Interpersonal and Emotional Experiences of Social Interactions in Borderline Personality Disorder

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Abstract

General Aim—We examined interpersonal experiences of patients with borderline personality disorder (BPD) using a time-contingent diary procedure to collect information about social interactions for 7 days.

Method—We examined the (1) quantity of social interactions and (2) interpersonal and emotional experiences during social interactions for patients with borderline personality disorder (BPD; *N*=42) compared to those with another personality disorder (OPD; *N*=46) and those without significant personality pathology (NOPD; *N*=23).

Results—Results suggested that BPD patients have fewer social contacts compared to those in the NOPD group. Additionally, the BPD patients characterized their social interactions as more disagreeable, ambivalent, angry, empty, and sad compared to the OPD and NOPD groups. BPD patients reported experiencing more anxiety and less positive affect compared to the NOPD but not the OPD group.

Conclusion—These findings highlight aspects of day-to-day interpersonal functioning that are specific to BPD.

Keywords

Borderline personality disorder; social interactions; Rochester Interaction Record

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Chronic difficulties in interpersonal relationships are a core dimension of borderline personality disorder (BPD; Gunderson, 2007; Gunderson & Lyons-Ruth, 2008). Interpersonal difficulties do not exhaust the features associated with BPD: difficulties in impulse control and emotion regulation and impairments in social responsibilities also play central roles. However, interpersonal relationships do include aspects of chronicity, style, and functional impairment that are apparent to both patients and significant others. The DSM-IV describes the relationships of persons with BPD as fraught with intensity, fears of abandonment, and oscillations between idealization and devaluation of important figures. These interactions are likely to be characterized by hostility, disagreement, and ambivalence (Gunderson, 2007).

The empirical examination of interpersonal problems in BPD has generally relied upon global assessments of social functioning (e.g., Skodol *et al.* 2004; Zanarini *et al.* 2005; Cramer *et al.* 2006). When examining role functioning by social domain, Hill *et al.* (2007) demonstrated that individuals with BPD experience decreased functioning across work/school, friendship, and romance. However, when compared to individuals with other personality and axis I disorders, only dysfunction in romantic relationships was specific to BPD. Clifton *et al.* (2007) found that the number of individuals in the BPD patients' social networks did not differ from those without a personality disorder. However, they did find differences in the

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composition of the social networks; BPD patients had a greater density of former romantic partners. Additionally, patients with BPD reported more conflicted interactions with those closest to them when compared to patients without a personality disorder. The results from these two studies suggest that romance is a social domain that uniquely characterizes interpersonal dysfunction in patients with BPD. Thus, the relational context in which the social interaction occurs may play an important role in the interpersonal behavior associated with BPD. These global measures used in these studies provide few details about the face-to-face behaviors of patients with BPD (often characterized by conflict, hostility, and ambivalence) that is described in clinical reports (Linehan, 1993; Gunderson, 1996; Gunderson, 2001).

Using a paper-and-pencil diary study, Russell *et al.* (2007) found that individuals with BPD characterized their interpersonal behaviors as more conflictual and submissive, with increased levels of negative affect, and with more variability when compared to community controls. It is unclear whether or not such day-to-day difficulties in social interactions can be explained by the presence of general personality pathology versus axis I disorders. Additionally, this study did not examine these effects within the context of the relationship that defined the social interaction. Therefore, these findings might be moderated by the type of relationship (romance, family, or friendship) that characterized the social interaction.

To further expand our understanding of the day-to-day interpersonal experiences of patients with BPD, we examined ratings of social interactions assessed over the course of 7 days using an electronic social interaction diary (SID) adapted from the Rochester Interaction Record (RIR; Wheeler & Nezleck, 1977; Reis & Wheeler, 1991). The SID elicits ratings of interpersonal transactions and their associated emotions. This method has been used to examine the effects of major depressive disorder on interpersonal behavior and emotional experiences during social interactions (e.g., Nezlek *et al.* 2000). To our knowledge, this is the first study to employ this SID method to investigate the effects of BPD on social interactions.

Our overall aim in this study was to assess the specificity of problematic social interactions in patients with BPD. Thus ratings from patients with BPD were compared with two groups of psychiatric patients: (1) those with other types of personality pathology (OPD) and (2) those without any personality disorder (NOPD). Our general prediction was that BPD patients would not differ from the other patient groups in the number and total duration of interactions; we expected, however, that the quality of the experience and the emotions evoked by them would be marked by greater negativity (especially hostility and conflict). We also expected that the experience of social interactions would vary by relationship type (i.e., romantic, familial, friendship) for patients with BPD, with romantic relationships being the most difficult.

Method

Sample

Patients (*N*=111) 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 (see Table 1 for descriptive data). The mean age of the sample was 37.5 years (*SD*=10.8) and 87 participants (78.4%) were female. Eighty participants (72.1%) identified as Caucasian, 29 (26.1%) as African American, 1 (.9%) as Native American, and 1 (.9%) as Asian. Three participants (2.7%) identified ethnicity as Hispanic.

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 participants agreed to complete an electronic

diary regarding social interactions for seven days. All study procedures were approved by the University of Pittsburgh Institutional Review Board.

Best-estimate diagnostic procedures

Diagnostic assessments at intake required three sessions, and each session lasted approximately 2 hours. Session 1 included administration of the Structured Clinical Interview for DSM-IV Axis I Disorders (*SCID-I*; First *et al.* 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 *et al.* 1989), developed for this purpose. During session 3, the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (*SCID-II*; First *et al.* 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 briefer summary of the procedure is included here. A minimum of three judges participated. All available data (historical and concurrent) were reviewed and discussed at the conference, and each clinician voted independently about the presence or absence of a personality disorder. Judges had access to all that had been collected: current and lifetime Axis I information, symptomatic status, social and developmental history, and personality features endorsed from the Axis II interview. For the present purpose, the key measures that emerged from the best-estimate consensus were (a) the overall decision about the presence or absence of a personality disorder and (b) the specific DSM-IV diagnoses assigned. During the diagnostic conference, a checklist of Axis II criteria for all PDs was completed by consensus, with each item rated absent (0), present (1), or strongly present (2). Based on the best-estimate diagnostic case conference, the total sample included 43 BPD patients, 46 OPD patients, and 23 NOPD patients.

The majority of the OPD group was comprised of patients with a cluster C personality disorder; 28 participants (60.9%) had Avoidant Personality Disorder, 11 participants (23.9%) had Obsessive Compulsive Personality Disorder, and 5 participants (10.9%) had Dependent Personality Disorder. Participants in this group also met criteria for Cluster A and B personality disorders. Specifically, two participants (4.3%) had Paranoid Personality Disorder, two participants (4.3%) had Schizoid Personality Disorder, and one participant (2.2%) was diagnosed with Schizotypal Personality Disorder. Additionally, seven participants (15.2%) had Narcissistic Personality Disorder, and four participants (8.7%) had Antisocial Personality Disorder. Seventeen NOPD participants (73.91%) met criteria for a current mood disorder. Specifically, 2 participants (8.70%) met criteria for current bipolar disorder, and 15 participants (65.22%) had current major depressive disorder. Fifteen NOPD participants (65.22%) met criteria for a current anxiety disorder and 5 participants (21.74%) had a current substance use disorder.

Social Interaction Diary

Following the diagnostic assessment sessions, each patient was scheduled a 30-45-minute SID orientation session. During the individual orientation, participants were instructed how and when to enter information about social interactions into their electronic diary. Patients were asked to complete the SID for seven consecutive days, twice a day (at midday and before going to bed) regarding one social interaction that lasted at least 10 minutes.[1] We asked participants to complete the SID for the interaction that was the most salient since the last time they completed the record. They were instructed to report on the interaction that they remembered the best or found themselves thinking about the most. We also required patients to record the

number of interactions lasting at least 10 minutes and the total amount of time they spent interacting with others since the last time they completed the SID. If participants did not have any social interaction for the time period of interest, they completed a record reflecting the lack of social interaction.

Participants practiced using the electronic diary during the orientation session. They completed one record to illustrate when a social interaction had occurred and one entry to illustrate how to complete the diary in the absence of any social interaction for the rating period. Participants were also provided written instructions. At the end of the orientation session, participants were scheduled for a follow-up session 7-10 days later to download and review their entries for compliance. To motivate participants to use the SID conscientiously, they were paid $15 per day for this part of the protocol (a total of $105 for the entire week). Patients were only paid if they correctly complete the SID for a full 7-day monitoring period.

For diary presentation, we chose the Visor Deluxe (Handspring Corp., Mountain View, CA), a hand-held computer with a 5-line, 45-character screen (225 characters total), a real-time clock/calendar, an alarm clock, 8 MB of memory, and the Palm OS 3.1 operating system. Satellite Forms Software (Pumatech, San Jose, CA) was used to create a computer-based version of the SID. The pocket-size computer allowed participants to respond on a small screen using a writing stylus. The computer enabled us to collect responses, record the date and time of response, and store the information for later retrieval directly into database software. Further, the SID was programmed to forbid subjects from skipping items and to preclude entering out-of-range responses, thus limiting missing data. A total of 42 records (2.70%) were missing from the entire sample, with 20 records (3.40%) missing from the BPD group, 17 records (2.64%) missing from the OPD group, and 5 records (1.55%) missing from the NOPD group. A binomial test revealed the rate of missing records did not differ between the patient groups.

Choosing Social Interaction Variables—The SID included four sets of variables. The first set consisted of two quantitative variables, the number and duration of interactions since the last recording. The remaining variables yielded specific information about the target interaction. It included the number of different people with which the respondent interacted and who the interaction partner(s) was (i.e., spouse/romantic partner, family member, friend, stranger, child, co-worker/boss/client, acquaintance, therapist, and other). The third set consisted of ratings on three aspects of interpersonal experiences reflecting the interpersonal circumplex space of affiliation and control (e.g., Kiesler, 1996): (1) Influence or control over the interaction, (2) degree of closeness or comfort (positive affiliation), and (3) degree of disagreement, conflict, or tension (negative affiliation). In addition, we added a fourth aspect, degree of ambivalence, which is especially relevant for BPD patients (see Hopwood & Morey, 2007).

The fourth set of variables assessed participants' emotional responses during or immediately after the interaction; it includes 33 unipolar items reflecting both positive and negative emotions. Each of these items was rated on a scale from 1 ("not at all") to 10 ("a great deal"). The emotional response items chosen for the SID included: (a) depression (sadness), (b) anxiety

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[1]Following Reis and Wheeler's (1991) recommendations, we chose one week as the optimal monitoring period. Care was taken to select weeks that did not include important special events, such as major holidays or examination periods at university, ensuring that we captured social interactions that were representative of the daily lives of our patients. We adopted the 10-minute threshold but we only required patients to complete the SID for two social interactions per day (one at each rating time) in order to limit participant burden and to enhance compliance.

An interaction is defined as "… any situation in which you talk with another person. As such, an interaction involves an exchange of words between you and another person. Just being in the presence of another person is not enough by itself. For example, watching TV and not talking to the person next to you is not an interaction. To count as an interaction, you must be responding to each other verbally, such as talking about what you are watching. Phone calls qualify as an interaction if they last at least 10 minutes. Written exchanges do not count as an interaction (e.g., e-mail exchanges)."

(tension, embarrassment, nervousness) (c) anger (irritability), and (d) positive emotions (happiness, relaxation, comfort). We also chose emotional experiences particularly relevant for BPD patients, e.g., "emptiness," and "shame."

Creating Emotional Experiences Composites—Factor analysis was used to reduce the number of emotional response ratings to a more manageable yet conceptually meaningful set of variables. Principal axis factoring with varimax rotation was employed on the 33 emotion ratings. Examination of the scree plot and eigenvalues suggested that a five-factor solution was most appropriate. The five factors were used to define five emotion variables that were used in subsequent analyses: Anger (including loadings > .35 of "frustrated" and "irritable"), Anxiety (including loadings > .35 of "embarrassed" and "ashamed"), Positive Feelings (including loadings > .35 of "happy" and "comfortable"), Emptiness (including loadings > .35 of "empty," and "numb") and Sadness (including loadings > .35 of "hopeless" and "sad").

Overview of Analyses

Multilevel models were used to examine differences between the BPD, OPD, and NOPD groups on quantity and quality of social interaction. Multilevel modeling is preferred over more traditional OLS regression procedures because it allows analysis of unequal data among participants (as participants vary in the number of social interaction records) and the simultaneous examination of between- and within-subject effects (as social interactions are nested within individuals). We used SAS PROC MIXED, Version 9.1 and residual (restricted) maximum likelihood estimation (REML). All models included a random intercept and the default error covariance matrix. First, we ran unconditional models where only the intercept is included to estimate within- and between-person variance for each outcome of interest. Second, we examined the effects of personality disorder on the quantity and quality of social interactions. Specifically, we included the individual-level variable PD group (i.e., BPD, OPD, and NOPD) in the fixed-effects portion of the model. Differences in least squares means were calculated for the three PD groups. These analytic strategies are common for analyzing social interaction diaries with multilevel models (see Nezlek, 2003).

To examine the potential impact that BPD had on the amount of time spent in social interactions, we conducted analyses regarding quantity of social interactions by PD group (i.e., BPD, OPD, and NOPD). For analyses with quantity variables as outcomes, days were analyzed as nested within individuals. We calculated the number and amount of time spent engaged in social interactions during each day for the total sample. Then, we examined the effect of PD group on quantity of social interactions.

Next, we conducted analyses to determine if the type of relational partners with whom individuals reported interacting varies as a function of PD group. For these analyses, data were analyzed as social interactions nested within individual. Since participants indicated their relationship with the other person(s) for each social interaction (i.e., romantic partner, family member, friend, child, co-worker, therapist, acquaintance, stranger, and other), we were able to investigate the distribution of social interactions by relationship type for the total sample. Then, we examined the effect of PD group on the distribution of social interactions.

Finally, we investigated the participants' perceptions of interpersonal and emotional experiences during social interactions. For these analyses, data were analyzed as social interactions nested within individual. To determine if participants in the BPD group experienced heightened negative and dampened positive interpersonal and emotional experiences relative to the other two patient groups, we examined the effect of PD group on these variables. Additionally, we examined potential moderating effects of the presence of relational partners on PD group effects. Any interaction could involve the simultaneous involvement of more than one relationship type. For example, a family member and a romantic

partner could be present during the same social interaction. To avoid confounding the results by the simultaneous presence of multiple types of relational partners, we analyzed the data so that each equation was based only on social interactions that involved the presence of one type of relational partner. We conducted separate analyses for each type of relational partner (i.e., romantic partner, family member, and friend). We chose to examine the moderating effects of romantic partners, family members, and friends because interactions with these partners occurred with the greatest frequency in our sample (see Table 2). Participants that did not have interactions with the type of relational partners specified were excluded from analyses involving the particular relational partner.

Results

Quantity of Social Interactions

For each day that participants were in the study, the number of social interactions, amount of time spent engaging in social interactions, and the number of different persons with whom participants interacted was calculated (Table 3). There was no significant difference between the BPD participants and participants in the other two groups in terms of the number of social interactions each day. However, the OPD group did significantly differ from the NOPD group in terms of total number of social interactions per day. The OPD group had 3.73 interactions per day which was significantly different from the NOPD group's average of 5.46 interactions per day (t=2.53, p<.05). The BPD group had an average of 4.62 interactions per day, which did not significantly differ from either the OPD (t=-1.33, p=.18) or the NOPD (t=1.40, p=.16) groups. Additionally, the amount of time spent in social interactions did not differ between the three groups. Specifically, BPD participants spent 216.15 minutes per day engaged in social interactions compared to 202.36 (t=-1.00, p=.32) and 202.01 (t=-.10, p=.93) minutes for the OPD and NOPD groups, respectively. However, the number of different people with whom participants interacted did vary by PD group status. Participants in the BPD and OPD groups had social contact with significantly fewer people than did patients in the NOPD group. On average, the number of different social contacts that participants in the NOPD group had was 6.56, which was significantly more than the 3.47 and 2.70 different people that the BPD (t=3.45, p<.01) and OPD (t=4.40, p<.001) groups reported.

Next, we examined the relational partners with whom participants reported interacting (Table 2). Participants could select more than one type of relational partner per interaction so these values represent results from this simultaneous classification method. For the total sample, most of the social interactions took place in the context of a romantic (16.50%), family (23.54%), or friend (22.81%) relationship. The frequency of interactions by romantic, family, and friend relationships did not significantly differ by PD group. However, BPD patients had fewer interactions with co-workers and more interactions with "others" when compared to the OPD and NOPD groups. Also, BPD participants had more interactions in the context of a therapy relationship than did the OPD group but not the NOPD group. Participants in the BPD group reported engaging with co-workers in 2.60% of interactions which was significantly less than 9.49% and 8.53% of interactions in the OPD (t=2.40, p<.05) and NOPD (t=2.48, p<.05) groups, respectively. Additionally, BPD participants reported 6.24% of their interactions involved a therapist which was significantly more compared to 2.99% but not to 3.20% in the OPD (t=-2.46, p<.05) and NOPD (t=-1.76, p<.19) groups, respectively. Lastly, the BPD participants indicated engaging with "others" in 11.79% of interactions which was significantly more compared to 7.38% and 5.60% in the OPD (t=-2.49, p<.05) and NOPD(t=-2.48, p<.05) groups, respectively. Examples of people listed as "others" included lawyers, AA/OA members, neighbors, and other health care providers.

Interpersonal Experience of Social Interactions

Table 4 presents findings from the analyses regarding the effect of BPD group on interpersonal experiences. The results for social interactions overall and those in the context of a romantic, family, or friendship are also displayed. Contrary to our hypotheses regarding positive interpersonal experiences, BPD participants did not report experiencing less influence or closeness overall or in the context of romantic relationships compared to OPD or NOPD patients. No differences emerged between the three groups for the experience of influence or closeness in the context of family or friend relationships either.

However, results regarding the relation between BPD and negative interpersonal experiences generally supported our hypotheses. Specifically, participants in the BPD group reported experiencing more disagreement overall when compared to participants in the OPD (t=2.17, p<.05) but not compared to participants in the NOPD (t=1.78, p=.07) groups. Experiencing more disagreements in romantic relationships approached significance when comparing the BPD to the OPD group (t=1.74, p=.08) but not the NOPD group. Additionally, BPD participants did report more disagreements in family relationships compared to participants in the OPD (t=2.47, p<.05) but not the NOPD group. No differences emerged for the experience of disagreement in friendships between the three groups.

BPD patients experienced more ambivalence overall during social interactions compared to OPD group (t=2.16, p<.05) but not the NOPD group. Compared to OPD patients, those in the BPD group experienced more ambivalence in romantic (t=2.13, p<.05) and family (t=2.12, p<.05) relationships. There were no differences between BPD and NOPD patients regarding the experience of ambivalence in romantic or family relationships. Moreover, no differences emerged on ratings of ambivalence between the three groups in the presence of a friend.

Emotional Experience of Social Interactions

Table 5 presents the results from analyses regarding emotional experiences during social interactions for patients with BPD. As expected, BPD patients experienced more negative emotions and less positive ones compared to patients in the other two groups. Specifically, participants in the BPD group experienced more anger overall compared to participants in the OPD (t=2.27, p<.05) and NOPD (t=2.66, p<.05) groups. BPD patients experienced more anger in interactions with a family member and not with a romantic partner when compared to participants in the OPD (t=2.32, p<.05) group but not when compared to the NOPD groups. Additionally, participants in the BPD group experienced more emptiness overall compared to the OPD (t=3.38, p<.01) and NOPD (t=4.03, p<.001) groups. Additionally, BPD patients reported experiencing more emptiness in romantic, family, and friend relationships compared to OPD and NOPD patients. Lastly, the BPD patients experienced more sadness overall compared to the OPD (t=2.62, p<.05) and NOPD (t=2.17, p<.05) participants. No specific context effects for relational partners were significant for feeling sadness during social interactions.

Participants in the BPD group reported more anxiety during social interactions overall compared to the NOPD (t=2.11, p<.05) group but not compared to the OPD group. Similarly, BPD participants experienced less positive emotions compared to the NOPD (t=2.31, p<.05) group but not when compared to the OPD participants. No specific context effects for relational partners were significant for positive feelings or anxiety during social interactions.

Discussion

This study provides a fine-grained assessment of interpersonal and emotional experiences during salient social interactions for patients with BPD. Many of our findings confirm clinical

impressions about the interpersonal worlds of these patients - social interactions are characterized by more disagreement and ambivalence and more negative emotional experiences, specifically anger, emptiness, and sadness. However, BPD patients did not report experiencing less influence or control over social interactions when compared to the other groups, suggesting that this experience is common among psychiatric patients and not specific to BPD. Also, we found that the experience of less positive emotions during social interactions is not specific to BPD but is characteristic of personality disorders in general when compared to patients with only an axis I condition. Previous studies investigating interpersonal functioning and BPD have generally compared people with this disorder to healthy controls (e.g., Russell *et al.* 2007), which provides a "soft" test of differences associated with BPD. These findings are particularly interesting given the stringent comparison groups of patients with other personality and axis I disorders.

Additionally, our examination of the quantity and type of relational partner with whom individuals interacted yielded interesting findings regarding the social functioning of BPD patients. As expected, the amount of time per day spent in social interactions did not differ between the psychiatric groups. However, the number of different persons contacted differed between groups, with the personality disordered individuals interacting with fewer people per day compared to the individuals with only an axis I condition. Our findings suggest that individuals with personality disorders have fewer individuals with whom they interact regularly. However, Clifton *et al.* (2007) found that people with BPD do not report a restricted social network. Taken together, these findings suggest people with BPD have interpersonal interactions with fewer people in their social networks than do people with other psychiatric disorders. Given the negative valence that characterizes these social interactions, it is not surprising the chronic state of misery that engulfs many of these patients' lives.

Examining interpersonal experiences in the context of different relational partners yielded few significant results. Finding few relationship contextual effects suggests a pervasive pattern of negative social interactions. Patients with BPD reported engaging in more disagreements and experiencing more anger during social interactions with family members. Additionally, patients with BPD experienced more emptiness during social interactions in the context of romantic partners, family members, and friends. One limitation regarding this set of analyses is that the sample size becomes restricted. This resulted because not everyone reported engaging in interactions with romantic partners, family members, or friends over the course of the week. Additionally, we did not record information regarding the specific identity of each relational partner. Therefore, we are not able to determine if the same person was present across interactions. For example, we cannot know if an individual had interactions with the same family member or different family members across the course of the week. In our future work, we will include methods to identify individuals with whom patients interact. This method will allow us to conduct real-time examinations regarding the clinical impressions that patients with BPD engage in oscillations between idealization and devaluation in relationships.

Strengths of the study include the multi-method and intensive assessment process. We relied on a careful diagnostic procedure to collect a large sample of patients with personality disorders. We also relied on a time-contingent data collection method of interpersonal behavior. The entries were time-stamped so we are confident that the ratings occurred at regular intervals over the course of the rating period. Additionally, the participants demonstrated good compliance with the daily assessment strategy; missing records did not vary by psychiatric group status. Lastly, the results from this study provide a glimpse into the contextual patterns of social interactions for patients with BPD and suggest markers of interpersonal dysfunction that are specific to this population.

These results are not without limitations. Our assessment period for interpersonal experiences was only one week. Although we believe that this time frame served to increase our compliance with the procedure and is consistent with previous work using the RIR, future research is needed to examine the adequate variable assessment interval needed to capture interpersonal processes of interest. Additionally, it is of interest to determine the optimal method for sampling interpersonal experiences in this population. Russell et al. (2007) used a sampling strategy with a much higher sampling frequency. This sampling strategy might be beneficial as BPD patients show retrospective distortions of their emotional experience with a short amount of time (Ebner-Priemer et al., 2006). Although an event based design would decrease retrospective biases in this regard, it would also increase participant burden and may interfere with compliance. Russell et al.'s (2007) BPD participants demonstrated worse compliance with this sampling method when compared to controls. However, in this study with the time contingent protocol, patient group status did not impact compliance. Variability in interpersonal behavior is an important process to measure for BPD. Future studies will employ a protocol to randomly sample interpersonal behavior so that variability estimates for interpersonal behavior can be calculated (see Ebner-Priemer *et al*. 2007 for more information on calculating stability) and to examine the role of emotion in predicting interpersonal behaviors.

Conclusion

People with BPD engage in the same amount of social interactions as those with other psychiatric disorders. However, although not specific to BPD, individuals with personality disorders appear to have a restricted range of individuals with whom they interact in any given day. The day-to-day interpersonal experiences of people with BPD are characterized by disagreements, ambivalence, anger, sadness, and emptiness. These experiences are not uniquely associated with any one type of relationship, such as a romantic partner, but seem to characterize interpersonal experiences across all types of relationships. BPD is not uniquely associated with less positive or more anxiety or experiences of control in social interactions as these experiences are also indicative of other psychiatric disorders.

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Table 1

Demographic Characteristics

	Total (*N* = 111)	BPD (*N*=42)	OPD (*N*=46)	NOPD (*N*=23)
Demographics				
% Female	78.4	92.9 [a]	65.2 [b]	78.3 [b]
% Non-Hispanic Caucasian	72.1	81.0 [a]	69.6 [a]	60.9 [a]
% African American	26.1	19.0 [a]	26.1 [a]	39.1 [a]
Mean age (*SD*)	37.49 (10.76)	34.71 (10.12) [a]	40.28 (9.99) [b]	36.96 (12.32) [a,b]
% Married	17.0	16.7 [a]	13.0 [a]	26.1 [a]
% Graduated from college	44.0	40.5 [a]	52.2 [a]	39.1 [a]
% Currently employed	36.0	31.0 [a]	32.60 [a]	52.2 [a]
Current Axis I diagnoses				
% Mood disorder	90.1	97.6 [a]	89.1 [a,b]	78.3 [b]
% Anxiety disorder	66.7	71.4 [a]	69.6 [a]	52.2 [a]
% Alcohol/drug disorder	20.7	31.0 [a]	8.7 [b]	26.1 [a,b]
% Eating disorder	4.5	9.5 [a]	2.2 [a]	.0 [a]
% Somatic disorder	9.9	21.4 [a]	4.3 [b]	.0 [b]
% Other disorder	10.8	23.8 [a]	4.3 [b]	.0 [b]
Mean (*SD*) number of current Axis I diagnoses	2.45 (1.20)	3.02 (1.33) [a]	2.28 (0.98) [b]	1.78 (0.90) [b]
Current Axis II diagnoses				
% Cluster A disorder	7.2	7.1 [a]	10.9 [a]	.0 [a]
% Cluster B disorder	45.9	100.0 [a]	21.7 [b]	.0 [c]
% Cluster C disorder	40.5	28.6 [a]	71.7 [b]	.0 [c]
Mean (*SD*) number of current Axis II diagnoses	1.28 (1.17)	1.90 (1.05) [a]	1.37 (1.06) [a]	.0 [b]

Note: Tukey's HSD was conducted to determine mean differences between groups. Groups not sharing the same subscript are different at *p* < .05 or less.

Table 2

Social Interactions by Relationship Type

Relationship Type	Total Sample			PD Group								
				BPD			OPD			NOPD		
	n	Events	%	n	Events	%	n	Events	%	n	Events	%
Romantic Partner	57	251	16.50	20	88	15.25 a	20	88	15.47 a	17	75	20.00 a
Family Member	86	358	23.54	34	121	20.97 a	34	143	25.13 a	18	94	25.07 a
Friend	91	347	22.81	38	145	25.13 a	31	115	20.21 a	22	87	23.20 a
Child	38	121	7.96	14	41	7.11 a	22	50	8.79 a	6	30	8.00 a
Co-worker	40	101	6.64	9	15	2.60 a	19	54	9.49 b	12	32	8.53 b
Therapist	41	65	4.27	21	36	6.24 a	12	17	2.99 b	8	12	3.20 a,b
Acquaintance	31	57	3.75	15	28	4.85 a	12	22	3.87 a	4	7	1.87 a
Stranger	57	90	5.92	21	35	6.07 a	23	38	6.68 a	13	17	4.53 a
Other	66	131	8.61	30	68	11.79 a	24	42	7.38 b	12	21	5.60 b
Total		1521	100.00		577	100.00		569	100.00		375	100.00

Note. The number of participants and interactions contributing data to each analysis are listed in the columns labeled n and Events, respectively. The percentage of events that included each relationship type is reported in the column labeled %. PD Group was treated as a fixed effect with the outcome being relationship type (coded to indicate the absence or presence) in multilevel models. Tukey's HSD was conducted determine differences between three PD groups. Groups not sharing the same subscript have proportions that are different at p < .05 or less.

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Table 3

Quantity of Social Interactions per Day

Measures	Total Sample		PD Group					
			BPD		OPD		NOPD	
	M	SD	M	SD	M	SD	M	SD
Total No. of Interactions	4.47	.28	4.62 [a,b]	.43	3.73 [a]	.41	5.46 [b]	.58
Total Time in Social Interactions (minutes)	209.90	14.00	216.15 [a]	22.92	202.36 [a]	21.92	202.01 [a]	30.96
Total No. of Different Persons Contacted	3.77	.34	3.47 [a]	.55	2.70 [a]	.52	6.56 [b]	.71

Note. Estimates of means and standard deviations for the total sample were taken from a totally unconditional multilevel model. Estimates for the PD Groups were obtained by entering PD Group as a fixed effect. Tukey's HSD was calculated to determine the mean difference between the three PD groups. Groups not sharing the same subscript have means that are different at $p < .05$ or less.

Table 4

Effect of PD Group on Perceptions of Social Interactions

| Perceptions | Total Sample | | | | | PD Group | | | | | |
| | | | | | | BPD | | OPD | | NOPD | |
	n	M	SD	b	SD	M	SD	M	SD	M	SD
Influence											
Overall	1233	5.88	.11	.03	.14	5.90 a	.17	5.91 a	.17	5.83 a	.23
Romantic	180	5.47	.21	.26	.27	5.73 a	.34	5.36 a	.35	5.22 a	.42
Family Member	245	5.58	.19	-.26	.26	5.29 a	.33	5.72 a	.29	5.77 a	.41
Friendship	236	6.04	.21	.44	.25	6.51 a	.31	5.69 a	.35	5.72 a	.41
Closeness											
Overall	1234	6.38	.14	-.11	.41	6.39 a	.22	6.19 a	.21	6.69 a	.29
Romantic	180	6.47	.29	-.46	.37	6.29 a	.47	6.07 a	.48	7.31 a	.56
Family Member	245	6.68	.23	-.39	.30	6.38 a	.38	6.69 a	.35	7.19 a	.49
Friendship	236	7.36	.21	-.18	.27	7.26 a	.33	7.28 a	.37	7.66 a	.43
Disagreement											
Overall	1236	3.02	.15	.37 *	.19	3.45 a	.23	2.76 b	.22	2.78 a,b	.30
Romantic	180	4.14	.33	.74 ^{t}	.41	4.84 a	.54	3.96 a	.56	3.38 a	.64
Family Member	245	3.32	.26	.46	.35	4.06 a	.42	2.64 b	.39	3.41 a,b	.56
Friendship	236	2.41	.24	.22	.29	2.79 a	.36	1.88 a	.41	2.49 a	.48
Ambivalence											
Overall	1236	3.00	.14	.37 *	.19	3.43 a	.23	2.74 b	.22	2.77 a,b	.23
Romantic	180	3.55	.34	.72 ^{t}	.42	4.50 a	.55	2.83 b	.56	3.17 a,b	.64
Family Member	245	2.99	.23	.24	.31	3.50 a	.36	2.44 b	.34	3.23 a,b	.48
Friendship	236	2.43	.20	.28	.25	2.69 a	.30	2.30 a	.34	2.14 a	.40

Note. The number of social interactions used in each analysis is indicated in the column labeled *n*. Estimates of means and standard deviations for the total sample were taken from a totally unconditional model. PD Group effects (*b*'s) were taken from the Level 2 models. Differences in least squares means were calculated for the three PD groups. Groups not sharing the same subscript have means that are different at $p < .05$ or less.

^{t} $p < .10$

* $p < 0.05$

**
$p < 0.01$

***
$p < 0.001$

Table 5

Effect of PD Group on Perceptions of Emotional Reactions

Emotion Factor Scores	Total Sample					PD Group					
						BPD		OPD		NOPD	
	n	M	SD	b	SD	M	SD	M	SD	M	SD
Anger											
Overall	1237	-.03	.06	.20*	.08	.19 a	.09	-.16 b	.09	-.16 b	.12
Romantic	158	.23	.16	.26	.19	.46 a	.26	.20 a	.27	-.05 a	.29
Family Member	202	.10	.11	.28*	.14	.45 a	.18	-.11 b	.17	-.29 a,b	.22
Friendship	183	-.15	.12	.12	.14	-.05 a	.18	-.14 a	.20	-.29 a	.22
Anxiety											
Overall	1237	.01	.06	.16*	.08	.15 a	.09	-.03 a,b	.09	-.17 b	.12
Romantic	158	-.07	.09	.14	.11	.02 a	.15	.02 a	.16	-.28 a	.17
Family Member	202	-.10	.09	-.01	.11	-.07 a	.15	-.16 a	.14	-.03 a	.17
Friendship	183	-.19	.09	.16	.11	-.02 a	.14	-.27 a	.16	-.34 a	.18
Positive											
Overall	1237	-.02	.06	-.16*	.07	-.14 a	.09	-.02 a,b	.08	.20 b	.12
Romantic	158	-.02	.11	-.13	.14	-.09 a	.18	-.13 a	.20	.19 a	.21
Family Member	202	-.09	.10	-.23 t	.12	-.31 a	.16	-.04 a,b	.15	.13 b	.19
Friendship	183	.27	.09	-.07	.07	.22 a	.13	.25 a	.15	.37 a	.17
Emptiness											
Overall	1237	-.002	.06	.32**	.08	.35 a	.10	-.21 b	.10	-.22 b	.14
Romantic	158	-.004	.13	.43**	.15	.45 a	.20	-.16 b	.22	-.39 b	.22
Family Member	202	.02	.09	.30**	.11	.38 a	.14	-.18 b	.13	-.17 b	.17
Friendship	183	-.13	.10	.28*	.12	.19 a	.15	-.36 b	.17	-.33 b	.19
Sadness											
Overall	1237	-.01	.07	.21*	.08	.22 a	.10	-.15 b	.10	-.15 b	.14
Romantic	158	.14	.15	.19	.18	.38 a	.24	.01 a	.26	.02 a	.27
Family Member	202	.08	.09	.15	.12	.29 a	.16	-.08 a	.15	.03 a	.19
Friendship	183	-.06	.11	.04	.13	-.02 a	.17	-.07 a	.19	-.09 a	.21

	Total Sample					PD Group					
						BPD		OPD		NOPD	
Emotion Factor Scores	n	M	SD	b	SD	M	SD	M	SD	M	SD

Note. The number of social interactions used in each analysis is indicated in the column labeled *n*. Estimates of means and standard deviations for the total sample were taken from a totally unconditional model. PD Group effects (*b*'s) were taken from the Level 2 models. Differences in least squares means were calculated for the three PD groups. Groups not sharing the same subscript have means that are different at *p* < .05 or less.

t
 p<.10

*
 p<0.05

**
 p>0.01

***
 p>0.001