Would Exposure Therapy be Effective for Reducing Rejection Sensitivity in Borderline Personality Disorder?

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This paper proposes an experimental test of the efficacy of exposure therapy in the treatment of rejection sensitivity in individuals with borderline personality disorder (BPD). Research has shown that BPD is related to rejection sensitivity, social phobia, and post-traumatic stress disorder (PTSD), conditions which are often treated using exposure-based therapies. Therefore, exposure therapy is presented here as a potential treatment for aspects of BPD. Given that both social phobia and BPD are characterized by rejection sensitivity, and in light of evidence that individuals with BPD are hypervigilant in their detection of anger, the proposed exposure therapy is intended to desensitize BPD patients to angry rejection. Benefits of self-distancing when reflecting on a negative interpersonal experience are discussed, and the inclusion of self-distancing in exposure therapy is considered. A proposed experimental protocol derived from treatment for chronic PTSD and adapted for use in a sample of individuals with BPD is presented, comparing a waitlist control group to two experimental groups: traditional exposure therapy and self-distancing during exposure therapy.

Borderline personality disorder (BPD) is both severely impairing for the patient and notoriously difficult and resource-intensive to treat (Freeman, Stone, & Martin, 2007). Individuals with BPD are at high risk for suicide: approximately two-thirds of individuals with the disorder attempt suicide (Oldham, 2006) and nearly 10% complete suicide, a rate almost 50 times the rate in the general population (Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004). Even with intensive treatment, more than half of patients fail to achieve remission (Leichsenring, Leibing, Kruse, New, & Leweke, 2011) and after 10 years only half achieve functional competence (Zanarini, Frankenburg, Reich, & Fitzmaurice, 2010). Gunderson and colleagues (2011) characterize BPD as "traditionally considered chronic and intractable," and Herman (1992b) refers to BPD as "the most notorious" of diagnoses applied to survivors of childhood abuse. She quotes a psychiatrist (Lazarus, 1990, p. 1390) who describes his frustrating ineffectiveness with a patient who had to be hospitalized several times: "As a resident I recalled asking my supervisor how to treat patients with borderline personality disorder, and he answered, sardonically, 'You refer them'" (Herman, 1992b, p. 123).

Current approaches to treatment are not broadly effective in restoring healthy functioning to patients diagnosed with BPD (Zanarini et al., 2010). Despite some studies showing high rates of remission (Gunderson et al., 2011), the prognosis for patients with BPD remains poor. Even when treatment is deemed successful and remission is considered achieved, symptoms are often chronic and effectively untreatable, resulting in "severe functional impairment" (Gunderson, 2011). Although treatment is often categorized as successful if symptoms fall below the threshold of diagnostic criteria, the prognosis for functional improvement is "far less dramatic and far less clinically significant" (Gunderson et al., 2011, p. 834).

The Collaborative Longitudinal Personality Disorders Study (CLPS), a prospective 10-year multi-site collaborative study of the stability of various personality disorders in a sample of people who were diagnostically screened and received psychiatric treatment (Gunderson et al., 2000), showed that long-term outcomes for BPD were significantly poorer than those for patients with other personality disorders or major depressive disorder, on various functional measures (MDD; Gunderson et al., 2011). For example, 20-40% of study patients with other personality disorders or MDD received "good" 10-year Global Assessment of Functioning (GAF) scores of 70 or greater (First, Gibbon, Spitzer & William, 1996), compared to only 3-14% of BPD patients. "Poor" GAF scores of 61 or less also ranged from 20% to 40% for other disorders and MDD but rose to 61-81% among BPD patients. Among final outcomes after 10 years, only 21% of BPD patients who had received treatment were ultimately able to achieve a "good" level of functioning, compared to 48% of those with other personality disorders and 61% of the MDD group. These outcomes are clearly disappointing for those trying to help patients with BPD achieve acceptable levels of functioning. The heavy burden this disorder places on both patients and the health care system is pointed out by Gunderson (2011), who notes that 40% of patients diagnosed with BPD still require disability payments 10 years later and only one-quarter are able maintain full-time employment—even after remission.

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These results are particularly striking considering that the CLPS sample was carefully screened to consist of 18- to 45-year-olds who had IQs of 85 or greater, were not confused, did not have a previous diagnosis of schizophrenia or "current history of substance abuse where intoxication or withdrawal would confound assessment," and who received psychiatric treatment (Gunderson et al., 2000, p. 305). In addition, the use of long-term outcome measures necessarily limits the sample to those who stayed in the study for 10 years. Although such constraints are unavoidable, they tend to narrow the filter for a population of individuals with BPD. In their review of the literature on substance abuse among individuals with BPD, Trull, Sher, Minks-Brown, Durbin and Burr (2000) found that, across studies, 57.4% of study participants with BPD also received a diagnosis of a substance use disorder. Although Gunderson et al. (2011) reported no significant sex or age differences between the 63% of patients with BPD who remained in the sample and the 37% who disappeared from the sample, concerns about survivorship bias take on new meaning in a sample of people with BPD over the course of 10 years. One can only wonder what GAF scores and outcomes would be if it were possible to include and trace everyone.

The limitations that remain in the treatment of BPD are profoundly disturbing. As Gunderson et al. (2011) point out, "the enthusiasm generated by the successes reported for psychosocial therapies of patients with BPD needs to be qualified by the recognition that these treatments have rarely demonstrated that the patients achieve better functional capacities" (p. 836). Zanarini et al. (2010) distinguish between high rates of treatment success as categorized by diagnostic criteria and the far lower rates of success as experienced by patients, who understandably consider success to mean healthy functioning. Zanarini et al. (2010) point out that, in contrast to high rates of remission, rates of recovery from BPD to a good level of overall functioning are low and "difficult for many patients to attain" (p. 663).

The DSM-IV classification system introduced 151 ways to meet the diagnostic criteria for BPD, without providing clear and empirically derived thresholds for diagnosis (Skodol, Gunderson, et al., 2002). The resulting heterogeneity of patients with a BPD diagnosis and plasticity of the assessment renders a categorical diagnosis less meaningful as a measure of treatment success. Data from the CLPS make this clear: only 41% of BPD participants met diagnostic criteria for BPD at each monthly assessment during the first year of the study (Skodol, Siever, et al., 2002). Yet despite their failure to meet criteria, it would be difficult to conclude that they did not have stable, long-term BPD in view of their consistently low levels of functioning throughout the next 10 years. Zanarini et al. (2010) argue that the low long-term functioning of many people treated for BPD, even after a 'successful' treatment, calls for a new approach beyond the common focus on remission as measured by diagnostic criteria and symptom reduction. They describe as "sobering" their finding that only half their sample achieved an adult level of full functioning during the 10-year study.

Sobering it surely is.

Clearly, existing treatments are not enough. However, a major hurdle in treating patients with BPD is the chronic instability of interpersonal relationships that constitutes a hallmark of the condition, along with the tendency of BPD patients to overreact to real or imagined abandonment or rejection (Freeman et al., 2007; Gunderson, 1996). This hyperreactivity in interpersonal relationships is one of the most impairing aspects of BPD (Lieb et al., 2004). Techniques that could target directly the disabling hyperreactivity of individuals with BPD to feelings of rejection would be of great value to both patients and clinicians.

The proposed experiment tests the use of exposure therapy with self-distancing to reduce hyperreactivity to interpersonal conflict by individuals with BPD. The intervention targets high rejection sensitivity (RS) behavior of individuals with BPD by using an established approach to exposure therapy to expose these individuals to successively greater experiences of rejection in the context of expressed anger. It enhances the traditional exposure therapy protocol with the emerging technique of self-distancing to reduce reactivity and improve outcomes. The proposed experiment thus combines two techniques—exposure therapy and self-distancing—that have each been experimentally tested and empirically supported in applications central to the symptomatology of BPD. By further combining these techniques within a single protocol that targets the experience of rejection directly, the proposed intervention provides a new approach to addressing one of the most crippling aspects of BPD: hyperreactivity to perceived rejection.

Rejection Sensitivity and Anger in Borderline Personality Disorder

Borderline personality disorder has been theoretically and empirically linked with RS. Rejection sensitivity, which is both conceptualized and operationalized as the anxious expectation of rejection (Downey & Feldman, 1996), is a construct closely related to Dutton's (1994, 1995) finding that individuals with borderline personality (BP) features have a tendency to overreact to ordinary disagreements and to interpret them as personal attacks. This aspect of borderline personality features is also in alignment with the diagnostic criteria for BPD, one of which is "frantic efforts to avoid real or imagined abandonment" (American Psychiatric Association [DSM-IV-TR], 2000). In fact, RS has been demonstrated to be a predictor of borderline personality features (Ayduk et al., 2008).

The hyperreactivity to rejection common to both RS and BPD has also been linked to anger. Berenson, Downey, Rafaeli, Coifman & Paquin (2011) found that a rageful response to perceived rejection is an important explanation for the anger typically found in borderline personality disorder. Both individuals high in RS and those with BPD

have been shown to orient away from angry faces (Berenson et al., 2009). People high in RS have also been shown to have a lower threshold for detecting anger in blended static faces than low-RS individuals (Olsson et al., 2008, as cited in Romero-Canyas, Downey, Berenson, Ayduk, & Kang, 2010). Furthermore, they showed greater skin conductance to angry faces versus either other stimuli or low-RS participants, and the response was more resistant to extinction (Olsson et al., 2008, as cited in Romero-Canyas et al., 2010). This provides evidence that individuals high in RS are more vigilant than others to anger and more likely to associate angry faces with unpleasant experiences (Romero-Canyas et al., 2010). Although anger is generally considered to be an aversive experience, the greater vigilance toward anger and stronger association of anger with unpleasant experiences found in high-RS individuals suggests that RS may reflect, in part, a conditioned response to the expression of anger by others. The possibility that RS may reflect a conditioned response to expressed anger suggests that an intervention designed to decondition this response, such as exposure therapy, would have a theoretical basis for use in reducing RS.

This hypersensitivity to anger is also a core characteristic of BPD. Individuals with BPD are unusually avoidant of anger (Arntz, Klokman, & Sieswerda, 2005). The combination of fear of expressed anger with fear of abandonment is a basic feature of borderline personality disorder. Perry and Cooper (1986) found that individuals with BPD were clearly distinguishable from patients with either bipolar II disorder or anti-social personality disorder by their greater conflicts surrounding separation-abandonment and expression of anger or needs. This is not surprising since "inappropriate anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights)" is another diagnostic criterion for borderline personality disorder (DSM-IV-TR, 2000).

Sieswerda, Arntz, Mertens, and Vertommen (2006) found individuals with BPD to be hypervigilant for schema-related cues overall, and especially for negative cues. Although Sieswerda et al. (2006) did not test the word "anger," they did cue the word "malevolent," a closely related concept, based on a theorized cognitive schema of a hostile world. Anger would be consistent with that cognitive schema, and would be expected to cue similarly. Crew, Downey, and Berenson (in preparation) did, in fact, find both people with BPD and people with social phobia to be vigilant for angry faces.

These results linking BPD with both hypervigilance for anger and difficulties with expressed anger suggest that an intervention effective in reducing RS in the context of anger could have relevance to individuals with BPD. An intervention to improve self-regulation in the face of perceived rejection potentially could have significant benefits for individuals with BPD, since effective self-regulation appears to mitigate the negative effects of RS (Romero-Canyas et al., 2010). In fact, the tendency for individuals high in RS to demonstrate BP features has been shown to be attenuated by executive control (Ayduk et al., 2008). This

suggests that interventions designed to increase the ability of individuals with BP features, even BPD, to manage their reactivity to rejection using executive control skills might prove efficacious and, ultimately, effective. Siegel, Ghinassi, and Thase (2007) consider cognitive behavioral therapy (CBT) a way of helping patients improve executive control over emotional reactions. Since exposure therapy is a subcategory of CBT, it follows that exposure therapy might be efficacious in strengthening executive control and thus reducing expression of BP features.

Social Phobia and Borderline Personality Disorder

Interventions to reduce reactivity to rejection that have been used in the treatment of disorders related to BPD might also prove applicable to reducing reactivity to rejection among individuals with BPD. Both avoidant personality disorder (APD) and social anxiety disorder (SAD, also known as social phobia [SP]) share this sensitivity to rejection with BPD in both theory and diagnosis. "Preoccupation with being criticized or rejected" is a diagnostic criterion for APD, and a diagnostic criterion for SP is "marked or persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or possible scrutiny of others" (DSM-IV-TR, 2000), which clearly relates to concern about potential rejection. APD and social phobia are known to overlap (Alden, Laposa, Taylor & Ryder, 2002). APD and borderline personality disorder are also theoretically associated with each other, and with hyperreactivity to perceived rejection and overwhelming anxiety about it (Meyer, Ajchenbrenner, & Bowles, 2005). Rapee and Heimberg (1997) take the position that SP and APD are two different points on the same continuum of concern about social evaluation. Similarly, Holt, Heimberg, and Hope (1992) theorize a continuum of social phobia encompassing both SAD and APD.

This confluence of theoretical and empirical interconnectedness suggests that interventions which have been demonstrated to reduce reactivity to rejection in either SP or APD might be efficacious in facilitating reductions in reactivity to rejection among individuals with BPD as well. Cognitive behavior therapy, including exposure therapy and *in vivo* exposure homework assignments, has been shown to be effective for social phobia (Davidson et al., 2004). Although the most effective form of CBT for social phobia tested by Foa et al. (1994, as cited in Davidson et al., 2004) included social skills training in addition to cognitive restructuring and exposure therapy, social avoidance is not a diagnostic criterion for BPD and social skills training is commonly addressed in DBT; thus, training in social interaction would not necessarily be required in addition to exposure therapy in the proposed intervention.

PTSD and Borderline Personality Disorder

Recent research on BPD suggests behavioral linkages not only with anger and rejection, but also with PTSD. Crew et

al. (in preparation) found that although individuals with SP and individuals with BPD both initially oriented briefly toward an image of an angry face, they subsequently coped with it differently. Individuals with SP attended to the threat and continued to monitor it, while individuals with BPD avoided the threat and oriented away from it. This combination of hypervigilance for the threat and subsequent avoidance of it has similarities to the behavior of individuals with PTSD. One of the diagnostic criteria for PTSD includes intense psychological distress at or physiological reactivity upon "exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event" and another is avoidance of stimuli related to the trauma (DSM-IV-TR, 2000). Individuals with BPD in the Crew et al. (in preparation) study respond to the image of an angry face in a manner consistent with diagnostic criteria for PTSD, where the traumatic stimulus is the angry face.

These results are consistent with developing theoretical linkages between BPD and PTSD. Herman and van der Kolk first highlighted the role of trauma in the development of BPD in 1987 (cited in Gunderson & Sabo, 1993). Herman, Perry and van der Kolk (1989) subsequently developed the theoretical and clinical relationship between the effects of chronic childhood trauma and the etiology of BPD. Herman (1992a, 1992b) went on to develop the term Complex PTSD (C-PTSD) to refer to the symptomatology resulting from prolonged and repeated trauma in a situation of coercive control, a condition which corresponds to the chronic childhood trauma associated with the development of borderline personality disorder in the Herman et al. (1989) paper. Borderline personality disorder and PTSD have been linked theoretically and diagnostically by Gunderson and Sabo (1993) in the etiological importance of trauma in both disorders and in the overlapping symptomatology and resulting diagnostic confusion. Van der Kolk, Roth, Pelcovitz, Sunday, and Spinazzola (2005) emphasize the dimensional rather than categorical nature of post-traumatic stress, including such symptoms as disturbances in interpersonal relations, dysregulated affect, and impulsivity —each core characteristics of BPD.

In fact, McLean and Gallop (2003) argue that, for a group of women with histories of sexual abuse, a diagnosis of BPD should be subsumed into complex PTSD. Van Dijke et al. (2012) argue that the Disorders of Extreme Stress, Not Otherwise Specified (DESNOS) diagnostic category, the formal diagnosis for complex PTSD (DSM-IV-TR, 2000), shows such high comorbidity with BPD (and not with a psychiatric control group) that complex PTSD merits investigation as an independent syndrome, or at least as a specific subclass of patients currently diagnosed with BPD who also have a history of childhood trauma.

A growing body of both theory and empirical evidence points towards a strong linkage between what is now categorized as BPD and the complex form of PTSD, for at least a subcategory of patients with a trauma history in childhood, who are currently diagnosed under the broad umbrella of BPD. This is not surprising in light of the extensive histories of childhood abuse reported by many patients with BPD (Gunderson & Sabo, 1993; Van Dijk et al., 2012; Zanarini et al., 2002).

If at least a subgroup of patients currently categorized as having BPD are, in fact, experiencing what is coming to be recognized as complex PTSD, then it follows that at least this subcategory of patients should be treated using methods that have been shown to be effective for PTSD. If, as evidence such as Crew et al. (in preparation) suggests, the overlap is even greater, and includes a broad group of patients demonstrating the umbrella of symptoms now categorized as borderline personality disorder or borderline personality characteristics, then treatments that have been shown to be effective and efficacious in PTSD should also be effective and efficacious in a broad range of patients with a diagnosis of borderline personality disorder or exhibiting borderline personality characteristics.

That means exposure therapy.

Application of Exposure Therapy to
Borderline Personality Disorder

In their review of the literature on treatment for PTSD, Foa and Meadows (1997) conclude that prolonged exposure therapy (PE) is "the treatment of choice" for PTSD (p. 475). This view has been reinforced over time. Arehart-Treichel (2001) argues that exposure therapy has stronger scientific evidence supporting its use in PTSD than do other treatments. In fact, the International Consensus Group on Depression and Anxiety has determined that exposure therapy is the standard for PTSD and treatment guidelines consider it crucial (Ballenger et al., 2000; Ballenger et al., 2004).

Borderline personality disorder has been related to both PTSD and complex PTSD, as well as to APD and SAD diagnoses. Exposure therapy has been shown to be successful in treatment of all of these related conditions. It is thus reasonable to expect that exposure therapy might also be successful with BPD.

In fact, exposure therapy is not just appropriate for PTSD; it is considered crucial for treatment of PTSD (Ballenger et al., 2000; 2004). If the developing view that at least some subcategory of borderline personality disorder is, in fact, a form of complex PTSD turns out to be correct, then exposure therapy would be, by extension, a crucial aspect of treatment for at least this subcategory of BPD. Feeney, Zoellner, and Foa (2002) treated female assault victims with exposure therapy for chronic PTSD, 17% of whom had what they termed "borderline personality characteristics (BPC)" (p. 30); 10% met criteria for BPD and another 7% had borderline features. They found that women who met either full or partial diagnostic criteria for BPD and received CBT showed significant improvement in PTSD symptoms, diagnostic status, depression, anxiety, and social functioning. Contrary to expectations, Feeney et al. (2002) also found that individuals with borderline personality features tolerated both imaginal and *in vivo* exposure well. Such results suggest that

use of exposure therapy for other, less traumatic experiences, such as angry rejection, might be feasible.

Given that one link between BPD and PTSD is hyperreactivity to a threatening stimulus, and that the link between BPD, APD, and SAD is hypersensitivity to rejection, it follows that desensitizing individuals with BPD from hyperreactivity to rejection using exposure therapy would be an appropriate goal. Since both individuals with BPD and individuals with RS have been shown to orient away from angry faces, it would follow that the aversive stimulus in the new exposure therapy paradigm would be the expression of anger (especially in the context of rejection), in various forms ranging from imaginal exposure, to potentially to *in vivo* expressions of anger in the context of rejection.

Application of Self-Distancing to Borderline Personality Disorder

The subjective attitude taken toward the experience of the aversive stimulus in exposure therapy would be expected to influence the outcome. An emerging body of research suggests that the perspective a person adopts while thinking about an aversive event mediates emotional, physiological and interpersonal outcomes, both in the moment and across time (Ayduk & Kross, 2009, 2010; Ayduk, Mischel, & Downey, 2002; Kross & Ayduk, 2008, 2009, 2011). Kross, Ayduk, and Mischel (2005) hypothesized that there are two opposing perspectives: a self-immersed perspective (from the person's own vantage point) and a self-distanced perspective (from an observer's vantage point), and found that self-distancing while reflecting on negative experiences reduces rumination and distress and improves outcomes. Ayduk and Kross (2010) hypothesize that self-distancing mediates outcomes in part by helping individuals to "reconstrue their feelings and the meaning of their experience," an important aspect of resolving the trauma theorized by Herman (1992a, 1992b) to be a foundation of BPD.

The behavioral research demonstrating the importance of adopting an attitude of self-distancing while recollecting autobiographical aversive events is supported by the neurological research of Kross, Davidson, Weber, and Ochsner (2009). They instructed participants to recall a series of "highly arousing" negative autobiographical experiences in the context one of three different attitudinal prompts: feel, accept, and analyze. They found that neurological activity in regions of the brain activated by emotion and self-referential processing (including the medial prefrontal cortex and subgenual anterior cingulate cortex) was highest in the "feel" condition and lowest in the "accept" condition, consistent with participant self-reports of lower negative affect in the "accept" condition. Furthermore, they demonstrated that this behavior can be brought under conscious control, and they hypothesized that individuals suffering from depressive states may tend to reflect on aversive experiences from a feeling perspective but could change this behavior if taught to use the more adaptive approach of acceptance. This forms a direct parallel to Dialectical Behavior Therapy (DBT) for BPD,

which focuses on encouraging an attitude of acceptance, especially of aversive events, and has been shown to be superior to alternative treatments for the disorder (Linehan, 1993a, 1993b; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; Linehan, Heard, & Armstrong, 1993).

Self-distancing not only improves outcomes while recollecting aversive events in general. Kross and Ayduk (2009) found that the beneficial effect of self-distancing while reflecting on negative autobiographical experiences—bearing emotional pain—increased linearly with depression. This strongly suggests heightened importance of self-distancing for individuals with severely depressed mood, such as those with BPD. The importance of self-distancing has also been shown to apply specifically to autobiographical memories of anger and rejection, a central aspect of the symptomatology of BPD. Ayduk and Kross (2008) found that analyzing autobiographical experiences of anger from a self-distanced perspective resulted in lower blood pressure, both during recollection and recovery, than adopting a self-immersed perspective. Ayduk and Kross (2009) reanalyzed the data from Wimalaweera and Moulds' (2008) experiment in which participants were instructed to recall autobiographical experiences of anger using either a self-distanced or self-immersed perspective along with either an analytical or recounting perspective ("why" versus "what"). In their reanalysis, they found that among the resulting four conditions (distanced-why, distanced-what, immersed-why and immersed-what), participants who were instructed to reflect on their memories of autobiographical experiences of anger from a self-distanced perspective analyzing why they reacted as they did (the distanced-why condition) showed the largest decreases in avoidance across time, but those who engaged memories focusing on self-immersed feeling states of what happened, thus tending to re-experience rather than re-evaluate the event (the immersed-what condition), showed the largest increases in avoidance. Moreover, participants in the distanced-why condition experienced lower levels of intrusive thoughts, anger and distress related to the memories over time, compared to those in the immersed-why condition.

Ayduk and Kross (2010; Study 1) found that greater self-distancing during recollection of experiences of personal rejection was associated with lower emotional reactivity in both the near term and across time, and fewer intrusive memories over time. They also found that self-distancing while remembering an autobiographical incident of being "truly enraged" at a romantic partner or close friend was associated with lower cardiovascular reactivity, both during the memory and in the subsequent recovery period (Ayduk and Kross, 2010; Study 2) . The aversive experiences investigated directly parallel the issues confronting individuals with BPD. For example, Ayduk and Kross (2010; Study 1, p. 812) issued the following instructions to participants: "Think of a recent time when you felt rejected by someone who meant a lot to you. Perhaps you were looking to them for affection, for recognition, or for understanding or sympathy. This person turned away and cast you off as if they didn't value you at all." It is difficult to

imagine a better triggering prompt for someone with borderline personality disorder than that.

The significance of self-distancing for outcomes was upheld even when controlling for self-reported perceived resolution and the age of the memory (Ayduk & Kross, 2010; Studies 1 and 2). Importantly, self-distancing was shown not to be associated with avoidance or repression (Ayduk & Kross, 2010; Study 2). In fact, participants low in spontaneous self-distancing showed a repressive pattern of coping, with physiological emotional reactivity (total peripheral resistance) negatively correlated to self-reported emotional reactivity. In contrast, participants high in self-distancing exhibited a positive correlation between physiological and emotional reactions, demonstrating a higher degree of congruence between implicit and explicit emotional reactivity.

Feelings of subjective anger and hyperreactive response to the expression of anger are not identical, but they are closely related and often experienced together, and can combine in a vicious circle of reactivity to cause the disruption in interpersonal relationships so characteristic of BPD. This interaction is demonstrated by Ayduk and Kross (2010; Study 3) using a combination of laboratory and 21-day diary data. Self-distancing was found to be associated with participant behavior in real-life interpersonal relationships: those who spontaneously self-distanced showed lower negative reactivity during interpersonal conflict and more constructive problem-solving behavior in intimate partner relationships in their day-to-day lives. Furthermore, those low in self-distancing showed a linear increase in their own negative behavior in the face of negative behavior by their partner—they engaged in the vicious circle of reactivity—while the correlation between perceived and reactive hostility was significantly lower for those high in self-distancing. Self-distancing appears to be associated with improved outcomes not only in the laboratory, but also in real life relationships—precisely the circumstances that patients with BPD find so challenging.

The growing body of research demonstrating that self-reflection on aversive autobiographical experience, especially of anger and rejection, under conditions of self-distancing improves outcomes across time and in the context of daily interactions within interpersonal relationships has direct implications for the clinical treatment of BPD. Kross and Ayduk (2011) argue that the beneficial effects of self-distancing may generalize to vulnerable groups overall, and point out that depression (Teasdale et al., 2000), BPD (Linehan 1993a, 1993b), and PTSD (Resick et al., 2008) are all commonly treated by techniques that share similarities with self-distancing. Since depression and PTSD are both connected to BPD, and all three disorders are currently treated by methods which use techniques conceptually similar to self-distancing, it follows that introducing self-distancing as a specific technique in the clinical implementation of existing treatments for borderline personality disorder, such as DBT, might improve outcomes for individuals with BPD.

The potential benefit of using empirically tested techniques of self-distancing as an incremental addition to the treatment of BPD is heightened for two reasons. First, self-distancing has been shown to be effective for reducing angry reactivity in the face of rejection, and angry hyperreactivity to rejection is central to BPD. Second, self-distancing has also been shown to be especially effective in the presence of depressive affect, and depression (to the point of suicidality) is likewise a central symptom of BPD. Given the demonstrated importance of self-distancing in anger, rejection and depression, self-distancing would be expected to have a significant mediating effect on outcomes for individuals with BPD.

Proposed Method

Eftekhari, Stines, and Zoellner (2006) summarize the general implementation of exposure therapy by explaining:

The PE protocol contains the following components: 1) psychoeducation regarding treatment rationale and common reactions to trauma; 2) breathing retraining, a form of relaxation; 3) in vivo exposure, or approaching avoided trauma-related but objectively safe activities, situations, or places; and 4) imaginal exposure, or repeated recounting of the traumatic memory...The standard PE protocol involves 9-12 treatment sessions, lasting approximately 90-120 minutes, with additional sessions sometimes implemented if needed. (p. 71)

An intervention based on standard techniques of exposure therapy has the advantage of being directly transferable to community populations with access to behaviorally trained clinicians. A 2004 survey of clinical practitioners by Becker, Zayfert and Anderson (2004) showed that 93% of behaviorally trained clinicians were trained in exposure therapy. The proposed intervention builds on skills already available to clinical practitioners in the community, and thus could be readily extended to treat individuals with BPD in community settings.

Selection of Participants

The first step in the experiment would entail selection of appropriate participants for the experimental and control groups. These groups should be composed of individuals with a clinical diagnosis of BPD. Van Minnen, Arntz, and Keijsers (2002) found that "demographic variables, depression and general anxiety, personality, trauma characteristics, feelings of anger, guilt, and shame and nonspecific variables regarding therapy were not related to either treatment outcome or dropout" and argued against excluding PTSD patients on the basis of commonly used pre-treatment variables. Consequently, no pre-screening on these criteria would be appropriate, although collecting the information might be desirable for use in further analysis, if possible.

However, suicidality is a significant issue in BPD. Approximately 1 in 10 patients with BPD commits suicide, and suicidal ideation and suicide attempts are ongoing concerns (Paris, 2002). Exposure therapy is inherently stressful, and consequently it would be advisable to screen for suicidality and exclude high-risk individuals from the study. To ensure consistent exclusion criteria across raters and across time, suicidality would be measured using the Beck Scale for Suicide Ideation (SSI; Beck, Kovacs, & Weissman, 1979). The self-report version (Beck, Steer, & Ranieri, 1988) would be used for the initial screening to ensure consistency across clinicians and for simplicity of administration. Beck et al. (1988) found concurrent validity ($p < .001$) between the self-report and clinician-rated versions. The self-report version showed slightly higher estimates of suicide ideation than the clinical version. Beck et al. (1988) concluded that the self-report version can be reliably used to screen for suicidal ideation. Ongoing monitoring by clinicians of participant suicidality throughout the experiment would be necessary to ensure participant safety. For this purpose, the clinician-rated version would be used to avoid repeat administration of the self-report version during the intervention. Participants found to reach the same exclusion criteria during the study that were used to screen participants for acceptance into the study would be removed from the experiment.

Selection of Exposure Therapy Protocol

The effectiveness of various approaches to implementation of exposure therapy has not yet been fully tested experimentally. Eftekhari et al. (2006) point out that there is little empirical research on which to base clinical decisions about the implementation of exposure therapy. The current state of experimental study of the specifics of implementation of exposure therapy does not provide a standard and experimentally verified protocol for use in experimental design. The experimental design is thus subject to clinical and experimental judgment, as well as considerations of implementation.

In view of the variety of treatment methodologies used in the experimental investigation of exposure therapy, and the theoretical and clinical evidence linking BPD with complex PTSD (which is by definition a chronic condition), the current proposal adapts an experimental design that has been used with chronic PTSD (van Minnen et al., 2002) to individuals with BPD. Although the translation of the experimental design from one population (chronic PTSD) to another (BPD) inherently requires some adaptations (e.g., instruments to measure specific symptoms), consistency of the protocol will be maximized in order to improve comparability across studies, supporting the determination of whether the previous experimental success translates from the population diagnosed with chronic PTSD to the population diagnosed with BPD.

Van Minnen et al. (2002) demonstrated success in using exposure therapy with individuals diagnosed with chronic PTSD. Their study consisted of two groups (each referred to a different outpatient mental health facility) who met DSM criteria for PTSD as the primary diagnosis and whose condition was of at least 3 months' duration. The study did not use a control group because the primary purpose of the investigation was to determine predictors of outcome rather than demonstrate efficacy of treatment, since exposure therapy for PTSD has strong experimental support already (Arehart-Treichel, 2001; Eftekhari et al., 2006). However, since the current study is intended to demonstrate efficacy, it would require an appropriate control group. Consequently, we propose to identify a group of clinical patients who have been referred to an appropriate outpatient facility (or facilities) for treatment, and whose primary diagnosis meets the DSM-IV-TR criteria for BPD. These participants would then be randomly assigned to one of three groups: one control group and two experimental groups.

Control versus Experimental Conditions

The control group would be assigned to a waitlist. Comparing the experimental groups to waitlisted controls is a more direct test of the experimental protocols' efficacy than testing them against treatment as usual (TAU). The question this experiment is designed to address is not whether the proposed protocols are better than TAU, but whether they are effective in themselves and thus might be considered for potential addition to TAU, subject to empirical verification. If, however, ethical considerations preclude use of a waitlist in this instance, the alternative approach for the control group would be to undergo treatment as usual (TAU). That is a higher hurdle and a less direct test of the experimental question, but if significance were found against TAU that would be a stronger recommendation for use of the proposed protocols. However, it should be emphasized that the proposed intervention is intended as an enhancement to TAU, not a substitute for TAU.

The two experimental protocols would both be adapted from the protocol used by van Minnen et al. (2002), which was in turn based on the Foa, Rothbaum, Riggs, and Murdock (1991) approach. Both experimental groups would receive nine weekly 90-minute sessions, consistent with the van Minnen et al. (2002) approach. Patients in the first experimental group (Group 1) would undergo prolonged imaginal exposure to personal memories of traumatic experiences of actual or perceived rejection for 60 minutes per session. Patients would be instructed to imagine each event as vividly as possible and to describe it aloud. In the first exposure session, patients would be instructed to recall the least difficult memories of a traumatic event, with exposure gradually increasing in subsequent sessions, until the final session entailed exposure to every detail of the most traumatic memories. There would be further exposure therapy homework in between meetings with the therapist. Consistent with van Minnen et al. (2002) protocol, each exposure session would be taped and patients instructed to listen to the tape five times a week at home. Since van Minnen et al. (2002) used audio tapes rather than video tapes, the proposed protocol would match that choice and use audio

without video for greater comparability of experimental results across the studies. Van Minnen et al. (2002) also monitored anxiety levels during the exposure with the SUDS (Subjective Units of Distress Scale), and the proposed protocol would mirror their methodology in that regard as well, for optimal comparability. However, in the proposed experiment, the traumatic stressor that is intended to be targeted in the exposure therapy intervention is the expression of anger and related rejection. Consequently, an additional instruction to the therapist would need to be included in the methodology for the proposed experiment: the exposure sessions should be focused on the patient's personally traumatic memories of experiences of expressed anger in the context of rejection.

The difference between the two experimental groups would be in the instructions given to the clinician for use in the exposure therapy protocol. Both groups would undergo the exposure protocol described above. However, in addition to receiving the standard set of instructions given to Group 1, patients in the second experimental group (Group 2) would be instructed to adopt a stance of self-distanced analysis equivalent to the "distanced-why" condition of Ayduk and Kross (2009) during the exposure therapy, both in meetings with the therapist and also during homework. This approach combines both traditional exposure therapy and self-distancing to create a new type of hybrid protocol for Group 2, in contrast to the traditional exposure therapy used with Group 1. The proposed experiment would use the methodology of previous researchers wherever possible to maximize comparability of results and allow for a more direct analysis of the comparative efficacy of these techniques in BPD relative to previously tested conditions.

Outcome Measures

The van Minnen et al. (2002) experiment used three primary outcome measures: The PTSD Symptom Scale Self-Report (PSS-SR; Foa, Riggs, Dancu, & Rothbaum, 1993) as a measure of symptomatology, the State Anxiety Inventory (STAI: Spielberger, Gorsuch, & Lushene, 1970; Van der Ploeg, Defares, & Spielberger, 1980, as cited in van Minnen et al., 2002), and the depression subscale of the SCL-90-R (Arrindell & Ettema, 1986, as cited in van Minnen et al., 2002). The van Minnen et al. (2002) study also used various measures to assess initial variables as predictors of outcome, such as the State-Trait Anger Scale (STAS; Van der Ploeg, Defares, and Spielberger, 1980, as cited in van Minnen et al., 2002) and SCID-II Interview (Spitzer, Williams, Gibbon, & First, 1987). Since the purpose of this experiment is to determine overall efficacy rather than characteristics predictive of outcome, it would not be necessary to replicate use of these additional measures in the proposed methodology. The assessments would be performed three times: before treatment, at the termination of treatment, and at a one-month follow-up, in accordance with the van Minnen et al. (2002) protocol.

The van Minnen et al. (2002) study used linear regression analysis to determine statistical significance of predictive

outcome variables. That technique would not be necessary in the proposed study since the predictive relationship between initial variables and outcome is not an aspect of this experimental design. The simpler statistical analysis using means comparisons to test for significance of the change in outcome variables (PTSD symptoms as measured by the PSS-SR, anxiety as measured by the STAI, and depression as measured by the SCL-90-R) at the three different times of assessment in the experimental versus control groups would be sufficient (van Minnen et al., 2002). Van Minnen et al. (2002) found pre- to post-treatment changes ($p < .005$) on all measured outcomes. Results at one-month follow-up were significant ($p < .01$) for all measured outcomes, with the sole exception of anxiety. Anxiety was not significantly different from pre-treatment levels in one of two samples, but was different at the .001 level for the other sample, a distinction van Minnen et al. (2002) did not explain. In view of the significant results of the van Minnen et al. (2002) experiment, both pre-post treatment and at one-month follow-up, statistically significant results might be expected in the proposed experiment as well.

However, despite emerging research which points to overlapping phenomenology between PTSD and BPD, it is premature to speculate at this time whether a measure of PTSD symptoms would necessarily show improvement in individuals diagnosed with BPD. It also is not our intent to target specific reductions in depression or anxiety. Thus, the outcome variables would need to be expanded to include a direct measure of reactivity to anger and rejection, as well as a clinical assessment of BPD symptoms at the three timepoints (initiation of therapy, termination of therapy, and one-month follow-up). The current proposal would use the standard Diagnostic Interview for Borderline Patients DIB-R (Gunderson, Kolb, & Austin, 1981; Zanarini, Gunderson, Frankenburg, & Chauncey, 1990) for assessment of BPD symptoms. It would measure RS using the RS-Adult Questionnaire (Berenson et al., 2009), since the study will draw from the general population, rather than from the college student population for which the original RSQ (Downey & Feldman, 1996) was developed. The RSAQ has a .87 correlation with the original RSQ among the student population for which the original questionnaire was designed (Downey, Berenson, & Kang, 2006, as cited in Berenson et al., 2009).

Discussion

Linehan, Bohus, and Lynch (2007) emphasize that "[u]nlike standard behavior and cognitive therapies which ordinarily focus on changing distressing emotions and events, a major emphasis of mindfulness, and, thus, DBT, is on learning to bear emotional pain skillfully" (p. 586). If a major emphasis of DBT is to learn to face emotional pain calmly, then practice doing it—exposure therapy, with self-distancing—seems indicated.

The present experiment is designed to test both aspects of that hypothesis—that exposure therapy and self-distancing

would be beneficial in the treatment of BPD—separately and simultaneously. First, the proposed experiment tests the efficacy of exposure therapy in the treatment of BPD. Second, it tests the efficacy of self-distancing in exposure therapy. To the best of our knowledge, neither paradigm has been tested experimentally.

In addition, the present experiment is further designed to provide a comparison of the efficacy of exposure therapy in BPD with the efficacy of exposure therapy in PTSD by using a protocol that has already been tested in a sample of individuals with PTSD by van Minnen et al. (2002). Since the underlying population from which the two samples are drawn is, of course, different, the comparison is an imperfect one. But since the control group of this experiment will follow the van Minnen et al. (2002) protocol, a comparison of the results of the two experiments would provide a reasonable first look at the comparative efficacy of the exposure therapy in two differing clinical populations: BPD and PTSD.

The experiment achieves all of these objectives in one study by using a three-group design: one control group and two experimental groups. These three groups are: a wait list, a group using exposure therapy alone, and a group using exposure therapy with self-distancing.

The first question, efficacy of exposure therapy in the treatment of BPD, is tested directly by comparing the two experimental groups using exposure therapy to the control group. Both experimental groups use the same exposure therapy protocol (except that one group of participants is instructed to self-distance during the exposure therapy and the other is not). By comparing outcomes of the two experimental groups with the control group, the efficacy of exposure therapy in treatment of BPD can be tested experimentally. It would be expected that one or both experimental groups using the exposure therapy protocol would have significantly better outcomes than the control group.

The second question, the efficacy of self-distancing in exposure therapy, is also tested directly by comparing one of the two experimental groups—exposure therapy alone—against the other, the group using exposure therapy with self-distancing. The "exposure therapy alone" group, which is an experimental group in the context of the first analysis investigating the efficacy of exposure therapy, is simultaneously the control group for the second analysis investigating the efficacy of self-distancing during exposure therapy. It would be expected that the group using exposure therapy with self-distancing would show better outcomes than the group using exposure therapy alone. Both groups would be expected to outperform the control group.

The potential significance of exposure therapy and self-distancing in the proposed experiment is uncertain because neither treatment technique has been experimentally tested in this population before. However, the positive impact of exposure therapy on traumatized individuals is well established, and the present experiment extends an established and experimentally verified protocol to a new clinical population. In contrast, the impact of self-distancing

in exposure therapy has never been tested on any population, rendering it the more uncertain of the two hypotheses. Although the theoretical justification for both applications is substantial, experimental verification has yet to be determined.

Effect sizes would presumably be related to the selection of control group in both analyses. In the test of exposure therapy, both the significance and the effect size of the exposure therapy intervention would presumably be significantly larger against a wait list than against treatment as usual (TAU). Given the intractability of BPD symptoms, it would be presumptuous to assume that a few weeks of exposure therapy would outperform TAU. However, given the severity of BPD, it may not be possible to randomly assign a control group to a waitlist.

The use of exposure therapy as a treatment for BPD is intended to complement TAU rather than replace it. In fact, one of the theoretical justifications for the use of exposure therapy with self-distancing in the treatment of BPD is that it reinforces central objectives of the standard existing treatment, DBT. For that reason, testing exposure therapy against TAU would create an inappropriately high hurdle. Whether inclusion of TAU in the experimental design might be necessary for ethical reasons remains to be determined by an Institutional Review Board (IRB). If so, the experimental design would need to be modified so that all three groups used TAU. Thus the three-group design would become TAU, TAU plus exposure therapy alone, and TAU plus exposure therapy with self-distancing.

However, even if exposure therapy were in fact effective in the treatment of BPD, it is unrealistic to assume that this specific protocol represents the optimal approach. Combining the experimental exposure therapy protocol with TAU in this initial experiment risks missing the effects of exposure therapy itself because of issues involved in integrating exposure therapy with TAU. Questions of how to integrate the two protocols would ideally be tested separately to determine optimal approaches. If ethical considerations permitted, the initial test of exposure therapy would be run against a wait list. Only once its efficacy had been demonstrated would various approaches to combining exposure therapy with TAU be designed and tested.

The expected significance of self-distancing likewise depends on the control group. If the control group were given no instructions about adopting a particular perspective during the protocol, it is likely that the results would be confounded by the presence of spontaneous self-distancing by participants. Such spontaneous self-distancing was an independent variable in the Ayduk and Kross (2010) analysis, but would represent a confound in this experiment and would presumably reduce the size and significance of the measured impact of self-distancing. If, on the other hand, participants were instructed to feel the effects fully, similar to the "feel" condition in Kross, Davidson, Weber, and Ochsner (2009), that would reduce comparability to the van Minnen (2002) results, in which no such instruction was given. For the purposes of comparability, in order to maximize the

consistency of the protocol across the two experiments, it would likely be preferable to give no instruction to the control group, despite the fact that statistical significance will be more difficult to obtain. A reason for choosing this as the lesser of two confounding variables is that giving no instruction to the control group also has the benefit of improving generalizability of the results, in that individuals undergoing exposure therapy are not generally provided with a "feel" prompt. Using the van Minnen (2002) instructions for the control group makes this experiment more consistent with exposure therapy as it is generally practiced.

If sample size permitted, it would also be possible to test predictors of results in this sample, as van Minnen et al. (2002) did with their sample. It is unclear whether the experimental groups would show statistically significant improvement in the less directly manipulated outcome variables (PTSD symptoms, depression, and anxiety) used in the van Minnen et al. (2002) study. However, since both van Minnen et al. (2002) and Feeney et al. (2002) did find significant improvements in not just PTSD symptoms but also depression and anxiety, it is possible that such results would occur in this protocol as well, even if they are not specifically targeted. Moreover, since the importance of self-distancing has been shown to be correlated with depression (Kross & Ayduk, 2009), one could hypothesize that the efficacy of self-distancing would be a function of depression.

It is not clear if the magnitude of the effect size would be as great as that found in the van Minnen et al. (2002) and Feeney et al. (2002) studies. Feeney et al. specifically discussed the fact that none of their participants was suicidal or parasuicidal, and that they showed less severe symptoms compared to the general population of individuals with BPD, limiting the generalizability of their results to the broader population of individuals with BPD. In addition, Van Minnen et al. (2002) treated chronic PTSD, not BPD. Consequently, it is unclear whether the effect of the treatment would be as strong as was found in the van Minnen et al. (2002) and Feeney et al. (2002) studies. However, given the strength of the results demonstrated in both of these studies, it might be possible to find statistically significant improvements in the proposed experiment with a sample of individuals with BPD even if the effect size were reduced.

Such a short-term intervention would not be expected to cause remission among patients with BPD, since even extensive treatment has low rates of success (Leichsenring et al., 2011). Statistically significant improvements in outcome variables would be hoped for, and such improvements would prove beneficial both to patients and clinicians. However, the most important outcome of this experiment might be its usefulness to researchers and theoreticians in the crucial and ongoing search for better understanding and more effective treatment of BPD. Since both of these experimental questions—the efficacy of exposure therapy for BPD and the efficacy of self-distancing in exposure therapy—are novel, further research will be necessary on both.

Exposure therapy and self-distancing have each independently demonstrated important benefits in applications central to the core symptomatology of BPD. Combining the two into an exposure therapy protocol using self-distancing creates a new technique for the treatment of BPD that is both theoretically justified and based on approaches that have been experimentally tested and empirically verified, across time and in real-life situations, in applications central to the symptomatology of BPD. Adding this additional technique—exposure therapy using self-distancing—as an adjunct to the clinical implementation of DBT in the treatment of BPD could potentially improve clinical outcomes for those suffering from this dangerous and difficult to treat condition.

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