Borderline Personality Disorder and Eating Disorders:

Investigating the Role of Emotion Regulation

Samantha C. Dashineau, MS; Caroline E. Balling, MS; Susan C. South, PhD; and Mark Zimmerman, MD

Abstract

Objective: Borderline personality disorder (BPD) and eating disorders (EDs) both cause significant distress and co-occur at rates higher than expected, signifying potential overlapping regulatory mechanisms between both disorders. More specifically, both disorders involve emotion regulation deficits, suggesting they may share specific maladaptive regulatory components. The present study sought to examine the predictive role of emotion dysregulation within the comorbidity between EDs and BPD.

Methods: A sample of psychiatric outpatients (N = 872) collected from a longitudinal study spanning the mid-1990s to 2015 completed the Structured Clinical Interview for *DSM-IV* for Axis I Disorders as well as a measure of emotion regulation strategies, the Difficulties in Emotion Regulation Scale, in order to assess overall functioning.

Results: In a regression analysis, BPD was significantly predicted by emotion regulation deficits and was strongly related to categories of emotion dysregulation. EDs were not significantly predicted by emotion regulation deficits but did predict BPD diagnoses (B = −0.14, $P < .001$). Overall, BPD demonstrated strong relationships to emotion regulation deficits.

Conclusions: Results indicate that targeted treatment focusing on emotion regulation deficits may be particularly indicated with co-occurring BPD and ED diagnoses.

J Clin Psychiatry 2024;85(3):23m15152

Author affiliations are listed at the end of this article.

Borderline personality disorder (BPD) and eating disorders (EDs) co-occur at high rates, meaning that the likelihood of being diagnosed with one increases the likelihood of diagnosis of the other.[1] When these disorders are assessed dimensionally, overlap is shown by the positive correlation between the symptoms of each disorder.[2] To understand why BPD and EDs are correlated, it is necessary to consider core maintenance factors of both disorders. One potential explanation for the high overlap between the 2 disorders is shared emotion regulation deficits, as both disorders have individually been linked to deficits in managing emotions. In the current analyses, we examine if emotion regulation deficits predict BPD and ED symptoms, both separately and together. We hypothesize that emotion regulation deficits will predict both BPD and ED symptoms. If our hypothesis is supported, it is likely that emotion dysregulation could be maintaining comorbidity between disorders.

Prevalence and Comorbidity of BPD and EDs

BPD is a psychiatric disorder characterized by emotion regulation deficits, cognitive disturbances, and impaired interpersonal relationships.[3] BPD occurs in roughly 0.7%–3.5% of the general population[4] and is highly comorbid with several disorders, including EDs such as anorexia nervosa (AN) and bulimia nervosa (BN).[1,5,6] For example, meta-analytic studies of BPD/EDs find 28% of people with BN and 25% of people with AN binge eating/purging subtype to have a comorbid BPD diagnosis.[7] This is further exemplified in inpatient samples; a recent study by Khosravi[6] found that 64.5% of patients in a hospital sample with BPD met diagnostic criteria for a feeding or eating disorder.

Clinical Points

- Despite their relatively frequent co-occurrence, the emotion regulation deficits shared by borderline personality disorder (BPD) and eating disorders (EDs) are poorly understood.
- Better understanding of the role of emotion regulation in co-occurring BPD and EDs could improve treatment, which targets shared emotion regulation deficits.

BPD and Emotion Regulation

The central feature of BPD is emotional dysregulation, or difficulty responding to and managing emotions.[8,9] An integral part of emotion dysregulation involves difficulties up- or downregulating emotional experiences in response to stimuli.[8] Those with BPD often engage in maladaptive emotion regulation strategies, which serve to reduce negative affect.[9] In addition, individuals with BPD often engage in impulsive behaviors such as gambling or disordered eating behavior to manage emotions.[9] Emotion dysregulation has serious consequences for functioning as maladaptive attempts to manage strong and painful emotions can lead to increased distress over time. Both experiential avoidance (ie, attempts to avoiding negative emotional states) and emotion dysregulation (ie, impairment in managing emotional states) are correlated with severity of BPD symptoms.[10] These outcomes are also seen at the feature or trait level; similar issues regarding interpersonal functioning and impairments in overall functioning are observed in people who display BPD traits without meeting diagnostic criteria for the disorder.[11,12]

Eating Disorders and Emotion Regulation

AN is characterized by a restriction of calories which results in low weight, fear of weight gain, and body image concerns. BN is characterized by concerns of body shape and weight in addition to binge eating and compensatory behaviors, such as exercise, purging, or fasting.[3] Both disorders lead to a significant amount of distress and dysfunction in addition to the disorder's high mortality rate.[3] In addition to the overlap between AN/BN and BPD, BPD also frequently co-occurs with both binge eating disorder (BED), which involves repeated episodes of eating a high volume of food and a sense that one has lost control of eating behaviors during the episode, and eating disorder not otherwise specified (EDNOS; referred to as other-specified or unspecified ED in the *DSM-5*), which occurs when someone experiences clinically significant symptoms related to AN, BN, or BED but insufficient criteria are met to make those diagnoses.[3]

Though not currently one of the diagnostic criteria for any ED, emotion dysregulation plays a key role across the domain of feeding and EDs. For example, in a study of emotion regulation skills in patients with various EDs, patients reported greater emotion regulation difficulties than healthy controls of various weights.[13] Further, in work examining those with AN, BN, and BED, patients reported increased use of maladaptive regulation strategies in addition to higher self-reported instances of emotional intensity and lower acceptance of emotion, with largely no difference reported between ED groups.[14] Broadly, research has found an overuse of maladaptive strategies and an underutilization of adaptive skills in those with disordered eating.[15] Indeed, in a meta-analysis investigating the role of regulation strategies in people with ED symptoms, maladaptive emotion regulation was significantly, positively related to EDs. Correlations between overall maladaptive emotion regulation and EDs were large ($r = 0.51$ for AN and $r = 0.38$ for BN), with particularly strong associations seen in those with clinically significant EDs.[16] These trends are also seen at the symptom level, with college students who report higher levels of BN symptoms also reporting more difficulties with distress tolerance.[17]

The Current Study

Individuals with symptoms of BPD or EDs demonstrate maladaptive emotional processes, particularly intense emotions, and maladaptive attempts to manage those emotions. These behaviors temporarily allow diversion from negative experiences, providing relief and ultimately reinforcing their use.[14,17] Taken together, BPD and EDs may share emotion regulation deficits which explain their high comorbidity. The present study seeks to bridge 2 seemingly disparate diagnostic categories of BPD and EDs by examining the role of emotion regulation in their comorbidity. Although much is known more broadly about the role of emotion regulation in each disorder, little work exists that examines them together. The current study examined if difficulties in emotion regulation predicted both BPD and EDs, separately and together, utilizing linear and logistic regressions.

METHODS

Participants and Procedure

Participants were recruited via the Rhode Island Methods to Improve Diagnostic Assessment and Services (MIDAS) project, which integrates research assessment into an outpatient community-based care setting.[18] The MIDAS project is a clinical epidemiologic study featuring continuous data collection over 20 years, beginning in the mid-1990s and concluding in 2015. All participants gave informed consent to participate. Outpatients in the clinic completed comprehensive evaluations upon presentation for treatment, including semistructured diagnostic interviews and a battery of self-report questionnaires. Patients were most frequently referred from primary care physicians (28.10%), family members or friends (19.84%), and psychotherapists (18.12%).

Measures

Patients presenting for treatment were assessed with the Structured Clinical Interview for *DSM-IV* for Axis I Disorders,[19] including modules assessing AN, BN, BED, and EDNOS. Diagnostic ratings were coded to identify each diagnosis as absent, current, subthreshold, in partial remission, or present in the past. The BPD module of the Structured Interview for *DSM-IV* Personality[20] was also administered to all participants. In this interview, clients are asked to respond to questions about the way they think and behave when they feel like their "typical self," and raters score each of the 9 diagnostic traits as absent, subthreshold, present, or strongly present.

The diagnostic interviewers were highly trained and monitored throughout data collection (eg, every rating item was reviewed by the lead psychiatrist), and diagnostic reliability was high.[19] Specifically, diagnostic reliability was assessed in 65 patients, with one rater observing while another rater administered the interviews, and both raters independently making diagnoses. Within this subsample, the prevalence of each ED was too low to calculate individual reliability estimates. However, the reliability for diagnosing any current or lifetime ED was excellent[21] (k = 1.0). The reliability for diagnosing BPD was also excellent[22] (k = 1.0).

Participants also completed the Difficulties in Emotion Regulation Scale (DERS) on the day of the diagnostic interview. The DERS has demonstrated strong internal consistency and good test-retest reliability.[23] It is a 36-item self-report scale that aims to capture the multidimensional nature of emotional dysregulation. Response options range from 1 ("almost never") to 5 ("almost always"), and higher scores reflect increased difficulty with emotion regulation. In the present sample, reliability for this measure was $\alpha = .94$. In developing and validating the scale, Gratz and Roemer[23] determined 6 dimensions within the DERS. These subscales and their associated internal consistency in this sample are as follows: nonacceptance of emotional responses ("nonacceptance"; $\alpha = .90$), difficulties engaging in goal directed behavior ("goals"; $\alpha = .87$), impulse control difficulties ("impulse"; $\alpha = .90$), lack of emotional awareness ("awareness" $\alpha = .80$), limited access to emotion regulation strategies ("strategies" $\alpha = .91$), and lack of emotional clarity ("clarity" $\alpha = .80$). Total DERS scores and subscales were treated as continuous variables by summing the individual items.

Table 1.

Demographic Characteristics of 872 Psychiatric Outpatients

Characteristic	n	%
Sex		
Female	493	56.5
Male	379	43.5
Highest level of education		
<12 y	40	4.6
High school or GED	147	16.9
Some college	279	32.0
2-year college	67	7.7
4-year college	157	18.0
Some graduate school	57	6.5
Graduate school	125	14.3
Marital status		
Married	347	39.8
Living with someone	85	9.7
Widowed	11	1.3
Separated	40	4.6
Divorced	99	11.4
Never married	290	33.3
Race/ethnicity		
White	766	87.8
Other	37	4.2
Black	30	3.4
Hispanic	24	2.8
Asian	15	1.7

Abbreviation: GED = General Educational Development.

RESULTS

The present sample comprises 872 outpatients who completed the 3 measures described in the Methods section. The demographic characteristics of the sample are listed in Table 1. Most subjects were white (87.8%), were female (56.5%), were married (39.8%), and had completed some college (32.0%). The mean age of the sample was 39.28 years (SD = 14.10). Of the 872 outpatients, 23 (2.6%) were diagnosed with AN, BN, and/or BED; 49 (5.6%) were either in partial remission or met subthreshold criteria; and 51 (5.8%) reported a past history of any ED. (Disorders were not mutually exclusive, meaning patients could meet criteria for disorders across categories.) Ninety-nine patients were diagnosed with BPD (11.4%). For BPD symptoms, 446 patients endorsed at least 1 symptom of BPD (whether or not they met diagnostic criteria), with the mean number of symptoms reported as 1.46 and a standard deviation of 2.04. Symptom counts were not available for EDs due to logistical constraints.

Descriptive information and correlations among the ED, BPD, and emotion regulation variables are presented in Table 2. Overall, number of BPD symptoms was significantly correlated with all scales measuring emotion regulation deficits. BN was significantly and strongly associated with all aspects of emotion regulation except awareness. Subthreshold AN was significantly related to both the impulsivity component of emotion regulation and BPD total score. BED was related to impulsivity, difficulty in emotion regulation strategies, and BPD total score at statistically significant levels. Surprisingly, AN, EDNOS, and subthreshold BN were not significantly related to any aspect of emotion

Table 2.

Correlation Table for Eating Disorder, Emotion Regulation, and Borderline Personality Disorder Variables[a]

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. DERS Total													
2. Goals	0.74**												
3. Nonaccept	0.76**	0.50**											
4. Impulse	0.81**	0.57**	0.50**										
5. Awareness	0.41**	0.06	0.11**	0.17**									
6. Strategies	0.89**	0.67**	0.66**	0.70**	0.15**								
7. Clarity	0.70**	0.38**	0.41**	0.45**	0.51**	0.48**							
8. BPD Total	0.43**	0.28**	0.23**	0.47**	0.14**	0.39**	0.32**						
9. Anorexia	0.04	0.00	0.05	0.01	0.04	0.04	0.05	−0.01					
10. Bulimia	0.12**	0.09**	0.14**	0.08*	0.03	0.09*	0.08*	0.52**	−0.00				
11. Binge eating	0.06	0.03	0.04	0.07*	-0.01	0.09*	0.01	0.09**	−0.02	−0.00			
12. Sub. anorexia	0.05	0.02	−0.01	0.11**	0.01	0.06	0.03	0.15**	−0.01	0.03	0.00		
13. Sub. bulimia	−0.02	0.00	−0.01	−0.00	−0.04	−0.03	−0.02	0.01	0.13**	−0.02	−0.02	0.10**	
14. EDNOS	0.02	0.06	−0.03	0.03	−0.02	0.01	0.06	0.05	−0.02	0.01	0.02	−0.03	−0.02

[a]N = 872.
*P < .05; **P < .01.
Abbreviations: BPD Total = borderline personality disorder total score, DERS = Difficulties in Emotion Regulation, EDNOS = eating disorder not otherwise specified, Nonaccept = Nonacceptance Scale, Sub = subthreshold.

regulation. Thus, it appears for each ED variable, there are differential relationships to emotion regulation experiences.

For the analysis of emotion regular predicting ED variables, we utilized the available 6 variables of BN, AN, BED, subthreshold AN, subthreshold BN, and EDNOS. Symptom counts were not available; however, each diagnostic category contained 4 possible levels: absent, currently present, currently partial remission/subthreshold, or present in the past. BPD traits were entered and treated as a continuous variable, meaning traits ranged from 0 to 9, depending on how many traits each patient endorsed.

At the suggestion of an anonymous reviewer, an analysis of variance (ANOVA) was first conducted to look at mean differences on the DERS using the diagnostic categories of eating disorder (absent/present), BPD (absent/present), and a third group with both BPD and EDs (absent/present). A one-way ANOVA with 3 levels found there was a significant difference in emotion regulation between groups ($F(2, 180) = 14.37$, $P < .001$). Post hoc Tukey test for multiple comparisons found that the mean value of the DERS was significantly different between EDs and BPD ($P < .001$, 95% CI, [−22.62 to −5.46]) and EDs and co-occurring ED/BPD ($P < .001$, 95 CI, [−34.67 to −11.83]). Means for the DERS in the ED-only conditions were 122.72 (SD = 20.67), in the BPD M = 113.51 (SD = 21.29), and in co-occurring BPD/ED M = 122.72 (SD = 20.67).

To further examine the role of emotion dysregulation on BPD/EDs, 2 separate regressions were conducted: a regression in which DERS total score and subscales predicted ED and a regression in which DERS scales predicted BPD. For the outcome of ED, the AN, BN, and BED outcomes were collapsed into one overall ED outcome (absent/present), and a logistic regression was conducted. This logistic regression was conducted in 2 steps. First, the DERS total and subscale scores were entered with ED as an outcome. There were no significant odds ratios for any DERS variable. Next, BPD symptoms were added as a predictor in addition to the DERS. In this regression, BPD was the only significant predictor variable (OR = 1.22, $P < .001$).

The regression predicting BPD was also run in 2 steps. First, the DERS scales and total score were entered into the model predicting BPD. There was a significant result for the subscales of Nonacceptance (B = −0.11, $P = .01$), Impulsivity (B = 0.66, $P < .001$), Strategies (B = 1.78, $P < .001$), and Clarity (B = 1.34, $P < .001$). In the second step, EDs (absent/present) were entered into the model. EDs were a significant predictor of BPD (B = −0.14, $P < .001$), and the DERS scales of Nonacceptance (B = −0.11, $P = .01$), Impulsivity (B = 0.347, $P < .001$), Strategies (B = 0.18, $P < .001$), and Clarity (B = 0.13, $P = .001$) remained significant. All other scales were nonsignificant.

DISCUSSION

The present study sought to examine the predictive role of emotion regulation in the overlap between BPD and EDs. It was hypothesized that emotion dysregulation would predict both BPD and ED symptoms separately and together. Interestingly, only BPD was significantly predicted by emotion regulation deficits. Further, BPD was related to several categories of emotion dysregulation. EDs were not significantly

predicted by emotion regulation deficits, though the ED variable did predict BPD diagnoses. The robust findings for BPD are not surprising, given the well-established relationship between BPD and emotion dysregulation[8] and the existence of affective instability as a diagnostic criterion for BPD.[3]

Our results also suggest that for people with BPD, disordered eating may serve as a way to manage difficult emotional experiences. A recent meta-analysis exploring this relationship between BPD and EDs found that the most significantly elevated symptom in co-occurring BPD/ and ED was affective instability, or difficulty managing emotional experiences,[24] giving support to the elevated impairment in emotion regulation difficulties when both disorders are co-occurring. The lack of significant findings for emotion regulation deficits predicting EDs is in contrast with existing literature which generally finds strong support for emotion regulation deficits across disorders.[14,16] It may be that our sample did not include sufficient levels of comorbid BPD and ED symptoms to see such effects and that, in this sample, BPD may "drive" emotion regulation effects given its relative representation in this sample. Further, given this sample was not specifically recruited for comorbid ED and BPD nor emotion regulation difficulty, it may be that our sample of interest was not well represented.

Related to the broader findings, it may be of particular interest to clinicians to focus intervention on these features of emotion regulation when considering targeted intervention. Indeed, in programs that have adapted dialectical behavioral therapy skills to the treatment of EDs, they have found success in utilizing principles surrounding tolerating strong emotions and managing urges to engage in maladaptive behaviors.[25] It stands to reason, then, that this may be particularly effective in the case of comorbid BPD and ED patients, given shared emotion regulation components. Future work should clarify for whom and under what contexts emotion regulation-centered treatment would be the most relevant. For example, many EDs are highly comorbid with other psychiatric conditions including mood, anxiety, and trauma-related disorders, though past work suggests this varies widely depending on disorder, with subthreshold bulimia and, to an extent, AN having lower comorbidity rates.[26] As such, other, co-occurring disorders were not included in the analysis to allow for a more "pure" assessment of the individual contribution of both disorders, though future work should examine if there are differences depending on other, co-occurring psychiatric conditions.

Article Information

Published Online: July 3, 2024. https://doi.org/10.4088/JCP.23m15152

Submitted: October 19, 2023; accepted April 12, 2024.

To Cite: Dashineau SC, Balling CE, South SC, et al. Borderline personality disorder and eating disorders: investigating the role of emotion regulation. *J Clin Psychiatry*. 2024;85(3):23m15152.

Author Affiliations: Purdue University, West Lafayette, Indiana (Dashineau, Balling, South); Warren Alpert Medical School of Brown University, Providence, Rhode Island (Zimmerman).

Corresponding Author: Samantha C. Dashineau, Purdue University, 703 Third St, West Lafayette, IN 47907 (sdashine@purdue.edu).

Relevant Financial Relationships: None.

Funding/Support: None.

Additional Information: The original dataset is owned by Dr Zimmerman and resides on encrypted computers in the psychiatric clinic. "Participants" are active recipients of mental health treatment, so the data cannot be accessed without request to protect patient confidentiality. Additional information or requests regarding this dataset can be discussed with Caroline Balling at cballing@purdue.edu.

ORCID: Samantha C. Dashineau: https://orcid.org/0000-0002-6446-0247; Caroline E. Balling: https://orcid.org/0000-0001-6522-1996; Mark Zimmerman: https://orcid.org/0000-0001-8284-9910

References

1. Zanarini MC, Reichman CA, Frankenburg FR, et al. The course of eating disorders in patients with borderline personality disorder: a 10-year follow-up study. *Int J Eat Disord*. 2010;43(3):226–232.
2. de Francisco Carvalho L, Pianowski G, Bacciotti J, et al. Assessing borderline personality disorder based on the hierarchical taxonomy of psychopathology (HiTOP): dimensional clinical personality inventory 2–BPD. *Arch Psychiatry Psychotherapy*. 2018;4:77–87.
3. American Psychiatric Association. *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Publishing, Inc; 2013.
4. Huang Y, Kotov R, de Girolamo G, et al. DSM-IV personality disorders in the WHO World Mental Health Surveys. *Br J Psychiatry*. 2009;195(1):46–53.
5. Gaudio S, Di Ciommo V. Prevalence of personality disorders and their clinical correlates in outpatient adolescents with anorexia nervosa. *Psychosom Med*. 2011;73(9):769–774.
6. Khosravi M. Eating disorders among patients with borderline personality disorder: understanding the prevalence and psychopathology. *J Eat Disord*. 2020; 8:38.
7. Sansone RA, Levitt JL. Borderline personality and eating disorders. *Eat Disord*. 2005;13(1):71–83.
8. Salsman N, Linehan MM. Dialectical-behavioral therapy for borderline personality disorder. *Prim Psychiatry*. 2006;13(5):51.
9. Carpenter RW, Trull TJ. Components of emotion dysregulation in borderline personality disorder: a review. *Curr Psychiatry Rep*. 2013;15(1):335.
10. Iverson KM, Follette VM, Pistorello J, et al. An investigation of experiential avoidance, emotion dysregulation, and distress tolerance in young adult outpatients with borderline personality disorder symptoms. *Personal Disord*. 2012;3(4):415–422.
11. Tolpin LH, Gunthert KC, Cohen LH, et al. Borderline personality features and instability of daily negative affect and self-esteem. *J Pers*. 2004;72(1): 111–137.
12. Trull TJ. Structural relations between borderline personality disorder features and putative etiological correlates. *J Abnorm Psychol*. 2001;110(3): 471–481.
13. Brockmeyer T, Skunde M, Wu M, et al. Difficulties in emotion regulation across the spectrum of eating disorders. *Compr Psychiatry*. 2014;55(3): 565–571.
14. Svaldi J, Griepenstroh J, Tuschen-Caffier B, et al. Emotion regulation deficits in eating disorders: a marker of eating pathology or general psychopathology? *Psychiatry Res*. 2012;197(1–2):103–111.
15. Dingemans A, Danner U, Parks M. Emotion regulation in binge eating disorder: a review. *Nutrients*. 2017;9(11):1274.
16. Prefit AB, Candea DM, Szentagotai-Tătar A. Emotion regulation across eating pathology: a meta-analysis. *Appetite*. 2019;143:104438.
17. Anestis MD, Selby EA, Fink EL, et al. The multifaceted role of distress tolerance in dysregulated eating behaviors. *Int J Eat Disord*. 2007;40(8):718–726.
18. Zimmerman M. Integrating the assessment methods of researchers in routine clinical practice: the Rhode Island Methods to Improve Diagnostic Assessment and Services (MIDAS) project. *Standardized evaluation in clinical practice*. American Psychiatric Publishing; 2003:29–74.
19. First MB, Spitzer RL, Gibbon M, et al. *Structured Clinical Interview for the DSM-IV-TR axis 1 disorders, research version, patient edition (SCID-I/P)*. Biometrics Research, New York State Psychiatric Institute; 2002.
20. Pfohl B, Blum NS, Zimmerman M. *Structured interview for DSM-IV personality: SIDP-IV*. American Psychiatric Press; 1997.

21. Zimmerman M, Francione-Witt C, Chelminski I, et al. Problems applying the DSM-IV eating disorders diagnostic criteria in a general psychiatric outpatient practice. *J Clin Psychiatry*. 2008;69(3):381–384.
22. Zimmerman M, Galione JN, Ruggero CJ, et al. Screening for bipolar disorder and finding borderline personality disorder. *J Clin Psychiatry*. 2010;71(9):1212–1217.
23. Gratz KL, Roemer L. Multidimensional assessment of emotion regulation and dysregulation: development, factor structure, and initial validation of the difficulties in emotion regulation scale. *J Psychopathol Behav Assess*. 2004; 26(1):41–54.
24. Miller AE, Trolio V, Halicki-Asakawa A, et al. Eating disorders and the nine symptoms of borderline personality disorder: a systematic review and series of meta-analyses. *Int J Eat Disord*. 2022;55(8):993–1011.
25. Lynch TR, Gray KL, Hempel RJ, et al. Radically open-dialectical behavior therapy for adult anorexia nervosa: feasibility and outcomes from an inpatient program. *BMC Psychiatry*. 2013;13(1):293–317.
26. Hudson JI, Hiripi E, Pope HG Jr., et al. The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. *Biol Psychiatry*. 2007; 61(3):348–358.