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Shorter communication

Multiple measures of rapid response as predictors of remission in cognitive behavior therapy for bulimia nervosa

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ABSTRACT

Bulimia nervosa (BN) treatment studies consistently observe that substantial reductions in purging frequency after four weeks of treatment predict outcome. Although baseline levels of other variables have been compared to change in purging, measures of early change in other domains have not been examined. This study aimed to compare percentage change in purging, depression, and cognitive eating disorder (ED) symptoms for associations with BN remission post-treatment and at six months follow-up. Data from $N = 43$ patients with BN in a clinical trial comparing the broad and focused versions of enhanced cognitive behavior therapy (CBT-E; Fairburn, 2008) were utilized. Measures included self-reported purging frequency, Beck Depression Inventory (BDI) score, and a mean of items from the Eating Disorder Inventory Body Dissatisfaction and Drive for Thinness subscales. Results indicated that both percentage change in purging frequency and percentage change in BDI score at week four/session eight were significantly associated with remission at termination. The optimal cutoffs for purging change and BDI score change were 65% decrease and 25% decrease respectively. Only change in BDI score at week four significantly predicted remission at six-month follow-up. These data suggest that change in depressive symptoms may be as important as ED symptom change to predict outcome in some groups.

Bulimia nervosa (BN) is a severe eating disorder (ED) characterized by recurrent, out-of control eating episodes, extreme compensatory behaviors, and distressing concerns about shape and/or weight (American Psychiatric Association, 2013). Though cognitive behavior therapy (CBT) has repeatedly shown utility to treat the symptoms of BN, substantial subsets of subjects fail to recover in treatment trials (Wilson, Grilo, & Vitousek, 2007). The identification of reliable predictors of remission may aid efforts to improve existing treatments.

Rapid response to treatment, typically defined by improvements in purging rates after four weeks of treatment, has emerged as a consistent predictor of short- and long-term outcome across BN treatment studies (Agras et al., 2000; Bulik, Sullivan, Carter, McIntosh, & Joyce, 1999; Fairburn, Agras, Walsh, Wilson, & Stice, 2004; Olmsted, Kaplan, Rockert, & Jacobson, 1996). Two key studies found that 50% and 70% reduction in purging after four weeks[1] showed the strongest relationship to BN remission among multiple variables (Agras et al., 2000; Fairburn et al., 2004). A major limitation of the prior research concerning rapid response in CBT for BN is the singular focus on change in purging frequency as opposed to early response in other associated domains. Studies have typically compared change in purging to various baseline psychopathology variables, including baseline level of mood/negative affect, social functioning, and personality pathology, but not measures of *early change* in other domains (Agras et al., 2000; Fairburn et al., 2004).

Depression and cognitive ED symptoms have been linked to the development and maintenance of BN and identified as mediators of CBT for BN; therefore, rapid treatment response in these domains may also be associated with BN remission. Depression and negative affect are risk factors for EDs in adolescence and young adulthood (Jacobi et al., 2011; Stice, Bohon, Marti, & Fischer, 2008); show temporal relationships to binge/purge symptoms (Selby et al., 2012); and predict short- and long-term BN persistence (Bulik, Sullivan, Joyce, Carter, & McIntosh, 1998; Keski-Rahkonen et al., 2013). Cognitive constructs related to body dissatisfaction and drive for thinness are also risk and maintenance factors for EDs (Stice, 2002); predict poor BN outcome (Keski-Rahkonen et al., 2013);

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[1] In the Agras et al. (2000) protocol sessions were conducted twice per week in the first two weeks, and once per week in the second two weeks.

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and have been shown to mediate the outcome of CBT for BN (Wilson, Fairburn, Agras, Walsh, & Kraemer, 2002). The protocol for enhanced CBT (CBT-E) addresses mood intolerance and shape and weight concerns in both the focused and the broad versions, but only after the first four weeks of treatment (Fairburn, 2008). Research is necessary to examine whether early change in depression/negative affect and cognitive ED symptoms, in addition to change in purging frequency, predict outcome.

This study of rapid treatment response utilized data from a randomized control trial assessing the effect of CBT-E for patients with BN and co-occurring psychopathology, specifically co-occurring Axis I mood or anxiety disorders and borderline personality disorder (BPD; Thompson-Brenner et al., 2013). CBT-E was developed to enhance ED outcomes for patients with persistent co-occurring psychopathology (Fairburn, 2008). The primary aim of the clinical trial was to compare CBT-E focused and broad versions for complex patients. Primary outcome analyses suggested that co-occurring mood and interpersonal problems (measured dimensionally by interview at baseline) moderated response to broad vs. focused CBT-E, i.e., meaning that patients with more severe pathology in these areas showed better BN outcomes in CBT-E broad (Thompson-Brenner et al., 2013). Important to the current study, however, the focused and broad forms have identical interventions in the first four weeks, including self-monitoring, regular eating, weekly weighing, and reduction of binge/purge behaviors (Fairburn, 2008).

The specific aim of this study was to compare rapid response in purging rate to rapid response in depression and cognitive ED symptoms for significant associations with remission at termination (20 weeks) and at six-months follow-up, in a clinical trial of CBT-E for patients with BN and co-occurring Axis I and personality pathology.

Method

The study received Human Subjects approval from the Boston University Institutional Review Board and was conducted at the Center for Anxiety and Related Disorders (CARD) (see Thompson-Brenner et al., 2013; for more detail). Consecutively assessed patients who met inclusion criteria and signed informed consent were assigned to receive four weeks (eight sessions) of initial CBT-E according to the treatment manual (Fairburn, 2008) followed by sixteen weeks (twelve sessions) of either the broad or focused version of CBT-E. Research staff with established reliability on the interview instruments, blind to treatment condition, conducted all assessments. Participants were assessed by interview at baseline, termination, and six month follow-up. Participants completed self-report measures at baseline and once per week throughout treatment. The trial was registered in a national clinical trial registry database (NCT00494858).

The primary inclusion criteria were bulimia nervosa (BN) as assessed by the Eating Disorder Examination (Fairburn & Cooper, 1993) with criteria consistent with DSM-IV and −5 diagnostic criteria; diagnosis of a mood or anxiety disorder episode within in the past two years per the Structured Clinical Interview for DSM-IV (First, Spitzer, Gibbon, & Williams, 2002); and BPD pathology, defined as a score of >5 on the Diagnostic Interview for Borderlines-Revised (DIB-R; Zanarini, Gunderson, Frankenburg, & Chauncey, 1989).[2] Females ages 18–65 were included. Exclusion criteria were present suicide risk, current substance dependence, history of psychosis, cognitive dysfunction precluding CBT, concurrent ED treatment, and recent psychopharmacological changes, i.e., changes to psychopharmacological prescriptions within the past 6 weeks. The full trial included $N = 50$, of which $n = 7$ had dropped out or been withdrawn by week four. The current analyses include the $N = 43$ participants with week four data. This study adhered to the CBT-E instructions (Fairburn, 2008) that therapist and patient explicitly agree at the outset of therapy to twice per week sessions in the first four weeks without any breaks. Strong efforts were made to insure that all sessions were conducted or rescheduled (e.g., night sessions, double sessions, use of substitute therapists). As a result, the large majority of patients who had not dropped out by week four had completed eight sessions.

Measures

Baseline and outcome interviews

ED diagnosis and frequency of OBEs/compensatory behaviors were assessed by the Eating Disorders Examination (EDE; Fairburn & Cooper, 1993) at baseline, termination, and six-month follow-up. EDE assessment of OBEs and purging were used to establish whether participants achieved remission (OBEs/purging = 0 over the most recent 28 days) at termination and at six-month follow-up. The EDE has well-established reliability and validity to assess the symptoms of BN. Study assessors had established excellent inter-rater reliability on the EDE interview ($\kappa > .90$ over three interviews). As noted, all participants met criteria for at least one mood or anxiety disorder within the past two years assessed via the SCID-IV (First et al., 2002). The severity of co-occurring BPD was assessed using the Diagnostic Interview for Borderlines-Revised (Zanarini et al., 1989). The DIB-R assesses the presence of enduring and chronic BPD psychopathology in the areas of affect, interpersonal functioning, cognition, and impulsivity.

Weekly self-report measures

Research staff collected the weekly self-report battery at the baseline assessment and once per week prior to a treatment session. The questionnaires were kept confidential from the treating therapist. The measures included in the weekly assessment battery were chosen for their utility to briefly assess multiple domains of symptoms and psychosocial functioning in this complex sample.

Behavioral symptoms of BN

To assess weekly objective binge and purging episodes (including vomiting, laxative and diuretic use), a self-report questionnaire was constructed. Explicit definitions for each symptom were provided in the measure, and education regarding the correct definition of each symptom was provided to the patient during the baseline assessment. This education is associated with more valid and reliable self-report (Goldfein, Devlin, & Kamenetz, 2005; Loeb, Pike, Walsh, & Wilson, 1994). Frequency of purging was calculated using the participant's primary form of purging, which was typically purging by vomiting ($n = 2$ purging by laxative abuse).

Beck Depression Inventory (BDI; Beck, Steer, & Brown, 1996)

The BDI is a 21-item self-report questionnaire assessing depressive symptoms. The BDI was selected for use in the weekly battery and in the current statistical analyses for two primary reasons. First, it is a brief, reliable measure of current depressive symptoms including suicidality (Pulos, 1996). Second, recent research has demonstrated that the broader construct of *negative*

[2] Details regarding the reliability and validity of the assessments and assessors relevant to the inclusion and exclusion criteria in the current study as well as other details are reported in Thompson-Brenner et al., 2013.