

# Personality Disorders: Theory, Research, and Treatment

## **An Investigation of Experiential Avoidance, Emotion Dysregulation, and Distress Tolerance in Young Adult Outpatients With Borderline Personality Disorder Symptoms**

Katherine M. Iverson, Victoria M. Follette, Jacqueline Pistorello, and Alan E. Fruzzetti  
Online First Publication, July 4, 2011. doi: 10.1037/a0023703

### CITATION

Iverson, K. M., Follette, V. M., Pistorello, J., & Fruzzetti, A. E. (2011, July 4). An Investigation of Experiential Avoidance, Emotion Dysregulation, and Distress Tolerance in Young Adult Outpatients With Borderline Personality Disorder Symptoms. *Personality Disorders: Theory, Research, and Treatment*. Advance online publication. doi: 10.1037/a0023703

# An Investigation of Experiential Avoidance, Emotion Dysregulation, and Distress Tolerance in Young Adult Outpatients With Borderline Personality Disorder Symptoms

Katherine M. Iverson  
VA Boston Healthcare System, Boston,  
Massachusetts and Boston University

Victoria M. Follette, Jacqueline Pistorello,  
and Alan E. Fruzzetti  
University of Nevada, Reno

In this study we investigated 3 domains of emotional functioning—emotion dysregulation, distress tolerance, and experiential avoidance—in young adult outpatients with borderline personality disorder (BPD) symptoms. Participants were 40 young adult outpatients at a university counseling center who reported current suicidal ideation and met diagnostic criteria for BPD or experienced subthreshold BPD symptoms (i.e., met diagnostic criteria for 3 or 4 symptoms). Participants completed 3 self-report measures of emotional functioning—experiential avoidance (Acceptance and Action Questionnaire–2; Bond et al., 2011; Hayes et al., 2004), emotion dysregulation (Difficulties in Emotion Regulation Scale; Gratz & Roemer, 2004), and distress tolerance (Distress Tolerance Scale; Simons & Gaher, 2005)—and a behavioral measure of distress tolerance (Paced Auditory Serial Addition Task–Computerized; Lejuez, Kahler, & Brown, 2003), in addition to self-report measures of depression and BPD symptom severity. Partial correlations demonstrated that both emotion dysregulation and experiential avoidance were significantly associated with BPD symptom severity after accounting for depression. However, neither the self-report nor behavioral measure of distress tolerance were related to BPD symptom severity. A regression analysis with emotion dysregulation and experiential avoidance as independent variables revealed that only experiential avoidance was significantly associated with BPD symptom severity after controlling for depression symptoms. The current findings suggest that experiential avoidance may be a central process in BPD symptom severity. Future research directions are discussed.

*Keywords:* borderline personality disorder, experiential avoidance, emotion dysregulation, distress tolerance

Researchers and clinicians have had a long-standing interest in elucidating the role of emotional functioning in the understanding and treatment of chronically suicidal individuals with borderline personality disorder (BPD; e.g., Gunderson, 2001; Linehan, 1993). However,

there is variability in the conceptualizations, operational definitions, and measurement strategies in the emotion and psychopathology literature (Bloch, Moran, & Kring, 2010). Inconsistencies in defining and measuring emotional domains impedes the field's progress toward

---

Katherine M. Iverson, Women's Health Sciences Division of the National Center for PTSD, VA Boston Healthcare System, Boston, Massachusetts and Department of Psychiatry, Boston University; Victoria M. Follette, Jacqueline Pistorello, and Alan E. Fruzzetti, Department of Psychology, University of Nevada, Reno.

Katherine M. Iverson's contribution to the writing of this manuscript was supported, in part, by a training grant from the National Institute of Mental Health (T32MH019836)

awarded to Terence M. Keane. The project described was supported by Grant R34MH071904 from the National Institute of Mental Health. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Mental Health or the National Institutes of Health.

Correspondence concerning this article should be addressed to Katherine M. Iverson, VA Boston Healthcare System, 150 South Huntington Avenue (116B-3), Boston, MA 02130. E-mail: katherine.iverson@va.gov

developing a clearer understanding of which aspects of emotional functioning are central to BPD symptoms and thus targets for prevention and treatment.

Three forms of emotional functioning that have received substantial theoretical and empirical attention in the BPD literature include emotion dysregulation, distress tolerance, and experiential avoidance (for relevant reviews, see Gratz & Tull, 2011; Rosenthal et al., 2008). However, with rare exception (Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006), there is a lack of research examining the associations among each of these constructs together and their relative contributions to BPD symptoms. A significant difficulty of investigating emotional functioning empirically is the difficulty participants have in accurately self-reporting the motivations or functions underlying their behavior (Rosenthal et al., 2008; Sloan & Kring, 2007). Thus, the present study sought to elucidate the role of emotion dysregulation, distress tolerance, and experiential avoidance among outpatients with BPD or subthreshold BPD symptoms, using a combination of behavioral and self-report measures.

Emotion dysregulation has been variously defined by theorists and researchers (Bloch et al., 2010). One useful framework for understanding emotion dysregulation in BPD can be drawn from the work of Mennin, Holaway, Fresco, Moore, and Heimberg (2007). These researchers define emotion dysregulation broadly, referring to deficits in understanding, responding to, and management of emotional responses. Consistent with this theoretical conceptualization, individuals with significant BPD severity demonstrate lower awareness and understanding of their emotions (Leible & Snell, 2004; Levine, Marziali, & Hood, 1997) and greater use of avoidant and other maladaptive emotion regulation strategies (Bijttebier & Verkommen, 1999; Zittel Conklin, Bradley, & Westen, 2006).

Distress tolerance also has been defined and measured in a variety of ways and is a narrower construct relative to emotion dysregulation (Zvolensky, Bernstein, & Vujanovic, 2011). Distress tolerance refers to the actual or perceived ability to withstand negative emotional states (Simons & Gaher, 2005; Zvolensky et al., 2011). Difficulties tolerating distress has been conceptualized by some researchers as a spe-

cific type of emotion regulation difficulty (Gratz & Roemer, 2004); however, this hypothesis has not been examined empirically. Data from two studies suggest that BPD pathology is associated with lower levels of distress tolerance, at least as measured by persistence on stressful behavioral tasks (Bornovalova et al., 2008; Gratz et al., 2006). Although a validated self-report measure of distress tolerance exists (Distress Tolerance Scale [DTS]; Simons & Gaher, 2005), it has not yet been used with a BPD sample.

Experiential avoidance is conceptually similar to both distress tolerance and emotion dysregulation, yet growing evidence suggests that experiential avoidance is distinct from both of these constructs (for a review, see Boulanger, Hayes, & Pistorello, 2010). Experiential avoidance refers to the unwillingness to remain in contact with uncomfortable private events (e.g., thoughts, emotions, sensations, memories, urges) by escaping or avoiding these experiences (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). It has been recently argued that experiential avoidance may be understood as a function of emotion dysregulation and poor distress tolerance (Boulanger et al., 2010). Consistent with this argument, experiential avoidance has not only been found to be positively correlated with BPD symptom severity (Chapman et al., 2005), two studies demonstrated that it accounts for significant variance in BPD symptom severity above and beyond general psychological distress (Gratz, Tull, & Gunderson, 2008; Pistorello, 1998).

Thus, although each of these domains of emotional functioning has a documented association with BPD symptoms, it remains unknown if one of these constructs plays a more central role in BPD symptom severity than the others. Self-reported emotion dysregulation, distress tolerance, and experiential avoidance, as well as a behavioral measure of distress tolerance, were administered to suicidal outpatients with BPD or subthreshold BPD symptoms to explore each variable's relationship to BPD symptom severity after controlling for depressive symptoms. Although it would be ideal to index all three constructs multimodally, no streamlined laboratory tests currently exist for emotion dysregulation or experiential avoidance. This study aims to clarify the relationships among these three theoretically overlapping

constructs and their relative contribution to BPD symptom severity in a sample of young adult outpatients with BPD diagnosis or subthreshold traits. We had two primary hypotheses. First, based on the theoretical and empirical work reviewed above, we hypothesized that each of the three emotional functioning variables would be associated with BPD symptom severity after controlling for depression symptoms. Consistent with the conceptualization of experiential avoidance put forth by Boulanger et al. (2010), the second hypothesis we tested was that when examining the relative contribution of each construct in explaining variability in BPD symptom severity, experiential avoidance would demonstrate the strongest association with BPD symptom severity even after controlling for variance accounted for by depression symptoms and the other emotional functioning constructs. This hypothesis is based on the fact that experiential avoidance is a term defined and measured functionally (Boulanger et al., 2010). It is not simply referring to feeling emotions strongly, for example, but also to how one responds in the environment in the presence of such aversive internal experiences. Thus, experiential avoidance encompasses the combination of internal experiences and the associated effective, or noneffective, overt behavioral response, and this combination would be expected to relate more strongly with BPD symptom severity.

## Method

### Participants

Participants were 40 men and women between the ages of 18 and 25 with BPD or subthreshold BPD symptoms (i.e., met diagnostic criteria for three or four symptoms), who presented for treatment at a counseling center in a midsize university in the Western United States, and who had been recruited into a larger treatment outcome study (Pistorello, Fruzzetti, MacLane, Gallop, & Iverson, 2011).

For inclusion in the trial, participants met at least three criteria for BPD on the Structured Clinical Interview for *DSM-IV* Axis II (SCID-II; First, Spitzer, Gibbon, & Williams, 1997), reported at least one lifetime suicide attempt and/or nonsuicidal self-injury on the Suicide Attempt Self-Injury Interview (SASI-II; Linehan, Comtois, Brown, Heard, & Wagner, 2006)

and endorsed current suicidal ideation, as indexed by a score of 1 or higher on Question 9 the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). Subthreshold BPD diagnosis was allowed as commonly done in studies with younger samples (e.g., Miller, Wyman, Huppert, Glassman, & Rathus, 2000), and current suicidality was selected given its relevance to college campuses (American College Health Association, 2009) and to bring increased homogeneity to the sample in terms of acute distress.

Thirty-two (80.0%) of the participants were women and eight participants (20.0%) were men. The mean age of participants in this sample was 20.8 years ( $SD = 5.25$ ; range: 18–25). The majority of participants were White (77.5%), 10% were Hispanic or Latino, 7.5% were Asian, and 5% were from other racial groups. In terms of sexual orientation, 72.5% identified as heterosexual, 12.5% as bisexual, 5% as lesbian, 2.5% as gay, and 7% were undecided. Over half of the participants (57.5%) were single and the majority of participants were employed part time (70.0%). In terms of educational level, 37.5% were freshman, 37.5% were sophomores, 10% were juniors, 10% were seniors, and 5% were pursuing an advanced degree.

Participants met criteria for an average of 4.38 BPD symptoms ( $SD = 1.80$ , range: 3–9) and 55% of the sample met full diagnostic criteria for BPD on the SCID-II. As reported on the SASI-II, 70% of the participants had engaged in one or more incidences (median = 1) of nonsuicidal self-injury in the 3 months prior to the study and 20% reported that they attempted suicide within the year prior to the study.

### Measures

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item, self-report measure of overall emotion dysregulation across six domains. The DERS has established reliability and validity (Gratz & Roemer, 2004). The total score of the DERS was used for the present study, with higher scores indicating higher emotion dysregulation. The DERS demonstrated excellent reliability in this sample ( $\alpha = .92$ ).

The DTS (Simons & Gaher, 2005) is a 15-item, self-report measure of distress tolerance across four domains. The total score was used for this study, with higher scores indicating higher distress tolerance. The DTS has established reliability and validity (Simons & Gaher, 2005), and showed excellent reliability in this sample ( $\alpha = .91$ ).

The Acceptance and Action Questionnaire–2 (AAQ–2; Bond et al., 2011; Hayes et al., 2004) is a 10-item, self-report measure of experiential avoidance. Higher scores reflect lower experiential avoidance. The AAQ–2 has been found to have adequate reliability and validity (Bond et al., 2011), and demonstrated good reliability in this sample ( $\alpha = .82$ ).

The Personality Assessment Inventory–Borderline Features scale (PAI–BOR; Morey, 1991) is a 24-item self-report continuous measure of BPD symptom severity. There are four response categories (0 = *false*, 1 = *slightly true*, 2 = *mainly true*, and 3 = *very true*). The PAI–BOR has established reliability and validity for evaluating BPD features (Kurtz, Morey, & Tomarken, 1993). The PAI–BOR demonstrated good reliability in this sample ( $\alpha = .86$ ).

The BDI–II (Beck et al., 1996) is a widely used self-report instrument consisting of 21 items assessing the presence and severity of depressive symptoms across several domains of individual functioning. The BDI–II demonstrated good reliability in this sample ( $\alpha = .71$ ).

The Paced Auditory Serial Addition Task–Computerized version (PASAT–C), a modified version of the PASAT (Lejuez, Kahler, & Brown, 2003), was used in this study as an experimental measure of distress tolerance shown to induce emotional distress in the form of anxiety, anger, frustration, and irritability. The PASAT has been used as a measure of distress tolerance in two experiments with BPD samples (Bornovalova et al., 2008; Gratz et al., 2006). In the computerized version of the task, numbers are flashed on the computer screen and participants are instructed to add the most recently presented number to the previous number, and use the computer mouse to click on the correct sum on the screen. The participant is then supposed to ignore that sum and add the following number to the most recently presented number, and so on. When a correct response is given, a point is added to a total score presented in the upper right-hand corner of the

screen. If an incorrect response or no answer is provided then the program produces unpleasant auditory feedback (an explosion sound). Numbers are presented at increasingly faster intervals with each phase of the task. The task consists of three phases, with the actual measure of distress tolerance being the length of time participants continued to engage in the task during the third phase. There was no relationship between number of correct responses (skill) and PASAT–C duration ( $p > .05$ ).

## Procedures

The current research was conducted in compliance with the guidelines of the university Institutional Review Board. Participants who met screening criteria for the larger study completed the informed consent and the current measures as part of the baseline assessment, prior to randomization, or beginning treatment. Participants were not compensated for their participation in this study beyond receiving treatment as part of the larger study.

## Data Analysis

Pearson correlations were computed to examine the bivariate relationships among emotional functioning variables, depression, and BPD symptom severity. Because the majority of participants (72.5%) did not terminate the PASAT–C, the distribution of latency to termination was coded as a dichotomous variable (*noncompleters* and *completers*). Partial correlation coefficients were computed to inspect the relationships among each of the three constructs and BPD symptom severity after adjusting for depressive symptoms. A multiple-hierarchical regression analysis was then conducted to examine the relative contributions of the emotional functioning variables on BPD symptom severity after controlling for depression symptoms.

## Results

Table 1 summarizes descriptive statistics for all study variables, along with results from a comparative sample where the particular measure was also utilized. The descriptive statistics place this young adult college student sample within a clinically distressed range, marked by

Table 1  
*Descriptive Statistics for BPD, Depression, and Emotional Functioning Variables*

Variable	<i>M</i>	<i>SD</i>	Range	Comparative <i>M</i>
BPD severity (PAI-BOR)	41.65	10.06	32–68	
Depression severity (BDI-II)	30.60	10.57	8–49	
Emotion dysregulation (DERS)	115.05	17.54	72–149	123.0
Distress tolerance (DTS)	2.28	0.74	1.13–4.13	3.09
Experiential avoidance (AAQ-2)	31.58	9.50	18–59	50.20
Distress tolerance (PASAT-C)	234.53	264.94	1–600	338.06

*Note.*  $N = 40$ . The column labeled Comparative provides examples of means from other studies that utilized the measure: DERS, Gratz & Gunderson, 2006 (clinical BPD sample); DTS, Simon & Gaher, 2005 (college normative sample); AAQ-2, Bond et al., 2009 (normative sample); and PASAT-C, Gratz et al. 2006 (clinical BPD sample). BPD = borderline personality disorder; PAI-BOR = Personality Assessment Inventory–Borderline Features scale; BDI-II = Beck Depression Inventory–II; DERS = Difficulties in Emotion Regulation Scale; DTS = Distress Tolerance Scale; AAQ-II = Acceptance and Action Questionnaire-2; PASAT-C = Paced Auditory Serial Addition Task–Computerized version.

severe depression, high levels of BPD severity, and emotion dysfunction. Bivariate correlations (see Table 2) indicated that the three self-report emotional functioning variables were significantly and highly correlated with each other. Distress tolerance, measured by the DTS, was negatively associated with termination on the PASAT-C. In addition, as predicted, each self-report measure of emotional functioning was significantly associated, in the expected direction, with BPD symptom severity. The PASAT-C, however, was not correlated with BPD symptom severity. Partial correlations (see Table 2) revealed that, after controlling for depression, only emotion dysregulation (DERS) and experiential avoidance (AAQ-2) continued to be significantly associated with BPD symptom severity.

A multiple-hierarchical regression analysis was conducted with BPD symptom severity (PAI-BOR) as the dependent variable and emotion dysregulation and experiential avoidance as independent variables (see Table 3). Depression severity (BDI-II) was entered in the first step and the DERS and AAQ-2 were entered simultaneously in the second step. In the first step, depressive symptoms accounted for 28% of the variance associated with BPD symptom severity,  $F(1, 38) = 14.82, p < .001$ . In the second step, the two emotional functioning measures together resulted in a significant contribution to BPD symptom severity,  $F(2, 36) = 7.99, p < .001$ , accounting for an additional 22.1% (adjusted  $R^2 = .46$ ) of the variance. Approximately 50% of the variability in BPD features severity was explained by depressive symptoms and the two emotional functioning

Table 2  
*Zero-Order Correlations and Partial Correlations Between Emotion Regulation Measures and BPD Symptom Severity Controlling for Depressive Severity*

Variables	1	2	3	4	5	6
1. BPD symptoms (PAI-BOR)	—	n/a	<i>.41*</i>	-.27	.55**	-.27
2. Depression (BDI-II)	.53*	—				
3. Emotion Dysregulation (DERS)	.55*	.48*	—			
4. Distress Tolerance (DTS)	-.36*	-.33*	-.76**	—		
5. Experiential Avoidance (AAQ-2)	-.68*	-.53*	-.76*	.74*	—	
6. Termination (PASAT-C)	-.31	-.14	-.20	-.39*	.23	—

*Note.*  $N = 40$ . A negative correlation coefficient implies a positive relationship when experiential avoidance is being considered. Partial correlations are provided in the first row and are italicized. BPD = borderline personality disorder; PAI-BOR = Personality Assessment Inventory–Borderline Features scale; BDI-II = Beck Depression Inventory–II; DERS = Difficulties in Emotion Regulation Scale; DTS = Distress Tolerance Scale; AAQ-II = Acceptance and Action Questionnaire-2; PASAT-C = Paced Auditory Serial Addition Task–Computerized version.

\*  $p < .01$ . \*\*  $p < .001$ .

Table 3  
*Emotion Dysregulation and Experiential Avoidance  
 Predicting BPD Severity*

Variable	<i>B</i>	SE <i>B</i>	$\beta$	<i>R</i> <sup>2</sup>
Step 1				.28
Depression (BDI-II)	0.51	0.13	.53**	
Step 2				.50
Emotion dysregulation (DERS)	1.29	3.73	.06	
Experiential avoidance (AAQ-2)	−0.54	0.20	−.51*	

*Note.* *N* = 40. A negative beta coefficient implies a positive relationship when experiential avoidance is being considered. BPD = borderline personality disorder; BDI-II = Beck Depression Inventory-II; DERS = Difficulties in Emotion Regulation Scale; DTS = Distress Tolerance Scale; AAQ-II = Acceptance and Action Questionnaire-2. \**p* < .05. \*\**p* < .001.

variables. However, among these two emotional functioning variables, only experiential avoidance was significantly related to BPD symptom severity,  $\beta = -.51$ , *p* < .05.

### Discussion

The current study demonstrated that self-reported emotion dysregulation, distress tolerance, and experiential avoidance, are each strongly and independently associated with BPD symptom severity. However, as expected and consistent with theoretical conceptualizations (Boulanger et al., 2010), experiential avoidance was the only construct that remained a unique contributor to BPD symptom severity after controlling for depressive symptoms and emotion dysregulation. These findings replicate and extend previous work demonstrating a relationship between experiential avoidance and BPD symptom severity (Chapman et al., 2005; Gratz et al., 2008; Pistorello, 1998) and research showing that experiential avoidance is an important mechanism of change in the treatment of BPD (Berking, Neacsu, Comtois, & Linehan, 2009).

The current data suggest that emotional dysregulation, distress tolerance, and experiential avoidance are strongly related, yet experiential avoidance accounts for the most variance in BPD symptom severity. Although the exact nature by which these constructs influence one another among individuals with BPD symptoms remains unknown, it is possible that the element

that differentiates experiential avoidance from other similar constructs is the measurement of openness to experience combined with effective action (Boulanger et al., 2010). Individuals may engage in either emotion regulation or distress tolerance in a suppressive fashion, which may bring comfort in the short term for BPD individuals, but foster continued difficulties later (e.g., Pistorello, 1998). These findings suggest that experiential avoidance is not simply an emotion regulation strategy per se in that it accounts for unique variance in predicting BPD symptom severity after controlling for emotion dysregulation.

The current study failed to replicate previous findings indicating an association between BPD symptom severity and persistence on the PASAT-C (Bornovalova et al., 2008; Gratz et al., 2006). Several methodological differences between this study and previous inquiries that may have led to discrepant findings: The current study measured task termination as a dichotomous rather than continuous measure, it did not provide any incentive for tolerating distress on the PASAT-C, and consisted of a small sample of participants with a restricted range of BPD symptoms (whereas other studies included a sample with a wider range of BPD symptom severity). Finally, the self-report measure of BPD symptom severity used in this study provides a more general assessment of functioning over a large time span. In contrast, the behavioral measure of distress tolerance is limited to the current moment in the laboratory. It is possible we would have found different effects had the distress tolerance task been administered when more BPD-related distress might be evident (i.e., when a participant is feeling shame or anger).

Several limitations should be noted. This study involved a small and homogenous sample of young adults with BPD symptoms within a cross-sectional design, thus limiting statistical power and generalizability of the results. Thus, this study needs to be replicated in a larger and more representative sample to more fully examine the association among BPD symptom severity and specific domains of emotional functioning. Although the use of a clinical sample is an asset of this study, future studies should compare clinical BPD samples to non-BPD clinical samples on the emotional functioning constructs examined here. This study did not in-

clude an examination of Axis I disorders beyond depressive symptoms, a limitation that can be addressed in future research. Although the use of a behavioral measure was a strength of the current study, future studies would benefit from additional behavioral and psychophysiological measurements of emotional responses (Rosenthal et al., 2008). It was not the purpose of the current study to test a theoretical model of BPD symptom severity, and therefore, the findings are informative but not conclusive. Finally, given our findings suggesting experiential avoidance may play a central role in BPD symptom severity, future research should examine the utility of targeting experiential avoidance among young adults who experience significant BPD symptom severity, and of evaluating its role as a mechanism of change, particularly in BPD pathology, in effective treatment approaches with this population.

## References

- American College Health Association. 2009. American College Health Association-National College Health Assessment II: Reference Group Executive Summary Fall 2008. Baltimore: American College Health Association.
- Beck, A. T., Steer, R. A., & Brown, K. G. (1996). *Manual for the Beck Depression Inventory-II*. San Antonio, TX: Psychological Corporation.
- Berking, M., Neacsiu, A., Comtois, K. A., & Linehan, M. M. (2009). The impact of experiential avoidance on the reduction of depression in treatment for borderline personality disorder. *Behaviour Research and Therapy*, *47*, 663–670.
- Bijttebier, P., & Vertommen, H. (1999). Coping strategies in relation to personality disorders. *Personality and Individual Differences*, *26*, 847–856.
- Block, L., Moran, E., & Kring, A. M. (2010). On the need for conceptual and definitional clarity in emotion regulation research on psychopathology. In A. M. Kring & D. M. Sloan (Eds.), *Emotion regulation and psychopathology: A transdiagnostic approach to etiology and treatment* (pp. 88–104). New York, NY: Guilford Press.
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K., Orcutt, H. C., Waltz, T., & Zettle, R. D. (2011). *Preliminary psychometric properties of the Acceptance and Action Questionnaire-II. A revised measure of psychological flexibility and acceptance*. Manuscript submitted for publication.
- Bornovalova, M. A., Gratz, K. L., Daughters, K. L., Nick, B., Delany-Brumsey, A., Lynch, T. R., & Lejuez, C. W. (2008). A multidimensional assessment of the relationship between emotion dysregulation and borderline personality disorder among inner-city substance users in residential treatment. *Journal of Psychiatric Research*, *42*, 717–726.
- Boulanger, J., Hayes, S. C., & Pistorello, J. (2010). Experiential avoidance as a functional contextual concept. In A. Kring & D. Sloan (Eds.), *Emotion regulation and psychopathology* (pp. 107–136). New York, NY: Guilford Press.
- Chapman, A. L., Specht, M. W., & Cellucci, T. (2005). Borderline personality disorder and deliberate self-harm: Does experiential avoidance play a role? *Suicide and Life-Threatening Behavior*, *35*, 388–399.
- First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1997). *Structured clinical interview for DSM-IV personality disorders (SCID-II)*. Washington, DC: American Psychiatric Press.
- Gratz, K. L., & Gunderson, J. G. (2006). Preliminary data on an acceptance-based emotion regulation group intervention for deliberate self-harm among women with borderline personality disorder. *Behavior Therapy*, *37*, 25–35.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in avoidance scale. *Journal of Psychopathology and Behavioral Assessment*, *26*, 41–54.
- Gratz, K. L., Rosenthal, M. Z., Tull, M. T., Lejuez, C. W., & Gunderson, J. G. (2006). An experimental investigation of emotion dysregulation in borderline personality disorder. *Journal of Abnormal Psychology*, *115*, 850–855.
- Gratz, K. L., & Tull, M. T. (2011). The role of distress tolerance in the pathogenesis and treatment of borderline personality disorder. In M. J. Zvolensky, A. Bernstein, & A. A. Vujanovic (Eds.), *Distress tolerance: Theory, research and clinical practice* (pp. 198–220). New York, NY: Guilford Press.
- Gratz, K. L., Tull, M., & Gunderson, J. (2008). Preliminary data on the relationship between anxiety sensitivity and borderline personality disorder: The role of experiential avoidance. *Journal of Psychiatric Research*, *42*, 550–559.
- Gunderson, J. G. (2001). *Borderline personality disorder: A clinical guide*. Washington, DC: American Psychiatric.
- Hayes, S. C., Strosahl, K., Wilson, K. G., Bisset, R. T., Pistorello, J., Toaramino, D., & McCurry, S. M. (2004). Measuring experiential avoidance: A preliminary test of a working model. *The Psychological Record*, *54*, 553–578.
- Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experiential avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment.

- Journal of Consulting and Clinical Psychology*, 64, 1152–1168.
- Kurtz, J. E., Morey, L. C., & Tomarken, A. J. (1993). The concurrent validity of three self-report measures of borderline personality. *Journal of Psychopathology and Behavioral Assessment*, 15, 255–266.
- Leible, T. L., & Snell, W. E. (2004). Borderline personality disorder and multiple aspects of emotional intelligence. *Personality and Individual Differences*, 37, 393–404.
- Lejuez, C. W., Kahler, C. W., & Brown, R. A. (2003). A modified computer version of the Paced Auditory Serial Addition Task (PASAT) as a laboratory-based stressor. *The Behavior Therapist*, 26, 290–293.
- Levine, D., Marziali, E., & Hood, J. (1997). Emotion processing in borderline personality disorders. *Journal of Nervous and Mental Diseases*, 185, 240–246.
- Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York, NY: Guilford Press.
- Linehan, M. M., Comtois, K. A., Brown, M. Z., Heard, H. L., & Wagner, A. (2006). Suicide Attempt Self-Injury Interview (SASI-II): Development, reliability, and validity of a scale to assess suicide attempts and intentional self-injury. *Psychological Assessment*, 18, 303–312.
- Mennin, D. S., Holaway, R., Fresco, D. M., Moore, M. T., & Heimberg, R. G. (2007). Delineating components of emotion and its dysregulation in anxiety and mood psychopathology. *Behavior Therapy*, 38, 284–302.
- Miller, A. L., Wyman, S. E., Huppert, J. D., Glassman, S. L., & Rathus, J. H. (2000). Analysis of behavioral skills utilized by adolescents receiving dialectical behavior therapy. *Cognitive and Behavioral Practice*, 7, 183–187.
- Morey, L. C. (1991). *Personality Assessment Inventory: Professional Manual*. Odessa, FL: Psychological Assessment Resources.
- Pistorello, J. (1998). *Acceptance, suppression, and monitoring of an unwanted thought among women diagnosed with borderline personality disorder* (Unpublished Doctoral dissertation). University of Nevada, Reno.
- Pistorello, J., Fruzzetti, A. E., MacLane, C., Gallop, R., & Iverson, K. M. (2011). *Dialectical behavior therapy applied to college students: A randomized controlled trial*. Manuscript in preparation.
- Rosenthal, M. Z., Gratz, K. L., Kosson, D. S., Cheavens, J. S., Lejuez, C. W., & Lynch, T. R. (2008). Borderline personality disorder and emotional responding: A review of the research literature. *Clinical Psychology Review*, 28, 75–91.
- Simons, J. S., & Gaher, R. M. (2005). The distress tolerance scale: Development and validation of a self-report measure. *Motivation and Emotion*, 29, 83–102.
- Sloan, D. M., & Kring, A. M. (2007). Measuring changes in emotion regulation during psychotherapy: Conceptual and methodological issues. *Clinical Psychology: Science and Practice*, 14, 307–322.
- Zittel Conklin, C., Bradley, R., & Westen, D. (2006). Affect regulation in borderline personality disorder. *Journal of Nervous and Mental Disease*, 194, 69–77.
- Zvolensky, M. J., Bernstein, A., & Vujanovic, A. A. (2011). *Distress tolerance: Theory, research, and clinical applications*. New York, NY: Guilford Press.