Keitner, 2004; Miller et al., 2008). Study participants were recruited for randomization into one of three treatment groups: pharmacotherapy alone, pharmacotherapy plus multifamily psychoeducational group therapy, and pharmacotherapy plus family therapy (for further detail, see Miller et al., 2004). Following a description of the study, patients and their family members provided written informed consent to participate. Of the 92 participants in the parent clinical trial, 56 patients enrolled with their spouse or committed partner and completed symptom severity measures; these 56 individuals and their partners were included in the present study examining couple functioning. The majority (84%) of these participants was married and had been married for an average of 16.62 years. Following assessment using the Structured Clinical Instrument for DSM-III-R-Patient Version (Spitzer & Williams, 1987), participants were enrolled in the larger investigation if they met the following criteria: 1) current Bipolar I disorder mood episode (manic, depressive, or mixed); 2) no

DSM-III-R alcohol or drug dependence within previous 12 months; 3) no medical illness severe enough to contraindicate mood-stabilizing medication; 4) not pregnant and, in women with child-bearing potential, using adequate contraception; 5) age 18-65 years; and 6) read and spoke English. The present study examines data obtained at the baseline assessment, before treatment was initiated.

### Description of the Sample

The mean age of the 56 identified patients in the sample was 41.77 years. The majority of patients were female ( $N = 31$ , 55%) and 95% of the sample was Caucasian. The sample varied in educational level with 14% having less than a high school education, 32% completing high school, and 55% having attended college. All participants met criteria for bipolar I disorder and all enrolled in the larger trial during an acute mood episode. The majority of participants enrolled after being hospitalized for a manic episode ( $N = 46$ , 82%). Four patients and four partners met full criteria for diagnosis of a personality disorder. Descriptive statistics for the independent and dependent variables included in this study are provided in Table 1.<sup>1</sup> Table 2 provides a correlation matrix of these variables.<sup>2</sup> All diagnostic and symptom interviews were conducted by bachelor's or master's level clinical raters.

### Diagnostic Interviews

**Axis I pathology.** Trained raters administered the Structured Clinical Interview for DSM-III-R, Patient Version (Spitzer & Williams, 1987) with the patient and partner at study entry to determine study eligibility and Axis I diagnoses.<sup>3</sup> The SCID is a commonly used, semistructured clinical interview designed to assess Axis I disorders. Before administering the SCID, all interviewers reached at least 90% agreement with the PhD-level project coordinator on diagnostic ratings. Although inter-rater reliability data were not available for this study, all participants had been given a bipolar I diagnosis by a hospital psychiatrist, indicating 100% agreement between clinician and SCID diagnoses. Patients and spouses/committed partners were assessed for current and lifetime Axis I disorders.

**Axis II pathology.** Raters administered the Structured Clinical Interview for DSM-III-R Personality Disorders (SCID-II; Spitzer & Williams, 1987) to assess Axis II pathology. The SCID-II was one of the most comprehensive DSM personality disorder interviews available at the time that the larger trial was conducted. Based on research recommendations regarding personality disorder assessment (Zimmerman, 1994), the SCID-II was conducted with patients at week 6 of treatment in order to minimize the impact of acute mood symptoms (at the time of study intake during hospitalization) affecting the validity of the personality disorder assessment.<sup>4</sup> Partners completed a SCID-II interview at baseline. Previous investigations using the SCID-II have reported kappa coefficients of reliability between 0.48 and 0.51 (see Zimmerman, 1994). Patients and spouses/committed partners were assessed for Axis II symptoms.

Axis II pathology was operationalized as a continuous measure of the number of PD symptoms meeting diagnostic threshold.

### Mood Symptom Severity

**Mania.** Severity of patient manic symptoms at baseline was assessed using the interview-based Bech-Rafaelsen Mania Scale (BRMS; Bech, Rafaelsen, Kramp, & Bolwig, 1978). The BRMS has demonstrated high test-retest reliability and internal consistency with Cronbach's alphas ranging from 0.80 to 0.90 (Bech, 2002). Prior to conducting study assessments, all interviewers received didactic training and conducted practice interviews until they reached 90% inter-rater agreement. Similar training procedures in this research group have generated high reliability ratings (ICC = 0.92; Johnson, Winett, Meyer, Greenhouse, & Miller, 1999). Higher scores on the BRMS indicate greater mania.

**Depressive symptomatology.** Severity of patient depression at baseline was assessed with the Beck Depression Inventory self-report measure (BDI; Beck, Ward, Mendelsohn, & Erbaugh, 1961). The BDI is a 21-item self-report measure of depressive symptomatology. A split-half reliability coefficient of 0.93 and adequate construct validity has been reported (Beck et al., 1961). The measure had strong internal consistency in the current sample (Cronbach's alpha = 0.88). Higher scores indicate greater depressive symptoms.

### Relationship Functioning

The McMaster Clinical Rating Scale (MCRS; Miller et al., 1994) was designed as an observer-rated measure of family functioning based on the McMaster model of family functioning. Clinical ratings were completed after administering the McMaster Structured Interview of Family Functioning ("McSiff"; Bishop, Epstein, Keitner, Miller, & Zlotnick, 1987) with the patient and his/her family members at baseline. The MCRS produces six subscales that correspond with the McMaster model (problem-solving, communica-

<sup>1</sup> It should be noted that participants were in either a manic, mixed, or depressed episode at the time of study entry; some patients reported low BDI scores at enrollment while others reported low mania scores. Therefore, mean BDI and BRMS are not as high as would be expected from a sample of only manic or only depressed individuals.

<sup>2</sup> Gender and race were not significantly correlated with any of the clinical variables.

<sup>3</sup> Because the parent project began in 1994, the DSM-III-R, rather than the DSM-IV, version of the SCID was conducted, and the original BDI, rather than the BDI-II, was administered.

<sup>4</sup> It is possible that a subset of patients continued, at week 6 of treatment, to experience mood symptoms at a level of severity that compromised the validity of the personality disorder assessment. However, it was necessary to identify a time point that was both moderately close to the baseline assessment and was a time at which treatment was likely to have had an initial effect on the acute symptoms.

Table 1  
Demographics and Descriptive Statistics for Clinical Variables

Variable	N (%)	Mean (SD)	Range	Skewness	Kurtosis
Gender Female	31 (55%)				
Male	25 (45%)				
Race Caucasian	52 (95%)				
African-American	2 (4%)				
Native American	1 (2%)				
BDI	56	11.95 (9.12)	0-32	0.72	-0.39
BRMS	56	12.39 (7.63)	0-30	0.23	-0.64
Patient SCID-II Total	35	4.03 (3.91)	0-17	1.52	2.67
Partner SCID-II Total	56	2.71 (4.74)	0-25	2.85	9.33
Clinician MCRS General Functioning Rating	56	3.21 (0.91)	2-5	0.31	-0.65
Patient FAD General Functioning Rating	55	2.11 (0.54)	1-4	0.86	1.87
Partner FAD General Functioning Rating	56	2.04 (0.46)	1-3	<0.01	-0.45
Patient DAS Score	55	90.85 (19.35)	36-119	-1.10	0.82
Partner DAS Score	54	92.41 (14.93)	50-121	-0.35	0.44

Note. BDI = Beck Depression Inventory; BRMS = Bech-Rafaelsen Mania Scale; SCID-II = Structured Clinical Interview for DSM-III-R Personality Disorders; FAD = Family Assessment Device; MCRS = McMaster Clinical Rating Scale; DAS = Dyadic Adjustment Scale.

tion, roles, affective responsiveness, affective involvement, and behavior control) and an overall rating of functioning. The MCRS has demonstrated adequate construct validity (Miller et al., 1994). All MCRS interviewers were trained through didactics, role-play, and practice interviews by one of the instrument's developers. Before completing the training phase, interviewers were required to reach 90% agreement with the trainer; assessment supervision continued throughout the study. Similar training procedures have been used in previous research at our site and resulted in acceptable levels of inter-rater reliability ( $ICC > 0.75$ ) on all MCRS subscales (Miller et al., 1994). Score on the scales range from 1 to 7 with higher scores reflecting healthier family functioning. Clinical cut-off scores of have been established; a score of 4 or below on the general functioning scale indicates unhealthy functioning (for further description of healthy and unhealthy family functioning as defined in the McMaster Model, see Epstein, Ryan, Bishop, Miller, & Keitner, 2003 and Ryan, Epstein, Keitner, Miller, & Bishop, 2005).

The Family Assessment Device (FAD; Epstein, Baldwin, & Bishop, 1983) is a 60-item self-report measure designed to assess constructs of the McMaster Model of family functioning. Similar to the MCRS, the instrument provides six subscales that correspond with the McMaster model and one scale of general functioning. The general functioning scale represents a higher-order factor onto which the other six subscales load (Kabacoff, Miller, Bishop, Epstein, & Keitner, 1990). The FAD scales have demonstrated adequate construct validity (Miller, Epstein, Bishop, & Keitner, 1985). The general functioning scale had adequate internal consistency in the current sample (Cronbach's alpha = 0.74). Subscale scores range from 1 to 4 with higher scores representing poorer family functioning. Clinical cut-off scores have been established to identify families that fall within the unhealthy functioning range; a score of 2.0 or higher on the general functioning scale indicates unhealthy functioning (Miller et al., 1985). In the present study, patients and partners completed the FAD individually at baseline.

Table 2  
Correlation Matrix for Clinical Variables

Variable	Correlation coefficient (r)								
	1	2	3	4	5	6	7	8	9
1. BDI	—								
2. BRMS	-0.29*	—							
3. Patient SCID-II Total	0.59***	-0.22	—						
4. Partner SCID-II Total	-0.10	0.07	-0.21	—					
5. Clinician MCRS General Functioning Rating	-0.04	-0.23	-0.10	-0.18	—				
6. Patient FAD General Functioning Rating	0.45***	-0.07	0.37*	0.10	-0.39**	—			
7. Partner FAD General Functioning Rating	0.04	0.18	0.14	0.31*	-0.34**	0.43**	—		
8. Patient DAS Score	-0.40**	0.02	-0.47**	-0.21	0.29*	-0.59***	-0.43**	—	
9. Partner DAS Score	-0.16	-0.29*	-0.26	-0.32*	0.20	-0.48***	-0.52***	0.56***	—

Note. BDI = Beck Depression Inventory; BRMS = Bech-Rafaelsen Mania Scale; SCID-II = Structured Clinical Interview for DSM-III-R Personality Disorders; FAD = Family Assessment Device; MCRS = McMaster Clinical Rating Scale; DAS = Dyadic Adjustment Scale.

\*  $p < .05$ . \*\*  $p < 0.01$ . \*\*\*  $p < .001$ .

Relationship distress was assessed with the Dyadic Adjustment Scale (DAS; Spanier, 1976), a 32-item self-report measure. The total DAS scale has demonstrated adequate content and construct validity (Spanier, 1976). The scale had high reliability in the current sample (Cronbach's alpha = 0.95). Lower dyadic adjustment scores indicate greater relationship disagreement. Patients and partners completed the DAS individually at baseline.

## Results

Hierarchical regression was employed to determine if baseline mood symptom severity, then personality pathology improved the prediction of 1) patient ratings of family functioning, 2) partner ratings of family functioning, 3) patient ratings of dyadic adjustment, 4) partner ratings of dyadic adjustment, and 5) clinician ratings of family functioning.

Table 3 displays the unstandardized regression coefficients ( $B$ ) and the standardized regression coefficients ( $\beta$ ) of the mood severity and Axis II pathology symptoms predicting patient ratings of general family functioning. Due to missing PD data for a subset of the identified patients, patient and partner total SCID-II scores were examined in separate models.<sup>5</sup> Model 1 indicates that patient baseline depressive symptomatology is associated with the patient's perception of general family functioning. At step 1, with depressive symptomatology and mania scores in the equation, the  $R^2$  was 0.313,  $p = .003$ . Patient Axis II pathology did not significantly improve the model, with a final  $R^2$  of 0.322,  $p = .007$ . Partner Axis II pathology similarly did not improve Model 2 with a change in  $R^2$  of 0.024 from step 1 to step 2. Both models indicate that greater baseline depressive symptomatology was associated with poorer patient report of family functioning, while Axis II pathology in patients and partners was not associated with patient perception of general family functioning.

Table 4 displays the unstandardized regression coefficients ( $B$ ) and the standardized regression coefficients ( $\beta$ ) of the mood severity and Axis II pathology symptoms predicting patient ratings of relationship functioning (DAS). Step 1 of Model 3 again indicated that baseline depressive symptomatology was associated with patients' perception of relationship functioning,  $R^2 = 0.420$ ,  $p = <0.001$ . Patient Axis II pathology did not significantly improve the model, with a final  $R^2$  of 0.424,  $p = .001$ . In model 4, the addition of partner PD symptoms to the model resulted in a significant increase in  $R^2$  with a change from  $R^2 = 0.174$  to  $R^2 = 0.239$ . This model reveals that patients' higher depression scores and partners' personality pathology were independently associated with poorer patient ratings of relationship functioning.

Finally, Table 5 displays the unstandardized regression coefficients ( $B$ ) and the standardized regression coefficients ( $\beta$ ) of the mood severity and Axis II pathology symptoms predicting partner ratings of relationship functioning (DAS). Model 5 indicates that patient mania scores, but not patient depression or patient Axis II pathology, were associated with partner perception of dyadic adjustment,  $R^2 =$

0.255,  $p = .230$ . The addition of partner Axis II pathology in Model 6 resulted in a significant improvement of 0.101 in  $R^2$ , suggesting that patient mania and partner Axis II pathology independently are associated with partner perception of relationship functioning.

Mood severity symptoms, patient Axis II pathology, and partner Axis II pathology did not form a significant model of partner ratings of family functioning (FAD). The proposed variables also were not found to be significantly associated with objective clinician ratings of family functioning (MCRS).<sup>6</sup>

## Discussion

Although a sizable body of research has established the impact of family relationship impairment on bipolar outcomes, few studies have examined the individual characteristics that contribute to patient and partner perception of relationship and family functioning within this population. The primary aim of this study was to examine the association of personality pathology with couple and family functioning in patients with bipolar disorder. As expected, patient depressive symptoms were significantly associated with patient perception of family and couple functioning, such that higher levels of depression were related to poorer ratings of functioning. For partners, patients' manic symptoms rather than depressive symptoms were associated with poorer intimate relationship functioning as measured by the DAS. The primary findings provide partial support for the study hypotheses: partner Axis II pathology influenced both patient and partner perceptions of the quality of their relationship as a couple, with higher levels of total Axis II pathology associated with greater relationship distress. Patient Axis II pathology, however, was not significantly associated with couple functioning. Neither patient nor partner Axis II pathology was significantly associated with family functioning, and none of the variables of interest were associated with clinician ratings of family functioning. Overall, these findings demonstrate the previously reported associations of bipolar symptoms with family and couple functioning. Furthermore, the results provide evidence of the impact of Axis II pathology on intimate relationship functioning within couples coping with a significant Axis I disorder. Our findings represent one of the first investigations to verify the impact of an individual's personality pathology on partners' perceptions of relationship functioning within a psychiatric patient population.

Previous research has highlighted the relationship of family discord and depression within patients with bipolar disorder. Yan et al. (2004) reported that patients with bipolar disorder who experienced high expressed emotion in close

<sup>5</sup> Patients who did not complete the SCID-II had greater depression at baseline,  $\chi^2(1, N = 56) = 6.69$ ,  $p = 0.01$ , and reported poorer family functioning on the FAD,  $\chi^2(1, N = 56) = 4.12$ ,  $p = 0.04$ . No other significant differences between SCID-II completers and noncompleters were found for the clinical variables.

<sup>6</sup> Full results of the nonsignificant findings are available from the authors by request.

Table 3  
*Hierarchical Regression of Mood Severity and Personality Disorder Symptoms on Patient Rating of General Family Functioning (FAD)*

Variable	$R^2$	$t$	$B$	$SE B$	$\beta$	$p$
Model 1 ( $N = 35$ )						
Step 1	0.313					0.003
BRMS		1.57	0.016	0.001	0.240	0.125
BDI		3.77	0.035	0.001	0.574	0.001
Step 2	0.322					0.007
BRMS		1.60	0.016	0.010	0.247	0.119
BDI		2.70	0.031	0.012	0.504	0.011
Patient total PD		0.66	0.015	0.022	0.121	0.515
Model 2 ( $N = 55$ )						
Step 1	0.206					0.003
BRMS		0.62	0.006	0.009	0.081	0.538
BDI		3.63	0.028	0.008	0.472	0.001
Step 2	0.230					0.004
BRMS		0.59	0.005	0.009	0.077	0.557
BDI		3.76	0.029	0.008	0.489	<0.001
Partner total PD		1.27	0.018	0.014	0.157	0.210

Note. BDI = Beck Depression Inventory; BRMS = Bech-Rafaelsen Mania Scale; PD = personality disorder symptoms.

relationships were 5 times more likely to experience a depressive recurrence. The cross-sectional data of the present study replicate the relationship of depressive symptoms and family functioning; patients' ratings of poorer family functioning were associated with higher levels of depression at study intake. It is of note that patients' perceptions of family and intimate relationship dysfunction were related to depression while objective, clinician ratings were not associated with mood severity.

The differences between self-report and observer ratings of family functioning demonstrated in this study suggest that these measures assess similar, but not identical, depictions of family relationship impairment. While clinicians' assessments provide valuable objective data based on patient and family members' collective descriptions of the family unit, it is possible that the amalgamation of family members' descriptions "waters down" the overall ratings of

family distress. Additionally, it is possible that family members may feel less comfortable voicing negative perceptions of family functioning while other family members are present. Self-report measures provide greater anonymity, and thus stronger relationships between family functioning and mood symptoms would be found with these measures.

Partner Axis II pathology was found to affect intimate relationship functioning adversely but was not associated with general family functioning in the present study. In interpreting these findings it is important to consider that this pattern describes couples and families also coping with the patient's serious mental illness, bipolar disorder. It is likely that the patient depends considerably on his or her partner for support and consistency during mood episodes. If the partner's own maladaptive affective and behavioral patterns (Axis II pathology) compromise meeting these needs, the quality of the relationship, as assessed by the

Table 4  
*Hierarchical Regression of Mood Severity and Personality Disorder Symptoms on Patient Rating of Relationship Distress (DAS)*

Variable	$R^2$	$t$	$B$	$SE B$	$\beta$	$p$
Model 3 ( $N = 34$ )						
Step 1	0.420					<0.001
BRMS		-1.14	-0.442	0.388	-0.162	0.264
BDI		-4.73	-1.710	0.362	-0.673	<0.001
Step 2	0.424					0.001
BRMS		-1.10	-0.434	0.393	-0.159	0.279
BDI		-3.27	-1.555	0.476	-0.612	0.003
Patient total PD		-0.51	-0.508	0.999	-0.093	0.614
Model 4 ( $N = 55$ )						
Step 1	0.174					0.007
BRMS		-0.83	-0.278	0.335	-0.110	0.410
BDI		-3.31	-0.920	0.278	-0.437	0.002
Step 2	0.239					0.003
BRMS		-0.80	-0.260	0.325	-0.103	0.427
BDI		-3.59	-0.973	0.271	-0.462	0.001
Partner total PD		-2.09	-1.041	0.499	-0.256	0.042

Note. BDI = Beck Depression Inventory; BRMS = Bech-Rafaelsen Mania Scale; PD = personality disorder symptoms.

Table 5  
*Hierarchical Regression of Mood Severity and Personality Disorder Symptoms on Partner Rating of Relationship Distress (DAS)*

Variable	$R^2$	$t$	$B$	$SE B$	$\beta$	$p$
Model 5 ( $N = 34$ )						
Step 1	0.229					0.018
BRMS		-2.56	-0.792	0.309	-0.418	0.016
BDI		-2.22	-0.653	0.294	-0.363	0.034
Step 2	0.255					0.001
BRMS		-2.63	-0.813	0.309	-0.429	0.014
BDI		-1.26	-0.447	0.355	-0.248	0.218
Patient total PD		-1.03	-0.717	0.695	-0.201	0.310
Model 6 ( $N = 54$ )						
Step 1	0.147					0.017
BRMS		-2.70	-0.705	0.261	-0.362	0.009
BDI		-1.90	-0.424	0.224	-0.254	0.064
Step 2	0.248					0.002
BRMS		-2.75	-0.682	0.248	-0.350	0.008
BDI		-2.18	-0.465	0.213	-0.279	0.034
Partner total PD		-2.59	-0.990	0.382	-0.319	0.013

Note. BDI = Beck Depression Inventory; BRMS = Bech-Rafaelsen Mania Scale; PD = personality disorder symptoms.

DAS, is likely to suffer. It is possible that within a larger family system, as assessed by the FAD, other individuals can tend to the needs and the health of the family during critical periods, and thus the partners' Axis II pathology has less negative impact on general family functioning.

The consistency of Axis II results across multiple investigations of varying samples highlights the critical impact of personality pathology on relationship functioning (Gutman et al., 2006; Miller et al., 2000; South, Turkheimer, & Oltmanns, 2008). It is possible that a common factor (or factors) shared across personality disorders may account for relationship impairment, rather than particular personality disorder profiles (Daley, Burge, & Hammen, 2000). Due to the current study's sample size, we were not able to test a common factor hypothesis versus individual PD clusters or disorders as predictors of relationship adjustment. However, of the PD clusters, we would anticipate that Cluster B symptoms may be most consistently related to relationship impairment in this population. The work of Chen and colleagues (2004) suggests that each PD cluster score may be associated with poorer ratings of family functioning and dyadic adjustment at different points in the lifespan, but Cluster B is likely to have the strongest association with relationship functioning. Similarly, South et al. (2008) found that borderline features are related to low relationship satisfaction. Within studies of general personality traits, Robins et al. (2000; Robins et al. 2002) reported that negative emotionality, along with aggression and high stress-reactivity, are associated with maladaptive intimate relationships. Examining cluster and individual personality disorder presentations as predictors of relationship functioning would be an important contribution for future larger studies of family discord in patients with bipolar disorder.

The demonstrated relationship of partner personality pathology and poor relationship functioning represents a unique finding in the literature on comorbid mood and personality pathology. In nearly all previous investigations of the impact of Axis II pathology on social functioning,

Axis II pathology has been conceptualized as maladaptive characteristics unique to the identified patient, without modeling the impact of partner personality pathology on patient outcomes. Personality pathology in partners may denote stable interpersonal difficulties, which impact emotional responsiveness and problem solving within the family. Individuals with significant personality pathology are inflexible in their patterns of interaction and likely possess limited ability to adapt to shifts in partner needs or expectations. Axis II pathology also clouds the individual's interpretation of a partner's intentions and may lead to hostile or defensive interactions. Any and all of these aspects of personality pathology may affect patients' perceptions of relationship quality, which in turn has significant impact on the course of an identified patient's bipolar disorder. Future research examining mediators of the relationship of personality pathology and family functioning—such as communication patterns, emotional responsiveness, or problem-solving abilities—is needed. By identifying particular behavioral patterns related to personality pathology that impact relationship functioning, specific interventions can then be employed within the context of couple and family interventions. South et al (2008) has noted, "marital therapy may, in fact, be an ideal setting in which to address personality pathology" (p. 778).

Methodological advantages of this study's design include the application of a standardized clinical interview to assess PD symptoms, and the use of a dimensional rather than categorical conceptualization of Axis II pathology. A few limitations should be noted. Because the sample was recruited to enroll in a larger investigation of pharmacotherapy and family therapy for bipolar disorder, findings based on this treatment-seeking sample may not generalize to broader samples of patients with bipolar disorder and their partners. Because the sample was predominantly Caucasian, it is possible that the results would not generalize to a more diverse population. Due to attrition and patient willingness to complete an additional interview, only 35 of the 56 patients completed the SCID-II assessment 6 weeks after

baseline interviews. This limited our ability to evaluate patient Axis II pathology and partner Axis II pathology simultaneously. It is possible that mood-state effects distorted patient report of current relationship functioning because the identified patients of this investigation were recovering from a mood episode at enrollment. However, previous investigations of unipolar depression indicate that subjective ratings of family dysfunction predict course of depression better than objective, clinical ratings (Miller et al., 1992). Finally, the available data only allowed for cross-sectional analysis of the relationship of mood and personality disorder symptoms with family and intimate relationship functioning. Longitudinal follow-up of patient and partner ratings of relationship functioning are needed to elucidate the impact of partner personality pathology on the identified patients' perception of relationship functioning and the interaction of this variable with the course of bipolar disorder.

Important extensions of this investigation would be to examine the relationship of *both* partners' mood states with personality pathology, and how self and partner-informant report of Axis I and Axis II symptoms relate to the perception of relationship and family functioning. The larger investigation from which this study originated was a clinical trial comparing treatments for bipolar disorder. The study objectives of that investigation did not relate to partner or family member mood symptoms, and thus partner mood data were not collected. Similarly, it was not feasible to conduct both individual and informant interviews of Axis I and Axis II pathology with the identified patient and his or her partner. More complex investigations of each partner's mood and Axis II symptoms would provide rich data on the reciprocal relationships of couples' mood and personality symptoms and the perception of relationship functioning.

The current investigation highlights the association of mood and personality to relationship impairment for patients with bipolar disorder. While solid evidence of the bidirectional impact of mood on marital quality exists, future research on the mechanisms by which personality pathology affects relationship functioning is warranted. Behavioral assessment studies examining which elements of couples' interactions, verbal and nonverbal, are impacted by personality disorder symptoms would identify target behaviors for intervention and would aid in the development of couples' treatments for comorbid personality pathology and Axis I disorders. The findings in this investigation suggest that early treatment of Axis II symptoms during late adolescence or early adulthood may improve social outcomes, such as relationship functioning, thereby improving not only the course of patients' mental health but potentially the mental health of their future partners.

## References

- Bauserman, S. A. K., Arias, I., & Craighead, W. E. (1995). Marital attributions in spouses of depressed patients. *Journal of Psychopathology and Behavioral Assessment*, *17*, 231–249.
- Bech, P. (2002). The Bech-Rafaelsen Mania Scale in clinical trials of therapies for bipolar disorder: A 20-year review of its use as an outcome measure. *CNS Drugs*, *16*, 47–63.
- Bech, P., Rafaelsen, O. J., Kramp, P., & Bolwig, T. G. (1978). The Mania Rating Scale: Scale construction and inter-observer agreement. *Neuropharmacology*, *17*, 430–431.
- Beck, A. T., Ward, C., Mendelsohn, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry*, *4*, 561–571.
- Bishop, D. S., Epstein, N. B., Keitner, G. I., Miller, I. W., & Zlotnick, C. (1987). *The McMaster structured interview of family functioning*. Providence, RI: Brown University Family Research Program.
- Chen, H., Cohen, P., Johnson, J. G., Kasen, S., Sneed, J. R., & Crawford, T. N. (2004). Adolescent personality disorders and conflict with romantic partners during the transition to adulthood. *Journal of Personality Disorders*, *18*(6), 507–525.
- Cohen, A., Hammen, C., Henry, R., & Daley, S. (2004). Effects of stress and social support on recurrence in bipolar disorder. *Journal of Affective Disorders*, *82*, 143–147.
- Daley, S. E., Burge, D., & Hammen, C. (2000). Borderline personality disorder symptoms as predictors of 4-year romantic relationship dysfunction in young women: Addressing issues of specificity. *Journal of Abnormal Psychology*, *109*, 451–460.
- Daley, S. E., Hammen, C., Davila, J., & Burge, D. (1998). Axis II symptomatology, depression, and life stress during the transition from adolescence to adulthood. *Journal of Consulting and Clinical Psychology*, *66*, 595–603.
- Daley, S. E., Rizzo, C. J., & Gunderson, B. H. (2006). The longitudinal relation between personality disorder symptoms and depression in adolescence: The mediating role of interpersonal stress. *Journal of Personality Disorders*, *20*, 352–368.
- Epstein, N., Ryan, C., Bishop, D., Miller, I., & Keitner, G. (2003). The McMaster model: A view of healthy family functioning. In F. Walsh (Ed.), *Normal family processes: Growing diversity and complexity* (3rd ed., pp. 581–607). New York: Guilford Press.
- Epstein, N. B., Baldwin, L. M., & Bishop, D. S. (1983). The McMaster Family Assessment Device. *Journal of Marital and Family Therapy*, *9*, 171–180.
- Gitlin, M. J., Swendsen, J., Heller, T. L., & Hammen, C. (1995). Relapse and impairment in bipolar disorder. *American Journal of Psychiatry*, *152*, 1635–1640.
- Goldberg, J. F., Harrow, M., & Grossman, L. S. (1995). Course and outcome in bipolar affective disorder: A longitudinal follow-up study. *American Journal of Psychiatry*, *152*, 379–384.
- Goodwin, F. K., & Jamison, K. R. (1990). *Manic-depressive illness*. New York: Oxford University Press.
- Gutman, J., McDermut, W., Miller, I., Chelminski, I., & Zimmerman, M. (2006). Personality pathology and its relation to couple functioning. *Journal of Clinical Psychology*, *62*, 1275–1289.
- Johnson, S. L., Meyer, B., Winett, C., & Small, J. (2000). Social support and self-esteem predict changes in bipolar depression but not mania. *Journal of Affective Disorders*, *58*, 79–86.
- Johnson, S. L., Winett, C. A., Meyer, B., Greenhouse, W. J., & Miller, I. (1999). Social support and the course of bipolar disorder. *Journal of Abnormal Psychology*, *108*, 558–566.
- Judd, L. L., Akiskal, H. S., Schettler, P. J., Endicott, J., Maser, J., Solomon, D. A. . . . Keller, M. B. (2002). The long-term natural history of the weekly symptomatic status of bipolar I disorder. *Archives of General Psychiatry*, *59*, 530–537.
- Kabacoff, R. I., Miller, I. W., Bishop, D. S., Epstein, N. B., & Keitner, G. I. (1990). A psychometric study of the McMaster Family Assessment Device in psychiatric, medical, and nonclinical samples. *Journal of Family Psychology*, *3*, 431–439.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comor-

- idity Survey Replication. *Archives of General Psychiatry*, 62, 593–602.
- Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., . . . Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: Results from the National Comorbidity Survey. *Archives of General Psychiatry*, 51, 8–19.
- Kim, E. Y., & Miklowitz, D. J. (2004). Expressed emotion as a predictor of outcome among bipolar patients undergoing family therapy. *Journal of Affective Disorders*, 82, 343–352.
- Kleindienst, N., Engel, R. R., & Greil, W. (2005). Psychosocial and demographic factors associated with response to prophylactic lithium. A systematic review for bipolar disorders. *Psychological Medicine*, 35, 1685–1694.
- Miklowitz, D. J., Goldstein, M. J., Nuechterlein, K. H., Snyder, K. S., & Mintz, J. (1988). Family factors and the course of bipolar affective disorder. *Archives of General Psychiatry*, 45, 225–231.
- Miller, I., Keitner, G., Ryan, C., Uebelacker, L., Johnson, S., & Solomon, D. (2008). Family treatment for bipolar disorder: Family impairment by treatment interactions. *Journal of Clinical Psychiatry*, 69, 732–740.
- Miller, I. W., Epstein, N. B., Bishop, D. S., & Keitner, G. I. (1985). The McMaster family assessment device: Reliability and validity. *Journal of Marital and Family Therapy*, 11, 345–366.
- Miller, I. W., Kabacoff, R. I., Epstein, N. B., Bishop, D. S., Keitner, G. I., Baldwin, L., & van der Spuy, H. I. (1994). The development of a clinical rating scale for the McMaster model of family functioning. *Family Process*, 33, 53–69.
- Miller, I. W., Keitner, G. I., Whisman, M. A., Ryan, C. E., Epstein, N. B., & Bishop, D. S. (1992). Depressed patients with dysfunctional families: Description and course of illness. *Journal of Abnormal Psychology*, 101, 637–646.
- Miller, I. W., McDermut, W., Coop Gordon, K., Keitner, G. I., Ryan, C. E., & Norman, W. (2000). Personality and family functioning in families of depressed patients. *Journal of Abnormal Psychology*, 109, 539–545.
- Miller, I. W., Solomon, D. A., Ryan, C. E., & Keitner, G. I. (2004). Does adjunctive family therapy enhance recovery from bipolar I mood episodes? *Journal of Affective Disorders*, 82, 431–436.
- Oltmanns, T. F., Gleason, M. E. J., Klonsky, E. D., & Turkheimer, E. (2005). Meta-perception for pathological personality traits: Do we know when others think that we are difficult? *Consciousness and Cognition*, 14, 739–751.
- Robins, R. W., Caspi, A., & Moffitt, T. E. (2000). Two personalities, one relationship: Both partners' personality traits shape the quality of their relationship. *Journal of Personality and Social Psychology*, 79, 251–259.
- Robins, R. W., Caspi, A., & Moffitt, T. E. (2002). It's not just who you're with, it's who you are: Personality and relationship experiences across multiple relationships. *Journal of Personality*, 70, 925–964.
- Ryan, C., Epstein, N., Keitner, G., Miller, I., & Bishop, D. (2005). *Evaluating and treating families: The McMaster approach*. New York: Routledge.
- South, S. C., Turkheimer, E., & Oltmanns, T. F. (2008). Personality disorder symptoms and marital functioning. *Journal of Consulting and Clinical Psychology*, 76, 769–780.
- Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, 38, 15–28.
- Spitzer, R. L., & Williams, J. B. W. (1987). *Structured Clinical Interview for DSM-III-R Patient Version*. New York: Biometric Research Department, New York State Psychiatric Institute.
- Watson, D., Hubbard, B., & Wiese, D. (2000). General traits of personality and affectivity as predictors of satisfaction in intimate relationship: Evidence of self- and partner-ratings. *Journal of Personality*, 68, 413–449.
- Whisman, M. A., Uebelacker, L. A., & Weinstock, L. M. (2004). Psychopathology and marital satisfaction: The importance of evaluating both partners. *Journal of Consulting and Clinical Psychology*, 72, 830–838.
- Yan, L. J., Hammen, C., Cohen, A. N., Daley, S. E., & Henry, R. M. (2004). Expressed emotion versus relationship quality variables in the prediction of recurrence in bipolar patients. *Journal of Affective Disorders*, 83, 199–206.
- Zimmerman, M. (1994). Diagnosing personality disorders: A review of issues and research methods. *Archives of General Psychiatry*, 51, 225–245.

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