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The interactive role of distress tolerance and eating expectancies in bulimic symptoms among substance abusers

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ABSTRACT

Difficulties tolerating distress and the expectancy that eating will relieve negative affect have been linked with bulimic symptoms, which commonly co-occur with other forms of psychopathology characterized by emotion dysregulation (e.g., substance abuse). Indeed, problems with emotional functioning may be of particular relevance to bulimic symptoms in at-risk populations with heightened emotion dysregulation (such as substance use disorder patients). This study examined the interactive role of two emotion-related constructs (distress tolerance and the expectancy that eating relieves negative affect) in relation to bulimic symptoms among patients ($N = 93$) recruited from a residential substance abuse treatment facility. Participants completed the Bulimia Test-Revised, the Positive and Negative Affect Schedule, the Distress Tolerance Scale, and the Eating Expectancy Inventory. A hierarchical multiple regression analysis was conducted to examine the main effects and interaction of distress tolerance and negative affect eating expectancies in relation to bulimic symptoms, controlling for participant gender and overall negative affect. Significant main effects were found for both distress tolerance and negative affect eating expectancies, and these two constructs were found to significantly interact in the prediction of bulimic symptoms. Interventions that address these constructs may be useful in treating those with bulimic symptoms, as well as those with co-occurring bulimic symptoms and substance use disorders.

1. Introduction

Subthreshold eating disorder (ED) presentations (i.e., clinically relevant ED symptoms that do not meet full diagnostic criteria) account for a substantial proportion of those seeking ED treatment (see Fairburn & Bohn, 2005). Bulimic symptoms in particular have been found to be common in both non-clinical populations and non-ED clinical populations (e.g., affective disorders, borderline personality disorder; Lavender, De Young, & Anderson, 2010; Luce, Crowther, & Pole, 2008; McElroy et al., 2013; Zanarini et al., 1998), including patients with substance use disorders (SUDs; e.g., Bulik et al., 2004; Cohen et al., 2010; Harrop & Marlatt, 2010; Wolfe & Maisto, 2000). Indeed, numerous studies have examined ED and SUD co-occurrence. Overall, findings from community and clinical samples suggest that the co-occurrence of bulimia nervosa (BN) and SUDs, both in terms of full diagnoses and subthreshold symptoms, is a common phenomenon (Bulik et al., 2004; Cohen et al., 2010; Duncan et al., 2006; Harrop & Marlatt, 2010; von Ranson, Iacono, & McGue, 2002; Wolfe & Maisto, 2000). For example, in a review of EDs among substance abusers, Holderness, Brooks-Gunn, and Warren (1994) reported a range of 8–41% (median = 20%) for a current or past history of BN or bulimic behaviors among drug abusers, which is substantially higher than the estimated prevalence of BN or bulimic behaviors (e.g., binge eating) identified in community samples (Hudson, Hiripi, Pope, & Kessler, 2007). As such, research investigating factors that contribute to bulimic symptoms in SUD populations may facilitate the identification of those individuals most at-risk for bulimic symptoms, as well as highlight potential targets for treating co-occurring SUD and ED symptoms.

A growing body of research provides support for various emotion-related etiological/maintenance models of EDs that conceptualize ED symptoms as maladaptive strategies for regulating aversive emotional states (Haynos & Fruzzetti, 2011; Heatherton & Baumeister, 1991; Wildes, Ringham, & Marcus, 2010). Two particular emotion-related constructs that have received attention in this literature are distress tolerance (i.e., the perceived ability to tolerate emotional distress; Simons & Gaher, 2005) and emotion-focused eating expectancies (i.e., expectations that eating will relieve negative affect [NA]; Hohlstein, Smith, & Atlas, 1998). With regard to the former, distress tolerance has been found to be associated with ED symptoms in both nonclinical and clinical samples (Allen, McLean, & Byrne, 2012; Anestis, Selby, Fink, & Joiner, 2007; Anestis et al., 2012; Corstorphine, Mountford, Tomlinson, Waller, & Meyer, 2007), and individuals with

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EDs have been found to display poorer distress tolerance compared to controls (Corstorphine et al., 2007; Hambrook et al., 2011). As for the role of emotion-focused eating expectancies in EDs, evidence suggests that expectancies that eating will relieve NA (i.e., NA eating expectancies) are (a) associated with bulimic symptoms (Hayaki, 2009), (b) prospectively predictive of an increased likelihood of binge eating (Fischer, Peterson, & McCarthy, 2013), and (c) elevated in individuals with BN compared to controls (Bruce, Mansour, & Steiger, 2009). Taken together, evidence thus suggests that both low distress tolerance and NA eating expectancies are associated with ED psychopathology, although their cumulative or interactive impact remains unknown.

This study sought to examine associations between bulimic symptoms and both distress tolerance and NA eating expectancies in an at-risk sample of SUD patients (a population found to exhibit heightened levels of both emotion dysregulation and ED symptoms; Fox, Axelrod, Paliwal, Sleeper, & Sinha, 2007; Fox, Hong, & Sinha, 2008; Harrop & Marlatt, 2010; Holderness et al., 1994; Wolfe & Maisto, 2000). We hypothesized that both distress tolerance and NA eating expectancies would be uniquely associated with bulimic symptoms, controlling for participant gender and overall NA. Additionally, given that negative affective states commonly precipitate binge eating and other ED behaviors, the expectation that eating will relieve NA may be more likely to promote bulimic symptoms among those who display an inability to tolerate emotional distress. Thus, we hypothesized a significant interaction between these factors, such that the combination of lower distress tolerance and greater NA eating expectancies would be associated with the greatest bulimic symptoms.

2. Method

2.1. Participants

Participants were 93 patients (41 women; mean age = 36.3 ± 11.5 years) in a residential SUD treatment facility in central Mississippi. Most participants were single (69%), unemployed (57%), had an average annual income of <$30,000 (76%), and were either White (76.3%) or Black/African American (16.1%).

2.2. Procedure

This research was approved by the relevant Institutional Review Boards. Data were collected as part of a project examining correlates of risk-taking/impulsive behaviors among SUD patients. Inclusion criteria included a Mini-Mental Status Exam (Folstein, Folstein, & McHugh, 1975) score of ≥24 and the absence of psychotic symptoms. Eligible participants were recruited no sooner than 72 h after entry into treatment to limit the potential interference of acute withdrawal symptoms. Those who met inclusion criteria were given information about study procedures and associated risks, following which written informed consent was obtained. Participants then completed a brief semi-structured interview (data not included in this study) and a series of questionnaires.

2.3. Measures

2.3.1. Bulimic symptoms

The Bulimia Test-Revised (BULIT-R; Thelen, Farmer, Wonderlich, & Smith, 1991) is a 28-item self-report measure of bulimic symptoms. Each item is rated on a 5-point Likert-type scale, with response options varying for each question. Items are summed and higher scores reflect more severe bulimic symptoms. Evidence supports the reliability and validity of the measure (Thelen, Mintz, & Vander Wal, 1996; Thelen et al., 1991).

2.3.2. Distress tolerance

The Distress Tolerance Scale (DTS; Simons & Gaher, 2005) is a 15-item self-report measure that assesses an individual's willingness or ability to experience, tolerate, and function in the context of emotional distress. Participants respond on a 5-point Likert-type scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). Items are summed and lower scores reflect greater difficulties tolerating NA. Evidence supports the reliability and validity of the measure (Simons & Gaher, 2005).

2.3.3. Eating to manage negative affect

The Eating Expectancy Inventory (EEI; Hohlstein et al., 1998) is a 34-item self-report measure comprised of five scales assessing positive and negative reinforcement expectations about eating. In this study, only the 18-item Eating Helps Manage Negative Affect (EEI-NA) scale was used. Items are rated on a 7-point Likert-type scale ranging from 1 (*completely disagree*) to 7 (*completely agree*). Items are averaged and higher scores indicate stronger expectancies that eating will help to manage NA. The EEI-NA scale has been found to exhibit good psychometric properties in clinical and non-clinical samples (Boerner, Spillane, Anderson, & Smith, 2004; Hohlstein et al., 1998).

2.3.4. Negative affect

The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) is a 20-item self-report measure that provides subscales assessing negative and positive affectivity. The 10-item NA subscale (PANAS-NA) was used as a covariate in the present investigation. Participants rate the extent to which they typically experience each item on average on a 5-point Likert-type scale ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). Items are summed and higher scores indicate greater overall NA.

3. Results

Descriptive data, intercorrelations, and alpha coefficients for all measures are presented in Table 1. A hierarchical multiple regression analysis was utilized to examine the main effects of distress tolerance and NA eating expectancies and their interaction in predicting bulimic symptoms, controlling for participant gender and NA. In Step 1, the covariates were added ($F_{(2,88)} = 3.95$, $p = .023$; $R^2_{adj} = .06$), with results indicating a significant effect for overall NA ($t = 2.25$, $\beta = .23$, $p = .027$) but not participant gender ($t = -1.31$, $\beta = -.14$, $p = .193$). In step 2, the DTS and EEI-NA scores (which were centered prior to analysis) were added to examine main effects of these variables ($F_{(4,86)} = 16.51$, $p < .001$; $R^2_{adj} = .41$). Results revealed that both distress tolerance ($t = -4.53$, $\beta = -.45$, $p < .001$) and NA eating expectancies ($t = 4.30$, $\beta = .37$, $p < .001$) were uniquely associated with bulimic symptoms). In the final step, the interaction of distress tolerance and NA eating expectancies was added ($F_{(5,85)} = 14.79$, $p < .001$; $R^2_{adj} = .43$). Results revealed that the interaction term was significantly associated with bulimic symptoms ($t = -2.21$, $\beta = -.20$, $p = .030$); however, the main effects of distress tolerance ($t = -5.06$, $\beta = -.52$, $p < .001$) and NA eating expectancies ($t = 2.84$, $\beta = .27$, $p = .006$)

Table 1
Intercorrelations, internal consistencies, and descriptive data.

	1	2	3	4
1. BULIT-R	–			
2. PANAS-NA	.25*	–		
3. DTS	−.56***	−.54***	–	
4. EEI-NA	.50***	.18	−.32**	–
α	.93	.87	.90	.92
Mean	45.52	23.32	46.96	2.33
SD	17.30	9.02	14.75	1.18

Note. BULIT-R = Bulimia Test-Revised; PANAS-NA = Negative Affect Scale of the Positive and Negative Affect Schedule; DTS = Distress Tolerance Scale; EEI-NA = Eating to Manage Negative Affect Scale of the Eating Expectancy Inventory.
***p < .001, **p < .01, *p < .05.