

Comparing Two Measures of Eating Restraint in Bulimic Women Treated with Cognitive-Behavioral Therapy

Debra L. Safer,^{1*} W. Stewart Agras,¹ Michael R. Lowe,² and Susan Bryson¹

¹Department of Psychiatry and Behavioral Sciences, Stanford University
School of Medicine, Stanford, California

²Department of Psychology, Drexel University, Philadelphia,
Pennsylvania

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Abstract: Objective: To examine changes in dietary restraint patterns revealed by the Eating Disorders Examination Restraint subscale (EDE-R) and the Three-Factor Eating Questionnaire Cognitive Restraint scale (TFEQ-CR) in a large sample of women with bulimia nervosa (BN) who completed 18 weeks of cognitive-behavioral therapy (CBT). **Method:** Data from 134 subjects were obtained from a larger study and analyzed using repeated-measures analysis of variance (ANOVA). **Results:** The EDE-R showed statistically and clinically significant decreases post-CBT, whereas the TFEQ-CR did not change significantly. **Discussion:** This is the first study to directly compare the EDE-R and TFEQ-CR before and after CBT in the same population. The contrasting results suggest the two measures tap different aspects of the dietary restraint construct. The EDE-R may primarily reflect dieting to lose weight whereas the TFEQ-CR may reflect dieting to avoid weight gain. In assessing changes in dietary restraint targeted by CBT for BN, the TFEQ-CR appears less useful. © 2004 by Wiley Periodicals, Inc. *Int J Eat Disord* 36: 83–88, 2004.

Key words: eating restraint; bulimic women; cognitive-behavioral therapy

INTRODUCTION

The research literature concerning bulimia nervosa (BN) lacks consensus regarding the conceptualization and assessment of the terms *dieting* and *dietary restraint*. The lack of a consistent operational definition of dieting is reflected in the existence of a number of different dietary restraint instruments, all purporting to measure the same regulatory pattern of restriction of food intake. One reason it is important to clarify the dietary

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*Correspondence to: Debra L. Safer, M.D., Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, 401 Quarry Road, Stanford, CA 94305-5722. E-mail: dlsafer@stanford.edu
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restraint construct is that a major treatment target of cognitive-behavior therapy (CBT), the current treatment of choice for BN, is to encourage patients to avoid dieting (Wilson, Fairburn, & Agras, 1997). According to the rationale for CBT, dieting plays a key role in the development and maintenance of binge eating in patients with BN and should be replaced with a more regularized eating pattern.

Two well-known scales constructed to measure dietary restraint are the Three-Factor Eating Questionnaire (TFEQ; Stunkard & Messick, 1985) and the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993). Stice, Telch, and Rizvi (2000) used these scales to develop and validate a self-report measure of eating disturbances. To our knowledge, no studies have specifically focused on comparing the two scales within the same sample of bulimic patients at both baseline and after treatment with CBT. Such comparisons are especially important because without drawing from the same sample, differences observed between the scales across studies could be a function of the samples studied, the research protocols followed, or differences between the scales themselves. Therefore, the current study specifically aims to clarify the relative applicability of the TFEQ-Cognitive Restraint scale (TFEQ-CR) and the EDE-Restraint subscale (EDE-R), two different dietary restraint measures, by analyzing their changes during 18 weeks of CBT obtained from a large sample of women with BN.

METHODS

Patient Selection and Treatment

Participants were taken from a larger study of 194 women who met criteria for BN as described in the 3rd Rev. ed. of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R; American Psychiatric Association, 1987). These participants were offered manual-based CBT (see Agras et al., 2000, for details). Of the 140 women completing treatment, 134 had undergone both pretreatment and posttreatment dietary restraint assessments using the EDE and TFEQ. These 134 women represent the participants in the current study. Treatment consisted of 18 individual 50-min outpatient sessions over 16 weeks.

Assessments

Before and after treatment, the patients completed two measures of eating restraint. The EDE (Fairburn & Cooper, 1993) is a semistructured interview that assesses the severity of specific eating-related pathology over the 28 days before assessment.

For the purposes of the current study, the EDE-R was used. This five-question subscale of the EDE measures attempts to restrict food intake to influence weight and shape (Table 1). Subscale items are rated on a 7-point forced-choice format (0–6), with higher scores reflecting greater severity. The EDE also provided data on the frequency of binge eating. This was measured as the change in the number of binge days on which an objectively large amount of food was eaten (posttreatment minus baseline).

The TFEQ (Stunkard & Messick, 1985) is a psychometrically established self-report measure with three subscales, including the TFEQ-CR. The TFEQ-CR consists of 21 items scored on a 2-point scale (0 or 1). Higher scores on this scale reflect more restrained

Table 1. Change scores (posttreatment–pretreatment) for the five components of the EDE-R

Question	Decrease in EDE-R Score from Pretreatment to Posttreatment
	<i>M (SD)</i>
Dietary rules: Over the past 4 weeks have you tried to follow certain <u>definite</u> rules regarding your eating, for example, a calorie limit, preset quantities of food, or rules about what you should eat or when you should eat?	–2.31 (3.53)
Restraint over eating: Over the past 4 weeks have you been consciously <u>trying</u> to restrict what you eat, whether or not you have <u>succeeded</u> ?	–2.05 (3.18)
Empty stomach: Over the past 4 weeks have you wanted your stomach to be <u>empty</u> ?	–1.75 (2.64)
Food avoidance: Over the past 4 weeks have you <u>tried</u> to avoid eating any foods that you like, whether or not you have succeeded?	–1.63 (3.18)
Avoidance of eating: Over the past 4 weeks have you gone for periods of 8 or more <u>waking hours</u> without eating anything?	–0.57 (1.43)

Note: EDE-R = Eating Disorders Examination Restraint subscale.

eating patterns. Change scores were calculated by subtracting the pretreatment restraint score from the posttreatment score.

Statistical Analysis

To assess the effect of CBT on the changes in dietary restraint, the two measures of dietary restraint (EDE-R and TFEQ-CR) were each analyzed using a repeated-measures analysis of variance (ANOVA). Post-hoc analyses on individual items were performed to further explore the nature of changes in each restraint scale.

RESULTS

The baseline TFEQ-CR and baseline EDE-R scores were compared between patients who dropped out of treatment and those included in the current study. No significant pretreatment differences on the TFEQ-CR were found. Drop-outs did show significantly higher EDE-R scores (3.87 vs. 3.30, $p = .02$). There were no significant pretreatment differences between drop-outs and completers for baseline binge or purge frequency, age, or body mass index (BMI).

There was a statistically significant decrease from the mean EDE-R pretreatment scores ($M = 3.30$, $SD = 1.37$) to the mean posttreatment scores ($M = 1.63$, $SD = 1.5$), $F(1, 131) = 97.00$, $p < .001$, a posttreatment mean of approximately one-half the baseline score. The decrease in the TFEQ-CR was comparatively small, with no significant change between the mean pretreatment scores ($M = 12.72$, $SD = 4.76$) and the mean posttreatment scores ($M = 11.95$, $SD = 4.67$), $F(1, 131) = 3.43$, not significant).

The correlation between the EDE-R and the TFEQ-CR at baseline was .24 ($p < .05$), accounting for less than 5% of the variance. The correlation between change scores on the two measures (posttreatment minus pretreatment) was 0.27 ($p < .05$). The correlation between the TFEQ-CR change score and the change in binge frequency that resulted from

Table 2. TFEQ-CR change scores, items with largest absolute values

Question Number	M (SD)
Decrease in TFEQ-CR score from pretreatment to posttreatment	
38: Would a weight fluctuation of 5 pounds affect the way you live your life? (not at all/slightly = 0, <u>moderately/very much</u> = 1).	-0.31 (0.63)
37: How often are you dieting in a conscious effort to control your weight? (rarely/sometimes = 0, usually/always = 1).	-0.23 (0.53)
10: Life is too short to worry about dieting (true = 0, <u>false</u> = 1).	-0.20 (0.50)
35: I pay a great deal of attention to changes in my figure (true = 1, false = 0).	-0.11 (0.49)
33: I do not eat some foods because they make me fat (true = 1, false = 0).	-0.10 (0.54)
46: How likely are you to consciously eat slowly in order to cut down on how much you eat? (unlikely/slightly likely = 0, <u>moderately likely/very likely</u> = 1).	-0.1 (0.49)
Increase in TFEQ-CR score from pretreatment to posttreatment	
4: When I have eaten my quota of calories for the day I am usually good about not eating any more (<u>true</u> = 1, false = 0).	0.28 (0.51)
43: How frequently do you avoid stocking up on tempting foods? (almost never/seldom = 0, <u>usually/almost always</u> = 1).	0.15 (0.57)
30: I eat anything I want, any time I want (true = 0, <u>false</u> = 1).	0.11 (0.56)

Note: TFEQ-CR = Three-Factor Eating Questionnaire Cognitive Restraint scale; EDE-R = Eating Disorders Examination Restraint subscale. Means $\geq |0.1|$ included; minimum = -1.00, maximum = 1.00; $N = 134$. The answer resulting in an increased score on the scale is underlined. Change scores were calculated as posttreatment score minus pretreatment score. For the TFEQ-CR, for which possible scores for individual questions are limited to 0 or 1, possible change scores are -1 (patient showed a decrease in restraint), 0 (no change in the score over treatment), or +1 (patient became more restrained). For the EDE-R, where scores range from 0 to 6, change scores range from -6 to +6. Of note, the items are not presented according to Westenhofer's proposal (1991) to divide the TFEQ-CR into two subscales, Flexible Control and Rigid Control. Among the items in the current study with the largest absolute values for change, no pattern meaningfully reflected Westenhofer's categories. For example, only 14 of the 21 original items in the TFEQ-CR were used in constructing Westenhofer's subscales and of the 9 items in Table 2, 5 are not part of the Rigid/Flexible subscales. Of the four that are included, two of the items reflecting a decreased score were Rigid Control items. Among the items that increased over treatment, one was Flexible Control and one was Rigid Control.

the treatment was not significant ($p = -.11$). In contrast, although small, the correlation between the EDE-R change score over treatment and the change in binge frequency was significant ($r = .27, p = .002$).

Table 1 shows the mean pretreatment and posttreatment scores for the five components of the EDE-R subscale. Paired t tests revealed highly significant changes ($p < .001$) from pretreatment to posttreatment for all components.

Table 2 displays mean TFEQ-CR change scores for questions showing the greatest absolute value change from pretreatment to posttreatment. Of the 21 items, only 9 had an absolute change score value of at least ± 0.1 . Most did not change their scores on any of the items from pretreatment to posttreatment. The nine questions showing the largest changes were then divided into those showing a decrease in restraint and those showing an increase in restraint (Table 2).

DISCUSSION

The EDE-R and TFEQ-CR, two of the leading dietary restraint measures used in the assessment of BN, were compared in a large population of bulimic women who received

CBT. The EDE-R significantly decreased from baseline to posttreatment whereas the TFEQ-CR did not. This is noteworthy because it might be assumed that the two measures assess the same behavioral pattern. However, the two measures were poorly correlated both at baseline and over the course of treatment. Furthermore, although small, there was a significant relation between the change in dietary restraint as measured by the EDE-R and the decrease in binge frequency during the course of CBT whereas this was not found with the TFEQ-CR.

Several possible reasons may explain why the EDE-R shows larger decreases after CBT than the TFEQ-CR. First, the EDE-R items may be more specifically related to the treatment targets of CBT. For example, CBT encourages a reduced cognitive preoccupation with food, a less dichotomous (e.g., "all or nothing") approach to eating, and a less extreme cognitive approach to dieting. After CBT, for example, there was a mean decrease in the endorsement of how often a patient followed strict dietary rules (e.g., "Over the past 4 weeks have you tried to follow certain definite rules regarding your eating ...").

A second possible reason is that the construction of the TFEQ-CR was based on a population of formerly obese adults who had lost a large amount of weight. Therefore, the TFEQ-CR items might reflect restraint aimed at avoiding weight regain rather than achieving weight loss in this population. Table 2 shows that although endorsement of certain types of dieting may decrease after treatment with CBT, others increase. The increase for bulimic individuals as a result of treatment may be explained as an exchange of the more extreme dietary patterns and goals of weight loss for practices that the TFEQ-CR labels as restraint, practices reflecting concerns about not eating too much (presumably to avoid weight gain). With certain items decreasing in score, such as those reflecting overconcern with dieting and weight, and others increasing, a net "wash-out" effect appears to take place within the TFEQ-CR after CBT. In contrast, the EDE-R was designed to specifically assess the more extreme forms of dieting and other forms of psychopathology specific to eating disorders such as BN and anorexia nervosa (Fairburn & Cooper, 1993). Therefore, an increase in restraint aimed at avoiding weight gain would not be captured on the EDE-R, allowing it to more clearly reflect the success of CBT in reducing extreme dieting. A final, but less compelling, possibility is that because the EDE-R is obtained through a semistructured rater-administered interview, it is more sensitive than the self-report TFEQ-CR.

In summary, the current study adds to the literature by comparing two measures of dietary restraint, the EDE-R and the TFEQ-CR, in a treatment study of CBT for BN. Although the scales are conceptually related (both are intended to measure dietary restraint), their differences support the contention that the concept of dietary restraint, as it is currently assessed, is too diffuse (Lowe, 1993). Based on our study, the EDE-R is more responsive than the TFEQ-CR to changes in restraint after CBT for BN. Perhaps, the EDE-R primarily reflects dieting to lose weight whereas the TFEQ-CR reflects dieting to prevent weight gain. Therefore, the TFEQ-CR is less useful than the EDE-R in assessing the changes in dietary restraint targeted for change in CBT treatment of BN. Future research could further refine the construct of dietary restraint, ideally by comparing all existing dietary restraint measures (pretreatment and posttreatment) to one another within the same sample of patients, each with specific eating disorders. This would allow more specific targeting of the dietary restraint measures to various eating-disordered populations and would thus enhance our understanding of their response to treatment.

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