KUHLKEN, KATHERINE, M.A. The Interaction of Borderline Personality Disorder Symptoms and Relationship Satisfaction in Predicting Positive and Negative Affect. (2011)
Directed by Dr. Rosemery Nelson-Gray. 58 pp.

Previous research suggests that the quality of current relationships may have prognostic significance for individuals with borderline personality disorder (BPD). The goal of this study was to examine the impact of the interaction of BPD symptoms and romantic relationship satisfaction on state affect. It was predicted that individuals reporting greater BPD symptoms and a more satisfying relationship would report less negative and more positive affect than comparable individuals in a less satisfying relationship. Questionnaires assessing BPD symptoms, relationship satisfaction, and affect were administered to 111 female undergraduates, most of whom then completed daily measures of relationship satisfaction and affect over a 2-week period. Hierarchical multiple regression and hierarchical linear modeling were used to test the hypotheses. The interaction of BPD symptoms with relationship satisfaction was found to significantly predict anger, as measured initially, suggesting that satisfying romantic relationships may be a protective factor for individuals reporting greater BPD symptoms.

THE INTERACTION OF BORDERLINE PERSONALITY DISORDER SYMPTOMS

AND RELATIONSHIP SATISFACTION IN PREDICTING POSITIVE AND

NEGATIVE AFFECT

by

Katherine Kuhlken

A Thesis Submitted to
The Faculty of The Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Master of Arts

Greensboro
2011

Approved by

<u>Rosemery Nelson-Gray</u>
Committee Chair

APPROVAL PAGE

This thesis has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Chair <u>Rosemery Nelson-Gray</u>

Committee Members <u>Thomas Kwapil</u>

<u>Dayna Touron</u>

<u>   4/15/11   </u>
Date of Acceptance by Committee

<u>   4/15/11   </u>
Date of Final Oral Examination

ii

TABLE OF CONTENTS

CHAPTER

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Borderline personality disorder (BPD) is characterized by a pervasive pattern of instability in interpersonal relationships and self-image, intense and unstable affect, and marked impulsivity that persists across multiple contexts. Approximately three-fourths of patients with BPD are women. The prevalence of BPD in the general population is estimated to be around 2%, with higher rates in outpatient mental health clinics (10%) and among psychiatric inpatients (20%) (American Psychiatric Association, 2000). The impact of BPD is indicated by the fact that up to 10% of those who meet criteria for BPD commit suicide, a rate that is 50 times that found in the general population (American Psychiatric Association, 2001). Physical handicaps may result from failed suicide attempts or self-harm behaviors. Recurrent job losses, broken marriages, and interrupted education are also common (APA, 2000).

Dimensional Nature of Personality Disorders

Widiger (1992), among others (Clark, 2005; Widiger & Trull, 2007), has suggested that personality disorders may be conceptualized best on a continuum, or dimensionally, rather than as discrete categorical diagnoses. Empirical support has been provided for the dimensional representation of personality disorders (Morey et al., 2003; Smith, Klein, & Benjamin, 2003). Individuals in the general population likely possess differing levels of the symptoms that characterize these personality disorders, as on a

continuum. Thus, it is appropriate to examine BPD symptoms in samples of non-clinically ascertained participants who experience clinical and subclinical levels of BPD psychopathology.

Negative Affect

One of the defining characteristics of BPD is affective instability. In particular, unstable high *negative* affect has been found in individuals with high levels of borderline personality features (Zeigler-Hill & Abraham, 2006). In individuals with BPD, negative affect is most commonly expressed as depression or dysphoria, irritability, anger, and anxiety (APA, 2000; Gunderson, 1984; Linehan, 1993). In addition, BPD individuals may experience chronic feelings of emptiness and boredom (APA, 2000; Gunderson, 1984). The ongoing dysphoric mood of those with BPD is often interrupted by episodes of anger, panic, or despair, and seldom by periods of satisfaction or well-being. It is thought that "these episodes may reflect the individual's extreme reactivity to interpersonal stressors" (APA, 2000, p.707). The episodes of anger, in particular, are often brought about when a caregiver or lover is thought to be acting in a neglectful, uncaring, abandoning, or withholding manner. In some cases, the real or perceived return of the caregiver's attention results in a reduction of symptoms (APA, 2000).

As is evident from the term "instability," these extreme changes in mood typically last no more than a few days, oftentimes lasting only hours (APA, 2000; Linehan, 1993; Trull et al., 2008). For example, having measured the global morning and evening moods of groups of women, Cowdry and collegues (1991) discovered that the 14-day pattern for BPD women suggested that their mood changed unpredictably from

one day to the next. In addition, Stein (1996) assessed affective instability via an experience sampling procedure over a period of 10 days and found that BPD individuals demonstrated greater instability of their negative affect in comparison to controls.

Interpersonal Relationships

One of the most characteristic *DSM-IV-TR* (Diagnostic and Statistical Manual of Mental Disorders - 4th edition - Text Revision) criteria for BPD is "a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation" (APA, 2000, p.710). That is, individuals with BPD will go from idealizing a caregiver or lover and demanding to spend time with them, to devaluing them and feeling like they do not care, give, or are "there" enough (APA, 2000). This devaluation is often in response to separation – either real or anticipated (APA, 2000; Gunderson, 1984).

Hill et al. (2008) found evidence that BPD was the only disorder among Axis I and Axis II disorders whose symptoms specifically predicted romantic relationship dysfunction. In fact, this level of dysfunction, although generally present in all interpersonal relationships for those with BPD, tends to increase as the intimacy of the relationship increases, making romantic relationships especially vulnerable (Oliver, Perry, & Cade, 2008). Individuals with BPD have been found to have significantly more romantic relationships, more relationship conflict, lower partner satisfaction, and higher rates of unplanned pregnancy and abuse by a romantic partner (Daley, Burge, & Hammen, 2000). Furthermore, undergraduates with greater BPD features have

demonstrated more interpersonal distress, both at the time of BPD assessment (Trull, 1995), and at a 2-year follow-up (Trull, Useda, Conforti, & Doan, 1997).

The means through which these interpersonal problems develop remains unclear (Selby, Braithwaite, Joiner, & Fincham, 2008). However, it is not unusual for individuals with BPD to see themselves as having been mistreated in past relationships, oftentimes beginning with their parents (Gunderson, 1984). Several studies have found evidence to implicate early separation from or loss of a primary caretaker in the development of interpersonal problems in patients with BPD (Akiskal et al., 1985; Bradley, 1979; Frank & Paris, 1981; Goldberg, Mann, Wise, & Segall, 1985; Gunderson, Kerr, & Englund, 1980; Links, Steiner, Offord, & Eppel, 1988; Soloff & Millward, 1983; Zanarini, Gunderson, Marino, Schwartz, & Frankenburg, 1989). Links and collegues (1988) stated that early separation from parental figures is most often due to marital separation, as opposed to death, among patients with BPD. Along the same vein, it has been suggested that a disruption of the parent-child relationship may lead to insecure attachment patterns in adulthood, offering an explanation for the characteristic unstable, intense relationships of individuals with BPD (Links, 1992). Parental emotional invalidation during childhood may also contribute to the development of BPD symptoms, specifically, having implications for current relationship functioning. Emotional invalidation involves persistent criticism, as well as recurrent punishment of appropriate emotional expression combined with sporadic reinforcement of extreme displays of emotion. Thus, the child does not learn to effectively control emotional reactions, instead learning to oscillate between emotional inhibition and extreme emotional states. Childhood emotional

4

invalidation is thought to influence current romantic relationships by resulting in the development of difficulties in interpersonal problem-solving abilities or cognitive difficulties, such as cognitive rigidity and dichotomous thinking (Linehan, 1993).

Impact of Relationship Satisfaction on Outcome

It has been suggested that the characteristic chaotic patterns in the intimate relationships of those with BPD may contribute to the maintenance of disordered behaviors, thoughts, and affect (Oliver et al., 2008). Having studied potential predictors of 2-year outcome, Gunderson et al. (2006) proposed that the quality of current relationships of individuals with BPD may have prognostic significance. Links and Stockwell (2001) suggest, however, that the influence of a positive intimate relationship on the prognosis of BPD has not been recognized.

According to Linehan, "…borderline individuals, more so than most, seem to do well when in stable, positive relationships and to do poorly when not in such relationships" (1993, p.11). BPD individuals are thought to be able to empathize with and nurture others, but only if they believe that others will do the same for them, and meet their needs on demand (APA, 2000).

Studies looking at the influence of marriage on outcome for BPD individuals have provided support for its potential positive impact. For example, Quinton, Rudder, and Liddle (1984) found that, for institutionally raised girls, good outcomes related to BPD symptoms in young adulthood were connected with being in a stable marriage. In another study, it was established that older, caretaking husbands could lessen borderline psychopathology in their young wives (Paris & Braverman, 1995). Similarly, Links and

collegues (2001) found that marital status was a significant predictor of improved functioning, both related to employment and global functioning. That is, marriage seems to play some role in improving function. Thus, we see that "even in some of the most severely disturbed individuals, marriage is an important modifier of psychopathology" (Links et al., 2001, p.493).

There is a paucity of studies examining the impact of satisfying, non-marital intimate relationships on outcome – specifically, negative affect, in individuals with BPD. As stated by Drapeau and Perry, "there is a great interest in the empirical study of the relationship patterns associated to borderline personality disorder" and "until such studies are undertaken, any empirically based classification of personality disorders will be incomplete" (2004, p.56). Furthermore, having found that BPD predicts romantic relationship dysfunction above and beyond problems associated with depression, Selby and colleagues (2008) emphasize the importance of romantic relationship functioning in understanding BPD. Such research may highlight the benefit of interventions for interpersonal functioning in the treatment of BPD.

Hypotheses

In light of this gap in the existing literature, the primary goal of this study was to investigate the impact of romantic relationships on state negative affect (defined as depression or dysphoria, irritability, anger, and anxiety) across a continuum of BPD traits. The first hypothesis was that the interaction of BPD symptoms and relationship

satisfaction (self-reported at the initial session) would be a significant predictor[1] of

negative affect above and beyond the contribution of BPD symptoms and relationship

satisfaction alone. Specifically, individuals who scored higher on measures of BPD

symptoms and who were in a satisfying romantic relationship were hypothesized to have

less negative affect than those who also scored higher on measures of BPD symptoms but

who were in a less satisfying romantic relationship. In other words, it was predicted that

the relationship between BPD symptoms and negative affect would be stronger for those

reporting lower relationship satisfaction than for those reporting higher relationship

satisfaction.

Similarly, the second hypothesis was that the interaction of BPD symptoms and

relationship satisfaction (self-reported at the initial session) would be a significant

predictor of positive affect above and beyond the contribution of BPD symptoms and

relationship satisfaction alone. That is, individuals who scored higher on measures of

BPD symptoms and who were in a satisfying romantic relationship were hypothesized to

have greater positive affect than those who also scored higher on measures of BPD but

were in a less satisfying romantic relationship.

Hypotheses three through six examined the expression of BPD symptoms in daily

life. Given the instability of affect and relationship satisfaction in BPD, it would have

been negligent to examine these characteristics at only one time point. The third

hypothesis examined the extent to which BPD symptoms predicted the fluctuations in

negative affect (anger, anxiety, sadness, general negative affect), positive affect, and

---

[1] The study did not test for causal relationships. Instead, this hypothesis concerns association between the predictor (interaction) and the outcome (affect).

romantic relationship satisfaction repeatedly measured across 2 weeks. It was

hypothesized that greater fluctuation in negative affect, positive affect, and romantic

relationship satisfaction would be found in individuals scoring higher on measures of

BPD symptoms than in those scoring lower on measures of BPD symptoms across the 2-

week period; thus, the correlations of BPD symptoms with the variances of negative

affect, positive affect, and romantic relationship satisfaction should be stronger (and

positive) for individuals scoring higher on measures of BPD symptoms. The fourth

hypothesis was that greater ratings of BPD symptoms would be associated with less

relationship satisfaction, greater negative affect (anger, anxiety, sadness, general negative

affect), and less positive affect, on a daily basis. The fifth hypothesis was that daily

ratings of relationship satisfaction would be inversely correlated with daily ratings of

negative affect (anger, anxiety, sadness, general negative affect), but positively correlated

with daily ratings of positive affect. Lastly, the sixth hypothesis was that relationship

satisfaction (level 1) would moderate the relations of affect (positive and negative)

measured daily (level 1) and BPD symptoms (level 2). Specifically, the relations of affect

and BPD symptoms were predicted to be stronger (i.e., steeper slope) for participants

who endorsed lower levels of relationship satisfaction. For negative affect the relation

would be positive and for positive affect the relation would be negative.

CHAPTER II

METHOD

Participants

The sample consisted of 123 female college undergraduates age 18 and older

who were enrolled in an introductory psychology course. Additionally, participants were

required to have been in a current romantic relationship (regardless of sexual orientation

and including marriage) with a duration of at least 2 months. Despite being in a romantic

relationship at the time of recruitment for the study, 12 participants were no longer in a

romantic relationship at the time of participation. These participants were dropped from

the sample. The remaining 111 participants ranged in age from 18 to 27 ($M = 18.67$, $SD =$

1.20) and were primarily Caucasian (59.5%) and African-American (29.7%). The sample

was restricted to females due to the fact that the vast majority of individuals who meet

criteria for BPD are female (approximately 75%) (APA, 2000; Linehan, 1993). In

addition, the age requirement of 18 lends itself to the *DSM-IV-TR* (APA, 2000)

suggestion that personality disorders should not be diagnosed before the age of 18. In an

effort to ensure that there was adequate representation at the upper ranges of BPD

symptoms, 29 of the 111 participants were invited to participate based on their BPD

symptom scores obtained during mass screening. These participants were required to

have scored at or above .75 standard deviations above the mean on measures of BPD

symptoms (using latent factor created from two measures). These participants (29) represented nearly half of the students invited based on higher BPD symptom scores. The remaining 82 participants must only have met the age, gender, and romantic relationship length requirements.

Research has demonstrated the benefit of testing BPD hypotheses with college students (Tolpin, Gunthert, Cohen, & O'Neill, 2004; Trull, 1995, 2001; Trull, Useda, Conforti, & Doan, 1997). Trull (1995, 2001) and Trull et al. (1997) demonstrated that college students who score high on the PAI-BOR (Personality Assessment Inventory – Borderline Features Scale) possess several affective and behavioral problems that are associated with BPD. Specifically, studies have shown that using a raw score cutoff of 38 as a guideline has resulted in the correct classification of 77.3% of nonclinical female college students assessed (Bell-Pringle, Pate, & Brown, 1997). Although level of BPD symptoms was viewed as continuous in this study, approximately 20% of the participants scored at or above a 38 on the PAI-BOR.

Materials

Demographic form. Basic demographic information was collected and included age, ethnicity, and family income. In addition, a question concerning the length of one's current romantic relationship was included.

Positive and Negative Affect Schedule. The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) is a 20-item self-report questionnaire comprised of two 10-item mood scales (Positive Affect and Negative Affect scales). Each item is rated on a 5-point scale ranging from *very slightly or not at*

all to *extremely* to indicate the extent to which the respondent has felt this way in the indicated time period. The authors have used the scale to measure affect *at this moment, today, the past few days, the past week, the past few weeks, the past year,* and *in general (on average)*. The time frame used in this study was *in the past week*. Each item consists of a one word feeling or emotion, such as *irritable, nervous, upset* (negative affect scale) or *excited, proud, strong* (positive affect scale).

The following psychometric data were gathered primarily from undergraduates enrolled in various psychology courses at other universities. As a measure of internal consistency reliability, Watson and collegues (1988) reported Cronbach's alpha coefficients ranging from .86 to .90 for the Positive Affect scale and .84 to .87 for the Negative Affect Scale for the various time reference periods. Test-retest correlations, spanning an 8-week period, ranged from .47 to .68 for the Positive Affect scale and from .39 to .71 for the Negative Affect scale. For the general time period, the test-retest correlation was .68 for Positive Affect and .71 for Negative Affect. Demonstrating external validity, measures of general distress and dysfunction (Hopkins Symptom Checklist – HSCL), depression (Beck Depression Inventory), and state anxiety (State-Trait Anxiety Inventory State Anxiety Scale) are more highly correlated with the Negative Affect scale (positive correlations) than the Positive Affect scale (negative correlations).

Beck Depression Inventory-II. The Beck Depression Inventory – II (BDI-II; Beck, Steer, & Brown, 1996) is a 21-item multiple-choice self-report measure of depressive symptomology. Participants are asked to rate to what degree they have experienced each

11

symptom during the past 2 weeks. Well-established validity and reliability (α = .91-.93) have been demonstrated in outpatient samples (Beck et al., 1996; Dozois, Dobson, & Ahnberg, 1998).

One adaptation was made to this measure. Rather than asking participants to make their choices based on how they have been feeling over the past 2 weeks, participants were asked to make their choices based on how they have been feeling over the past week. This adaptation was proposed to account for the high degree of affective instability that individuals with BPD experience.

Beck Anxiety Inventory. The Beck Anxiety Inventory (BAI; Beck & Steer, 1990) is a 21-item multiple-choice self-report measure of anxiety severity, designed to discriminate anxiety from depression. The items are designed to reflect various symptoms of anxiety. Participants are instructed to rate to what degree they have been bothered by each symptom during the past week. The BAI obtained high internal consistency (α = .92) and a one-week test-retest reliability of .75 (Beck, Epstein, Brown, & Steer, 1988).

State-Trait Anger Scale. The State-Trait Anger Scale (STAS; Spielberger & London, 1983) is a 30-item self-report measure of state (emotional state that varies in intensity) and trait (relatively stable personality trait) anger. The internal consistency for the trait-anger measure has been found to be .87 for a sample of 146 college students, while the internal consistency for the state-anger measure has been shown to be .93 for male and female navy recruits. Support for concurrent validity has been demonstrated by correlations with three measures of hostility, in addition to measures of neuroticism,

psychotisicm, and anxiety (Speilberger, Jacobs, Russel, & Crane, 1983; Speilberger &

London, 1983).

This study employed only the state-anger scale (SAS), as it better reflects the

dynamic nature of affect for individuals with BPD. Participants were instructed to

indicate how they felt *at that moment*.

Dyadic Adjustment Scale. The Dyadic Adjustment Scale (DAS; Spanier, 1976) is

a 32-item self-report measure of the quality of marriage or similar dyads. However, it can

be used as a general measure of relationship satisfaction in an intimate relationship when

an individual's total score is used, as was done in this study. As indicated by factor

analysis, the DAS measures four aspects of the relationship – dyadic satisfaction (DS),

dyadic cohesion (DCoh), dyadic consensus (DCon), and affectional expression (AE).

High internal consistency has been demonstrated, with an alpha of .96. The subscales

have fair to excellent internal consistency, ranging from .73 (AE) to .94 (DS). The DAS

has demonstrated known-groups validity by discerning between married and divorced

couples on each item. In addition, the DAS has evidenced concurrent validity through its

correlation with the Locke-Wallace Marital Adjustment Scale.

Wisconsin Personality Disorders Inventory – IV. The Wisconsin Personality

Disorders Inventory–IV (WISPI-IV; Klein et al., 1993) is a 214-item self-report of

continuous symptoms of the *DSM-IV* personality disorders. The WISPI-IV includes

scales for each of the personality disorders (only that for BPD was used in the analyses,

although all were administered). Items are self-descriptive and are rated on a 10-point

Likert scale ranging from *never/not at all* to *always/extremely*.

The WISPI-IV has high internal consistency with alphas ranging from .81 to .94 for the different scales (Barber & Morse, 1994). Two-week test-retest correlations ranged from .71 to .94, for the different scales, with an average of .88. In addition, the WISPI-IV has shown good discriminant validity between nonclinical controls and individuals diagnosed with specific personality disorders, including BPD (Klein et al., 1993). The WISPI-IV has also shown high concurrent validity for individual personality scales, such as the Millon Clinical Multiaxial Inventory – I (Millon, 1982) and the Personality Diagnostic Questionnaire (Hyler et al., 1988), through significant correlations.

Personality Assessment Inventory. The Personality Assessment Inventory (PAI; Morey, 1991) is a 344-item self-report measure of adult psychopathology. Each item is scored on a 4-point scale ranging from *False* to *Very True*. Contained within the PAI are 22 non-overlapping scales, including the PAI – Borderline Features Scale (PAI-BOR), which was used in the present study. The median alpha coefficients of internal consistency for normative, college, and clinical samples were .81, .82, and .86. Median test-retest reliability across these samples was .83. Bell-Pringle and collegues (1997) have demonstrated clinical validity by differentiating BPD patients from unscreened controls with 80% accuracy using the PAI-BOR. In addition, Kurtz, Morey, and Tomarken (1993) demonstrated both convergent and discriminant validity between the PAI-BOR and the MMPI Personality Disorder Scales in a nonclinical sample.

Survey Monkey Questionnaire. The Survey Monkey questionnaire consisted of nine questions, designed to broadly assess for current romantic relationship satisfaction, positive affect, and negative affect. The nine questions included in the questionnaire,

14

which was completed daily for 2 weeks, were as follows: 1) *How satisfied are you today in your current romantic relationship?*; 2) *How happy are you with your partner today?*; 3) *How strongly do you want to continue in your relationship today?*; 4) *How angry do you feel today?*; 5)*How anxious do you feel today?*; 6) *How happy do you feel today?*; 7) *How sad do you feel today?*; 8) *How stressful was your day today?*; and 9) *How positive was your day today?*. The first question, concerning romantic relationship satisfaction, was rated on a 7-point Likert scale, ranging from *Very dissatisfied* (0) to *Very satisfied* (6). The second and third questions, also concerning romantic relationship satisfaction, were rated on 7-point Likert scales, ranging from *Very unhappy* to *Very happy* and *Not at all* to *Extremely*, respectively. The other six questions, concerning positive and negative affect, were rated on a 7-point Likert scale, ranging from *Not at all* to *Extremely.* Participants' responses for questions one through three were averaged to form one relationship satisfaction score per day. In addition, participants' responses on questions six and nine were averaged to form one positive affect score per day. Questions four, five, seven, and eight were indicative of participants' daily anger, anxiety, sadness, and general negative affect, respectively, in the present study. This questionnaire was fashioned specifically for this study.

Procedure

Packets of questionnaires were administered by undergraduate research assistants to groups of 1 to 12 participants in lecture halls. The order of the questionnaires was randomized within the packets, excluding the demographic forms which were always first. Participants required up to 2 hours to complete all questionnaires. Following

completion, participants who chose to continue their participation were instructed to log onto Survey Monkey daily, for 2 weeks, and fill out a brief questionnaire. A reminder e-mail was sent to each participant daily. At the end of the 2-week period, participants were awarded course credit for participating in the study, the amount of which varied depending on how much of the study was completed by each participant (up to six credits).

CHAPTER III

RESULTS

To assess reliability of the one-time measures, Cronbach's alpha coefficient was

calculated for each – BAI (α = .91), BDI (α = .87), SAS (α = .94), PANAS-PA (α = .86),

PANAS-NA (α = .85), DAS (α = .89), PAI-BOR (α = .87), and WISPI-BPD (α = .84)[2].

The remainder of the results is presented in the following order: A latent variable for

BPD symptoms was created using principal components analysis. Before testing the

hypotheses, the variables were assessed for normality and the appropriate transformations

were made. A zero-order Pearson correlation between each of the variables was run in

order to determine if redundancy and potential multicollinearity existed. Finally,

hierarchical multiple regression and hierarchical linear modeling (HLM) were used to test

the hypotheses. The alpha level was set at .05 for all correlations, standardized regression

coefficients, and fixed effect coefficients.

Description of Initial Session Data

The BPD scale of the WISPI-IV and the PAI-BOR were entered into an unrotated

principal components analysis in order to extract factors of symptoms of BPD. The

principal components analysis resulted in one factor, known as "BPD factor," with an

---

[2] BAI = Beck Anxiety Inventory, BDI = Beck Depression Inventory, SAS = State Anger Scale, PANAS-PA = Positive and Negative Affect Schedule – Positive Affect, PANAS-NA = Positive and Negative Affect Schedule – Negative Affect, DAS = Dyadic Adjustment Scale (total score), PAI-BOR = Personality Assessment Inventory – Borderline Features Scale, WISPI-BPD = Wisconsin Personality Disorders Inventory-IV – Borderline Scale

eigenvalue of 1.64, accounting for 81.80% of the variance.

Table 1 contains the means, standard deviations, ranges, skewness, kurtosis, and alphas of BAI, BDI, SAS, PANAS-PA, PANAS-NA, DAS, PAI-BOR, WISPI-BPD, and BPD factor. Four variables were positively skewed: BDI, BAI, SAS, and PANAS-NA. The distributions of BDI, BAI, and PANAS-NA were normalized using a square-root transformation. SAS, being highly skewed, was normalized using the logarithmic transformation (lg10 (x + 1)).

The zero-order Pearson correlations between the original variables and transformed BAI, BDI, SAS, and PANAS-NA are contained in Table 2. As might be expected, these correlations indicate that BPD symptoms (as represented by BPD factor) had a medium, positive relationship with anger (SAS) and general negative affect (PANAS-NA), and a large, positive relationship with anxiety symptoms (BAI) and depressive symptoms (BDI). Despite their significance, these correlations were less than what would conventionally indicate a collinearity problem. BPD symptoms (as represented by BPD factor) were not significantly correlated with positive affect (PANAS-PA) or relationship satisfaction (DAS), although the directions of these correlations were as expected – higher scores on measures of BPD symptoms were associated with less positive affect and less relationship satisfaction. BPD symptoms, as measured only by the PAI-BOR, were significantly, negatively correlated with relationship satisfaction (DAS), as would be expected.

The measure of relationship satisfaction had a small to medium, negative relationship with depressive symptoms and negative affect, and a small to medium,

positive relationship with positive affect. Relationship satisfaction was not significantly correlated with anxiety symptoms or anger.

Description of Repeated Measures Data

The Survey Monkey Questionnaire, which was completed daily by participants during the 2-week period, contained multiple questions assessing for relationship satisfaction and positive affect. Participants' ratings for the three questions assessing for relationship satisfaction were averaged to create one daily score for relationship satisfaction ($\alpha = .91$). Similarly, participants' ratings for the two questions assessing for positive affect were averaged to create one daily score for positive affect ($\alpha = .86$). Table 3 contains the means, standard deviations, and ranges of relationship satisfaction, anger, anxiety, sadness, general negative affect, and positive affect, measured daily. The relationships between individual participants' BPD symptoms, measured at the initial session, and variance across the 2-week period in relationship satisfaction, anger, anxiety, sadness, general negative affect, and positive affect were examined further and are discussed in the results.

Analyses of Initial Session Data

The first hypothesis, concerning the interaction of BPD symptoms and relationship satisfaction, was tested using hierarchical multiple regression with negative affect as the criterion variable. Rather than creating a latent variable for negative affect, this analysis was run once with each of the included measures of negative affect (BDI, BAI, SAS, PANAS – NA) as the criterion variable. Before conducting the regression analysis, relationship satisfaction was standardized. An additional variable of the

19

interaction of BPD symptoms and relationship satisfaction was created by multiplying these variables. BPD symptoms were entered into the first step of the model and standardized relationship satisfaction was entered in the second step of the model. The interaction of BPD symptoms and relationship satisfaction was entered into the third step of the model to determine if there was a moderating effect.

When anger was entered as the criterion variable, the overall model was significant, $F(3, 107) = 5.13$, $p < .01$, and accounted for 13% of the variance in anger (see Table 4). Furthermore, the interaction between BPD symptoms and relationship satisfaction was significant ($\beta = -.19$, $p < .05$). A simple slopes analysis indicated that BPD symptoms interacted with relationship satisfaction such that BPD symptoms had a stronger positive relationship with anger when relationship satisfaction was lower. As relationship satisfaction increased, the relationship between BPD symptoms and anger became non-significant (see Figure 1). In other words, the slope of the line for high relationship satisfaction, across levels of BPD symptoms, was not significantly different from zero.

When anxiety symptoms was entered as the criterion variable, the overall model was significant, $F(3, 107) = 12.18$, $p < .001$, and accounted for 26% of the variance in anxiety symptoms (see Table 5). BPD symptoms had a significant main effect ($\beta = .48$, $p < .001$), with greater levels of BPD symptoms related to higher anxiety, regardless of relationship satisfaction. Relationship satisfaction did not have a significant main effect ($\beta = -.05$, $p = .53$). The interaction between BPD symptoms and relationship satisfaction was also not significant ($\beta = .13$, $p = .11$). When depressive symptoms was entered as the

criterion variable, the overall model was significant, $F(3, 107) = 28.44, p < .001$, and accounted for 44% of the variance in depressive symptoms (see Table 6). BPD symptoms ($\beta = .64, p < .001$) and relationship satisfaction ($\beta = -.16, p < .05$) had significant main effects, suggesting that greater levels of BPD symptoms and lower relationship satisfaction are related to more depressive symptoms; however, the interaction between BPD symptoms and relationship satisfaction was not significant ($\beta = .09, p = .23$). Finally, when general negative affect was entered as the criterion variable, the overall model was also significant $F(3, 107) = 4.97, p < .01$, and accounted for 12% of the variance in general negative affect (see Table 7). BPD symptoms ($\beta = .31, p < .01$) had a significant main effect, suggesting that greater levels of BPD symptoms are related to more negative affect, regardless of relationship satisfaction. Relationship satisfaction ($\beta = -.17, p = .06$) showed a trend towards significance, suggesting that greater relationship satisfaction is associated with less negative affect, regardless of BPD symptoms. The interaction between BPD symptoms and relationship satisfaction was not significant ($\beta = -.004, p = .96$).

The second hypothesis, also concerning the interaction of BPD symptoms with relationship satisfaction, was tested like hypothesis one, but with positive affect (PANAS – PA) as the criterion variable. Thus, following the creation of the interaction term, BPD symptoms was entered into step one and standardized relationship satisfaction was entered into step two of the regression model. The interaction term was entered into the third step of the model to determine if there was moderating effect.

The overall model was significant, $F(3, 107) = 4.02$, $p < .01$, and accounted for 10% of the variance in positive affect (see Table 8). Relationship satisfaction ($\beta = .23$, $p < .05$) had a significant main effect, with more positive affect related to higher relationship satisfaction, regardless of BPD symptoms. BPD symptoms ($\beta = -.18$, $p = .06$) showed a trend towards significance, suggesting that higher levels of BPD symptoms are associated with less positive affect, regardless of relationship satisfaction. The interaction between BPD symptoms and relationship satisfaction was not significant ($\beta = -.14$, $p = .14$).

Analyses of Repeated Measures Data

Repeated measures data, as collected during the 2-week follow-up period of this study, have a hierarchical structure in which repeated measures ratings (level 1 data) are nested within participants (level 2 data); thus, the remaining hypotheses were tested using hierarchical linear modeling (HLM). In these analyses, the level 1 data are the daily questionnaire ratings of relationship satisfaction, anger, anxiety, sadness, general negative affect, and positive affect; while the level 2 data are the participants' ratings of BPD symptoms at one time point - in the initial session. Seventy-six participants from the initial session ($N = 111$) chose to participate in the 2-week repeated measures portion of the study. Twenty-one of these participants were invited to participate in the initial session based on their higher scores on measures of BPD symptoms during mass screening ($\geq.75$ standard deviations above the mean). Participants completed the Survey Monkey questionnaire, on average, 10.66 ($SD = 2.53$) out of 14 days for the follow-up period. BPD symptoms was not significantly associated with the number of days

22

completed ($r = .11$, $p = .34$), suggesting that participants scoring higher on measures of BPD symptoms were as reliable as participants scoring lower on these measures with regard to questionnaire completion during the follow-up period.

While formal testing of the assumptions of HLM was not completed, a comparison of the fixed effects without and with robust standard errors, across analyses, demonstrated little difference. This suggests that the assumptions were not violated. Please note in the text below that those variables' names appearing in bold in the models were group-mean centered (relationship satisfaction) and the variables' names in bold and italics in the models were grand-mean centered (BPD symptoms).

The third hypothesis, concerning the relation of BPD symptoms (level 2) with the fluctuation of relationship satisfaction, anger, anxiety, sadness, general negative affect, and positive affect (level 1 variables) during the 2-week period, was tested by assessing zero-order Pearson correlations between BPD symptoms and the variances of the level 1 variables (see Table 9). BPD symptoms was significantly and positively correlated with the variances of anger, anxiety, sadness, general negative affect, and positive affect, as predicted, suggesting that higher BPD symptoms scores are associated with greater fluctuation in each. BPD symptoms were not significantly correlated with variance in relationship satisfaction, although the correlation was positive. This last finding was not as predicted.

In order to test the fourth hypothesis, which examines the relation of BPD symptoms (level 2) with daily ratings of relationship satisfaction, anger, anxiety, sadness,

general negative affect, and positive affect (level 1 variables), a HLM means-as-outcomes model was run:

Level 1: $Y = \pi0 + E$

Level 2: $\pi0 = \beta00 + \beta01*\textbf{\textit{(BPD)}} + R0$

Y = Relationship satisfaction, anger, anxiety, sadness, general negative affect, and positive affect (analysis run once for each)

The results of these analyses indicated that BPD symptoms were not a significant predictor of relationship satisfaction ($\beta01 = -.12$, $p = .28$) measured daily; however, they were a significant predictor of anger ($\beta01 = .24$, $p < .01$), anxiety ($\beta01 = .42$, $p < .01$), sadness ($\beta01 = .34$, $p < .001$), general negative affect ($\beta01 = .38$, $p < .01$), and positive affect ($\beta01 = -.23$, $p < .05$) measured daily, as predicted.

In order to test the fifth and sixth hypotheses, which examined 1) the relation between relationship satisfaction and anger, anxiety, sadness, general negative affect, and positive affect, all of which were measured daily (level 1), and 2) the change in slope for the interaction of BPD symptoms (level 2) and affect (level 1) across levels of relationship satisfaction (level 1), a HLM one-way ANCOVA (random effects) model was run:

Level 1: $Y = \pi0 + \pi1*\textbf{(rel\_sat\_avg)} + E$

Level 2: $\pi0 = B00 + B01*\textbf{\textit{(BPD)}} + R0$

$\quad\quad \pi1 = B10 + B11*\textbf{\textit{(BPD)}} + R1$

Y = Anger, anxiety, sadness, general negative affect, and positive affect (analysis run once for each)

The results of these analyses indicated that daily relationship satisfaction was significantly, negatively related to daily anger ($\beta10 = -.58$, $p < .001$), anxiety ($\beta10 = -.22$, $p < .01$), sadness ($\beta10 = -.53$, $p < .001$), and general negative affect ($\beta10 = -.30$, $p < .001$), and was significantly, positively related to daily positive affect ($\beta10 = .60$, $p < .001$), as predicted. In addition, the results indicated that daily relationship satisfaction did not moderate the relation of BPD symptoms (level 2) and daily anger ($\beta11 = -.11$, $p = .14$), anxiety ($\beta11 = -.07$, $p = .29$), sadness ($\beta11 = .01$, $p = .92$), general negative affect ($\beta11 = -.00$, $p = .97$), or positive affect ($\beta11 = .05$, $p = .42$), contrary to prediction.

An exploratory analysis was conducted to examine the variability of participants' repeated measures ratings of relationship satisfaction, anger, anxiety, sadness, general negative affect, and positive affect across the 2-week period. This was done as a follow-up to hypothesis three, which examined the associations between BPD symptoms (level 2) and the variances of the level 1 variables (anger, anxiety, sadness, general negative affect, positive affect, and relationship satisfaction), given the unexpected finding that BPD symptoms (level 2) was not significantly associated with greater fluctuation in relationship satisfaction (level 1) across the 2-week period. A one-way analysis of variance (ANOVA) tested for significant differences in variances of relationship satisfaction, anger, anxiety, sadness, general negative affect, and positive affect, measured daily. Thus, the groups were: the variances of anger (1), the variances of anxiety (2), the variances of sadness (3), the variances of general negative affect (4), the variances of positive affect (5), and the variances of relationship satisfaction (6). There was one variance (accounting for 2-weeks) for each of these variables per participant.

Thus the sample size for each group was 76. The ombinus F-test was significant, $F(5, 450) = 10.16, p < .001$. Post-hoc Scheffe tests revealed that the variances of participants' ratings of relationship satisfaction ($M = 0.85, SD = 0.92$) were significantly lower than the variances of participants' ratings of anxiety ($M = 1.62, SD = 1.38$) and general negative affect ($M = 2.30, SD = 1.59$); while the differences between the variances of participants' ratings of relationship satisfaction and anger ($M = 1.54, SD = 1.36$), and relationship satisfaction and sadness ($M = 1.50, SD = 1.49$), approached significance. The variances of participants' ratings of relationship satisfaction were not significantly different from those for positive affect ($M = 1.26, SD = 0.89$) (see Table 10). This suggests, overall, that participants reported less variability in relationship satisfaction than in anger, anxiety, sadness, and general negative affect across the 2-week period. Furthermore, an examination of the frequencies of ratings of relationship satisfaction across all participants showed that approximately 62% of all ratings across the 2-week period fell between a five and six (two highest possible ratings), suggesting that there was also restricted variability *across* participants with regards to reported relationship satisfaction.

CHAPTER IV

DISCUSSION

Previous research has suggested that satisfying romantic relationships may have a positive impact on the prognosis of BPD symptomology, including negative affect; however, this has not been well-established, particularly for non-marital intimate relationships. Thus, this study sought to examine the impact of satisfying romantic relationships on positive and negative affect in individuals scoring higher on measures of BPD symptoms, in particular. In an effort to account for the instability of romantic relationships and affect characteristic of BPD, this study assessed these constructs in participants not only at an initial time point, but also daily for 2-weeks following the initial session.

Importance of Anger

Individuals diagnosed with BPD often experience many types of negative affect; however, the experience of anger or irritability seems to be particularly common. The *DSM-IV-TR* criteria for BPD include not only affective instability in general (Criterion 6), but also a criterion that is specific to anger - "inappropriate, intense anger or difficulty controlling anger" (Criterion 8) (APA, 2000, p.710). In addition, it has been suggested that anger, in particular, often emerges in an individual with BPD when they perceive a romantic partner as being neglectful or abandoning (APA, 2000). The results of this study provide support for the interaction of BPD symptoms and relationship satisfaction in

27

predicting anger above and beyond the contribution of either alone, such that individuals scoring higher on measures of BPD symptoms and who were in a satisfying romantic relationship reported significantly less anger than comparable individuals in a less satisfying romantic relationship. This finding supports the observation that the return of a romantic partner's attention, whether real or perceived, sometimes results in a reduction of anger (APA, 2000). Furthermore, the simple slopes analysis of this interaction suggested that the amount of anger reported by individuals scoring lower on measures of BPD symptoms and in a satisfying romantic relationship was not statistically distinguishable from the amount of anger reported by individuals scoring higher on measures of BPD symptoms and in a satisfying romantic relationship. Overall, this suggests that self-reported satisfying romantic relationships may be a protective factor for individuals scoring higher on measures of BPD symptoms with regards to anger.

Of note, the SAS, used to assess anger in the initial session, instructed participants to complete the items based on how they felt *at that moment*, rather than *in the past week*, as on the BAI, BDI-II, and PANAS. It is possible that this difference in instructions contributed to differential findings regarding anger versus anxiety symptoms, depressive symptoms, general negative affect, and positive affect, as predicted by the interaction of BPD symptoms and relationship satisfaction. Future research should address this inconsistency by determining if this finding still holds with a longer-term measure of anger.

Contrary to prediction, the results for the repeated measures data did not provide support for daily relationship satisfaction moderating the relation of BPD symptoms

28

(level 2) and anger, as measured on a daily basis. However, individually, BPD symptoms (level 2) were significantly positively associated with daily anger, and relationship satisfaction was significantly negatively associated with daily anger, as predicted. The lack of a significant interaction may be attributable to the fact that the effects of BPD symptoms and relationship satisfaction, on their own, were quite robust. It appears, for example, as though all participants, regardless of level of BPD symptoms, exhibited less anger when they were feeling more satisfied in their relationships. This suggests that the findings for both the initial session and repeated measures data may not be in conflict; instead, both appear to suggest that satisfying romantic relationships are associated with reduced anger in individuals scoring higher on measures of BPD symptoms (although reduced anger is not unique to individuals scoring higher on measures of BPD symptoms in the repeated measures data).

Validation of DSM-IV-TR Criteria for BPD

Although the results did not provide support for the interaction of BPD symptoms and relationship satisfaction in predicting anxiety symptoms, depressive symptoms, general negative affect, or positive affect above and beyond the contribution of BPD symptoms or relationship satisfaction alone, many of the findings from this study substantiated *DSM-IV-TR* criteria for BPD. For example, BPD symptoms significantly, positively predicted anxiety symptoms, depressive symptoms, and general negative affect. These significant main effects reaffirm the finding that individuals with high levels of borderline personality features exhibit high negative affect (Zeigler-Hill & Abraham, 2006).

With regards to the repeated measures data, the results suggested that BPD symptoms (level 2) were predictive of daily anxiety, sadness, general negative affect, and positive affect, as hypothesized, but not relationship satisfaction. These findings confirm the well-established positive association of BPD symptoms with negative affect. The nonsignificant finding regarding relationship satisfaction was unexpected given the known association between BPD and romantic relationship dysfunction and should be addressed.

An examination of the correlations between BPD symptoms (level 2) and individuals' variability in anger, anxiety, sadness, general negative affect, positive affect, and relationship satisfaction across the 2-week period revealed that greater BPD symptoms were associated with greater fluctuation in anger, anxiety, sadness, general negative affect, and positive affect, but not relationship satisfaction. Although assessed in a nonclinical population, these findings reflect the instability of affect that is characteristic of individuals diagnosed with BPD. The nonsignificant finding for fluctuation in relationship satisfaction is surprising considering that instability of interpersonal relationships is also characteristic of BPD. Thus, this finding warrants further examination.

One may note that, in addition to the nonsignificant interaction between BPD symptoms and relationship satisfaction in predicting positive affect, BPD symptoms alone was not predictive of positive affect, as measured at the initial session. Although the relationship between BPD and negative affect is well-established in the conceptualization of and literature on BPD, the association of BPD with positive affect is

not as well-documented. Positive and negative affect cannot be thought of as being on opposite ends of a continuum, such that a reduction in negative affect is equivalent to an increase in positive affect. In fact, the two are thought to be relatively distinct (Watson et al., 1999). Thus, an association between BPD symptoms and negative affect does not guarantee an association between BPD symptoms and positive affect. This may explain why the results regarding the association between BPD symptoms and positive affect were, for the most part, nonsignificant.

Relationship Satisfaction and Affect

Data from the initial session suggested that relationship satisfaction predicted fewer depressive symptoms and predicted greater positive affect. In addition, the negative association between relationship satisfaction and general negative affect showed a trend towards significance. In contrast, relationship satisfaction did not significantly predict anxiety symptoms.

With regards to the repeated measures data, relationship satisfaction (level 1) was found to be predictive of less anxiety, sadness, general negative affect, as well as predictive of greater positive affect. Although the results did not provide support for daily relationship satisfaction moderating the relation between BPD symptoms (level 2) and anxiety, sadness, general negative affect, or positive affect, the aforementioned findings demonstrated that, regardless of level of BPD symptoms, participants who reported being in a more satisfying romantic relationship endorsed less anxiety, sadness, general negative affect, and greater positive affect. This suggests that satisfying romantic relationships may have a positive impact on negative and positive affect for individuals

scoring higher on measures of BPD symptoms, as well as individuals scoring lower on the continuum of BPD symptoms.

Problematic Hypotheses versus Methodology

Although the interaction of BPD symptoms and relationship satisfaction was found to be significantly predictive of anger, as measured at the initial session, the interactions predicting anxiety symptoms, depressive symptoms, general negative affect, and positive affect were not significant. On the surface, these findings may suggest that satisfying romantic relationships generally do not have a significant positive impact with regards to affect in individuals scoring higher on measures of BPD symptoms, contrary to suggestions by previous literature; however, other explanations may be more plausible. Ultimately, it appears as though there may have been inaccuracies in the assessment of relationship satisfaction, whether due to erroneous reporting by participants, flaw(s) in the measures used, or some other factor(s). Relationship satisfaction, particularly for the repeated measures data, had little variability across time and participants. In fact, the results suggested that relationship satisfaction had significantly lower variance than most of the other variables measured. To be more concrete, approximately 62% of the ratings across participants and days during the 2-week period fell between a five and six (two highest possible scores). In addition, although the distribution of scores for the initial session relationship satisfaction measure (DAS) was not significantly skewed, most participants reported relatively high relationship satisfaction (see Figure 2). While low variability alone does not a problematic variable make, in this case it appeared to stunt the relationship between BPD symptoms and relationship satisfaction. BPD symptoms

32

did not significantly predict relationship satisfaction, as measured on a daily basis, nor

did it significantly predict greater variability in relationship satisfaction. In addition, for

the initial session data, BPD symptoms (as indicated by BPD factor) were not

significantly correlated with relationship satisfaction; although, BPD symptoms as

indicated by the PAI-BOR alone was significantly correlated with relationship

satisfaction at $p<.05$. BPD is characterized by instability of interpersonal relationships,

including instability regarding one's feelings about their partner in a relationship (*DSM-*

IV-TR Criterion 2) (APA, 2000). Thus, the relationship between BPD symptoms and

relationship satisfaction is fairly well-established. One would expect that an accurate

assessment of relationship satisfaction would result in a significant association between

these two variables. Moreover, one would expect to find that BPD symptoms

significantly predict increased variability or fluctuation in relationship satisfaction over a

2-week period.

The suggestion of erroneous reporting by participants may be a reasonable one.

Bouchard, Sabourin, Lussier, and Villeneuve (2009) found that a large proportion of

couples, in which one partner was diagnosed with BPD, reported high relationship

satisfaction, despite the fact that dissatisfaction and communication problems are

generally much higher for couples in this arrangement. Taking into account the low

variability found for relationship satisfaction, it may be that participants in the current

study, particularly those scoring higher on measures of BPD symptoms, reported a level

of relationship satisfaction that was not indicative of the quality of their romantic

relationships. One would not expect their reports of positive and negative affect to mirror

their overwhelmingly positive reports of relationship satisfaction if their relationships were, in truth, dysfunctional.

It is also possible, as suggested, that the measures used to assess relationship satisfaction were flawed in their ability to accurately assess the desired construct for this sample. To elaborate, the DAS, administered at the initial session, does not exclusively measure relationship satisfaction. Satisfaction is merely one of four scales - consensus, cohesion, affectional expression, and satisfaction - included within this measure. In addition, the assessment of relationship satisfaction within the Survey Monkey questionnaire, administered daily across the 2-week period, consisted of three questions. Perhaps the use of three questions was not sufficient to accurately measure relationship satisfaction.

An alternative explanation is that the low variability in relationship satisfaction may be linked to the fact that participants from a clinical sample were not included. Individuals scoring lower versus higher in a nonclinical sample may not be expected to provide significantly different ratings on measures of relationship satisfaction, as would be expected if the individuals scoring higher on the measures of BPD were diagnosable.

Strengths

This study was not without its strengths. One strength of this study was the inclusion of the 2-week repeated measure data collection period. As mentioned previously, having a means of capturing the fluctuation in relationship satisfaction and affect was essential given the well-established instability of both in individuals diagnosed with BPD (APA, 2000). Furthermore, participants completed the Survey Monkey

questionnaire, on average, 10.66 out of 14 days, providing a strong showing. Another strength of this study was the oversampling for individuals scoring higher on measures of BPD symptoms. Nearly one-third of the sample was recruited based on having scored at or above .75 standard deviations above the mean on measures of BPD symptoms during mass screening sessions. Furthermore, on the PAI-BOR, close to 20% of the sample scored at or above a cutoff score of 38 (see Figure 3) – a score found by Bell-Pringle et al. (1997) to result in the correct classification of 77.3% of nonclinical female college students assessed in their study.

A third strength of this study was that two measures of BPD symptoms were used, allowing for a more comprehensive assessment of symptoms. The WISPI-IV, Borderline Scale (Klein et al., 1993), for example, assesses primarily for thoughts and actions related to interpersonal relationships, as well as impulsivity; whereas the PAI, Borderline Features Scale (Morey, 1991) includes an abundance of items assessing affective instability, in addition to items concerning negative interpersonal relationships and impulsivity.

Additional Limitations

In addition to the aforementioned limitations of this study that may have contributed to non-significant findings, other limitations were also present and should be addressed. One such limitation was the fact that causal implications could not be made regarding the association between relationship satisfaction and affect, when present. Participants in this study had been in romantic relationships for several months or more at the time of participation, making it difficult to assess whether relationship satisfaction (or

dissatisfaction) led to a change in affect; high/low, positive/negative affect led to a change in relationship satisfaction; or some third variable contributed to a change in both. A longitudinal study of individuals diagnosed with BPD may shed more light on how relationship satisfaction influences affect and vice-versa.

In addition, it is possible that 2 weeks may not have been a long enough period for the repeated measures portion of the study, serving as another limitation. Although variability in affect was found across the 2-week period, there was much less variability in relationship satisfaction. In a study of couples in which one partner was diagnosed with BPD, Bouchard et al. (2009) found that the majority of the couples reported terminating their relationship, then reuniting, approximately once every six months. While these relationship disturbances appear frequent, it suggests that 2 weeks, as used in this study, may not be long enough to capture noticeable disruptions in relationship satisfaction, particularly in a nonclinical population. If conducted, longitudinal research may also serve to sufficiently capture fluctuation in relationship satisfaction, if and when it occurs. Alternatively, one may wish to simply extend the repeated measures portion of the study.

A third limitation of this study was that the order of the questions was not varied on the online Survey Monkey questionnaire, due to the fact that the software program did not offer this option. Participants' responses to the questions at the end of the questionnaire may have been primed by their responses to the questions that came earlier. This study was not able to counteract such an effect given the fixed order of the questions across participants and days. Additionally, although the reminder e-mail regarding

completion of the Survey Monkey questionnaire was sent at midday and participants were urged to complete the questionnaire later in the day, participants were at liberty to complete it at any time. Thus, participants may have had little to no contact with their romantic partners at the time that they completed the questionnaire on any given day. Future research is advised to employ a program that would limit completion of the questionnaire to the late afternoon or evening.

Future Directions

Future research may improve upon or expand on the current study in a number of different ways. Although this study oversampled for individuals scoring higher on measures of BPD symptoms, the sample was, nonetheless, drawn from a nonclinical population. Thus, the findings of this study should be replicated with a clinical sample so as to be generalizable to this population. Given that most of the previous literature discusses a general improvement of BPD symptoms associated with relationship satisfaction, future research may also seek to explore other outcome variables characteristic of BPD, in addition to negative affect, such as impulsive behavior or self-injury.

Future studies may wish to employ alternative measures of relationship satisfaction, such as the Couples Satisfaction Index (CSI; Funk & Rogge, 2007), given the low variability in relationship satisfaction found in this study. In addition, the current study assessed primarily for physiological symptoms of anxiety. Future research may wish to expand upon this by also utilizing measures that assess for cognitive symptoms of

anxiety, such as the Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990).

Finally, future research should consider assessing participants' romantic partners regarding relationship satisfaction, in addition to participants themselves. Doing so may shed some light on the true quality of participants' relationships, which may be in conflict with participants' self-reported relationship satisfaction. Few studies have assessed both partners in a romantic relationship for which one partner exhibits traits of BPD or is diagnosable with BPD. In fact, Bouchard et al. (2009) suggested that their study was the first to do so.

Conclusions

This study was not without limitations; however, it serves as a springboard for examining the potential positive role of satisfying romantic relationships and the potential negative role of unsatisfying romantic relationships for individuals scoring higher on measures of BPD symptoms, whether diagnosable or not. Future research may take a number of routes to improve upon the design of this study and test its hypotheses; several such suggestions are provided here. Increased knowledge regarding the relations between relationship satisfaction and affect may prove useful not only for better understanding BPD, but also for informing its treatment, highlighting the importance of continued research in this area.

REFERENCES

Akiskal, H.S., Chen, S.E., Davis, G.C., Puzantian, V.R., Kashgarian, M., & Bolinger, J.M. (1985). Borderline: An adjective in search of a noun. *Journal of Clinical Psychiatry, 46,* 41-48.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

American Psychiatric Association. (2001). Practice guideline for the treatment of patients with borderline personality disorder. *American Journal of Psychiatry, 158,* 1-52.

Barber, J. P., & Morse, J. Q. (1994). Validation of the Wisconsin Personality Disorders Inventory with the SCID-II and PDE. *Journal of Personality Disorders, 8*, 307-319.

Beck, A.T., Epstein, N., Brown, G., & Steer, R.A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*, 893-897.

Beck, A.T. & Steer, R.A (1990). *Manual for the Beck Anxiety Inventory*. San Antonio, TX: Psychological Corporation.

Beck, A.T., Steer, R.A., & Brown, G.K. (1996). *Beck Depression Inventory* (2nd ed.). San Antonio, TX: Psychological Corporation.

Bell-Pringle, V., Pate, J., & Brown, R. (1997). Assessment of borderline personality

 disorder using the MMPI-2 and the Personality Assessment Inventory.

 Assessment, 4, 131-139.

Bouchard, S., Sabourin, S., Lussier, Y., & Villeneuve, E. (2009). Relationship quality and

 stability in couples when one partner suffers from borderline personality disorder.

 Journal of Marital and Family Therapy, 35, 446-455.

Bradley, S.J. (1979). Relation of early maternal separation to borderline personality in

 children and adolescents: A pilot study. *American Journal of Psychiatry, 144,*

 1426-1430.

Clark, L.A. (2005). Temperament as a unifying basis for personality and

 psychopathology. *Journal of Abnormal Psychology, 114*, 505-521.

Cowdry, R.W., Gardner, D.L., O'Leary, K.M., Leibenluft, E., & Rubinow, D.R. (1991).

 Mood variability: A study of four groups. *American Journal of Psychiatry, 148*,

 1505-1511.

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.

Dozois, D., Dobson, K., & Ahnberg, J. (1998). A psychometric evaluation of the Beck

 Depression Inventory-II. *Psychological Assessment, 10*, 83-89.

Drapeau, M. & Perry, J.C. (2004). Interpersonal conflicts in borderline personality

 disorder: An exploratory study using the CCRT-LU. *Swiss Journal of*

 Psychology, 63, 53-57.

Frank, H. & Paris, J. (1981). Recollections of family experience in borderline patients. *Archives of General Psychiatry, 38,* 1031-1034.

Funk, J.L. & Rogge, R.D. (2007). Testing the ruler with item response theory: Increasing precision of measurement for relationship satisfaction with the Couples Satisfaction Index. *Journal of Family Psychology, 21*, 572-583.

Goldberg, R.L., Mann, L.S., Wise, T.N., & Segall E.A. (1985). Parental qualities as perceived by borderline personality disorders. *Hillside Journal of Clinical Psychiatry, 7,* 134-140.

Gunderson, J. G. (1984). *Borderline personality disorder*. Washington, D.C.: American Psychiatric Press, Inc.

Gunderson, J.G., Daversa, M.T., Grilo, C.M., McGlashan, T.H., Zanarini, M.C., Shea, M.T., … Stout, R.L. (2006). Predictors of 2-year outcome for patients with borderline personality disorder. *American Journal of Psychiatry, 163*, 822-826.

Gunderson, J.G., Kerr, J., & Englund, D.W. (1980). The families of borderlines: A comparative study. *Archives of General Psychiatry, 37,* 27-33.

Hill, J., Pilkonis, P., Morse, J., Feske, U., Reynolds, S., Hope, H., … Broyden, N. (2008). Social domain dysfunction and disorganization in borderline personality disorder. *Psychological Medicine, 38*, 135-146.

Hyler, S. E., Reider, R. O., Williams, J. B., Spitzer, R. L., Hendler, J., & Lyons, M. (1988). The Personality Diagnostic Questionnaire: Development and preliminary results. *Journal of Personality Disorders, 2,* 229-237.

Klein, M. H., Benjamin, L. S. Rosenfeld, R., Treece, C., Husted, J., & Greist, J. H.
(1993). The Wisconsin Personality Disorders Inventory: Development, reliability,
and validity. *Journal of Personality Disorders, 7*, 285-303.

Kurtz, J.E., Morey, L.C., & Tomarken, A.J. (1993). The concurrent validity of three self-
report measures of borderline personality. *Journal of Psychopathology and
Behavioral Assessment, 30*, 82-89.

Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality
disorder*. New York: The Guilford Press.

Links, P. S. (1992). Family environment and family psychopathology in the etiology of
borderline personality disorder. In J. F. Clarkin, E. Marziali, & H. Munroe-Blum
(Eds.), *Borderline personality disorder: Clinical and empirical perspectives* (pp.
45-66). New York: The Guilford Press.

Links, P.S., Steiner, M., Offord, D., & Eppel, A. (1988). Characteristics of borderline
personality disorder: A Canadian study. *Canadian Journal of Psychiatry, 33,* 336-
340.

Links, P.S. & Stockwell, M. (2001). Is couple therapy indicated for borderline personality
disorder? *American Journal of Psychotherapy, 55*, 491-506.

Meyer, T.J., Miller, M.L, Metzger, R.L., & Borkovec, T.D. (1990). Development and
validation of the Penn State Worry Questionnaire. *Behaviour Research and
Therapy, 28*, 487-495.

Millon, T. (1982). *Millon Clinical Multiaxial Inventory Manual* (2nd ed.). Minneapolis,
MN: National Computer Systems.

Morey, L.C. (1991). *Personality Assessment Inventory – Professional Manual*. Florida: Psychological Assessment Resources, Inc.

Morey, L. C., Warner, M. B., Shea, M. T., Gunderson, J. G., Sanislow, C. A., Grilo, ... McGlashan, T.H. (2003). The representation of four personality disorders by the schedule for nonadaptive and adaptive personality dimensional model of personality. *Psychological Assessment, 15*, 326-332.

Oliver, M., Perry, S., & Cade, R. (2008). Couples therapy with borderline personality disordered individuals. *The Family Journal: Counseling and Therapy for Couples and Families, 16*, 67-72.

Paris, J. & Braverman, S. (1995). Success and unsuccessful marriages in borderline patients. *Journal of American Academy of Psychoanalysis, 23,* 153-166.

Quinton, D., Rutter M., & Liddle, C. (1984). Institutional rearing, parenting difficulties and marital support. *Psychological Medicine, 14,* 107-124.

Selby, E.A., Braithwaite, S.R., Joiner Jr., T.E., & Fincham, F.D. (2008). Features of borderline personality disorder, perceived childhood emotional invalidation, and dysfunction within current romantic relationships. *Journal of Family Psychology, 22*, 885-893.

Smith, T. L., Klein, M. H., & Benjamin L. S. (2003). Validation of the Wisconsin Personality Disorders Inventory-IV with the SCID-II. *Journal of Personality Disorders, 17*, 173-187.

Soloff, P.H. & Millward, J.W. (1983). Psychiatric disorders in the families of borderline patients. *Archives of General Psychiatry, 40,* 37-44.

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.

Spielberger, C.D., Jacobs, G., Russel, S., & Crane, R.S. (1983). Assessment of anger:

    The State- Trait Anger Scale. In J.N. Butcher & C.D. Spielberger (Eds.),

    Advances in Personality Assessment, Vol.2 (pp.159-187). Hillsdale, NJ: Lawrence

    Erlbaum Associates, Inc.

Spielberger C. & London, P. (1983). Job stress, hassles and medical risk. *American*

    Health, 2, 58-63.

Stein, K. F. (1996). Affect instability in adults with a borderline personality disorder.

    Archives of Psychiatric Nursing, 10, 32-40.

Toplin, L.H., Gunthert, K.C., Cohen, L.H., & O'Neill, S.C. (2004). Borderline

    personality features and instability of daily negative affect and self-esteem.

    Journal of Personality, 72, 111-137.

Trull, T.J. (1995). Borderline personality disorder features in nonclinical young adults: 1.

    Identification and validation. *Psychological Assessment, 7*, 33-41.

Trull, T.J. (2001). Structural relations between borderline personality disorder features

    and putative etiological correlates. *Journal of Abnormal Psychology, 110*, 471-

    481.

Trull, T. J., Solhan, M.B., Tragesser, S.L., Jahng, S., Wood, P.K., & Piasecki, T.M.

    (2008). Affective instability: Measuring a core feature of borderline personality

    disorder with ecological momentary assessment. *Journal of Abnormal*

    Psychology, 117, 647-661.

Trull, T.J., Useda, J.D., Conforti, K., & Boan, B.-T. (1997). Borderline personality

   disorder features in nonclinical young adults: 2. Two-year outcome. *Journal of*

   Abnormal Psychology, 106, 307-314.

Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief

   measures of positive and negative affect: The PANAS Scales. *Journal of*

   Personality and Social Psychology, 54, 1063-1070.

Watson, D., Wiese, D., Vaidya, J., & Tellegen, A. (1999). The two general activation

   systems of affect: Structural findings, evolutionary considerations and

   psychobiological evidence. *Journal of Personality and Social Psychology, 76*,

   820-838.

Widiger, T.A. (1992). Categorical versus dimensional classification: Implications from

   and for research. *Journal of Personality Disorders, 6,* 287-300.

Widiger, T.A. & Trull, T.J. (2007). Place tectonics in the classification of personality

   disorder: Shifting to a dimensional model. *American Psychologist, 62*, 71-83.

Zanarini, M.C., Gunderson, J.G., Marino, M.F., Schwartz, E.O., & Frankenburg, F.R.

   (1989). Childhood experiences of borderline patients. *Comprehensive Psychiatry,*

   30, 18-25.

Zeigler-Hill, V. & Abraham, J. (2006). Borderline personality features: Instability of

   self-esteem and affect. *Journal of Social and Clinical Psychology, 25*, 668-687.

APPENDIX A. TABLES AND FIGURES

Table 1

Means, standard deviations, ranges, skewness, kurtosis, and alphas of BAI, BDI, SAS, PANAS-PA, PANAS-NA, PAI-BOR, WISPI-BPD, and BPD factor.

	Mean	Standard Deviation	Range	Skewness (SE = .23)	Kurtosis (SE = .46)	Alpha (α)
BAI	11.40	9.75	0-43	1.14	0.88	0.91
√BAI	3.03	1.50	0-6.56	0.11	-0.43	--
BDI	6.58	5.98	0-33	1.69	4.31	0.87
√BDI	2.24	1.25	0-5.74	-0.03	-0.02	--
SAS	3.64	6.75	0-34	2.84	8.00	0.94
LG10(SAS+1)	0.40	0.44	0-1.54	0.88	-0.09	--
PANAS_PA	25.26	7.65	6-40	-0.35	-0.28	0.86
PANAS_NA	11.51	7.74	0-37	0.96	0.51	0.85
√PANAS_NA	3.19	1.16	0-6.08	0.08	-0.16	--
DAS	115.41	15.81	69-143	-0.46	-0.15	0.89
PAI-BOR	25.17	11.21	5-56	0.47	-0.51	0.87
WISPI-BPD	28.87	20.56	0-94	0.92	0.24	0.84
BPD factor	0.00	1.00	-1.57-2.63	0.70	-0.24	--

Note: BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; SAS = State Anger Scale; PANAS_PA = Positive and Negative Affect Schedule, Positive Affect Scale; PANAS_NA = Positive and Negative Affect Schedule, Negative Affect Scale; DAS = Dyadic Adjustment Scale (relationship satisfaction variable); PAI-BOR = Personality Assessment Inventory, Borderline Features Scale; WISPI-BPD = Wisconsin Personality Disorders Inventory-IV, Borderline Scale; BPD factor = latent BPD variable

Table 2

Pearson correlations between BAI, BDI, SAS, PANAS-PA, PANAS-NA, DAS, PAI-BOR, WISPI-BPD, and BPD factor.

	√BAI	√BDI	LG10 (SAS+1)	PANAS_PA	√PANAS_NA	DAS	PAI-BOR	WISPI-BPD	BPD factor
√BAI	1	.564**	.271**	-.112	.298**	-.138	.455**	.419**	.484**
√BDI	.564**	1	.391**	-.152	.320**	-.270**	.691**	.469**	.641**
LG10 (SAS+1)	.271**	.391**	1	.082	.257**	-.077	.315**	.224*	.298**
PANAS_PA	-.112	-.152	.082	1	-.193*	.255**	-.171	-.151	-.178
√PANAS_NA	.298**	.320**	.257**	-.193*	1	-.220*	.369**	.185	.306**
DAS	-.138	-.270**	-.077	.255**	.-220*	1	-.215*	-.106	-.178
PAI-BOR	.455**	.691**	.315**	-.171	.369**	-.215*	1	.636**	.904**
WISPI-BPD	.419**	.469**	.224*	-.151	.185	-.106	.636**	1	.904**
BPD factor	.484**	.641**	.298**	-.178	.306**	-.178	.904**	.904**	1

Note: *p<.05, **p<.01; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; SAS = State Anger Scale; PANAS_PA = Positive and Negative Affect Schedule, Positive Affect Scale; PANAS_NA = Positive and Negative Affect Schedule, Negative Affect Scale; DAS = Dyadic Adjustment Scale (relationship satisfaction variable); PAI-BOR = Personality Assessment Inventory, Borderline Features Scale; WISPI-BPD = Wisconsin Personality Disorders Inventory-IV, Borderline Scale; BPD factor = latent BPD variable

Table 3

Means, standard deviations, and ranges of relationship satisfaction, anger, anxiety, sadness, negative affect, and positive affect, measured daily.

	Mean	Standard Deviation	Range
Relationship Satisfaction	5.05	1.37	0-6
Anger	0.85	1.41	0-6
Anxiety	1.54	1.76	0-6
Sadness	0.94	1.40	0-6
Negative Affect	1.72	1.74	0-6
Positive Affect	4.08	1.45	0-6

Table 4

Hierarchical multiple regression analysis predicting anger.

	Anger			
	ΔR^2	b	β	f^2
Step 1				
BPD Symptoms	.089	.13	.30**	.10
Step 2				
Relationship Satisfaction	.001	-.01	-.03	.00
Step 3				
BPD Symptoms * Relationship Satisfaction	.036	-.09	-.19*	.04
Total R²	.126			

Note: *p<.05, **p<.01

Table 5

Hierarchical multiple regression analysis predicting anxiety symptoms.

	Anxiety Symptoms			
	ΔR^2	b	β	f^2
Step 1				
BPD Symptoms	.234	.73	.48***	.31
Step 2				
Relationship Satisfaction	.003	-.08	-.05	.00
Step 3				
BPD Symptoms * Relationship Satisfaction	.018	.22	.13	.02
Total R²	.255			

Note: ***p<.001

Table 6

Hierarchical multiple regression analysis predicting depressive symptoms.

	Depressive Symptoms			
	ΔR^2	b	β	f^2
Step 1				
BPD Symptoms	.411	.80	.64***	.70
Step 2				
Relationship Satisfaction	.025	-.20	-.16*	.04
Step 3				
BPD Symptoms * Relationship Satisfaction	.007	.12	.09	.01
Total R²	.444			

Note: *p<.05, ***p<.001

Table 7

Hierarchical multiple regression analysis predicting negative affect.

| | Negative Affect | | | |
	ΔR^2	b	β	f^2
Step 1				
BPD Symptoms	.094	.36	.31**	.10
Step 2				
Relationship Satisfaction	.028	-.20	-.17$^+$	.03
Step 3				
BPD Symptoms * Relationship Satisfaction	.000	-.01	-.00	.00
Total R²	.122			

Note: ^+p = approaching significance, **p<.01

Table 8

Hierarchical multiple regression analysis predicting positive affect.

	Positive Affect			
	ΔR^2	b	β	f^2
Step 1				
BPD Symptoms	.032	-1.36	-.18[+]	.03
Step 2				
Relationship Satisfaction	.051	1.76	.23*	.06
Step 3				
BPD Symptoms * Relationship Satisfaction	.018	-1.15	-.14	.02
Total R^2	.101			

Note: [+]*p = approaching significance, *p<.05*

Table 9

Pearson correlations between BPD symptoms (level 2) and variances of relationship satisfaction, anger, anxiety, sadness, negative affect, and positive affect (level 1).

	BPD Symptoms
BPD Symptoms	1
Relationship Satisfaction	.089
Anger	.285*
Anxiety	.285*
Sadness	.346**
Negative Affect	.319**
Positive Affect	.341**

Note: *p<.05, **p<.01

Table 10

One-way ANOVA post-hoc Scheffe tests comparing the variances of participants' ratings of relationship satisfaction across a 2-week period with the variances of participants' ratings of anger, anxiety, sadness, negative affect, and positive affect across a 2-week period.

		Mean Difference
Relationship Satisfaction	Anger	-.69[+]
	Anxiety	-.77*
	Sadness	-.65[+]
	Negative Affect	-1.45***
	Positive Affect	-.40

Note: [+]p = approaching significance, *p<.05, ***p<.001

Figure 1. Simple slopes analysis conducted to determine the effect of relationship satisfaction, the moderator, on the nature of the relation between BPD symptoms and anger (transformed values).
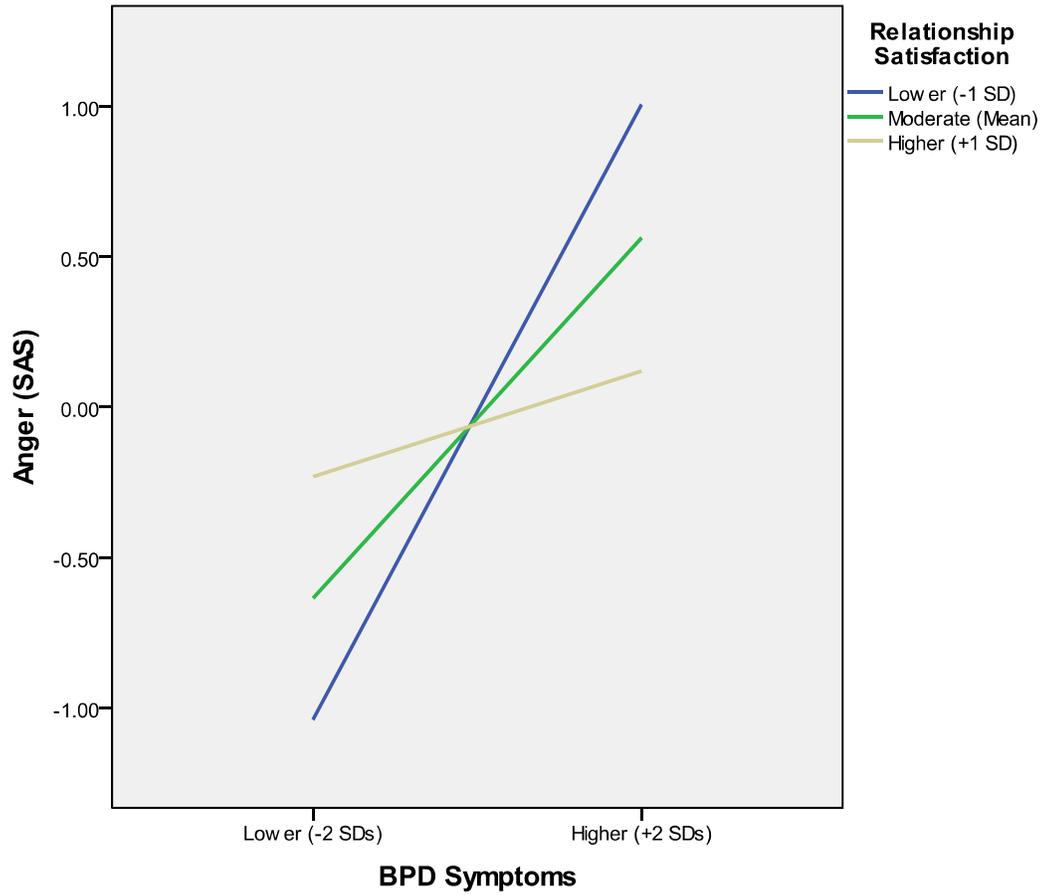
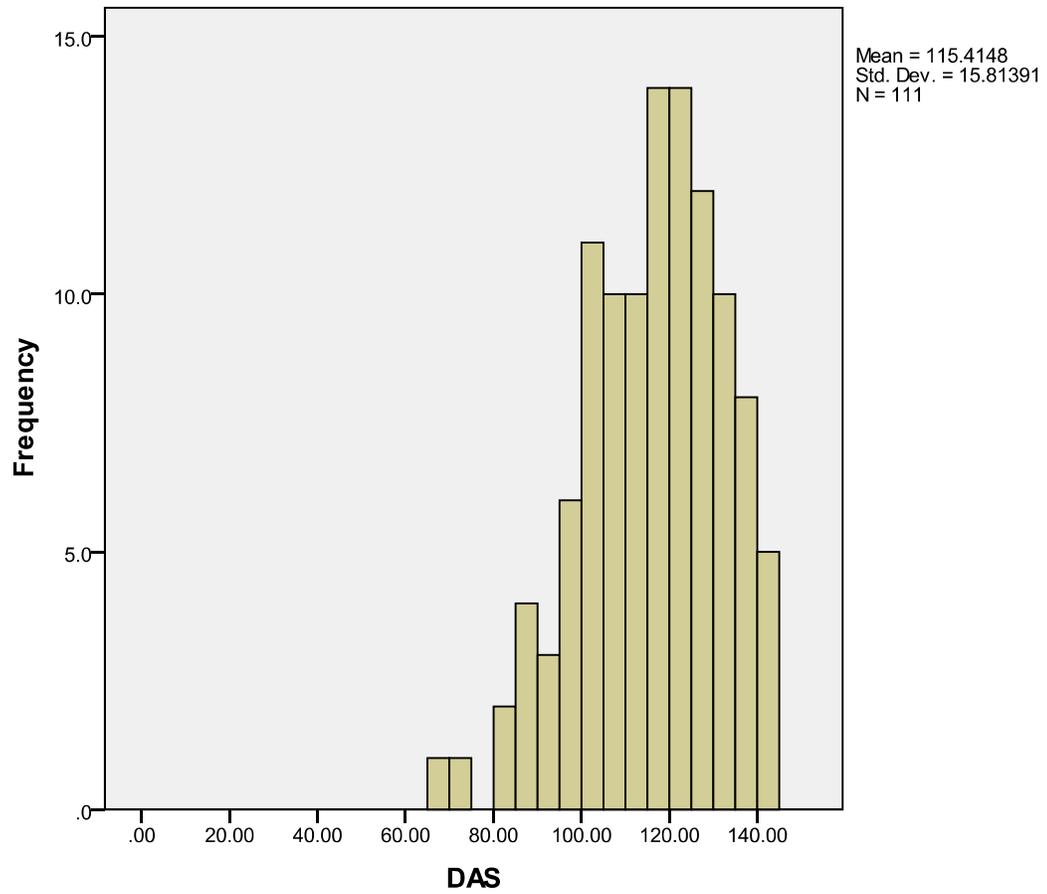*Figure* 2. Histogram displaying distribution of scores on the DAS.

Mean = 115.4148
Std. Dev. = 15.81391
N = 111

Figure 3. Histogram displaying distribution of scores on the PAI-BOR.