The Moderating Effect of Borderline Personality Disorder Symptoms on the Relationship
Between the Perception of Social Support and Interpersonal Emotion Regulation

Thesis

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Abstract

Individuals with BPD frequently have disrupted social networks and emotion regulation difficulty (Hill et. al. 2008). Social networks provide us with access to individuals who may be called upon to assist in the process of emotion regulation. One type of emotion regulation that might be particularly affected by the difficulties associated with BPD symptoms is the regulation of emotions using interpersonal strategies. This study addressed three major hypotheses: that there would be a positive relationship between BPD and the use of interpersonal Emotion regulation strategies, specifically dysfunctional interpersonal emotion regulation strategies; that interpersonal emotion regulation would be positively correlated with the perception of social support; and that BPD symptoms would moderate the relationship between interpersonal emotion regulation strategies and the perception of social support such that this relationship is weaker when there is greater endorsement of BPD symptoms. These hypotheses were tested in a sample of 300 undergraduate students at the Ohio State University and were generally supported by the data. The results of this study contribute to the understanding of the relationships between interpersonal emotion regulation, social support, and BPD symptoms.

Dedicated to my family, friends, and colleagues who were a never ending source of social support.

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Fields of Study

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Chapter 1: Introduction

Individuals use various strategies to regulate their emotional experiences, including interpersonal interactions. The presence of supportive others has been shown to buffer stress and to enhance recovery from psychological distress (Holahan & Moos, 1981). Because of their difficulties maintaining healthy interpersonal relationships, individuals with borderline personality disorder symptoms may not be able to engage in effective interpersonal emotion regulation or experience the benefits associated with strong social support networks. Additionally, borderline personality disorder symptoms may weaken the relationship between perceptions of social support and the likelihood of engaging in interpersonal emotion regulation attempts.

Borderline Personality Disorder

According to the DSM-IV-TR, Borderline Personality Disorder (BPD) is "a pervasive pattern of instability of interpersonal relationships, self image, and affect, as well as marked impulsivity, beginning by early adulthood and present in a variety of contexts" (American Psychiatric Association, 2001). BPD is associated with marked difficulty in affective, behavioral, and interpersonal functioning (Linehan, 1993).

Newman and Stevenson (2005) suggest that severe personality disorders may be seen as disorders of self–regulation and attachment with chronic difficulties in emotional regulation, self–cohesion, and maintenance of relationships with attachment figures. Consistent with this assessment, BPD is a disorder associated with pervasive impairments in functioning characterized by intense negative emotions, identity confusion, impulsive behaviors, and interpersonal difficulty. Of the difficulties that are associated with BPD,

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researchers and clinicians consistently identify problems in two main areas: emotion regulation, and interpersonal relationships (Putnam & Silk, 2005).

Emotion Regulation Difficulties

Emotion regulation refers to the processes, both intrinsic and extrinsic, that are responsible for learning to recognize, monitor, evaluate and modify emotional reactions (Thompson, 1994). Generally speaking, emotion regulation is critical for initiating, motivating, and organizing adaptive behavior, and for preventing stressful levels of negative emotions and maladaptive behavior (Cicchetti, Ackerman, & Izard, 1995).

Individuals with BPD frequently demonstrate affective instability and difficulty with emotion regulation (e.g., Koenigsberg et al., 2002; Yen, Zlotnick, & Costello, 2002). Kring (2001) proposed that although the process of emotion regulation in disordered and non-disordered individuals is essentially the same, the difference appears to be that individuals suffering from some form of psychopathology are impaired regarding the use of one or more emotion regulation strategies (i.e., using particular strategies too frequently, too infrequently, or in a less than optimal way). Glenn and Klonsky (2009) investigated the nature of the association between BPD symptoms (as measured with the McLean Screening Instrument for Borderline Personality Disorder [MSI-BPD; Zanarini et al., 2003]) and emotional dysregulation (as measured with the Difficulties in Emotion Regulation Scale [DERS; Gratz & Roemer, 2004]). The DERS includes subscales intended to assess awareness and understanding of emotions, acceptance of emotions, the ability to engage in goal directed behavior, the ability to refrain from impulsive behavior when experiencing negative emotions, and the ability to use situationally-appropriate emotion regulation strategies (Gratz & Roemer, 2004). The authors found, as anticipated,

a robust association between BPD symptomatology and the DERS ($r = .54$), providing evidence that individuals with high BPD symptoms report experiencing difficulties in emotion regulation. The conceptual association between affective instability and difficulties in emotion regulation might be expected to account for the strong relationship between BPD symptoms and DERS scores. However, even after affective instability criteria were removed from the BPD total score, the relative strength of the association was maintained. Consistent with other research on BPD, the strategies subscale, which addresses emotion regulation strategies perceived as effective, and the impulse subscale, which addresses the ability to engage in goal directed behavior and refrain from impulsive behavior, exhibited the largest associations with BPD. The relation between emotion dysregulation and BPD symptoms remained significant after adjusting for depression, anxiety, and negative affect, both serially and when entered as a block. For individuals who endorsed difficulty using emotion regulation strategies, impulse control difficulties demonstrated the strongest relationship to BPD. The maintained significance of emotional dysregulation in the model suggests that, in addition to the negative emotionality experienced by individuals with BPD, emotion dysregulation is a key component in the manifestation of BPD symptoms. The findings of this recent study are representative of a body of literature which has maintained that emotion dysregulation and affective instability are strongly associated with, if not an integral part of, the BPD diagnosis. Kostiuk and Fouts (2002) suggest that individuals who lack the ability to regulate emotions successfully may misidentify and misdirect their emotional experience, thus hindering their ability to function under conditions of emotional distress. This may account for some of the impairment in functioning associated with BPD.

Emotional processing and maladaptive behaviors. There are many psychological disorders associated with negative emotionality. What distinguishes individuals with BPD from those with other disorders of negative emotionality may be affective instability, which may make their emotional profile more dynamic and therefore more difficult to confine and address (Conklin, Bradley, & Westen, 2006). Of all DSM-IV BPD criteria, affective instability appears to best differentiate those with BPD from those with non-BPD diagnoses (Clifton & Pilkonis, 2007). This means that, in addition to the difficulties in emotion regulation addressed above, individuals with BPD are also likely to experience significant shifts in emotion. Cole and colleagues suggest that "emotion dysregulation is not necessarily the lack of regulation but instead regulation that is operating in a dysfunctional manner" (Cole et al., 1994, p. 80). The presence of labile emotions may contribute to dysfunctional regulation. Not surprisingly, the current and central theory of BPD, Linehan's (1993) biosocial theory, focuses on a transaction between emotion regulation difficulties and emotional vulnerability, including emotional reactivity.

Researchers have suggested that dysregulated behaviors such as non-suicidal self-injury and binge eating (Brown, Comtois, & Linehan, 2002; Marino & Zanarini, 2001) may stem from intense emotional experiences or are connected to these experiences in fundamental ways. For example, both non-suicidal self-injury and suicide attempts are often performed to obtain relief from overwhelming, negative emotions (Brown, Comtois, & Linehan, 2002; Klonsky, 2007). In this context, these self-harm behaviors can be seen as maladaptive strategies for regulating emotion. Some theories have proposed that maladaptive behaviors, like self-harm behaviors or dysfunctional

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interpersonal interactions, are akin to avoidance strategies of emotion regulation in that they shift attention away from the distressing emotional stimulus (Chapman, Gratz, & Brown, 2006). In addition to being a distinct issue for individuals with BPD, the maladaptive behaviors that arise from emotion regulation difficulties have been implicated as a possible contributing factor to the second main problem associated with BPD, difficulty with interpersonal relationships.

Interpersonal Relationships

In addition to the emotional problems that characterize BPD, interpersonal relationships represent another domain of critical difficulty for individuals with this disorder. Interpersonal difficulty is an issue that is diagnostically significant for all personality disorders (Coolidge, Segal, Hook, & Stewart, 2000). BPD, in particular, is characterized by unstable interpersonal relationships in which individuals engage in frantic efforts to protect their relationships in order to avoid real or imagined abandonment (DSM IV-TR, 2001). Researchers have found evidence of disordered interactions in close relationships including family, friendship, and intimate partner relationships (Hawkins 1990; Cross, Bacon, & Morris, 2000). Kirsten and Lellyveld (2006) conducted a qualitative study of individuals diagnosed with BPD in a psychiatric clinic and found that individuals in their study reported ambivalence toward their families, confusion between intimacy and intensity, intimacy dysfunction, deterioration of relationships, ineffective communication, and abusive interactions with their family members.

Moving from family relations to partner relations, Daley, Burge, and Hammen (2000) tracked high school aged girls over four years and explored the effects of Axis II

psychopathology on romantic relationships. They found that individuals who endorsed

BPD symptoms on the Personality Diagnostic Questionnaire (PDQ) and PDQ-R (PDQ;

Hyler, Rieder, Spitzer, & Williams, 1982; PDQ-R; Hyler & Rieder, 1987) had

significantly more romantic relationships, more conflict in those relationships, and lower

partner satisfaction in those relationships than individuals who endorsed fewer BPD

symptoms. Hill and colleagues (2008) found that, of both Axis I and Axis II disorders

assessed with the Structured Clinical Interview for DSM Axis I Disorders (First et al.

1997b) and Structured Clinical Interview for DSM-Axis II Disorders (First et al. 1997a),

BPD was the only disorder that uniquely predicted dysfunction in romantic relationships.

Of the participants in the BPD group, 85% had extreme romantic dysfunction compared

to 56% in the Avoidant Personality Disorder group. Hill and colleagues also found that

BPD participants endorsed more social difficulties at work and with friends.

　　　　In a related vein, Clifton, Pilkonis, and McCarty (2007) asked participants to

generate a representation (computer-based) of their social network including the 30

people who had been most important to them over the past year. Participants were also

asked to answer a series of questions about their relationship with each person listed,

including whether each individual was a former romantic partner, if they had stopped

speaking to that person at any point in the past year, and to provide Likert-type ratings of

relationship quality variables. The results indicated that individuals with BPD had a

greater number of former romantic relationships, up to 11% more than the proportion

reported by the individuals without BPD, in their current social circle. Individuals with

BPD also reported that they had stopped speaking with up to three times as many of the

people in their social network at some point in the past year (31% for the BPD group

versus 9% for the non-BPD group). These findings support the idea that BPD symptoms may impact the likelihood of maintaining people in the social support network.

The results of this study also indicated that, whereas people without any personality disorders were likely to seek advice and social support from the individuals they listed as more central to their social support network, for BPD participants there was no relationship between an individual's position in their social network and the likelihood that the participant would seek advice or social support from that person. The authors propose that this may reflect deficits in social cognition in individuals with BPD that may lead to difficulties identifying appropriate sources of social support.

These studies all provide evidence of greater conflict in the romantic and other social relationships of individuals with BPD. However, data from these studies also indicate continued interaction between the individuals with BPD and the people in their social networks despite the elevated reports of conflict. The presence of former romantic partners and dissatisfaction in current relationships suggests that the threshold for dissolving relationships might be different for individuals with elevated BPD symptoms such that individuals who may not be providing ideal social support are not removed from the social network as quickly as they might be for an individual with fewer BPD symptoms. One possible consequence of maintaining unsatisfying relationships is that individuals with BPD may not be receiving the benefits associated with strong, stable social support networks.

Interpersonal Emotion Regulation

Considering the importance of both emotion dysregulation and interpersonal relationships for individuals with BPD, one subset of emotion regulation strategies that deserves attention is interpersonal emotion regulation strategies.

There is a social aspect to emotion regulation and a transaction with the relationships in which it occurs. Gross notes that "emotional experiences, whether positive or negative, elicit a social sharing process that is generally repetitive and directed toward a variety of targets" (Gross, 2007 p. 480). Emotions and emotional expression serve a social, communicative function. The emotion regulation strategies that people choose, or patterns of strategy use, can affect relationships, well-being, and stress (Gross, 2002; Hochschild, 1983). Emotional expression is deeply embedded in social relationships, given its central role in the processes required for social maintenance (such as impression management), the resolution of interpersonal conflict, and the facilitation of social problem solving (Saarni, 1999). Emotions inform others about our thoughts, intentions, and internal states, and thus, help to coordinate our social encounters (Keltner & Haidt, 2001, Frijda, 1986).

Interpersonal Emotion Regulation Strategies

One aspect of the relationship between emotion and social functioning is the role of interpersonal interactions in the process of emotion regulation. The set of emotion regulation strategies that hinge on interaction with others are hereafter referred to as *interpersonal emotion regulation strategies*. Interpersonal emotion regulation includes strategies like asking for advice, seeking physical contact, or talking to someone about feelings. These strategies may be functional for reducing negative affect because they

involve attempts to process emotions in a meaningful way, or to seek help to tolerate

distress while holding and processing the emotions. Strategies like taking negative

emotions out on others (physically or verbally) or trying to make others feel bad may be

considered dysfunctional and/or maladaptive interpersonal emotion regulation strategies

because they may be functional for reducing distress in the short term but may increase

negative affect in the long term by generating negative outcomes (e.g., damaging

relationships potentially necessary for future regulation attempts). Additionally,

maladaptive interpersonal emotion regulation strategies may result in increased

secondary emotional experiences, such as guilt or shame (Putnam & Silk, 2005).

Interpersonal Relationships and Social Support

Interpersonal relationships can provide a great many benefits to the individual

(Argyle & Martin, 2000; Diener & Seligman, 2000). Relationships based on positive

emotions and mutual respect can provide beneficial social support. Sarason et al. (1983)

defined social support as "the existence or availability of people on whom we can rely,

people who let us know that they care about, value, and love us" (p. 127). In a one-year

longitudinal study of alcoholics and matched community residents, changes in support

were related to changes in functioning, even after prior levels of support and functioning

were statistically controlled (Billings & Moos, 1982; Holahan & Moos, 1981). Similarly,

Schaefer, Coyne, and Lazarus (1981) found that perception of social support was

negatively correlated with depressive symptoms among a sample of middle-aged

community residents. This relationship was found in both prospective and cross-sectional

analyses.

A relationship between positive interpersonal relationships and greater emotional health has been consistently observed (Berkman, Glass, Brissette, & Seeman, 2000; Cattell, 2001; LaGory, Ritchey, & Mullis, 1990; Lin, Ye, & Ensel, 1999). Thoits (1995) found that social support is the most frequently cited individual resource impacting the experience of distress. Russell (1996) suggested that perceived quality of recent social support is the best predictor of mental well-being, and many studies have indicated that strong social support has been associated with lower levels of depression and increased probability of remission from depression (Blazer & Hughes, 1991; George et al. 1989; Keitner et al. 1997; Oxman & Hull, 2001). In 2002, Barker found that satisfaction with the support of social networks was significantly related to participant reports of how lonely and depressed they felt, and that the more satisfied participants were with the support provided by their social network, the more positively they perceived their emotional health and self-esteem. These studies suggest that not only positive interpersonal relationships, but specifically the perceptions of social support, are associated with emotional well-being and recovery from emotional distress.

As it is most often conceptualized in the literature, social support has two basic elements: (a) the perception that there is a sufficient number of available others to whom one can turn in times of need, and (b) a degree of satisfaction with the available support (Sarason, 1983). The first element, availability, has both an objective and subjective component. Perceived availability of support is defined by Goldman (2004) as one's subjective confidence that one would receive support in case of need. Psychological factors may influence the individual's subjective assessment of social support. There is evidence that individuals who suffer from depressive symptoms tend to report the lack of

availability of supportive others (Winefield, 1979). This could be due to relationship

dissolution as a result of chronic strain on support resources or negative cognitions (i.e.,

pessimism) influencing the perception of others' provision of support or it could be

related to depressive biases such that the reports do not reflect an actual lack of available

support.

The evaluation of helping behaviors is the second component of social support.

Not all available individuals may be considered helpful in times of emotional need.

Individuals may or may not be evaluated as available to serve as social support based on

number and kind of helping behaviors those in the network are willing to provide. While

objective properties of socially supportive exchanges need to be considered,

interpretations that participants make of those interactions are also important (Duck,

1994).

The relationship between perceived and received social support is something that

researchers have investigated considerably. A meta-analytic review conducted by Haber

et al. (2007) reported that received support only accounted for 10-15% of the variance in

perceived social support. Haber and colleagues interpreted this as evidence that received

support may not be the primary constituent factor in perceived support and therefore,

other factors must be considered in attempts to understand and describe social support.

Not all attempts to be supportive are interpreted as positive or helpful. For

instance, despite an intention to be supportive, some attempts at care can be judged as

incompetent, overprotective, or insensitive. This suggests that an individual's experience

of being socially supported is guided by that individual's evaluation of socially

supportive behaviors much more so than the objective qualities of those behaviors.

The Present Study

Although personality disorders are understood to impair social functioning, few studies focus specifically on the nature of those impairments. Borderline personality disorder is characterized by intense and unstable emotional experiences. Individuals with BPD also report difficulty in interpersonal relationships. Given that interpersonal interactions can be a valuable resource when it comes to regulating our emotional experience, it is important to understand the possible effects of BPD symptoms on the use of these emotion regulation strategies. Research has also suggested that there may be differences in the composition and maintenance of social networks for individuals with BPD relative to individuals without this diagnosis. Social networks provide us with access to individuals who may be called upon to assist in the process of emotion regulation. Intuitively, if we perceive our network as supportive, we would engage the people in that network for regulatory support more frequently than if we perceived it as unsupportive. For individuals who maintain relationships that they may perceive as dissatisfying, this may not be the case. The present study proposes to begin an investigation of interpersonal emotion regulation strategy usage and social support in individuals with BPD.

Hypotheses

Hypothesis 1: BPD symptoms will have a positive relationship with interpersonal emotion regulation use. Specifically, it is hypothesized that there will be a strong correlation between BPD symptoms and dysfunctional, as opposed to functional, interpersonal strategy use. Hypothesis 2: The second hypothesis is that there will be a positive relationship between perception of social support and the use of interpersonal

emotion regulation strategies. <u>Hypothesis 3:</u> The third hypothesis is that the strength of this relationship will be moderated by BPD symptoms such that the association between perception of social support and interpersonal emotion regulation usage will be weaker when there is greater endorsement of BPD symptoms.

Chapter 2: Methods

Participants

Participants were recruited through the Research Experience Program (REP), which consists of undergraduate students enrolled in an introductory psychology course at The Ohio State University. There were no inclusion or exclusion criteria, other than the requirement that participants be at least 18 years of age. A total of 300 students elected to participate in the study. The mean age of the students was 19.73 ($SD = 3.24$) and of the students who participated, 40 scored 38 or above on the PAI-BOR, thereby indicating the presence of BPD according to frequently used criteria for research (Stein, Pinsker-Aspen, & Hilsenroth, 2007; Trull, 1995). The demographic characteristics of the data are presented in Table 1.

Measures

Borderline personality symptoms.

The Personality Assessment Inventory- Borderline Subscale (PAI-BOR; Morey, 1991) was used to assess BPD symptoms. The PAI-BOR has been shown to be a reliable measure in assessing BPD pathology (Morey, 1991, 1996). It has been shown to have moderate to good criterion and concurrent validity; the overall correct classification rate, as compared to the presence or absence of BPD as determined by SCID-II interview, using the PAI-BOR Total score ($T < 70$) was reported as 73% (Stein et al., 2007).

Emotion regulation strategies.

The Regulation of Emotion Questionnaire (REQ; Philips & Power, 2007) was created as a measure of individual differences in emotion regulation. The 21-question scale focuses on two major aspects of emotion regulation: the use of strategies which facilitate processing of emotions (functional strategies) and those that do not (dysfunctional strategies). This scale also assesses whether individuals choose strategies which regulate emotions through drawing on internal (e.g., cognitive reappraisal) or external (e.g., interpersonal) resources. In the original validation paper, the internal consistency of each subscale was good, with the exception of the external-functional scale, which had a Cronbach's alpha of below the accepted level of 0.7 (Philips & Power, 2007). Despite the low Cronbach's alpha of this subscale, the internal consistencies of the subscales of interest (i.e., external-dysfunctional, internal-functional, and internal-dysfunctional) were good; therefore, the scale was chosen for inclusion in this study. In the current sample, the full REQ scale has a Cronbach's alpha of .736, which is above the acceptable level of .7. The alpha could not be appreciably improved by eliminating any one of the items. Of the subscales, the two functional subscales also demonstrated validity above .7; however the two dysfunctional scales resulted in alpha values just above .6.

Emotion Regulation Vignettes (ERV; Forsythe & Cheavens, unpublished) were included in hopes to address emotion regulation strategy use in the most effective and ecologically valid way, a series of vignettes were created based on the factor structure of the REQ. All analyses performed with the REQ are also performed with the Emotion Regulation Vignettes. As with the REQ, the vignettes were created to address emotion

regulation along two continua, interpersonal versus intrapersonal and functional versus

dysfunctional, producing four categories. Participants were instructed to read a short

situation formatted to evoke one of four emotional responses (e.g., anger). They were

then asked to rate, on a 5 point Likert-type scale, how likely they were to use each of four

emotion regulation responses (e.g., "I ask a friend for advice"), reflective of the four

categories of emotional response addressed by the REQ. The vignettes demonstrated

good reliability and validity as can be seen in Table A1. All but one scale had Cronbach's

alpha of .7 or greater; none of the scales could be appreciably improved by omitting

items.

   Social support.

  The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet,

Dahlem, Zimet & Farley, 1988) was used to address perceived social support. This scale

identifies perceptions of support from three major types of resources: friends, family, and

significant other. The MSPSS is a 12-item measure that asks respondents to make ratings

on a 7-point Likert-type scale of statements regarding the availability of emotional

support. There appears to be strong evidence for the validity of the factor structure, good

internal reliability, and good construct validity (Zimet et al. 1990).

Procedure

  Informed consent was obtained following a verbal and written description of the

study. Those who consented to participate in the study completed a battery of the

aforementioned questionnaires. Questionnaires were administered via MediaLab

computer software (Jarvis, 2007) for psychological experiments. Participants were run in

groups of 2-30 individuals, under the supervision of a member of the research team.

Chapter 3: Results

Statistical Assumptions

Descriptive statistics for the measures of interest can be found in Table 3. The Kolmogorov-Smirnov test for normality in SPSS indicated that the scores from the MSPSS were negatively skewed. As suggested by Tabachnick and Fidell (2007), the data were transformed using the inverse square root. When this transformation was performed, the data more closely approximated a normal distribution, but were still slightly skewed. Other transformations were performed (i.e., inverse, square root, and log 10), but none better corrected for the skew in the data. All analyses were performed both with the data in the uncorrected form and the data after the correction. The patterns of the relations among the variables were equivalent. Based on this information, there was no apparent benefit afforded by the transformation. Thus, for ease of interpretation and clarity of reporting, the untransformed scores were retained.

To create a variable representing overall use of Interpersonal Emotion Regulation variable, the Dysfunctional Interpersonal and Functional Interpersonal Emotion Regulation subscales of the REQ were combined. Similarly, the Dysfunctional and Functional Intrapersonal subscales were combined to create an overall Intrapersonal Emotion Regulation variable. The Dysfunctional Intrapersonal and Dysfunctional Interpersonal subscales were combined to create an overall Dysfunctional Emotion Regulation variable and the Functional Intrapersonal and Functional Interpersonal scales were collapsed to create a Functional Emotion Regulation variable. The same process

was used to create Interpersonal, Intrapersonal, Functional and Dysfunctional scales for

the ERV. Before performing the linear regression, the PAI-BOR total variable and

MSPSS variable were centered to reduce the correlation between these variables and the

interaction term which was created from them. The interaction term, PAI-BOR*MSPSS,

was created from the centered variables. All analyses conducted with the REQ and its

subscales were also conducted with the ERV. The results from these analyses are

included in Appendix A.

Primary Analyses

Hypothesis 1a: BPD symptoms will have a positive relationship with

interpersonal emotion regulation strategy use.

To address this hypothesis, a Pearson's correlation between PAI-BOR and

Interpersonal Emotion Regulation was conducted. There was no significant correlation

between the PAI-BOR and REQ Interpersonal Emotion Regulation ($r = .06$, $p = .29$). The

correlation between the ERV Interpersonal Emotion Regulation and PAI-BOR ($r = .13$, p

$= .03$) suggests that a significant positive relationship does exist between BPD symptoms

and interpersonal emotion regulation (see Appendix A). Thus, there is mixed support for

the hypothesis that higher BPD symptoms would be positively associated with

interpersonal emotion regulation.

Hypothesis 1b: There will be a strong correlation between BPD symptoms

and dysfunctional, as opposed to functional, interpersonal strategy use.

There was a significant correlation between PAI-BOR symptoms and the

Interpersonal Dysfunctional Emotion Regulation subscale of the REQ, and not between

the PAI-BOR and the REQ Functional Interpersonal subscale (see Table 4). These results

indicate a significant positive relationship between BPD symptoms and dysfunctional, as opposed to functional, interpersonal emotion regulation strategy use. This can be interpreted to mean that the more BPD symptoms an individual is experiencing, the more likely they are to engage in interpersonal emotion regulation strategies that fail to regulate their emotions, cause greater distress in the long run, or harm their interpersonal relationships.

Hypothesis 2: There will be a positive relationship between perception of social support and the use of interpersonal emotion regulation strategies.

The MSPSS was positively correlated with Interpersonal Emotion Regulation as addressed by the REQ (see Table 4 for all correlations), signifying that the more positively individuals perceived the social support available to them, the more likely they were to engage other people in their attempts at emotion regulation. The relationship appears to be driven by the Functional Interpersonal subscale, which was positively associated with perceived social support. Conversely, the relation between the Dysfunctional Interpersonal subscale and perceived social support was non-significant.

Hypothesis 3: The strength of the relationship between perceived social support and interpersonal emotion regulation will be moderated by BPD symptoms such that it will be weaker when there is greater endorsement of BPD symptoms.

The PAI-BOR was significantly, negatively correlated with the MSPSS (see Table 4). Additionally, the correlations between the PAI-BOR and the MSPSS subscales were all negative, Family($r = -.26$, $p < .001$), Friends ($r = -.16$, $p < .01$), Significant Other ($r = -.24$, $p < .001$), indicating that BPD symptoms were associated with a negative perception of social support in multiple domains of interpersonal interaction.

To understand how the relationship between perceived social support and interpersonal emotion regulation strategy use is impacted by BPD symptoms, a hierarchical linear regression with the REQ Interpersonal Emotion Regulation subscale as the criterion variable was performed. In the first step of the model, the centered PAI-BOR scores and the centered MSPSS scores were included as predictors. In the second step of the analysis, an interaction term comprised of PAI-BOR by MSPSS scores was added to evaluate whether the relationship between social support and interpersonal emotion regulation was consistent across various levels of BPD symptoms. The results of the regression equation are included in Table 5.

The first step of the model, with MSPSS and PAI-BOR entered, was significant *Adj. R^2* = .162, *F*(2, 286) = 28.90, *p* < .001. In this step, both BPD symptoms and perceived social support were significantly related to use of the REQ Interpersonal Emotion Regulation subscale (see Table 5). Further, the inclusion of the interaction term in the second step was also significant, *Adj. R^2* = 0.18, ΔR^2 = 0.02, *F*(1, 285) = 6.96, *p* < .01. In terms of the relationship between the PAI-BOR and Interpersonal Emotion Regulation, it appears that the MSPSS can be understood to operate as a suppressor variable because inclusion of this variable in the regression clarified a positive relationship between the PAI-BOR and Interpersonal Emotion Regulation strategies. The MSPSS likely accounted for variance that may have been obscuring the relationship between the PAI-BOR and Interpersonal Emotion Regulation.

In the second step of the regression, the interaction between the PAI-BOR and the MSPSS was significant. A Microsoft Excel program created by Jeremy Dawson for plotting 2-way interaction was used to plot the interactions discussed under this

hypothesis. The plot is included as Figure 1. The procedure used by Dawson to create the program artificially dichotomizes the continuous data at one standard deviation above and one standard deviation below the mean for each of the variables in the interaction as described by Aiken and West (1991) for the purpose of an illustrative plot. The interaction between BPD symptoms and perceived social support (see Figure 1) indicates that the relationship between Interpersonal Emotion Regulation Strategies and perceived social support is less strong for individuals with higher BPD symptoms. This finding supports the third hypothesis, that BPD symptoms moderate the relationship between perceived social support and the use of Interpersonal Emotion Regulation strategies. As BPD symptoms increase, the positive association between one's perception of social support and the use of interpersonal emotion regulation strategies is less strong.

Regression equations were modeled with each of the two constituent Interpersonal Emotion Regulation subscales (i.e., Functional and Dysfunctional Interpersonal Emotion Regulation subscales). For both, as before, the MSPSS and PAI-BOR were entered in the first step of the model and the interaction term was entered in the second step. In the regression of Functional Interpersonal Emotion Regulation strategies, the first step was significant, *Adj. R^2* = .22, $F(2, 286) = 40.42$, p < .001, and the second step was significant, *Adj. R^2* = .23, $\Delta R^2 = 0.01$, $F(1, 285) = 5.50$, $p = .02$ (see Table 6). The PAI-BOR did not account for a significant portion of the variance in either step. The MSPSS was significant in both steps. The interaction, shown in Figure 2, between PAI-BOR and the MSPSS was significant and consistent with the interaction of these variables in the regression of Interpersonal Emotion Regulation. That is to say, the positive relationship between the use of functional interpersonal emotion regulation strategies and social

support is weaker at higher levels of BPD symptoms. Taken together with other results, these findings make an important distinction. BPD symptoms exert influence on functional interpersonal emotion regulation strategies through an interaction with social support, and not as a unique predictor in their own right.

The regression of Dysfunctional Interpersonal Emotion Regulation strategies was modeled in the same form as the other regression analyses, with PAI-BOR and MSPSS in the first step, which was significant, *Adj. R^2= .10, F*(2, 286) = 16.40, *p* < .01. The second step of the model was not significant, *Adj.R^2* = .10, ΔR^2 = .002, *F*(2, 285) = 1.84, *p* = .18 (see Table 7). In this step, unlike the models of Interpersonal Emotion Regulation and Functional Interpersonal Emotion Regulation strategies, neither perceived social support nor the interaction term (see Figure 3) accounted for a significant proportion of the variance. Only the PAI-BOR was significant in the model, which is presented in Table 7. This result signifies that BPD symptoms, but not the perception of social support, account for variance in the use of dysfunctional emotion regulation strategies.

Chapter 4: Discussion

Emotion regulation difficulty and unstable interpersonal relationships are frequently identified as hallmark characteristics of BPD. For that reason, these factors and the likely relationships among them may be important in understanding the disorder and how best to treat it. This study was aimed at clarifying the relationship between BPD symptoms and interpersonal functioning as it relates to emotion regulation.

Hypothesis 1a: stated that BPD symptoms would have a positive relationship with interpersonal emotion regulation use. In the bivariate correlational analysis conducted to explore this hypothesis, the relationship between REQ Interpersonal Emotion Regulation Strategies and PAI-BOR scores was not significant. Although the hypothesis did not appear to be supported at the bivariate level, BPD symptoms accounted for a significant portion of the variance in a regression of Interpersonal Emotion Regulation strategies when perceived social support was also included in the model. The significant portion of variance in interpersonal emotion regulation accounted for by BPD symptoms when perceived social support is also in the model supports the hypothesis that a relationship does exist between BPD symptoms and interpersonal emotion regulation. Other support for this hypothesis is found in the result of the correlational analysis conducted with the Interpersonal Emotion Regulation strategies of the ERV, which were positively correlated with BPD symptoms (see Appendix A). The results of these analyses support

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the hypothesis that a relationship does exist between BPD symptoms and interpersonal emotion regulation strategy use.

Bandelow, Schmall, Felkai, and Wendekind (2010) suggest that for individuals who have BPD symptoms with dysregulated emotional and interpersonal processes, seeking attention and social interaction may be a way of stimulating the endogenous opioid system. Research by Cogswell and Alloy's (2006) research exploring dependency in Axis II pathology found that neediness, but not connectedness, had a significant positive relationship with Borderline, Narcissistic, and Dependent personality disorders. The present study contributes additional support to the evidence that BPD symptoms are associated with differences in interpersonal emotion regulation. Involving others in the process of emotion regulation is often functional. Because of the interpersonal dysfunction associated with BPD, the next hypothesis addressed whether BPD was specifically associated with dysfunctional interpersonal emotion regulation.

Hypothesis 1b: stated that there would be a strong correlation between BPD symptoms and dysfunctional, as opposed to functional, interpersonal strategy use. Results of the correlational analyses show a significant positive relationship between BPD symptoms and dysfunctional interpersonal emotion regulation strategies (e.g. "I try to make others feel bad.").

This relationship could be interpreted to mean that individuals with more BPD symptoms are also more likely than those with fewer BPD symptoms to use dysfunctional interpersonal emotion regulation strategies. This is consistent with research that suggests that emotion regulation dysfunction is a core feature of BPD (Glenn & Klonsky 2009, Putnam & Silk, 2005). The current findings support the idea that for

individuals with BPD, not only are emotions unstable, as reported by Pilkonis et al. (2007), but that more dysfunctional strategies may be used, and there may even be differences in how functional strategies are used.

The findings of Hypothesis 1, that greater BPD symptoms are associated with greater use of interpersonal, specifically dysfunctional interpersonal emotion regulation strategies, make sense in the context of the existing literature on BPD and interpersonal dysfunction. Hill et al. (2007) found that people with BPD endorsed more dysfunctional interpersonal interactions, like romantic relationship dysfunction and social domain difficulties. Findings of the present study suggest that dysfunctional interpersonal emotion regulation attempts might be among those dysfunctional interpersonal interactions.

Hypothesis 2: stated that there would be a positive relationship between perception of social support and the use of interpersonal emotion regulation strategies. The second hypothesis was supported by the positive relationship between the interpersonal emotion regulation strategies, as measured by the REQ, and the measure of perceived social support. The hypothesis was also supported by the subsequent regression models in which social support consistently accounted for a significant portion of the variance in interpersonal emotion regulation strategies.

This result establishes the premise that individuals are more likely to engage others in the process of emotion regulation when they perceive that good social support is available. This may be one mechanism whereby social support conveys the benefits with which it has been associated (Argyle & Martin, 2000; Berkman, Glass, Brissette, & Seeman, 2000; Cattell, 2001; Diener & Seligman, 2000; LaGory, Ritchey, & Mullis,

1990; Lin, Ye, & Ensel, 1999). Social support has also been found to benefit individuals with mood disorders and other emotion based difficulties (Barker, 2002; Blazer & Hughes, 1991; George et al. 1989; Keitner et al. 1997; Oxman & Hull, 2001; Russell, 1996; Schaefer, Coyne, & Lazarus, 1981; Thoits, 1995). Although there is no reason to believe that individuals in the sample used for this study were experiencing significant mood disorders or other emotion based difficulties, it is likely that the same mechanism is responsible for conveying the benefits of social support in these cases.

Hypothesis 3: the strength of the relationship between perception of social support and interpersonal emotion regulation strategy use will be moderated by BPD symptoms, such that the association between perception of social support and interpersonal emotion regulation usage will be weaker when there is greater endorsement of BPD symptoms. The second hypothesis was supported and a significant relationship was found to exist between the perception of social support and interpersonal emotion regulation strategies. There was a significant interaction effect between BPD symptoms and the perception of social support. The use of interpersonal emotion regulation strategies increased with the perception of social support for all individuals; however, this relation is weaker at higher levels of BPD symptoms. According to Kenny (2009), moderation implies a reduction in the strength of the relationship between X and Y by a third variable. BPD symptoms, therefore, moderate the relationship between the perception of social support and the use of interpersonal emotion regulation strategies. Thus, the third hypothesis is also supported. What these findings signify is that high BPD symptoms are associated with a relatively consistent likelihood of using interpersonal emotion regulation strategies whether social support is perceived to be high or low.

Given that the interaction appears to be significant for functional strategies and not for than dysfunctional ones, interpretations of the implications of these results must focus on the kinds of behaviors that would be endorsed as functional interpersonal emotion regulation strategies. Functional interpersonal emotion regulation strategies include behaviors like asking for advice, asking for help, seeking physical contact, or talking to someone about feelings.   Whereas individuals with lower BPD symptoms may engage in more help seeking behaviors when they perceive others as helpful or willing to help, these results suggest that individuals with higher BPD symptoms may engage in roughly the same level of help seeking behaviors whether or not others are perceived as available or desirable for support. This, in turn, may result in unsuccessful attempts at emotion regulation, increased dissatisfaction in interpersonal relationships, or both.

The results of the present study suggest that higher BPD symptoms are associated with a reduction in the impact of the perception of available support in the decision to use interpersonal emotion regulation. Investigations of social dysfunction among individuals with BPD conducted by Hill et al. (2007) suggest that the ability to engage in appropriate emotional expression in the appropriate domain was central to adaptive interpersonal functioning. For example, the inappropriate expression of negative emotional experiences to co-workers who are not close friends may jeopardize working relationships. Pilkonis and colleagues (2007) also found that non-personality disordered participants reported being more likely to seek advice and social support from the individuals they listed as more central to their social support network. However, for participants with BPD, there was no relationship between an individual's position in their social network and the likelihood of seeking advice or social support from that person. These findings, taken

together with the current results, appear to suggest that BPD symptoms are associated with reduced discrimination among social resources when engaging in interpersonal emotion regulation.

Overall, perceived social support was found to have a significant negative relationship with BPD symptoms. Existing BPD literature describes invalidating and dysfunctional relationships, especially in family environments (Kirsten, Lellyveld, &Ventner, 2006) but does not seem to directly address a perceived lack of social support. It has been established that individuals with depressive symptoms report limited availability of supportive others (Winefield, 1979) and the correlations between the PAI-BOR and MSPSS in this study suggest that individuals with BPD may have similar perceptions, given the negative association between BPD symptoms and perceived social support. There is some evidence for disordered interactions for individuals with BPD and BPD symptoms in close relationships including family, friendship, and intimate partner relationships (Cross, Bacon, & Morris, 2000; Hawkins 1990). The present study contributes to that body of evidence, finding negative relationships between BPD symptoms and various areas of social support, including family, friends, and significant others.

Although not the focus of primary analyses, there were moderate positive correlations between BPD symptoms and dysfunctional emotion regulation strategies, both interpersonal and intrapersonal. Results of a regression analysis confirm only BPD symptoms significantly accounted for unique variance in Dysfunctional Emotion Regulation strategies. Many of the items included in the REQ Intrapersonal Dysfunctional strategies and the ERV dysfunctional strategies are comparable to

strategies addressed on other scales of difficulties in emotion regulation (e.g., DERS,

Gratz & Roemer, 2004). Items addressing interpersonal dysfunction share features with

measures of similar constructs, like the Inventory of Interpersonal Problems (Horowitz,

Alden, Wiggins, & Pincus, 2000). Both of these measures have positive relationships

with BPD symptoms (Glenn & Klonsky, 2009; Kim & Pilkonis, 1997). It has been

suggested that BPD symptoms and characteristics, like emotional instability, strain

interpersonal relationships, and thus lead to interpersonal problems (e.g., Linehan, 1993).

While this may be a significant component of the interpersonal relationship instability

associated with BPD, the results of this study suggest that the type of strategy selected

and the factors that impact selection, like the perception of available emotion regulation

resources may be additional considerations.

Limitations

One limitation of this study was the validity of some subscales of the REQ. The

lowest Cronbach's Alpha was for the Intrapersonal Dysfunctional strategies subscale ($\alpha =$

.62), indicating a weaker relationship among the items addressing the construct than was

evident for the other scales. If the items do not clearly represent a unified construct, it

might be the case that a subset of the items is responsible for the relationships evident in

the data. This might also limit the ability to make inferences about relationships between

the constructs addressed by this scale and other constructs of interest. The reliability

estimates obtained for the scale may have been low due to the composition of the current

sample or possibly because it is difficult to address emotion regulation adequately with

broad inquiries about strategy use. This explanation makes sense in light of the fact that

the ERV, which gave specific circumstances and response anchors, had higher reliability estimates than did the REQ items (see Appendix A.).

Asking participants to hypothesize about their strategy selection may have weak external validity. Attempts were made to increase the salience of emotional experiences (i.e. sadness, guilt, and anger) with the ERV, but the lack of an explicit induction or direct measure of distress means that this study is unable to weight the impact of emotional arousal.

Another limitation of the study was that it was conducted with an unselected sample of undergraduates. Although many of the participants endorsed elevated BPD symptoms, to analyze these relationships in a way that could be applied to research and treatment of individuals with BPD, these relationships would be best addressed in a clinical sample.

Future Directions

This study brings attention to a few specific areas in need of further research exploration. The present study was conducted on a non-clinical sample. It is to be expected that more dysregulated emotion and interpersonal dysfunction is associated with individuals who meet criteria for BPD diagnosis. Therefore, it would be a logical next step to assess the relationships among these variables in individuals diagnosed with the disorder of interest. Another relevant empirical question is whether strategies labeled dysfunctional (e.g. "I try to make others feel bad") which may not effectively regulate emotion, may be perceived as functional in the service of interpersonal goals (e.g. garnering sympathy or favors, persuasion, etc.). To investigate this possibility, individuals could be presented with interpersonal emotion regulation strategies they

might report using and asked why they used the strategy or what they believed might be the interpersonal outcomes of using each strategy. Finally, there remains the explication of the impact of BPD symptoms on the relationship between functional strategy use and social support. Investigations assessing which individuals are contacted, how frequently each individual is used as a resource, and how interactions are labeled may serve to elucidate this relationship.

Conclusion

Whereas existing literature has shown dysfunction in emotional regulation and dysfunction in interpersonal interactions as hallmark features of BPD, the current study may provide additional information about the interplay of those two factors. The findings of this study contribute to the understanding of dysfunction in interpersonal relationships given the frequency and intensity of emotion that individuals with BPD symptoms may need to regulate using interpersonal resources. The data indicate that BPD symptoms may also impact the use of functional emotion regulation strategies. Perception of social support likely informs decisions about when interpersonal emotion regulation is likely to be most effective as a strategy. However, in the presence of high BPD symptoms, factors which usually provide information about effectiveness of strategy use may be less informative. Insensitivity to factors that influence the effectiveness of interpersonal strategies may be influencing other types of interpersonal interaction as well. These findings together address the importance of understanding that difficulties in emotion regulation, interpersonal relations, and the relations among these classes of variables for individuals with elevated BPD symptoms.

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Appendix A: Emotion Regulation Vignette Results and discussion

Each of the main hypotheses of this study were addressed using emotion

regulation strategy data obtained by the REQ and with emotion regulation strategy data

obtained from the ERV. The reliability information for the ERV can be found in Table

8.The following are the results of the additional analyses conducted with the ERV data.

Primary Hypotheses

Hypothesis 1b: there will be a strong correlation between BPD symptoms

and dysfunctional, as opposed to functional, interpersonal strategy use

As with the REQ subscales, there was a significant positive correlation between

the Dysfunctional Interpersonal ERV subscale and the PAI-BOR. There was also a

significant negative correlation between the Functional Interpersonal ERV subscale and

the PAI-BOR (see Table 4).

Hypothesis 2: there will be a positive relationship between perception of

social support and the use of interpersonal emotion regulation strategies

The ERV Interpersonal score was positively correlated with perceived social

support as was the Functional Interpersonal ERV subscale. The Dysfunctional

Interpersonal ERV subscale was not significantly correlated with perceived social support

(see Table 4). Thus, with this measure, the positive perception of social support was

specifically associated with the use of functional interpersonal strategies. This finding

suggests that when individuals believe that their social support networks are available to

provide them with good social support they are more likely to engage in emotion

regulation strategies that involve interacting with others.

Hypothesis 3: the strength of the relationship between perceived social

support and interpersonal emotion regulation will be moderated by BPD symptoms

such that it will be weaker when there is greater endorsement of BPD symptoms

A regression analysis was performed with Interpersonal Emotion Regulation

strategies as the criterion variable. The first step, in which MSPSS and PAI-BOR were

entered, was significant, $R^2 = .11$, $F(2, 285) = 18.41$, $p < .001$. Further, the second step,

into which the interaction term was added, was also significant, $R^2 = .13$, $\Delta R^2 = .02$, $F(1,$

$284) = 7.47$, $p = .01$. BPD symptoms, perceived social support and the interaction of the

two all significantly accounted for unique portions of variance (see Table 9). The plot of

the interaction is included as Figure 4.

Analyses were also performed on each of the two constituent parts of the

Interpersonal Emotion Regulation variable (i.e., Functional and Dysfunctional Emotion

Regulation strategies). The regression analysis of Functional Interpersonal Emotion

regulation strategies is presented in Table 10. The first step, including PAI-BOR and

MSPSS as predictor variables, was significant, $R^2 = .16$, $F(2, 287) = 27.88$, $p < .001$, as

was the second step of the regression $R^2 = .19$, $\Delta R^2 = 0.03$, $F(1, 286) = 11.07$, $p < .01$.

The plot of the significant interaction is included as Figure 5.

The regression of Dysfunctional Interpersonal Emotion Regulation Strategies is

presented in Table 11 and the interaction is plotted in Figure 6. For the regression of the

Dysfunctional Interpersonal ERV subscale, the first step was significant, $R^2 = .12$ $F(2,$

$284) = 21.37$, $p < .01$. The second step of the model was not significant, $R^2 = .12$, $\Delta R^2 =$

0.001, $F(1, 286) = .208$, $p = .65$, therefore the addition of an interaction term did not

improve the model.

Appendix B: Emotion Regulation Vignettes

MediaLab format:
1) Instructions:

- Please read the following vignettes and do your best to imagine yourself in each situation.

- For each vignette, try to identify the primary or main emotion you would feel and enter that emotion into the space provided.

- Following this step, you will be presented with four things you might do when faced with this situation. For each prompt, please rate how likely you are to do each thing. Please rate how likely you are to do this thing, even if you think it may not be the best choice.

MediaLab breakdown:
Screen 1: You are at the library studying. You look at the clock and realize you made plans to meet a friend for lunch at noon and you stood him up. How would you feel?
I would feel _____
Screen 2: On a scale of 1-5 with 1 being "very unlikely" and five being "very likely". Please rate how likely you are to use each of the following strategies.
Screen 3: Response option A "I tell myself the plans were just tentative, and if he cared he would have called me.
  a. Not very likely
  b. Somewhat likely
  c. I'm not sure
  d. Likely
  e. Very likely

***screens 3 repeated for each response option

Vignettes

GUILT/SHAME
1. You are really focused on helping a co-worker. You look at the clock and realize you made plans to meet a friend for lunch at noon and you accidentally stood him up.
  a. I tell myself that everyone makes mistakes.
  b. I can't stop thinking about what I did, and I feel guilty for quite a while.
  c. When I get home I talk to my roommate about what happened.

        d. I chastise my co-worker for being so needy, and point out that helping him is what made me miss my lunch plans.

2. You are taking care of a friend's dog while they are on vacation. You realize after you let the dog outside that the gate was open and the dog has run away.
        a. I keep thinking about how careless I was to not check the gate.
        b. I call up another friend and ask her for advice about what I could do.
        c. I would likely be snap or pick at people trying to help me.
        d. I would tell myself that everything will be fine, I will either find the dog or my friend will be understanding.

3. You look at a classmate's answer sheet during an exam. The professor mistakenly blames him for cheating on the exam and fails him.
        a. Turn to a friend for comfort.
        b. I talk to my friends and bring up bad things they have done in the past.
        c. I take it out on myself by physically punishing myself in some way (i.e., hitting, biting, cutting, self-deprivation).
        d. I think about whether passing the class is worth it.

FEAR

4. You are in a very difficult math class and you have an exam tomorrow. You are not prepared for the exam, and it will determine your final grade.
        a. Think of the material you do know, and that it might be sufficient to get a decent grade .
        b. Keep thinking about it, beating yourself up about not being prepared despite knowing the consequences.
        c. I push my roommate away when he tries to talk to me.
        d. Do something energetic outside with my friends for a bit.

5. Because of an illness you were not able to work and you won't have enough money to pay the rent that is due in two days.
        a. Seek a hug or other physical comfort.
        b. Get into an argument with your landlord about the quality of the apartment.
        c. Assure yourself the landlord will understand and give you more time to come up with the money.
        d. Keep thinking about how bad the situation is.

6. You have a speech to give tomorrow in class in front of all your peers. You are not familiar with the topic and have not had time to prepare.

    a. Seek comfort from your significant other.
    b. Think about how stupid you will look during your speech.
    c. Tell off your roommate for distracting you while you were trying to prepare for your speech.
    d. Convince yourself that it won't be that bad and you will be fine.

SAD

7. You have a small group of friends, but consider yourself well liked. You show up at a social gathering and as you are looking for them, you hear your friends talking about how they are glad you did not come to the party.

    a. Shove people out of my way as I leave the party.
    b. I would put the situation into perspective, I don't need those kinds of people as my friends.
    c. Think about how other people have real friends.
    d. Instead of staying at the party, I ask my sister or brother if they want to go see a movie.

8. A good friend from high school was in a car accident and died.
    a. When talking with my friends, I say things like "I am sure you wouldn't care if I died".
    b. I seek physical contact, like hugs or having my hand held.
    c. I re-think the priorities in my life.
    d. I keep my feelings locked up inside.

LONELY

9. It is the first day of Spring break; all of your friends have gone to Florida on an expensive vacation they have been planning for weeks. You do not go because you do not have the money. So, now you have no one to make plans with.

    a. Compare how lonely I am to how much fun they must be having together.
    b. I think to myself "I will feel better for being financially responsible".
    c. Send messages to that group of friends about how lonely you are back here.

     d. Go volunteer at an organization where I can interact with people my age.

10. It is getting close to Thanksgiving and everyone is excited about leaving campus. You will not be able to go home for Thanksgiving because the weather is too bad. All of your roommates go home and you are left in an empty house.
    a. I call up one of my roommates and ask them if I can hang out with their family.
    b. I try to do a few fun things I had been wishing I had time to do.
    c. I think about how much the rest of my family will be enjoying our family traditions without me.
    d. I would seek affection from new people.

11. Your birthday is tomorrow and no one has said anything. You figure maybe a surprise party or outing is planned for you. When you arrive at your dark apartment you set your things down and wait but nothing happens. You spend the evening alone.
    a. I put things in perspective, telling yourself it was an assumption that there was a party and people were probably waiting to see if you would make plans.
    b. Say things to my friends to make them feel guilty about not making plans with you on your birthday.
    c. I dwell on how bad it feels to spend my birthday alone.
    d. I call a few friends to see if they would like to do something with me.

ANGER
12. You are at a party and an acquaintance is in no condition to drive. You let them sleep at your place. When you wake up in the morning you find that they and your camera are gone.

    a. I keep thinking about how stupid I was not to move my valuables.
    b. Think to yourself, "At least they didn't take my laptop".
    c. I call and have it out with the person who introduced us.
    d. I call my best friend and talk about what happened.

13. You have plans with your significant other and they cancel, claiming illness. So you head out by yourself and you see him or her out with other people.

a. You avoid the group and don't mention it later. You keep your feelings to yourself.
b. You storm over to them and yell at them about how upset you are.
c. Reassess the relationship.
d. You walk up to the group and ask your partner if you can talk to him or her privately about this misunderstanding.

14. You have a group project where you all get the same grade. You work hard to complete your part on time. When it is time to turn it in, you find that one of your group members did not complete their part and you will all receive an F.

a. Think about how all of the other groups had cooperative members.
b. Lash out at the professor because it is unfair.
c. Plan to meet your roommate or friend for a movie.
d. Tell yourself that this grade won't have a very big impact on you in the long run.

Appendix C: Tables and Figures

Table 1

Demographic Characteristics of Participants (N=*300*)

Characteristic	%	Frequency (N)
Sex		
Men	157	52.3
Women	143	47.7
Age		
18-24	95	286
25-29	.02	7
30 and up	.02	7
Ethnicity		
Caucasian	67	201
African American	10.3	31
Asian	15.0	45
Hispanic - American	3.7	11
Other/No response	4.0	12

Note. Included in the first column are the percentage of participants in each classification and the second column lists the number of participants belonging to each classification group.

Table 2

Reliability Estimates of the Regulation of Emotion Questionnaire

REQ	Cronbach's Alpha
REQ Dysfunctional Interpersonal	.627
REQ Functional Interpersonal	.777
REQ Dysfunctional Intrapersonal	.618
REQ Functional Intrapersonal	.725
REQ Total	.736

Table 3

Means, Standard Deviations and Inter-correlations of Main Measures

Measure	Means	Std. Dev.	1	2
1. REQ	52.80	7.06		
2. PAI-BOR	26.80	9.49	.18**	
3. MSPSS	67.59	13.59	.27**	-.26**

Note. **$p < .01$

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Table 4 Note. * *p* < .05, ****p<.001 PAI-BOR = Personality Assessment Inventory –Borderline Subscale, MSPSS = Multidimensional Scale of Perceived Social Support, REQ = Regulation of Emotion Questionnaire, Vig = Emotion Regulation Vignettes, Func = Functional, Dys = Dysfunctional, F Interp = Functional Interpersonal, F Intrap = Functional Intrapersonal, D Interp =Dysfunctional Interpersonal, D Intrap = Dysfunctional Intrapersonal.

Table 4

Correlations among the Measures and Subscales of Interest

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.PAI-BOR	1.00**															
2.REQ D Intrap	.45**															
3.REQ F Intrap	-.04	-.01														
4.REQ D Interp	.33**	.29**	-.05													
5.REQ F Interp	.10	-.19**	-.48**	.03												
6. REQ Interp	.06	-.04	.41**	--	--											
7. REQ Dys	.48**	--	-.04	--	-.09	.29**										
8.Vig D Intrap	.36**	.30**	.06	.13*	.02	.08	.26**									
9.Vig F Intrap	-.14*	-.09**	.31**	-.06	.20**	.16**	-.09	-.14*								
10.Vig D Interp	.36**	.17**	.08	.45**	.09	.28**	.40**	.35**	-.01							
11.Vig F Interp	-.10	-.16	-.33**	.06	.64**	.59**	-.05	.10	.39**	.21**						
12. Vig Interp	.13*	-.01	.28**	.29**	.51**	.58**	.19**	.29**	.25**	--	--					
13. Vig Dys	.44**	.30**	.10	.34**	.07	.22**	.40**	--	-.10	--	.19**	--				
14. MSPSS	-.26**	-.29**	.23**	-.08	.47**	.38**	-.22**	-.03	.22**	-.01	.40**	.26**	-.02			
15. REQ Func	-.08	-.13*	--	-.00	--	.80**	-.08	.05	.29**	.10	.59**	.49**	.09	.43**		
16. REQ Intrap	.19**	--	--	.11	.32**	.33**	.36**	.21**	.22**	.15**	.21**	.24**	.23**	.06	.64**	
17. Vig Func	-.14*	-.15**	.39**	.01	.53**	.47**	-.08	-.01	--	.13*	--	--	.08	.39**	.54**	.26**
18. Vig Intrap	.18**	.18**	.27**	.07	.17**	.18**	.15*	--	--	.27**	.36**	.41**	--	.14*	.24**	.32**

Table 5

Hierarchical Linear Regression of Regulation of Emotion Questionnaire Interpersonal Emotion Regulation strategies including the PAI-BOR, MSPSS, and the interaction of the two as predictors

Step and Predictor Variables	Adj. R^2	ΔR^2	β	p
Step 1	0.162**			
Constant				0.000
PAI-BOR Center			0.162	0.004
MSPSS Center			0.421	0.000
Step 2	0.179**	0.02		
Constant				0.000
PAI-BOR Center			0.180	0.003
MSPSS Center			0.455	0.000
PAI-BOR*MSPSS			-0.145	0.009

Note. ** $p < .001$.

Table 6

Hierarchical Linear Regression of Regulation of Emotion Questionnaire Functional
Interpersonal Emotion Regulation strategies including the PAI-BOR, MSPSS, and the
interaction of the two as predictors

Step and Predictor Variable	Adj. R^2	ΔR^2	β	*P*
Step 1	.215**			
Constant				.000
PAI-BOR Center			.024	.651
MSPSS Center			.475	.000
Step 2	.227**	.012		
Constant				.000
PAI-BOR Center			.039	.466
MSPSS Center			.504	.000
PAI-BOR * MSPSS			-.125	.020

Note. ** $p < .001$.

Table 7

Hierarchical Linear Regression of Regulation of Emotion Questionnaire Dysfunctional Interpersonal Emotion Regulation strategies including the PAI-BOR, MSPSS, and the interaction of the two as predictors

Step and Predictor Variable	Adj. R^2	ΔR^2	β	p
Step 1	.097**			
Constant				.000
PAI-BOR Center			.321	.000
New MSPSS Center			.001	.980
Step 2	.099**	.002		
Constant				.000
PAI-BOR Center			.331	.000
MSPSS Center			.020	.741
PAI-BOR* MSPSS			-.078	.176

Note. ** $p <.001$.

Table 8

Reliability Estimates of the Emotion Regulation Vignettes

Emotion Regulation Vignettes	Cronbach's Alpha
Vignettes Dysfunctional Interpersonal	.700
Vignettes Functional Interpersonal	.762
Vignettes Dysfunctional Intrapersonal	.716
Vignettes Functional Intrapersonal	.672
Vignettes Total	.797

Table 9

Hierarchical Linear Regression of Emotion Regulation Vignette Interpersonal Emotion Regulation strategies including the PAI-BOR, MSPSS, and the interaction of the two as predictors

Step and Predictor Variable	Adj. R^2	ΔR^2	β	p
Step 1	0.108**			
Constant				0.000
PAI-BOR Center			0.221	0.000
MSPSS Center			0.319	0.000
Step 2	0.128**	0.02		
Constant				0.000
PAI-BOR Center			0.240	0.000
MSPSS Center			0.353	0.000
PAI-BOR*MSPSS			-0.154	0.007

Note. ** $p < .001$.

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Table 10

Hierarchical Linear Regression of Regulation of Emotion Regulation Vignette Functional Interpersonal Emotion Regulation strategies including the PAI-BOR, MSPSS, and the interaction of the two as predictors

Step and Predictor Variable	Adj. R^2	ΔR^2	β	p
Step 1	.157**			
Constant				.000
PAI-BOR Center			.018	.753
MSPSS Center			.408	.000
Step 2	.185**	.028		
Constant				.000
PAI-BOR Center			.040	.473
MSPSS Center			.451	.000
PAI-BOR *MSPSS			-.182	.001

Note. ** $p < .001$.

Table 11

Hierarchical Linear Regression of Emotion Regulation Vignette Dysfunctional Interpersonal Emotion Regulation strategies including the PAI-BOR, MSPSS, and the interaction of the two as predictors

Step and Predictor Variable	Adj. R^2	ΔR^2	β	p
Step 1	.124**			
Constant				.000
PAI-BOR Center			.372	.000
MSPSS Center			.082	.151
Step 2	.121**	.003		
Constant				.000
PAI-BOR Center			.376	.000
MSPSS Center			.088	.134
PAI-BOR *MSPSS			-.026	.648

Note. ** $p <.001$.

Figures
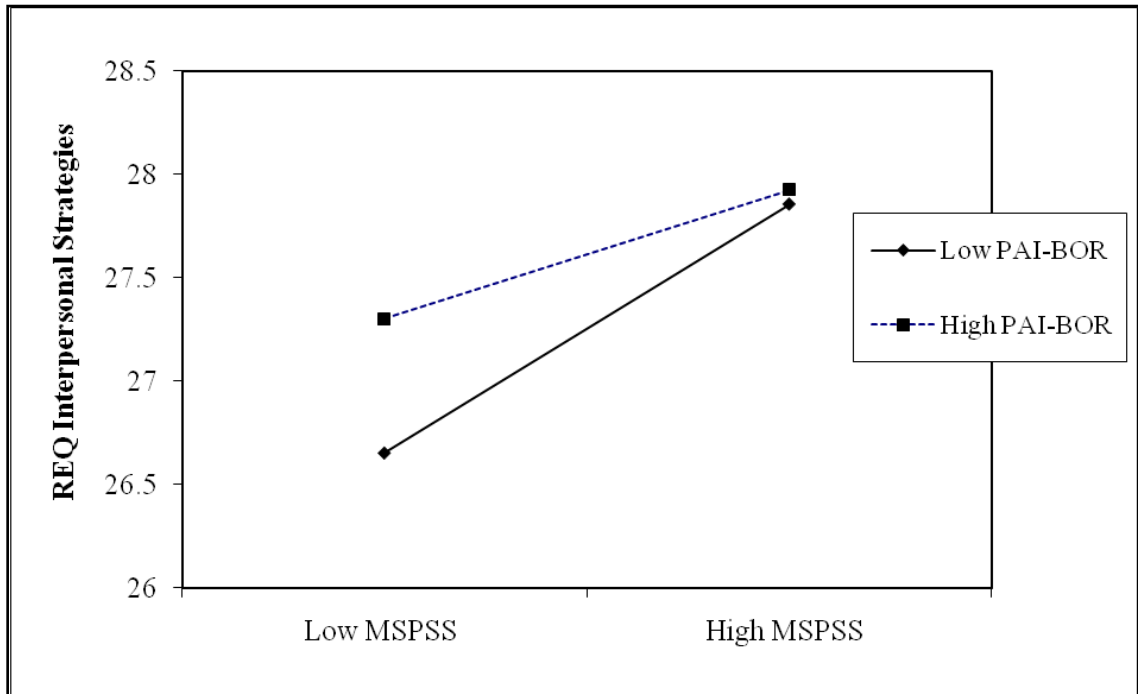
Figure 1. Plot of the interaction of perceived social support and BPD symptoms in the Hierarchical Linear Regression of REQ Interpersonal Emotion Regulation (*p* = .01).
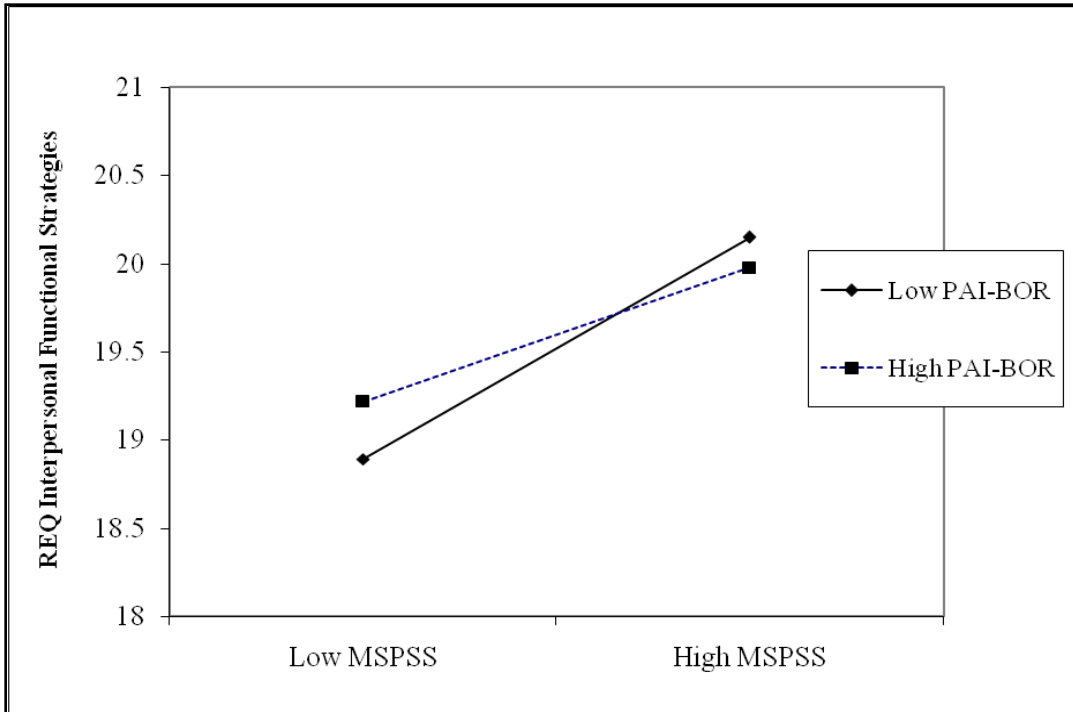
Figure 2. Plot of the interaction of perceived social support and BPD symptoms endorsement in the Hierarchical Linear Regression of Regulation of Emotion Questionnaire Functional Interpersonal Emotion Regulation strategies ($p = .02$).
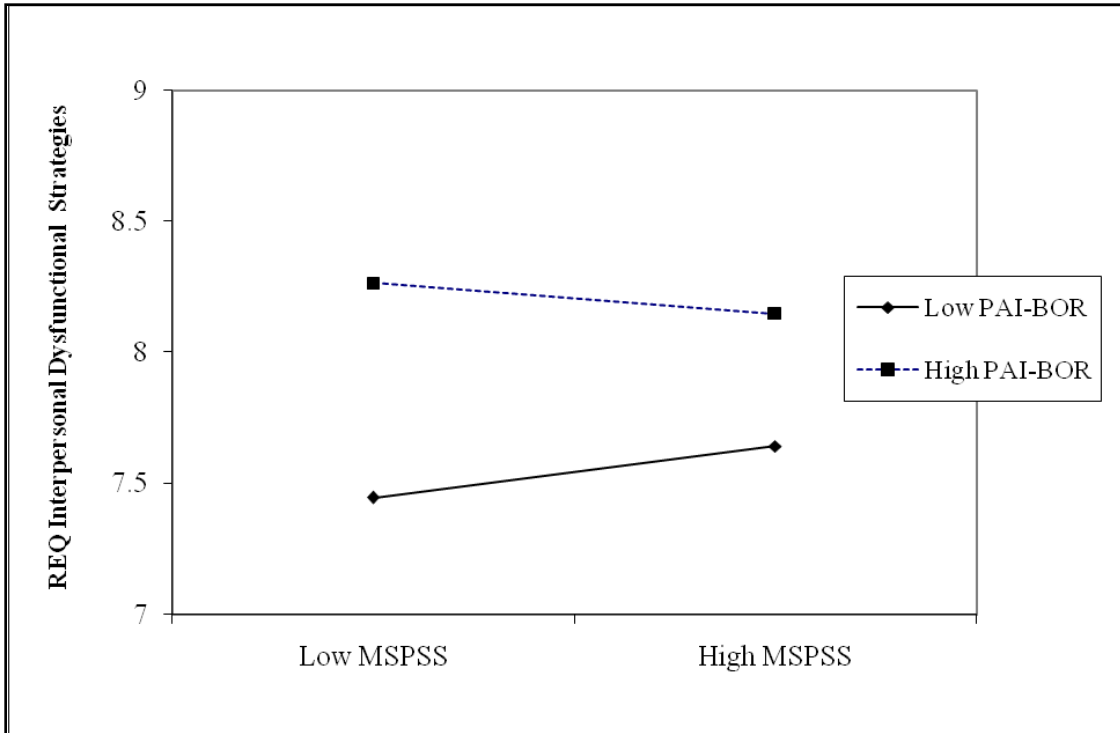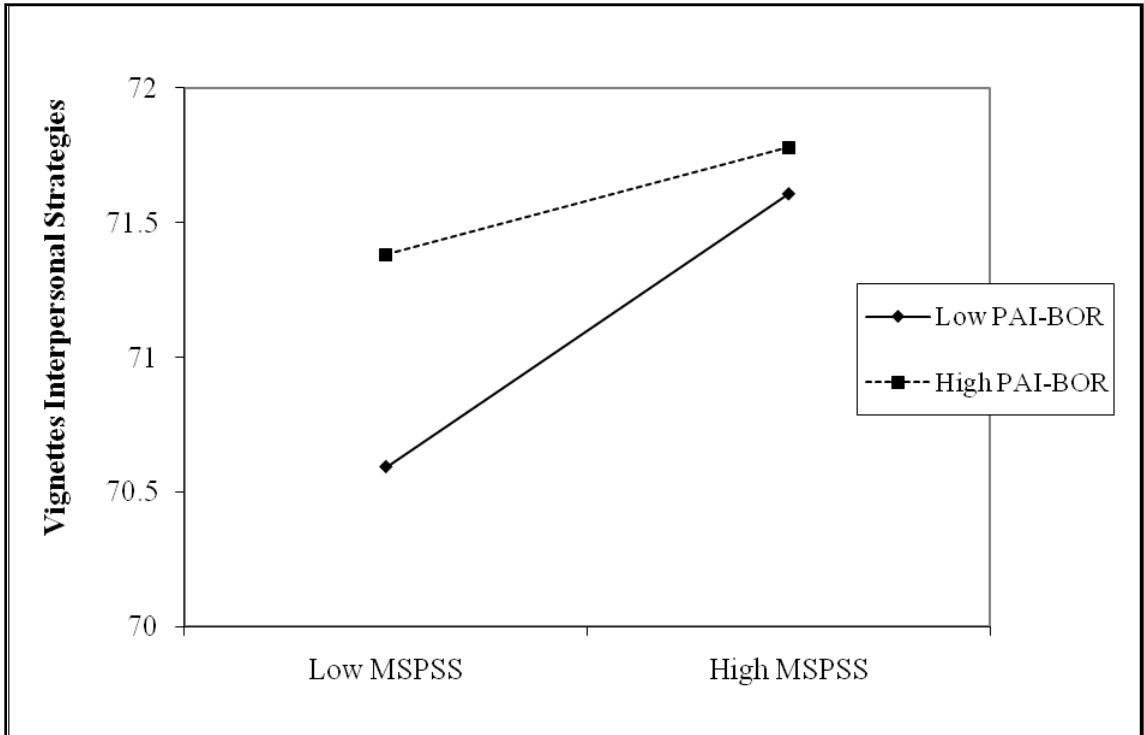
Figure 3. Plot of the interaction of perceived social support and BPD symptoms in the Hierarchical Linear Regression of Regulation of Emotion Questionnaire Dysfunctional Interpersonal Emotion Regulation Strategies ($p = .18$).

Figure 4. Plot of the interaction of perceived social support and BPD symptoms in the Hierarchical Linear Regression of Vignettes Interpersonal Emotion Regulation Strategies ($p = .01$).
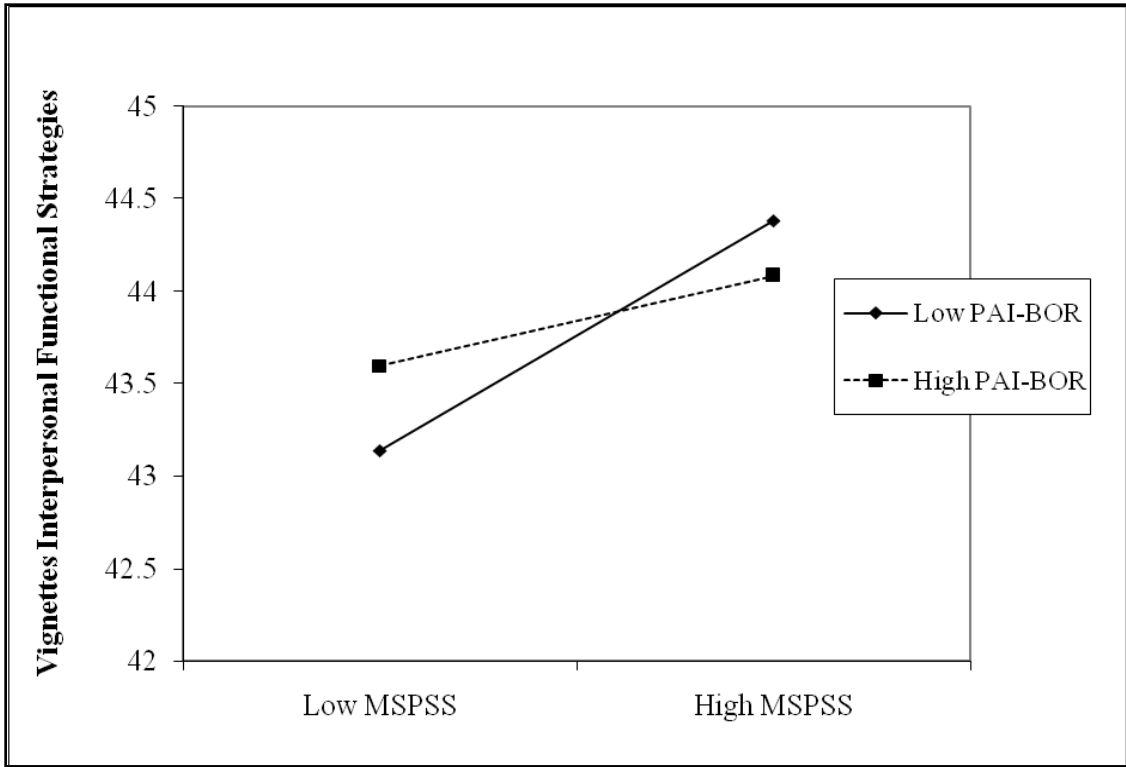
Figure 5. Plot of the interaction of perceived social support and BPD symptoms in the Hierarchical Linear regression of Vignettes Functional Interpersonal Emotion Regulation strategies ($p = .01$).
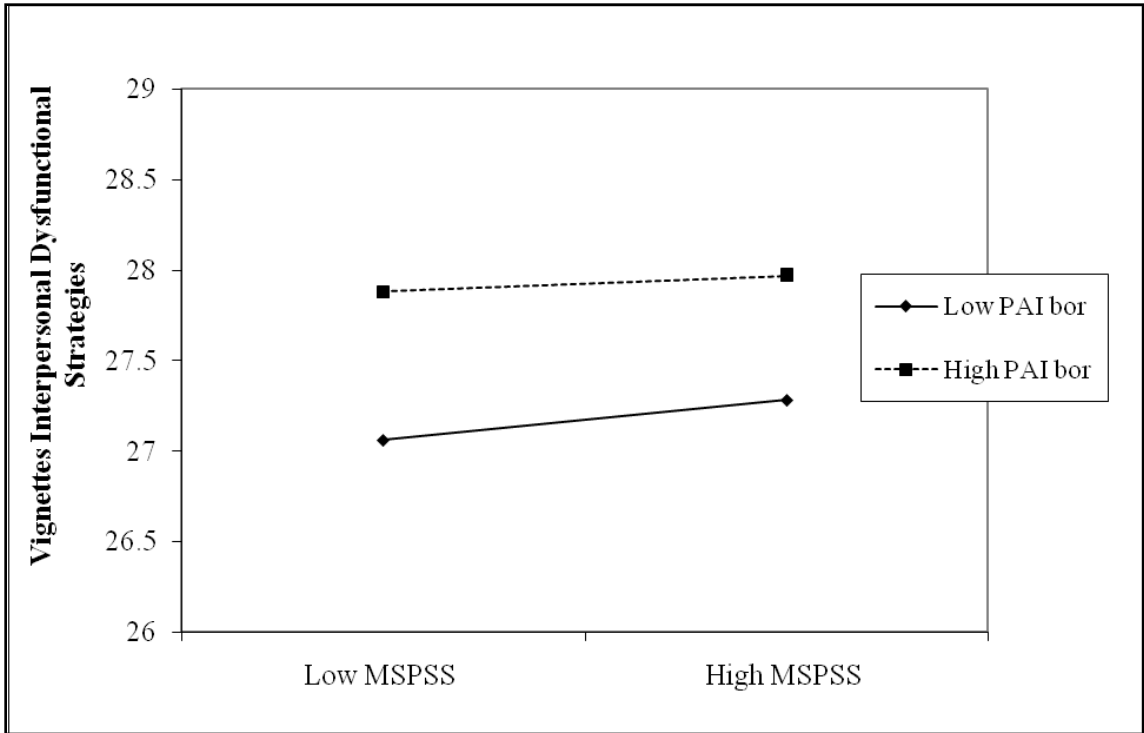
Figure 6. Plot of the interaction of perceived social support and BPD symptoms in the Hierarchical Linear regression of Vignettes Dysfunctional Interpersonal Emotion Regulation Strategies ($p = .55$).