



Published in final edited form as:

J Pers Disord. 2011 December ; 25(6): 789–805. doi:10.1521/pedi.2011.25.6.789.

ATTACHMENT, BORDERLINE PERSONALITY, AND ROMANTIC RELATIONSHIP DYSFUNCTION

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Abstract

Previous studies have implicated attachment and disturbances in romantic relationships as important indicators for Borderline Personality Disorder (BPD). The current research extends our current knowledge by examining the specific associations among attachment, romantic relationship dysfunction, and BPD, above and beyond the contribution of emotional distress and nonromantic interpersonal functioning in two distinct samples. Study 1 comprised a community sample of women ($N = 58$) aged 25–36. Study 2 consisted of a psychiatric sample ($N = 138$) aged 21–60. Results from both Study 1 and Study 2 demonstrated that (1) attachment was specifically related to BPD symptoms and romantic dysfunction, (2) BPD symptoms were specifically associated with romantic dysfunction, and (3) the association between attachment and romantic dysfunction was statistically mediated by BPD symptoms. The findings support specific associations among attachment, BPD symptoms, and romantic dysfunction.

Borderline Personality Disorder (BPD) is a heterogeneous condition characterized by affective instability, cognitive disturbances, impulsive and self-damaging acts, and dysfunctional interpersonal relationships (American Psychiatric Association, 2000). Individuals exhibiting significant BPD features are often characterized by preoccupied and unresolved attachment (e.g., Blatt & Levy, 2003) and are likely to experience poor social outcomes, specifically dysfunction in romantic relationships (Bagge et al., 2004; Trull, Ueda, Conforti, & Doan, 1997; Zweig-Frank & Paris, 2002). We plan to extend the previous research by examining the specificity of relations among attachment, BPD, and romantic dysfunction in two distinct samples: (1) women recruited from the UK general population and (2) psychiatric patients recruited from an outpatient clinic in the USA.

ATTACHMENT AND ROMANTIC DYSFUNCTION

According to attachment theory, experiences in early intimate relationships, usually with parents, are internalized as representations of relationships, which then inform subsequent intimate relationships. Consistent with this hypothesis, an extensive self-report literature has

established that romantic relationships perform an attachment function (Hazan & Zeifman, 1999; Hazan & Shaver, 1987). Additionally, research has found that those with secure attachment in childhood have better psychosocial functioning, including better quality of romantic relationships, as adults when compared to individuals with an insecure or disorganized attachment (e.g., Crowell et al., 2002; Treboux, Crowell, & Waters, 2004).

However, individuals with dysfunction in romantic relationships are more likely to have dysfunction in other social domains, such as in friendships (Hill, Harrington, Fudge, Rutter, & Pickles, 1989). Thus, it is unclear if attachment is linked more generally to interpersonal functioning or if there is a specific association between attachment and romantic functioning.

ASSOCIATIONS BETWEEN BPD, ATTACHMENT, AND ROMANTIC DYSFUNCTION

Attachment and BPD: Attachment is associated with different forms of psychopathology, with preoccupied and unresolved loss or trauma attachment most closely linked to BPD, with high rates of these attachment styles in patients with BPD (Argawal, Gunderson, Holmes, & Lyons-Ruth, 2004; Blatt & Levy, 2003). Preoccupied and unresolved adult attachments are understood in attachment theory to be associated with early social environmental adversity, which many studies have shown to be over-represented in BPD patients, including childhood sexual abuse (McLean & Gallop, 2003; Zanarini et al. 2002) and parental neglect and loss (Helgeland & Torgersen, 2004; Reich & Zanarini, 2001). A major limitation of most studies assessing the relation between BPD and attachment is that they have not controlled for conditions that commonly co-occur with BPD. One exception is Fonagy and colleagues (1996), who found a unique association between BPD and preoccupied attachment even after controlling for comorbid Axis I and II disorders in a sample of patients with BPD.

BPD and Romantic Dysfunction: Given the prominence of disturbances in close relationships in the BPD DSM criteria, romantic relationship dysfunction might be expected to be a characteristic outcome of the disorder. Although pervasive social dysfunction is well documented as an outcome associated with BPD (Russell, Moskowitz, Zuroff, Sookman, & Paris, 2007; Zanarini, Frankenburg, Hennen, Reich, & Silk, 2005), inconsistent evidence exists regarding the unique relation between romantic relationship dysfunction and BPD when compared to other psychiatric conditions. Some research has found that after controlling for depression and other personality disorder symptoms, BPD is not specifically related to romantic dysfunction (Daley, Burge, & Hammen, 2000). However, this lack of association may reflect the short time-frame of the assessment for romantic dysfunction. When assessing romantic functioning over a five-year period, Hill and colleagues (2008) found that BPD participants had more romantic dysfunction when compared to those with Avoidant Personality Disorder.

The present study extends previous work by developing a broader model to explain the associations between attachment, BPD, and romantic dysfunction. We predicted that (1) attachment status would be specifically related to romantic dysfunction, (2) BPD would be specifically associated with romantic dysfunction, and (3) attachment status would be

specifically associated with BPD, even after controlling for associated psychiatric symptoms and nonromantic interpersonal functioning. Although mediation cannot be demonstrated in a cross-sectional study, we can ask whether the pattern of findings is consistent with mediation, or whether it makes mediation unlikely. Furthermore, some predictions regarding the likely direction of causality can be made a priori. Thus, we assume that attachment could contribute directly to BPD symptoms or to romantic dysfunction, but not the other way round. We used standard tests of mediation (Baron & Kenny, 1986) to explore whether the pattern of findings is consistent with this hypothesis.

We examine these predictions with two distinct samples. The first sample was drawn systematically from the general population in the UK, and the Adult Attachment Interview was utilized to measure attachment. This sample was characterized by low levels of BPD symptoms and was small in size. In the second study, all of the participants were clinically referred in the USA, resulting in higher levels of BPD symptoms. This was a larger sample, in which an attachment Q sort rather than the AAI was used. Demonstrating the same pattern of results across these two studies increases the level of confidence in the findings.

STUDY 1

METHOD

Sample—Participants were identified from women aged 25–36 who were living on the Wirral, a borough in North West England and had participated in a study of child maltreatment, interpersonal functioning, and depression (Hill et al., 2001). The study was approved by the Wirral Health Authority Ethical Committee. In the first phase, questionnaires on adult mental health problems and childhood experiences were mailed to 1,946 eligible women from five NHS primary care practices, of which 1,181 were returned (60.7%). In the second phase, 198 participants were selected by stratified random sampling from three strata based on questionnaire-reported childhood sexual abuse (CSA) and low parental care. In the third phase, 58 participants (mean age = 32.2 years; $SD = 3.0$) were randomly selected from the CSA ($n = 29$) and non-CSA ($n = 29$) groups to complete the AAI. The pattern of results presented below remains the same when controlling for history of childhood sexual abuse.

All interviews were conducted by trained research staff and were audio-taped for training and reliability purposes. Of the final sample, 73.7% were currently working, and 86.9% had a current partner. Only a small minority were single and had never married or been in a cohabiting relationship ($n = 3$; 5%). Approximately one fifth were currently separated or divorced ($n = 12$; 21%) and the majority were married or in a cohabiting relationship ($n = 43$; 74%). The average length of the relationships among those currently married or cohabiting was 7.3 years ($SD = 4.8$ years). The sample had a mean of 1.5 children ($SD = 1.4$). All were Caucasian, reflecting the low rate of ethnic minorities in the region.

Measures

Axis I and II Disorders: The Schedule for Affective Disorders and Schizophrenia (Spitzer & Endicott, 1975) was used to measure major depression since the age of 21. Fifteen participants (26%) had experienced at least one major depressive episode.

The Structured Clinical Interview for DSM-IV Personality Disorders (SCID-II; First, Spitzer, Gibbon, & Williams, 1997a) is a well-validated and reliable assessment of Axis II psychopathology (Maffei et al., 1997), which we used as a dimensional index of PD symptoms. To reduce overlap of BPD with measures of interpersonal functioning, we followed Daley and colleagues' (2000) strategy of removing Criterion 1 (unstable and intense interpersonal relationships) from the BPD symptom count. The other personality disorder (OthPD) symptom score was the summed score for all DSM Axis II disorders other than BPD. To determine inter-rater reliability, 20 cases were randomly selected and independently rated (blind to other information). The intraclass correlation coefficient (*ICCs*) was .88 for BPD symptoms and .85 for OthPD symptoms. The sample had a mean of 0.50 (*SD* = 1.14) BPD symptoms after excluding Criterion 1. Two participants met DSM-IV criteria for BPD. Participants had a mean of 1.90 (*SD* = 3.19) total other-PD DSM Axis II symptoms. Four participants met DSM-IV criteria for other personality disorder (2 avoidant; 1 dependent; 1 paranoid).

Attachment: The Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985) is a semi-structured interview developed to elicit a participant's state of mind regarding his or her early attachment experiences. The AAI has demonstrated high inter-rater and test-retest reliability (Bakermans-Kranenburg & van Ijzendoorn, 1993). The interview asks participants to recall and discuss their childhood relationships with their care-givers, changes in these relationships over time and evaluations of their parents' behavior during childhood. Trained coders rate interviews that have been transcribed verbatim on the probable care the interviewees received as children, the overall coherence of the interview, and the coherence of the state of mind of the interviewee. Individuals are classified as having a secure (F), dismissing (Ds), or preoccupied (E) state of mind with respect to attachment, and in addition may be assigned an unresolved (U) classification. Interviews in which a predominant attachment strategy cannot be identified are rated cannot classify (CC). Individuals with U and CC classifications are commonly combined into one group on the basis of their more marked disruption of attachment, and intergenerational associations of each with attachment disorganization in infants. AAIs were rated by trained and reliable raters, blind to other information. Levels of inter-rater agreement were high (94%) on 4-way AAI classification (CC/U, Ds, E, and F) obtained for 25% of the sample. The distribution of AAI classifications for the current sample was as follows: 27 participants were classified as secure, 11 as dismissing, 6 as preoccupied, and 14 as disorganized, i.e., U (*n* = 12); CC (*n* = 2). The numbers in each of the attachment categories previously found in association with BPD, preoccupied (E), and unresolved/cannot classify (U/CC) were too small for entry as separate variables. They were therefore combined into an E/U/CC category which was compared with secure and dismissing groups.

Social Dysfunction: The Adult Personality Functioning Assessment (APFA; Hill et al., 1989) is a standardized interview of specific and general social dysfunction. The present study focuses on three domains (i.e., romantic relationships, friendships, nonspecific social contacts) during the participant's twenties. Through structured questions and probes that explore a range of areas in each domain, a trained interviewer rates each domain on a six-point scale according to severity and pervasiveness of dysfunction. For example, a 1 rating

on romantic relationships requires temporal stability, positive trust, marked confiding and enjoyment, and 6 would be assigned in the absence of sustained committed relationships or if marriage/cohabitation were maintained only in the face of sustained discord or violence. This team has established good APFA inter-rater reliability and subject-informant agreement (Hill et al., 1989).

RESULTS

Bivariate Correlations—First, we examined bivariate correlations among continuous study variables, including BPD and OthPD symptoms; and dysfunction in romance, friends and nonspecific social interactions. BPD symptoms and OthPD symptoms were correlated ($r = .66, p < .001$). Dysfunction in romantic, friends and nonspecific social relationships were significantly correlated (r s ranging from .37 to .46, p s $< .01$). BPD symptoms were significantly associated with dysfunction in romance ($r = .55, p < .001$) and nonspecific ($r = .30, p = .025$) social domains, but not related to dysfunction in the friend domain.

Hierarchical Linear Regressions—We conducted a series of hierarchical linear regression analyses to assess the unique relations between E/U/CC and dismissive attachment, romantic dysfunction, and BPD symptoms. Table 1 displays the results from the three hierarchical linear regression analyses. Attachment was significantly associated with romantic dysfunction, accounting for 6% of the variance beyond what is accounted for by major depression, OthPD symptoms, and nonromantic dysfunction. Examination of the beta weights revealed that E/U/CC attachment ($\beta = .27; p = .03$), but not dismissive attachment ($\beta = .10; p > .05$), was significantly associated with romantic dysfunction.

Attachment was also significantly associated with BPD symptoms, accounting for an additional 6% of the variance after accounting for depression and OthPD symptoms; and nonromantic social dysfunction. Examination of the beta weights revealed that E/U/CC attachment was significantly associated with BPD symptoms ($\beta = .28; p = 0.01$), while dismissive attachment was not ($\beta = .03; p > .05$). Lastly, BPD symptoms were significantly associated with romantic dysfunction, accounting for an additional 11% of the variance beyond depression and OthPD symptoms; and friend and nonspecific social dysfunction. Examination of the beta weights revealed that higher BPD symptoms were associated with higher romantic dysfunction as expected ($\beta = .47; p = .002$).

To examine the notion that BPD symptoms mediate the relation between E/U/CC attachment and romantic dysfunction rather than romantic dysfunction mediating the relation between attachment and BPD symptoms, we conducted additional hierarchical linear regression analyses. First, to test whether BPD symptoms mediate the relation between attachment and romantic dysfunction, we entered BPD symptoms into the model after entering attachment. In this model, E/U/CC attachment was no longer a significant predictor of romantic dysfunction ($\beta = .12, p > .05$), providing preliminary support for a mediational model. Next, to test whether romantic dysfunction mediates the relation between E/U/CC attachment and BPD symptoms, we entered romantic dysfunction into the model after entering attachment. In this model, attachment remained a significant predictor of BPD symptoms, ($\beta = 0.20; p = 0.04$), which does not provide support for mediation.

STUDY 2

METHOD

Sample—Patients ($N = 138$) from 21 to 60 years old were solicited from the general adult outpatient clinic at Western Psychiatric Institute and Clinic and were currently active in treatment. Patients with psychotic disorder, organic mental disorders, and mental retardation were excluded, as were patients with major medical illnesses that influence the central nervous system and might be associated with organic personality change (e.g., Parkinson's disease, cerebrovascular disease, seizure disorders). All study procedures were approved by the University of Pittsburgh Institutional Review Board.

We were interested in recruiting patients from three groups: (1) those with BPD ($n = 54$); (2) those with another PD (majority with a Cluster C personality disorder; $n = 55$); and (3) those without a PD ($n = 29$). Announcements describing the study and were posted in the clinic. Patients interested in participating contacted research staff and were pre-screened by phone for the presence or absence of PD symptoms. An intake appointment was then scheduled.

The mean age of the sample was 38 years ($SD = 10.6$) and 104 participants (75.4%) were female. The majority of the sample identified as Caucasian ($n = 103$; 74.6%), 33 (23.9%) as African American, and the remainder as another race/ethnicity. A slight majority of participants were single and never married ($n = 71$; 51.4%). A slight majority of participants were single and never married ($n = 71$; 51.4%). Approximately one-quarter of our participants ($n = 36$; 26.1%) were currently separated or divorced, 21% ($n = 29$) were married or in a long-term committed relationship, and 1.4% ($n = 2$) were widowed. The average length of romantic relationship for the past five years was 4.3 years ($SD = 1.02$ years) for individuals who were currently married or in a long-term committed relationship and 2.35 years ($SD = 1.95$ years) for those participants who were not.

A vast majority of the sample obtained education beyond high school ($n = 111$; 80.4% with at least some vocational or college training), but the financial deprivation of the sample was high: 45.0% of the participants reported annual household incomes of less than \$10,000. The most prevalent current diagnoses were comorbid affective and anxiety disorders ($n = 54$; 39.1%) followed by more complex presentations that included eating, somatoform, dissociative, and sexual disorders comorbid with more common affective, anxiety, and substance use disorders ($n = 29$; 21.0%).

Best-Estimate Diagnostic Procedures—Diagnostic assessments at intake required three sessions, and each session lasted approximately 2 hours. During Session 1, all participants were administered the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; First, Spitzer, Gibbon, & Williams, 1997b) and other measures of current symptomatology. In session 2, a detailed social and developmental history was taken, using a semi-structured interview, the Interpersonal Relations Assessment (IRA; Heape, Pilkonis, Lambert, & Proietti, 1989), developed for this purpose. During session 3, the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II; First, Spitzer, Gibbon, & Williams, 1997a) was administered.

Following the intake evaluation, the primary interviewer presented the case at a 3-hour diagnostic conference with other colleagues from the research team (all members had a minimum of a master's degree in social work or clinical psychology). A complete description of the consensus rating process used in our research program has been provided in previous reports (Pilkonis et al., 1995). A minimum of three judges participated. All available data (historical and concurrent) were reviewed and discussed at the conference. For the present purpose, the key measures that emerged from the best-estimate consensus were (a) the Adult Attachment Q-sort and (b) the specific DSM-IV criteria and resulting diagnoses assigned.

Measures

Distress: During the intake interview, participants completed a battery of self-report questionnaires, including the Brief Symptom Inventory (BSI; Derogatis, 1993). To reduce shared method variance, we report the BSI to control for psychiatric distress as opposed to HAM-D or HAM-A interview scores because the same clinicians completed the personality disorder interviews. Results are remarkably similar when using the HAM-D and HAM-A as covariates. The BSI provides a common metric for general distress and is widely used in research on psychopathology. Respondents rank each of the 53 items on a 5-point scale ranging from 0 (not at all) to 4 (extremely). Ratings characterize the intensity of distress during the past seven days. For the purposes of this study, we computed the BSI Global Symptom Index (BSI-GSI) and was used to control for current levels of distress in all analyses, ($M = 1.43$, $SD = .77$). In the current study the internal consistency of the BSI-GSI was high ($\alpha = .96$).

Attachment: The Adult Attachment Q-sort (Kobak, 1989; Kobak, Holland, Ferenz-Gillies, Fleming, & Gamble, 1993) is an instrument designed to assess adult attachment strategies, including depictions of self and parents, information processing, and emotion regulation. In the present implementation of the Q-sort method, the diagnostic consensus team sorted (rank orders) 100 statements into nine categories, ranging from most characteristic (9) to least characteristic (1) based on all information obtained during the clinical interviews. The sort results in a forced bell-shape distribution with five items in the two extreme categories and 18 items in the category neither characteristic nor uncharacteristic. The Adult Attachment Q-sort is scored by correlating sorts from individual patients with "gold standard" sorts of secure, dismissing, and preoccupied profiles. The present study focuses on the dismissing and preoccupied profiles. The preoccupied attachment score ranged from $-.37$ to $.71$ ($M = .28$, $SD = .23$) and the dismissive attachment scored ranged from $-.57$ to $.68$ ($M = .12$, $SD = .25$).

Personality Disorder Symptoms: Dimensional scores reflecting the severity of each personality disorder were computed by summing the scores (ranging from 0 absent to 2 strongly present) of the individual criteria. We created two personality disorder symptom counts: total BPD symptoms and the sum of the criteria from the remaining DSM Axis II disorders (total OthPD symptoms). Consistent with Study 1 method, we did not include the interpersonal disturbance criterion in our BPD symptom count to reduce the amount of overlap between BPD and social dysfunction variables. OthPD symptom scores will be used

to control for general personality disorder pathology. BPD symptom scores ranged from 0–15 ($M = 5.53$, $SD = 4.89$) and OthPD symptom scores ranged from 3–41 ($M = 17.49$, $SD = 9.09$). Throughout the course of the study, 5 cases were randomly selected as reliability cases and were rated by an average of four judges to measure inter-rater reliability regarding DSM-IV PD criteria. The ICCs were .91 for BPD symptoms and .79 for OthPD symptoms.

Social Dysfunction: Social dysfunction was measured by a second interviewer who was blind to the results from the diagnostic assessments using the Revised Adult Personality Functioning Assessment (RAPFA; Hill et al., 1989; Hill & Stein, 2002). The RAPFA is the revised version of the APFA used in Study 1. For the revised version, the scale was expanded from ratings of 1–6 to 1–9. The interviews were audio-recorded, and detailed reports are prepared from the tapes. RAPFA ratings of the severity of impairment in each domain were made in a second consensus conference which comprised 3 judges who were different from those in the diagnostic case conference and were also blind to the results of the Axis I and II diagnostic assessment and conference. Ratings ranged from 2–9 ($M = 7.37$, $SD = 1.60$) for romantic relationships, 1–9 ($M = 5.97$, $SD = 2.00$) for friendships, and 2–9 ($M = 4.77$, $SD = 2.08$) for nonspecific social relationships. Throughout the course of the study, 10 cases were randomly selected as reliability cases and were rated by an average of seven judges to measure inter-rater reliability. The ICCs for ratings of overall severity in each domain were .87 for romantic relationships, .82 for friendships, and .75 for nonspecific social relationships.

RESULTS

Bivariate Correlations—First, we computed bivariate correlations among all study variables, including distress; BPD and OthPD symptoms; dismissive and preoccupied attachment; and dysfunction in romance, friends, and nonspecific relationships. Distress, BPD, and OthPD symptoms were at least moderately interrelated (r s ranged from .29 to .51, p s < .001). Additionally, dysfunction in romance, friends, and nonspecific social relationships were significantly related to each other (r s ranged from .31 to .51, p s < .001). Also, as expected, dismissive and preoccupied attachment were not related ($r = .16$, $p = .07$). Preoccupied attachment was related to BPD symptoms ($r = .25$, $p < .01$) and dysfunction in romance ($r = .37$, $p < .001$), friends ($r = .38$, $p < .001$), and nonspecific social ($r = .29$, $p < .01$) domains. However, dismissive attachment was only significantly related to distress ($r = .18$, $p < .05$). Finally, BPD symptoms were related to dysfunction in romance ($r = .33$, $p < .001$), friends ($r = .26$, $p < .01$), and nonspecific social ($r = .33$, $p < .001$) domains.

Hierarchical Linear Regressions—Consistent with the data analytic plan employed in Study 1, we conducted a series of hierarchical linear regressions to assess the unique relations between insecure attachment (i.e., preoccupied and dismissive styles), romantic dysfunction, and BPD symptoms (Table 2). Insecure attachments (i.e., preoccupied and dismissive styles) were significantly associated with romantic dysfunction, above and beyond distress and OthPD symptoms; and friend and nonspecific social dysfunction. Examination of the beta weights revealed that preoccupied attachment was significantly associated with romantic dysfunction ($\beta = .20$; $p = .018$), whereas dismissive attachment was not ($\beta = -.05$; $p = .486$). Additionally, BPD symptoms were associated significantly

with insecure attachment, even after controlling for distress and OthPD symptoms; and friend and nonspecific social dysfunction. Examination of the beta weights again revealed that preoccupied attachment was significantly associated with BPD symptoms ($\beta = .32; p < .001$), while dismissive attachment was not ($\beta = -.05; p = .473$). Lastly, BPD symptoms were significantly associated with romantic dysfunction, accounting for an additional 2% of the variance beyond the contributions of distress and OthPD symptoms; and friend and nonspecific social dysfunction. Examination of the beta weights revealed that higher BPD symptoms were associated with higher romantic dysfunction ($\beta = .20; p = .034$).

To test for preliminary support of the mediating the relation between preoccupied attachment and BPD symptoms, we conducted additional hierarchical linear regression analyses. First, to test whether BPD symptoms mediate the relation between preoccupied attachment and romantic dysfunction, we entered BPD symptoms into the model after entering attachment. In this model, preoccupied attachment was no longer a significant predictor of romantic dysfunction ($\beta = .16; p = .075$), providing initial support for mediation. Next, to test whether romantic dysfunction mediates the relation between preoccupied attachment and BPD symptoms, we entered romantic dysfunction into the model after entering attachment. In this model, preoccupied attachment remained a significant predictor of BPD symptoms, ($\beta = .29; p < .001$), which does not provide support for mediation.

DISCUSSION

In the current research, we examined the unique relations between attachment, romantic relationship dysfunction, and BPD symptoms. Romantic dysfunction may be a general problem associated with personality disorder; however, we found a specific association between romantic dysfunction and BPD. Comparison with previous studies regarding the specific association between attachment status and romantic dysfunction is not possible because, as far as we are aware, no previous studies have attempted to control for nonromantic dysfunction. Similarly, no previous studies have sought to examine the three-way relationship between attachment status, BPD symptoms, and romantic dysfunction. Results from Study 1 demonstrated that (1) E/U/CC attachment was specifically associated with romantic dysfunction, (2) BPD symptoms were specifically associated with romantic dysfunction, and (3) BPD symptoms mediated the relation between E/U/CC attachment and romantic dysfunction, controlling for depression, other Axis II symptoms, and nonromantic interpersonal dysfunction in a community sample. Importantly, these findings held even when controlling for a history of childhood sexual abuse, suggesting that the effects of attachment on BPD and romantic dysfunction cannot be explained by experiences of this type of early trauma. Study 1 findings were conceptually replicated in a clinical sample of patients with personality disorders in Study 2. This study found insecure attachment, specifically preoccupied attachment, was uniquely related to romantic dysfunction and BPD symptoms. Moreover, BPD symptoms statistically mediated the association between preoccupied attachment and romantic dysfunction, above and beyond distress, other personality disorder symptoms, and nonromantic interpersonal dysfunction. Taken together, the results from these two studies suggest that BPD symptoms may account for the relation between E/U/CC attachment and romantic dysfunction.

Our finding of a specific association between BPD symptoms and romantic dysfunction differs from several reports in the literature, including that of Daley and colleagues' (2000) work, which was based on a general population sample. However, it is consistent with a study of a clinical sample with high numbers of patients with BPD, which also used the APFA (Hill et al., 2008). The finding that E/U/CC, but not dismissive, attachment was associated with BPD symptoms in Study 1 is consistent with the majority of studies that have assessed attachment using the AAI (c.f. Agrawal et al., 2004). Additionally, the finding from Study 2 regarding the specific association between preoccupied attachment and BPD symptoms is consistent with previous reports across a variety of attachment instruments (e.g., Blatt & Levy, 2003).

STRENGTHS, LIMITATIONS, AND IMPLICATIONS

Strengths of these studies include the different samples employed. Study 1 participants were drawn from the general population, (and therefore not subject to the referral biases of clinical samples), whereas, in Study 2 participants were psychiatric patients recruited for a study of personality disorders. Both studies benefited from the multi-method and intensive assessment processes. In Study 1, the assessment of adult attachment was conducted and rated independently of interviews for DSM Axis I and II pathology and interpersonal functioning. In Study 2, the assessment of distress, DSM Axis II symptoms, and interpersonal functioning were all rated independently. The breadth of the assessments allowed us to test for specificity by accounting for associated psychopathology and interpersonal dysfunction.

These studies had several limitations. First, they were both cross-sectional in design, which did not allow for the examination of temporal relationship between processes and functioning. Our next efforts will be to test this mediational model in a longitudinal clinic-referred sample. Additionally, we did not use identical measures across the two studies. Most notably, study 2 did not assess unresolved attachment; hence we were not able to examine the potential effects of this construct on BPD and romantic dysfunction. However, we thoughtfully replicated the conceptual model in Study 2 using a different sample and different measures of the same constructs. Next, the community sample in Study 1 was not representative of the general population. As half of the sample was selected based on reported CSA, general childhood adversity was likely to be over-represented. Finally, because of our small community sample in Study 1, individuals with preoccupied and disorganized attachment were combined in an E/U/CC group, which likely obscured important differences between these categories.

The findings reported in this paper are consistent with the notion that both attachment and romantic dysfunction are core features of BPD (e.g., Blatt & Levy, 2003; Hill et al., 2008). Why might attachment, BPD symptoms, and romantic dysfunction have specific associations? In previous work with the clinical sample used in Study 2, we found that BPD symptoms were associated with domain disorganization, which is a disruption in an individual's ability to regulate emotions and behaviors across several social domains (Hill et al., 2008). This association held after accounting for OthPD symptoms and mood and anxiety disorders. Thus, it is plausible that BPD symptoms may arise from attachment

processes specifically affecting romantic dysfunction in the context of domain disorganization. Attachment status and domain disorganization both reflect a person's capacity for emotion regulation in social interaction. Therefore, these processes may also account for the widely reported problems in emotion regulation found in BPD. We have also found that anger proneness, attachment, and domain disorganization each make independent contributions to BPD symptoms in our clinical sample (Morse et al., 2009).

Additionally, we conducted follow-up analyses in our clinical sample to examine which aspects of the BPD construct seem to have the most influence on romantic relationship functioning. We found several BPD criteria significantly related to romantic dysfunction: interpersonal turmoil ($r = .27, p = .002$), fears of abandonment ($r = .25, p = .004$), impulsivity ($r = .17, p = .049$), and self-injurious behavior ($r = .22, p = .012$), suggesting that in addition to the feature of interpersonal dysfunction, impulsivity may also play an important role in romantic relationship dysfunction. Future work is needed to elucidate the specific interpersonal processes that are problematic for individuals with BPD in romantic relationships and to examine the potential unique impact that unresolved attachment and preoccupied attachment have on BPD and romantic dysfunction. Different types of attachment in individuals with BPD might result in distinctive patterns of interpersonal behavior in romantic relationships. For example, individuals with unresolved attachment may display more fearful and disorganized interpersonal behaviors, whereas those with preoccupied attachment may engage in more submissive behaviors. In sum, our findings suggest that, not only are there processes that make specific contributions to BPD, but their combined effects are sufficiently general as to account for both the distinctive and the pervasive dysfunction that characterizes the disorder.

Acknowledgments

This study was supported by National Institute on Mental Health Grants R01 MH56888 awarded to the last author (PI: PA Pilkonis).

We would like to acknowledge members of the Personality Studies team for their hard work in collecting data from this protocol, especially Kirsten E. Yaggi. We are also grateful for Tom Lorenz who administered and scored the AAI interviews. Without their dedication this work would not be possible.

References

- Agrawal HR, Gunderson J, Holmes BM, Lyons-Ruth K. Attachment studies with borderline patients: A review. *Harvard Review of Psychiatry*. 2004; 12:94–104. [PubMed: 15204804]
- American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 4. Washington, DC: American Psychiatric Press; 2000. text revision
- Bakermans-Kranenburg MJ, van Ijzendoorn MH. A psychometric study of the adult attachment interview: Stability and discriminant validity. *Developmental Psychology*. 1993; 29:879.
- Bagge CL, Nickell A, Stepp S, Durrett C, Jackson K, Trull T. Borderline personality disorder features predict negative outcomes two years later. *Journal of Abnormal Psychology*. 2004; 113:279–288. [PubMed: 15122948]
- Baron RM, Kenny DA. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*. 1986; 51:1173–1182. [PubMed: 3806354]
- Blatt SJ, Levy KN. Attachment theory, psychoanalysis, personality development, and psychopathology. *Psychoanalytic Inquiry*. 2003; 23:102–150.

- Crowell JA, Treboux D, Gao Y, Fyffe C, Pan H, Waters E. Assessing secure base behavior in adulthood: Development of a measure, links to adult attachment representations, and relations to couples' communication and reports of relationships. *Developmental Psychology*. 2002; 38:679–693. [PubMed: 12220047]
- Daley SE, Burge D, Hammen C. Borderline personality disorder symptoms as predictors of 4-year romantic relationship dysfunction in young women: Addressing issues of specificity. *Journal of Abnormal Psychology*. 2000; 109:451–460. [PubMed: 11016115]
- Derogatis, LR. Brief Symptom Inventory 18: Administration, scoring, and procedures manual. Minneapolis, Minn: NCS Pearson Inc; 1993.
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JB. Structured clinical interview for DSM-IV Personality Disorders, SCID-II. Washington, DC: American Psychiatric Press; 1997a.
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JB. Structured clinical interview for DSM-IV axis I disorders—patient edition (SCID-I/P, Version 2.0). New York: Biometrics Research Department New York State Psychiatric Institute; 1997b.
- Fonagy P, Leigh T, Steele M, Steel H, Kennedy R, Mattoon G, Target M, Gerber A. The relation of attachment status, psychiatric classification and response to psychotherapy. *Journal of Consulting and Clinical Psychology*. 1996; 64:22–31. [PubMed: 8907081]
- George, C.; Kaplan, N.; Main, M. The adult attachment interview. Berkeley, CA: Department of Psychology, University of California; 1985.
- Hazan C, Shaver P. Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*. 1987; 52:511–524. [PubMed: 3572722]
- Hazan, C.; Zeifman, D. Pair bonds as attachments: Evaluating the evidence. In: Cassidy, J.; Shaver, PR., editors. *Handbook of attachment: Theory, research, and clinical applications*. New York: Guilford Press; 1999. p. 336-354.
- Heape, CL.; Pilkonis, PA.; Lambert, J.; Proietti, JM. Interpersonal relations assessment. Pittsburgh: Department of Psychiatry, University of Pittsburgh; 1989.
- Helgeland M, Torgersen S. Developmental antecedents of borderline personality disorder. *Comprehensive Psychiatry*. 2004; 45:138–147. [PubMed: 14999665]
- Hill J, Fudge H, Harrington R, Pickles A, Rutter M. Complementary approaches to the assessment of personality disorder. The personality assessment schedule and adult personality functioning assessment compared. *British Journal of Psychiatry*. 2000; 176:434–439. [PubMed: 10912218]
- Hill J, Harrington R, Fudge H, Rutter M, Pickles A. Adult personality functioning assessment (APFA). An investigator-based standardized interview. *British Journal of Psychiatry*. 1989; 155:24–35. [PubMed: 2605429]
- Hill J, Pickles A, Burnside E, Byatt M, Rollinson L, Davis R, et al. Child sexual abuse, poor parental care and adult depression: evidence for different mechanisms. *British Journal of Psychiatry*. 2001; 179:104–109. [PubMed: 11483470]
- Hill J, Pilkonis P, Morse J, Feske U, Reynolds S, Hope H, et al. Social domain dysfunction and disorganization in borderline personality disorder. *Psychological Medicine*. 2008; 38:135–146. [PubMed: 17892627]
- Hill, J.; Stein, H. Revised adult personality functioning assessment (Technical report no. 02–0052). Topeka, KS: The Menninger Clinic, Research Department; 2002.
- Kobak, R. The attachment interview q-set. University of Delaware; 1989. Unpublished manuscript
- Kobak RR, Holland EC, Ferenz-Gillies R, Fleming WS, Gamble W. Attachment and emotion regulation during mother-teen problem solving: A control theory analysis. *Child Development*. 1993; 64:231–245. [PubMed: 8436031]
- Maffei C, Fossati A, Agostoni I, Barraco A, Bagnato M, Deborah D, et al. Interrater reliability and internal consistency of the structured clinical interview for DSM-IV axis II personality disorders (SCID-II), version 2.0. *Journal of Personality Disorders*. 1997; 11:279–284. [PubMed: 9348491]
- McLean LM, Gallop R. Implications of childhood sexual abuse for adult borderline personality disorder and complex posttraumatic stress disorder. *American Journal of Psychiatry*. 2003; 160:369–371. [PubMed: 12562587]

- Morse J, Hill J, Pilkonis P, Yaggi K, Broyden N, Stepp S, Reed LI, Feske U. Anger, preoccupied attachment, and domain disorganization in borderline personality disorder. *Journal of Personality Disorders*. 2009; 23:240–257. [PubMed: 19538080]
- Pilkonis PA, Heape CL, Proietti JM, Clark SW, McDavid MD, Pitts TE. The reliability and validity of two structured diagnostic interviews for personality disorders. *Archives of General Psychiatry*. 1995; 52:1025–1033. [PubMed: 7492254]
- Reich DB, Zananini MC. Developmental aspects of borderline personality disorder. *Harvard Review of Psychiatry*. 2001; 9:294–301. [PubMed: 11600488]
- Russell JJ, Moskowitz DS, Zuroff DC, Sookman D, Paris J. Stability and variability of affective experience and interpersonal behavior in borderline personality disorder. *Journal of Abnormal Psychology*. 2007; 116:578–588. [PubMed: 17696713]
- Spitzer, RL.; Endicott, J. Schedule for affective disorders and schizophrenia—lifetime version. New York: Biometrics Research; 1975.
- Treboux D, Crowell JA, Waters E. When “new” meets “old”: Configurations of adult attachment representations and their implications for marital functioning. *Developmental Psychology*. 2004; 40:295–314. [PubMed: 14979768]
- Trull TJ, Ueda D, Conforti K, Doan B. Borderline Personality Disorder features in nonclinical young adults: 2. Two-year outcome. *Journal of Abnormal Psychology*. 1997; 106(2):307–314. [PubMed: 9131850]
- Zananini MC, Frankenburg FR, Hennen J, Reich DB, Silk KR. Psychosocial functioning of borderline patients and axis II comparison subjects followed prospectively for six years. *Journal of Personality Disorders*. 2005; 19:19–29. [PubMed: 15899718]
- Zananini MC, Yong L, Frankenburg FR, et al. Severity of reported childhood sexual abuse and its relationship to severity of borderline psychopathology and psychosocial impairment among borderline inpatients. *Journal of Nervous and Mental Disorders*. 2002; 190:381–387.
- Zweig-Frank H, Paris J. Predictors of outcomes in a 27 year follow-up of patients with borderline personality disorder. *Comprehensive Psychiatry*. 2002; 43:103–107. [PubMed: 11893987]

TABLE 1

Study 1: Hierarchical Linear Regressions Testing the Specificity of the Relations Between Romantic Dysfunction, Attachment, and BPD Symptoms

| Step | Model 1 : Romantic Dysfunction Regressed on Attachment | | | | Model 2: BPD Symptoms Regressed on Attachment | | | | Model 3: Romantic Dysfunction Regressed on BPD Symptoms | | | |
|---------------------------|--|--------------|---------|--------------|---|--------------|----------|--------------|---|--------------|-----------|--------------|
| | β | R^2 (adj.) | F | df_1, df_2 | β | R^2 (adj.) | F | df_1, df_2 | β | R^2 (adj.) | F | df_1, df_2 |
| <i>Covariates</i> | | | | | | | | | | | | |
| 1. Depression | .30* | | | | .26* | | | | .30* | | | |
| OthPD Symptoms | .21 | | | | .63*** | | | | .21 | | | |
| <i>Social Dysfunction</i> | | | | | | | | | | | | |
| APFA Friends | .15 | | | | -.15 | | | | .15 | | | |
| APFA Non Spec | .19 | .36 | 7.40*** | 4, 52 | .02 | .52 | 14.13*** | 4, 52 | .19 | .36 | 7.41*** | 4, 52 |
| <i>Attachment</i> | | | | | | | | | | | | |
| 2. Dismissive | .10 | | | | .03 | | | | | | | |
| E/U/CC | .27* | .06 | 6.00*** | 6, 50 | .28** | .06 | 3.72* | 6, 50 | | | | |
| <i>BPD</i> | | | | | | | | | | | | |
| 2. BPD Symptoms | | | | | | | | | .47** | .11 | 10.233*** | 5, 51 |

Note. In order to establish the association between BPD symptoms and Romantic Dysfunction, BPD symptoms (and not attachment scores) are entered in Step 2 for Model 3.

* $p < 0.05$;

** $p < 0.01$;

*** $p < .001$.

Study 2: Hierarchical Linear Regressions Testing the Specificity of the Relations Between Romantic Dysfunction, Attachment, and BPD Symptoms

TABLE 2

| Step | Model 1: Romantic Dysfunction Regressed on Attachment | | | | Model 2: BPD Symptoms Regressed on Attachment | | | | Model 3: Romantic Dysfunction Regressed on BPD Symptoms | | | |
|---------------------------|---|--------------|----------|--------------|---|--------------|----------|--------------|---|--------------|----------|--------------|
| | β | R^2 (adj.) | F | df_1, df_2 | β | R^2 (adj.) | F | df_1, df_2 | β | R^2 (adj.) | F | df_1, df_2 |
| <i>Covariates</i> | | | | | | | | | | | | |
| 1. BSI-GSI Distress | .10 | | | | .43*** | | | | .10 | | | |
| OthPD Symptoms | -.02 | | | | .09 | | | | -.02 | | | |
| <i>Social Dysfunction</i> | | | | | | | | | | | | |
| RAPFA Friends | .45*** | | | | .01 | | | | .45*** | | | |
| RAPFA Non Spec | .06 | .24 | 11.12*** | 4, 123 | .17 | .28 | 13.33*** | 4, 123 | .06 | .24 | 11.12*** | 4, 123 |
| <i>Attachment</i> | | | | | | | | | | | | |
| 2. Q-sort Preoccupied | .20* | | | | .32*** | | | | | | | |
| Q-sort Dismissive | -.05 | .03 | 8.72*** | 6, 121 | -.05 | .08 | 12.67*** | 6, 121 | | | | |
| <i>BPD</i> | | | | | | | | | | | | |
| 2. BPD Symptoms | | | | | | | | | .20* | .02 | 10.11*** | 5, 122 |

Note. In order to establish the association between BPD symptoms and Romantic Dysfunction, BPD symptoms (and not attachment scores) are entered in Step 2 for Model 3.

* $p < 0.05$;

** $p < 0.01$;

*** $p < .001$.