Borderline Personality Disorder and Deliberate Self-Harm: Does Experiential Avoidance Play a Role?

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The theory that borderline personality disorder (BPD) is associated with experiential avoidance, and that experiential avoidance mediates the association between BPD and deliberate, nonsuicidal self-harm was examined. Female inmate participants ($N = 105$) were given structured diagnostic assessments of BPD, as well as several measures of experiential avoidance. There was a high lifetime prevalence of past self-harm (47.6%). Higher dimensional scores representing BPD severity were associated with higher self-harm frequency and greater experiential avoidance. Structural equation modeling analyses indicated that experiential avoidance did not mediate the association between BPD and self-harm, although thought suppression was associated with self-harm frequency.

The Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV; American Psychiatric Association [APA], 1994) defines borderline personality disorder as “a pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity beginning by early adulthood and present in a variety of contexts” (p. 650). Defining features involve instability in a variety of life domains, including interpersonal functioning, mood, identity, and cognition (APA, 1994). Borderline personality disorder (BPD) is a significant mental health problem. Although the prevalence of BPD is estimated at less than 2% (0.2% to 1.8%), individuals with BPD constitute 8 to 10 percent of psychiatric outpatients (Widiger & Frances, 1989; Widiger & Weissman, 1991) and 14% to 20% of inpatients (Kroll, Sines, & Martin, 1981). Between 9% and 40% of individuals who frequently utilize inpatient psychiatric services are diagnosed with BPD (Geller, 1986; Swigar, Astrachan, Levine, Mayfield, & Radovich, 1991; Widiger & Weissman, 1991; Woogh, 1986). Much of this treatment utilization directly stems from extremely high rates of parasuicidal behavior, which includes any deliberate self-injury (i.e., suicide attempts, nonsuicidal self-harm) with or without intent to die. In particular, the rates of deliberate self-injury without intent to die (self-harm; Grat, Conrad, & Roemer, 2002) are extraordinarily high among borderline individuals (63%–80%) (Shearer, 1994; Shearer, Peters, Quaytman, & Ogden, 1990; Soloff, Lis, Kelly, Cornelius, & Ulrich, 1994).

Theory-driven research is needed to understand the link between BPD and deliberate self-harm. Linehan’s (1993) biosocial...
theory poses that the central feature of BPD is emotion dysregulation, caused by the transaction between an invalidating rearing environment and a biologically based vulnerability to quick, strong, and long-lasting emotional reactions. Environmental invalidation disrupts the process of learning how to regulate these intense emotional reactions; consequently, some borderline individuals resort to impulsive, short-term strategies to avoid unpleasant emotions. Self-harm is an emotion regulation strategy negatively reinforced through the reduction or avoidance of aversive emotions (see Figure 1 for a refined empirical and theoretical understanding of the mechanisms by which BPD features lead to this behavior.

It is widely recognized that individuals with BPD have difficulty with effective emo-

Figure 1. Schematic representation of the role of experiential avoidance and self-harm in the context of Linehan’s (1993) biosocial theory of BPD.
tion regulation and tend to use destructive, impulsive strategies to avoid unwanted emotions (Linehan, 1993; Skodol et al., 2002). Indeed, emerging findings suggest that BPD may be associated with experiential avoidance. For instance, BPD has been associated with less social support seeking and more avoidance/escape in response to a recent stressor (Bijttebier & Vertommen, 1999). Compared with non-borderline substance abusers, borderline substance abusers are more impulsive and more likely to use avoidance/escape strategies (Kruegelbach, McCormick, Schulz, & Grueneich, 1993). Borderline personality disorder scores on the Millon Clinical Multiaxial Inventory (MCMI-III) were moderately positively associated with avoidance coping strategies such as denial, self-distraction, behavioral disengagement, and alcohol/drug use (rs ranged from .18 to .40) (Vollrath, Alnaes, & Torgersen, 1998). In addition, the clinical literature has indicated that individuals with BPD have high rates of clinical problems associated with experiential avoidance such as dissociative behavior (Linehan, 1993; Wagner & Linehan, 1998), bulimic behavior (Paxton & Diggins, 1997), and substance abuse (Grilo, Walker, Becker, Edell, & McGlashan, 1997; Malow, West, Williams, & Surker, 1989).

The long-held notion that self-harm is an intentional effort to escape from or avoid emotional pain (i.e., see Bennen, 1984; Carr, 1977; Chapman, Gratz, & Brown, in press; Gratz, 2003; Suyemoto & MacDonald, 1995) has some empirical support. Individuals who self-mutilate typically report that the behavior quickly relieves unendurable anxiety/tension (Kemperman et al., 1997; Michel, Vaia, & Waeber, 1994; Simeon et al., 1992; Wilkins & Coid, 1991). Some individuals also report that their self-mutilation temporarily reduces anger, anxiety, sadness, depression, and shame (Kemperman et al., 1997). One novel experimental study involving a male prison sample split participants into three groups (self-mutilators, non-mutilators, and non-prison controls) and used physiological measures to examine patterns of arousal in response to induced self-mutilation imagery (Haines, Williams, Brain, & Wilson, 1995). Self-mutilators exposed to imagery related to their most recent episode of self-harm demonstrated a reduction in negative arousal concurrent with this ideographic self-harm imagery as well as with standardized self-harm imagery. In contrast, non-mutilators actually showed an increase in negative arousal to self-harm imagery. These findings suggest that self-harm may be an example of escape conditioning, whereby negative emotions trigger self-harm, which leads to relief from unpleasant arousal.

The primary purpose of the present study was to examine a theoretical model of the association between BPD and self-harm. Unlike other studies that have examined dichotomous categories, consisting of BPD versus non-BPD individuals or individuals with and without self-harm histories, we have conceptualized both BPD and self-harm as variables that exist along a continuous dimension of severity. This conceptualization of BPD is consistent with several studies indicating that BPD is best viewed as a dimensional construct (i.e., Goldner et al., 1999; Rothschild, Cleland, Haslam, & Zimmerman, 2003; Trull, Widiger, & Guthrie, 1990; van Hanswijck de Jonge, van Furth, Lacey, & Waller, 2003). In addition, there may be important differences between persons who barely meet diagnostic cutoffs for BPD and persons who fully meet all BPD criteria. Similarly, it is likely that there are differences between individuals who have self-harmed once in their lives and those persons who have self-harmed in a chronic, repeated fashion (Gratz et al., 2002). These differences would be obscured if BPD and self-harm were treated as categorical variables. For this study, it was hypothesized that the severity of BPD features would be associated with greater experiential avoidance, including thought suppression, avoidant coping, and attitudes toward the experience of unwanted emotions. Based on the theory that self-harm falls within the response class of experiential avoidance, we hypothesized that experiential avoidance would at least partly account for
(mediate, or partially mediate) the association between BPD and self-harm.

**METHOD**

**Participants**

One hundred and seventeen female inmates ($M_{age} = 33.90, SD = 8.52$) from a multi-level women's prison volunteered to participate after receiving a brief description of the study. Up to 75% of the inmates on each unit sampled agreed to participate in the study. Exclusionary criteria included a current manic or psychotic episode or serious reading difficulties that precluded completing questionnaires. Two participants were excluded, one because of reading difficulties and the other due to frank confusion. Ten participants completed questionnaires but were transferred to another facility before completing the interviews. The ethnic composition of the remaining 105 individuals was: White (71.4%), Native American (13.3%), Hispanic (9.5 %), and African American (1.0%); 2.9% marked “other” or did not indicate.

**Procedure**

All participants were given a description of the project and signed an informed consent. The study was conducted over two separate sessions. In the first session, participants completed questionnaires in small groups (4–9 individuals) in a quiet room under supervision. The second session (administered within a mean of 4.74 days) involved an individual interview administered by a doctoral student in clinical psychology or a licensed clinical psychologist. The interview consisted of the SCID-II for BPD as well as an interview for history of parasuicidal behavior (the LPC-2, described below). All interviewers were trained in the administration of the SCID-II by the first author, who had previously conducted or rated over 100 SCID-II interviews. Interview ratings were discussed during lab meetings to ensure that the basis for ratings was consistent across interviewers. Questionable responses were scored based on team consensus.

**Borderline Personality Disorder Assessment.** The Structured Clinical Interview for DSM-IV Personality Disorders (SCID-II-INT; First, Gibbon, Spitzer, Williams, & Benjamin, 1997) was used for diagnostic assessment of BPD. The SCID-II has demonstrated good psychometric properties in several studies (Farmer & Chapman, 2002; First et al., 1995; Maffei et al., 1997). The SCID-II-Personality Questionnaire (SCID-II-PQ) was administered as a screening measure; interviewers queried only those items rated “true” on the SCID-II-PQ. Given the prevalence of substance use among female prisoners, ratings were made based on instances when the inmate was not actively using substances. Diagnoses were made based on DSM-IV cutoffs, and a dimensional score representing the overall severity of BPD features was calculated (see Farmer & Chapman, 2002) in the following manner. Participants’ scores on BPD items were re-coded, such that 3 (clinically present) = 1, 2 (present but subthreshold) = .50, and 1 (absent) = 0. To create a dimensional score, re-coded values were summed and divided by the total number of criteria for BPD. For example, if five BPD symptoms were clinically present, three partially present, and one absent, the resulting dimensional score would be .72 ($\frac{5(1) + 3 (.50) + 1 (0)}{9}$). This method is consistent with published literature on the SCID-II (see Farmer & Chapman, 2002).

**Lifetime Parasuicide Count-2.** The Lifetime Parasuicide Count-2 (LPC-2; Linehan & Comtois, 1996) is a structured interview designed to assess lifetime frequency of parasuicidal behavior. Questions inquire about the frequency of various parasuicide methods (i.e., cutting, burning, overdosing). Parasuicide was defined as the total number of instances of deliberate self-injury with or without intent to die. Self-harm was defined as the total number of instances of deliberate self-injury with no intent to die. Suicide attempts (total number of instances with clear intent to die) also were examined by the LPC-2 but
were not the focus of this study. The LPC-2 also inquired about participants’ very first, most recent, and most severe instances of parasuicide.

**Experiential Avoidance Measures.** Measures of experiential avoidance tendencies included the following. The Acceptance and Action Questionnaire (AAQ; Hayes et al., 2003) is a 16-item inventory of experiential avoidance tendencies that examines the degree to which participants report that they must avoid negative emotional experiences or thoughts in order to control their lives or accomplish their goals. The AAQ has demonstrated solid psychometric properties (i.e., test-retest reliability and internal consistency), as well as good convergent validity through positive associations with the Dissociative Experiences Scale and the Escape-Avoidance scale of the Ways of Coping Questionnaire (WOC; Folkman & Lazarus, 1988).

The White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994) is a 15-item inventory that assesses the degree to which participants tend to suppress upsetting thoughts. The WBSI has demonstrated good internal consistency, adequate to very good test-retest reliability (range: .69–.92), and good concurrent validity.

The COPE (Carver, Sheier, & Weintraub, 1989) is a 60-item self-report measure of coping strategies on which participants are asked to rate the extent to which they generally use various coping strategies when they experience stressful events. One advantage to the COPE is that four specific scales tap into the broader construct of avoidant coping: denial, behavioral disengagement, mental disengagement, and substance use. Most COPE scales have demonstrated strong test-retest reliability and internal consistency, with the exception of mental disengagement and behavioral disengagement ($r = .42-.66$; $\alpha = .45-.63$).

**RESULTS**

**Data Screening and Transformation**

The raw scores for frequency of self-harm were positively skewed. Logarithmic transformations (base 10) were performed and transformed scores were used for all subsequent analyses.

**Factor Analysis of COPE Scales**

To derive a composite measure of avoidance from the COPE scales, an exploratory factor analysis with principle components extraction (eigenvalues > 1.0) and varimax rotation was performed on all 15 of the COPE subscales. As seen in Table 1, three factors emerged, one of which (Factor 2, eigenvalue = 2.86) included high positive loadings for scales hypothesized to measure avoidant coping: denial, mental disengagement, behavioral disengagement, substance abuse, and humor.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
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<tbody>
<tr>
<td>Positive Reinterpretation</td>
<td>.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Coping</td>
<td>.78</td>
<td></td>
<td></td>
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<tr>
<td>Religious Coping</td>
<td>.65</td>
<td></td>
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<tr>
<td>Restraint</td>
<td>.78</td>
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<tr>
<td>Acceptance</td>
<td>.80</td>
<td></td>
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<tr>
<td>Suppression of Competing Act</td>
<td>.66</td>
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<td>.52</td>
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<tr>
<td>Planning</td>
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<tr>
<td>Denial</td>
<td>.83</td>
<td></td>
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<tr>
<td>Behavioral Disengagement</td>
<td>.80</td>
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<tr>
<td>Mental Disengagement</td>
<td>.69</td>
<td></td>
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<tr>
<td>Humor</td>
<td>.64</td>
<td></td>
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<tr>
<td>Substance Abuse</td>
<td>.55</td>
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<tr>
<td>Emotional Social Support</td>
<td>.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instrumental Social Support</td>
<td>.41</td>
<td>.79</td>
<td></td>
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<tr>
<td>Venting Emotions</td>
<td>.62</td>
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Note. Principle components extraction was used (eigenvalues > 1), with varimax rotation. The highest factor loadings for each subscale are bolded. All loadings $\leq .40$ or $\geq .40$ are presented.
Borderline Personality Disorder and Experiential Avoidance

Correlational analyses were performed to examine the hypothesized association between borderline personality disorder and experiential avoidance. As shown in Table 2, BPD demonstrated moderate, positive correlations with each measure of experiential avoidance. The correlations ranged from .28 (COPE Substance Abuse scale) to .53 (AAQ scores).

Borderline Personality Disorder and Self-Harm

Of the 105 inmates who completed questionnaire and interview assessments, 50 (47.6%) reported at least one past episode of self-harm. Participants with BPD ($n = 37$, 35.2%) reported a higher prevalence of self-harm (73%) than non-BPD participants (34%), $\chi^2 (1) = 14.72$, $p < .01$. The BPD dimensional score was moderately positively correlated with frequency of self-harm ($r = .41$, $p < .01$). In addition, BPD severity was associated with an earlier age at first parasuicide episode, $r = - .35$, $p < .01$. Given that one criterion for BPD is parasuicidal behavior, we computed a modified dimensional score based on all but the criterion that specifies parasuicidal behavior. The correlation between this modified BPD dimensional score and self-harm ($r = .37$, $p < .01$) was only slightly reduced. Consequently, the original BPD dimensional score (including the parasuicide criterion) was used in subsequent analyses.1

BPD, Experiential Avoidance, and Self-Harm

The hypothesized model in Figure 2 proposes that experiential avoidance (AVD) mediates the relationship between BPD severity and self-harm.

TABLE 2
Correlations Among BPD, Experiential Avoidance, and Self-Harm

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
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<th>10</th>
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<tbody>
<tr>
<td>1. Self-Harm Frequency</td>
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<td>.41**</td>
<td>.27**</td>
<td>.15</td>
<td>.16</td>
<td>.05</td>
<td>.19*</td>
<td>.12</td>
<td>.13</td>
<td>.09</td>
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<td>2. Borderline Personality Disorder</td>
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<td>.50**</td>
<td>.53**</td>
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<td>.35**</td>
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<td>3. Thought Suppression</td>
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<td>.41**</td>
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<td>4. Acceptance and Action (Avoidance)</td>
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<td>.37**</td>
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<td>.29**</td>
<td>.09</td>
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<td>5. COPE Avoidance Factor Score</td>
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<td>.83**</td>
<td>.69**</td>
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<td>6. COPE Denial</td>
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<td>.43**</td>
<td>.60**</td>
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<td>.58**</td>
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<td>7. COPE Mental Disengagement</td>
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<td>.45**</td>
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<td>8. COPE Behavioral Disengagement</td>
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<td>.41**</td>
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<td>9. COPE Substance Abuse</td>
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<td>10. COPE Humor</td>
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*p < .10; *p < .05; **p < .01.

1. The primary analyses for the study also were conducted with this modified dimensional score. For both the SEM and regression analyses, the pattern of findings was identical, although the association between BPD and SH was very slightly weaker. We elected to present data on the original dimensional score (including all BPD criteria) for the following reason. Parasuicidal behavior is a core feature of BPD that reflects behavioral dysregulation (Linehan, 1993) and is present in the majority of individuals who meet criteria for the diagnosis. Removing this criterion would substantially alter the construct of BPD that was the focus of this study.
Experiential Avoidance and Self-Harm

Figure 2. Partial mediational models of the association between borderline personality disorder and self-harm. BPD = Borderline Personality Disorder dimensional score from the SCID-II; AVD = Experiential Avoidance; SH = Self-Harm; AAQ = Acceptance and Action Questionnaire; WBSI = White Bear Suppression Inventory; COPE = Avoidance Factor Score from the COPE. *p < .05.

To demonstrate mediation, an association must exist between BPD and SH, BPD and AVD, and AVD and SH. Further, the association between BPD and SH must be reduced or nonsignificant with AVD in the model (Baron & Kenny, 1986); consequently, the path from BPD to SH was hypothesized to be nonsignificant after having controlled for AVD. Structural equation modeling (SEM) using EQS (Bentler & Wu, 1995) evaluated the mediational model. The BPD dimensional score (including participants with and without the BPD diagnosis) constituted a manifest variable. Three indicators measured the latent mediator variable AVD: the avoidance factor score from the COPE, WBSI scores, and AAQ scores. The outcome variable SH consisted of the log transformed values indicating the number of lifetime self-harm episodes assessed by the LPC-2 interview. The structural paths relating the latent variables included a path from BPD to AVD, and a path from AVD to SH. The influence of BPD on SH was hypothesized to be indirect, through the mediator AVD; thus, a direct path between BPD and SH was estimated to determine whether this association was nonsignificant with AVD in the model (in contrast to the significant zero-order association re-
ported above). Errors in the prediction of the endogenous variable AVD also were estimated, along with disturbance variance associated with SH. The assessment of multivariate normality revealed an acceptable kurtosis value (normalized estimate = 1.53); thus, the EQS maximum likelihood-robust $\chi^2$ statistic was utilized to gauge overall model fit (Ullman, 1996). Other practical fit indices not dependent on sample size included the comparative fit index (CFI), the goodness-of-fit index (GFI), and the root mean square error of approximation (RMSEA).

As evidenced by several fit indices, this model was an excellent fit to the data, $\chi^2 (3) = 6.04, p > .10; \text{CFI} = .98; \text{GFI} = .98; \text{RMSEA} = .10$ (Ullman, 1996).

Measurement and Structural Model. Standardized parameter estimates are shown in Figure 1. All factor loadings (paths from each latent factor to its measured variables) were significant (all $p < .05$), indicating that the latent construct AVD was well defined. In terms of structural relationships, BPD had a significant and direct effect on the mediator AVD; however, AVD did not have a significant direct effect on SH. Finally, the direct effect of BPD on SH was significant. Therefore, the results did not indicate a mediation effect for AVD.

Follow-up Regressions. The correlations in Table 2 indicated a significant association between thought suppression and self-harm, $r = .27, p < .01$. Following recommendations by Baron and Kenny (1986) for testing mediational models, planned follow-up regressions examined whether WBSI scores alone partially mediated the association between BPD and self-harm. First, thought suppression was entered as the dependent variable and BPD as the predictor. BPD was significantly positively associated with thought suppression, $r = .50, p < .01$. A simultaneous regression examined thought suppression and BPD as predictors of self-harm. With thought suppression in the model, BPD remained significantly associated with self-harm, $\beta = .37, p < .01$. Thought suppression was no longer significantly associated with self-harm, $\beta = .09, p < .40$, indicating that thought suppression did not mediate the association between BPD and self-harm.

Mediation Versus Moderation. We hypothesized that BPD would be moderately to strongly associated with experiential avoidance (which was supported in this study); thus, the most appropriate statistical approach was to treat this as a mediational model, rather than a model that involves a moderator effect, or an interaction (see Baron & Kenny, 1986). Nevertheless, the possibility existed that the relationship among BPD, avoidance, and self-harm may be better conceptualized in terms of an interaction (moderation) effect, rather than a mediation effect. For instance, avoidance may be associated with self-harm among BPD individuals, but not among non-BPD individuals. Nevertheless, we examined the correlations of experiential avoidance with self-harm among BPD and non-BPD individuals. There was no evidence of differences in the associations between experiential avoidance measures (COPE avoidance factor score; AAQ scores) and self-harm in BPD versus non-BPD individuals, with the one exception that WBSI scores were significantly associated with self-harm among BPD ($r = .27, p < .03$) but not among non-BPD participants, ($r = -.027, ns$).

**DISCUSSION**

The primary purpose of this study was to examine a theoretical model relating BPD to nonsuicidal self-harm behavior. Although extensive research has highlighted the uniquely high risk for self-harm among individuals with BPD, there has not been commensurate attention to the mechanisms that account for this heightened risk. The present study examined the hypothesis that experiential avoidance is one mechanism underlying the association between BPD and self-harm in a relatively large ($N = 105$) sample of female inmates.

As hypothesized, BPD features were associated with lifetime frequency of parasuicidal behavior and experiential avoidance. Persons with more severe BPD features had
higher lifetime frequencies of self-harm and a lower mean age at onset of parasuicidal behavior. These findings supported the hypotheses of the present study and extended previous research on BPD and self-harm (Soloff et al., 1994; Yeomans, Hull, & Clarkin, 1994) to a female inmate sample. BPD also was positively associated with every measure of experiential avoidance, including thought suppression, AAQ scores, mental disengagement, behavioral disengagement, denial, and substance abuse. These findings are consistent with research indicating that borderline features are associated with the use of avoidant coping strategies (Bijttebier & Vertommen, 1999; Vollrath et al., 1998) and clinical conditions characterized by avoidance (i.e., substance abuse in Grilo et al., 1997; bulimia and dissociation in Shearer, 1994).

Analyses did not support the hypothesis that experiential avoidance would mediate the association between BPD and self-harm. Instead, the model indicated that BPD may give rise to avoidance and self-harm, but that avoidance as a latent variable was not associated with self-harm with BPD in the model. Without controlling for BPD, thought suppression positively predicted self-harm and mental disengagement approached significance. Follow-up analyses indicated that thought suppression did not function as a mediator. This lack of a mediating relationship may be due, in part, to the relatively small effect size for thought suppression. Thought suppression accounted for 7% of the variance in self-harm. In contrast, BPD predicted 16.8%. Moreover, thought suppression was strongly associated with BPD. It is likely that the variability in self-harm predicted by thought suppression was redundant with the variability predicted by BPD; consequently, thought suppression added very little to the prediction of self-harm after controlling for BPD. The finding that thought suppression was no longer associated with self-harm after controlling for BPD supported this possibility.

This study was based on the assumption that features associated with BPD give rise to increased use of avoidance strategies. However, it is possible that chronic avoidance gives rise to putative features of BPD, which then increase self-harm risk. Wegner (1994) and others (Hayes et al., 1999) have proposed that chronic avoidance prevents people from habituating to emotionally evocative stimuli; consequently, these stimuli continue to elicit aversive emotional responses. In addition, avoidance precludes the development of tolerance for emotionally evocative stimuli or distress. Low distress tolerance may lead to continued avoidance behavior. In turn, low distress tolerance may be a more proximal mediating link between BPD and self-harm. Future research might explore this hypothesis using behavioral measures of distress tolerance (i.e., the PASAT-C, Lejuez, Kahler, & Brown, 2003; the breath-holding task, Brown, Lejuez, Kahler, & Strong, 2002).

The present study extends previous research on thought suppression by suggesting a role for thought suppression in the development or maintenance of self-harm. Although several studies have highlighted the paradoxical effect of attempts to get rid of unwanted thoughts, no published study to date has examined self-harm as a potential consequence of chronic thought suppression. It may be that at high levels of emotional distress (as seen in borderline individuals), individuals rely more on thought suppression to temporarily escape from the cascade of negative thoughts that tend to accompany such distress (Teasdale et al., 2002). Unsuccessful attempts at thought suppression may paradoxically increase the frequency and intensity of these negative thoughts and their associated distress, thereby increasing the risk of self-harm. Although our findings are correlational, they suggest that it may be useful for therapeutic interventions to target thought suppression. Indeed, dialectical behavior therapy (DBT) for BPD includes interventions (e.g., mindfulness and distress tolerance skills) designed to enhance acceptance that may reduce thought suppression (Linehan, 1993; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991).

Some key limitations should be considered. One is the reliance on self-report methods, which provide no way to substanti-
ate the occurrence of past self-harm. In fact, retrospective reports of behavior are often unreliable when referenced to “real time” recordings of behavior (Smith, Leffingwell, & Ptacek, 1999). Notwithstanding, the use of behaviorally specific questions on the LPC-2 should have minimized unreliability; however, participants may not have reported accurately on the experiential avoidance strategies they generally use to cope with unwanted emotions. Indeed, individuals who tend to avoid their internal experiences may be less accurate in their reports of emotions and coping behaviors.

An additional concern is with the study’s cross-sectional design. Specifically, it is unclear whether the predictors in this study occurred concurrently with past self-harm, or whether they relate to current or future self-harm behavior. The relatively small associations of the COPE and AAQ scales with self-harm may be related to the possibility that some participants who scored highly on these measures had not recently engaged in self-harm. If avoidance and self-harm were not happening close in time, their association may have been attenuated. Studies combining longitudinal and cross-sectional designs are needed to fully examine the predictors of self-harm/suicide attempts in female inmates.

**General Conclusions and Future Research Directions**

In conclusion, this was one of the very few studies to test theoretical models of the mechanisms by which BPD is associated with self-harm. Findings indicated that BPD is associated with experiential avoidance, and that experiential avoidance has a role in self-harm behavior; however, avoidance may not underlie the link between BPD and self-harm. Our findings strongly indicate the need for research to examine the ways in which experiential avoidance, distress tolerance, and BPD features interact to influence self-harm. Longitudinal studies and models that incorporate the interplay between individual and environmental factors would provide a clearer picture of the complex association between BPD and self-harm. Also, studies on the link between specific features of BPD (as opposed to global BPD severity) and experiential avoidance or self-harm would be illuminating. In addition, future research should aim to expand the methodology used to examine BPD, experiential avoidance, and self-harm. The translational research framework, whereby laboratory paradigms from basic science are used to examine clinically relevant research questions, holds particular promise for future research on BPD and self-harm.

**REFERENCES**


Manuscript Received: June 1, 2004
Revision Accepted: December 20, 2004