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The Yale-Brown-Cornell Eating Disorders Scale Self-Report Questionnaire: A New, Efficient Tool for Clinicians and Researchers

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Abstract

Objective—The YBC-EDS is a semi-structured interview assessing core preoccupations and rituals related to eating disorders.

Method—We developed and conducted an examination of the reliability and validity of a self-report questionnaire (SRQ) version of the YBC-EDS. Convergent validity of YBC-EDS-SRQ with the YBC-EDS was examined for 112 eating disordered patients.

Results—All subscales and total scores were significantly intercorrelated. Thirty-one additional patients completed YBC-EDS-SRQ at admission and again one week later. All correlations revealed significant test-retest reliability. Discriminant validity of the SRQ was evaluated for a smaller subset of participants who completed the Beck Depression Inventory (BDI) and State Trait Anxiety Inventory (STAI). There were no significant correlations between various symptom dimensions of the YBC-EDS-SRQ and the BDI and STAI.

Discussion—Taken together, these findings indicate that the self-report form of the YBC-EDS is both valid and reliable. The SRQ can serve as a useful and efficient assessment of eating disorder patients for clinicians and researchers.

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The majority of eating disorder assessments (e.g., Eating Attitudes Test and Eating Disorder Inventory [1–2]) are used to measure eating disorder symptoms (e.g., binge eating, purging, restricting) in patients presenting for treatment or participating in research protocols. Individuals with eating disorders tend to struggle with a wide range of preoccupations and rituals related to food, eating, shape and weight. The Yale-Brown-Cornell Eating Disorders Scale (YBC-EDS) is a semi-structured interview that was developed in 1994 by Mazure, Halmi and colleagues [3] to assess the nature and severity of an individual's unique set of preoccupations and rituals related to the eating disorder (ED). The YBC-EDS interview has shown excellent interrater reliability, good internal consistency, and good convergent validity with other eating disorder assessments such as the EDI [3].

The YBC-EDS has been used in a wide range of seminal studies since its publication. A 2000 study conducted by Sunday and Halmi [4] revealed that the YBC-EDS can effectively distinguish healthy eating controls (i.e., unrestrained, non-dieters) from restrained eating dieters and ED patients who had been recovered for at least 6 months. In addition, the authors reported that restrained eating dieters and recovered ED patients had similar YBC-EDS scores, which is notable in light of the high relapse rate among ED patients. It is possible that, while a patient's weight may normalize and major eating disorder symptoms may decrease or even cease over the course of treatment, the patient may continue to be preoccupied with thoughts around food, eating and weight and/or engage in ritualized behaviors around eating which may increase the risk of relapse over time. The YBC-EDS therefore provides clinicians and researchers with a reliable and valid tool to assess the very eating disordered preoccupations and rituals that can contribute to the onset and maintenance of eating disorders.

More recent studies conducted by Halmi [5] and colleagues revealed that the YBC-EDS predicts treatment completion and post-treatment relapse [6]. The widespread use of the YBC-EDS interview led Jordan and colleagues [7] to investigate this measure in relation to ED psychopathology, obsessionality, and impulsivity variables in women with anorexia nervosa (AN), as well as the sensitivity of the YBC-EDS to change after psychotherapy [7]. These investigators found that YBC-EDS scores were significantly different in those with good versus poor global outcome after therapy. Given the possible utility of a reliable and valid self-report questionnaire version of the YBC-EDS, we developed the YBC-EDS Self-Report Questionnaire (YBC-EDS-SRQ). Along with our colleagues at three other academic institutions, we have administered this new questionnaire to inpatients and outpatients, as well as individuals with AN who were participating in a large-scale research assessment study. The current study describes the convergent validity, discriminant validity, and test-retest reliability of the YBC-EDS-SRQ.

Methods

Participants

One hundred and forty-three women (92 inpatients, 51 outpatients) meeting DSM-IV criteria for a primary eating disorder diagnosis participated in this study. Their diagnoses included Anorexia Nervosa Restricting Type (AN-R; n=56), Anorexia Nervosa Binge-Purge Type (AN-BP; n=29), Anorexia Nervosa Purging Type (AN-P; n=7), Bulimia Nervosa (BN;

n=10), and Eating Disorder Not Otherwise Specified (EDNOS; n=41). The sample was derived from a patient population presenting for treatment at a hospital affiliated with Weill Cornell Medical College (WCMC) as well as individuals participating in an NIH-funded assessment study with a collaborative group comprised of researchers from The Neuropsychiatric Research Institute-Fargo, North Dakota (NRI-Fargo), University of Minnesota (UM), and University of Chicago (UC). This collaborative group was conducting an NIH-funded assessment study in which they were developing and testing a maintenance model predicting AN symptoms based on personality traits, momentary mood states, cognitions, as well as life events (AN Palm study). The YBC-EDS interview was an existing assessment within the AN Palm Study protocol. Our collaborators agreed to offer all participants the opportunity to participate in an additional study that included the administration of the YBC-EDS-SRQ.

Participants from WCMC were recruited through the inpatient eating disorders unit and the outpatient eating disorders clinic. Participants at WCMC had to meet DSM-IV criteria for AN, BN, or Binge Eating Disorder (BED). None of the participants admitted for treatment were terminally ill, and all were medically stable with normal serum electrolytes. Sixty-four participants from WCMC completed both the YBC-EDS-SRQ and the interview, in counterbalanced order, approximately 1–2 weeks apart. The initial assessment was given as close to admission as possible to either the specialized eating disorder unit or the outpatient eating disorder clinic. The remaining 31 WCMC participants were administered only the self-report version of the YBC-EDS at two time points – the first as close to admission as possible and the second one week later.

Participants from the collaborative group were recruited from patients seeking treatment at eating disorder clinics within each clinical site's region, from patients seeking treatment at other mental health facilities in the area, through mailings to treatment providers, and through the media. The collaborative group established the following inclusion requirements for their AN Palm study: females age 18 or older who were currently meeting DSM-IV criteria for AN, either restricting or binge-purge type. Participants were eligible for the AN Palm study if they had a BMI of less than or equal to 18.5 and had either amenorrhea or the cognitive pattern of AN (i.e., body image disturbance). Individuals with the presence of active psychosis, inability to read English, history of bariatric surgery or other relevant gastrointestinal surgery, medical instability (e.g., serious electrolyte abnormalities or vital sign instability), inpatient or partial hospitalization within the past 6 weeks, initiated psychotherapy or drug therapy within the past 6 weeks, pregnant or breastfeeding, or current drug or alcohol dependence were excluded. The 48 participants from NRI-Fargo, UM, and UC were administered the YBC-EDS interview at the baseline assessment phase and completed the YBC-EDS-SRQ three weeks later using an Ecological Momentary Assessment System (Palm Pilot computers). Participants received monetary compensation in return for their participation in the AN Palm study assessments.

At all study sites, participants gave informed consent to participate in the assessment process. Parental consent was obtained for minors under the age of 18. At WCMC, all participants were administered a demographics questionnaire prior to completing the YBC-EDS interview, YBC-EDS-SRQ, State Trait Anxiety Inventory (STAI-Y), and Beck

Depression Inventory (BDI). The three AN Palm study sites (NRI-Fargo, UC, and UM) obtained IRB approval and consent to release YBC-EDS interview, YBC-EDS-SRQ and demographics data to WCMC for analysis.

Participants in the current study ranged in age from 12 to 58 years (mean = 26.43, SD = 9.82). One hundred and thirty-four were Caucasian, 1 was African American, 2 were Asian, and 2 described themselves as “Other”. Prior to the start of the study, interviewers at all sites were trained in the use of the YBC-EDS interview and conducted practice assessments as part of this training. The interviewers were research staff members trained by experienced research clinicians.

Measures

Yale-Brown-Cornell Eating Disorder Scale (YBC-EDS)—The Yale-Brown-Cornell Eating Disorder Scale [3] is an adaptation of the Yale-Brown-Cornell Obsessive-Compulsive Scale [8–9] – an instrument used in the assessment of Obsessive-Compulsive Disorder (OCD). The YBC-EDS identifies a wide range of eating-related rituals and/or preoccupations frequently experienced by eating disordered patients. It allows the interviewer to determine the target symptoms specific to each individual and then assess the degree of impairment associated with each patient’s unique symptomatology during a “current” period and a “worst” period for that individual. The “current” period is defined by the past month. The “worst” period is defined by the patient as the 1-month period during which she or he feel their eating disorder symptoms were at their worst. The YBC-EDS evaluates the severity of preoccupations and rituals experienced by patients by rating the time occupied by symptoms, distress caused by the symptoms, degree of control over symptoms, and overall impairment of functioning due to these symptoms.

The YBC-EDS consists of a 65-item symptom checklist, followed by 19 questions. Although the thoughts and behaviors included in the YBC-EDS symptom checklist are fairly extensive, patients may add any eating-related thoughts or behaviors that are not part of the checklist. Once the preoccupations and rituals checklists have been completed, four core questions are then asked regarding preoccupations and four regarding rituals, yielding a Preoccupations Subtotal, Rituals Subtotal, and a YBC-EDS Total Score. A provisional score assessing the patient’s motivation for change can also be calculated, and has shown to be an important predictor of treatment outcome [10]. The YBC-EDS Interview takes between 45–60 minutes to administer. Mazure et al. [3] reported excellent reliability and validity for this Interview.

Yale-Brown-Cornell Eating Disorder Scale Self-Report Questionnaire (YBC-EDS-SRQ)—The YBC-EDS-SRQ was developed by Bellace, Halmi and colleagues, and the validity and reliability of this new SRQ are reported in the current study. It was developed to become a more efficient assessment tool for clinicians and researchers. The YBC-EDS-SRQ allows patients to respond independently to the same 65-item checklist and 19 question items related to their eating disorder preoccupations and rituals that are presented in the YBC-EDS interview. Similar to the YBC-EDS interview, the SRQ yields a Preoccupations Subtotal, Rituals Subtotal, and Total Score. The YBC-EDS-SRQ takes

approximately 20–25 minutes to complete, and can be administered to multiple patients simultaneously, if necessary.

Beck Depression Inventory (BDI)—The Beck Depression Inventory [11] is a 21-item self-report measure of depression that assesses various cognitive, behavioral, and physiological symptoms associated with depression. For each item, the individual is asked to select a sentence from a group of choices that best reflects his or her experiences over the past two weeks. The BDI has been found to have good convergent and discriminant validity, in that the measure correlated strongly with depression items of the Structured Clinical Interview for Depression and positively correlated with the Hamilton Psychiatric Rating Scale for Depression [12]. The BDI yielded a test-retest reliability of 0.96, and a strong internal consistency, yielding a coefficient alpha of 0.92 [12].

State Trait Anxiety Inventory, Form Y (STAI-Y)—The State-Trait Anxiety Inventory, Form Y [13] is a 40-item self-report measure that uses a Likert scale to assess separate dimensions of "state" anxiety (items 1–20) as well as "trait" anxiety (items 21–40). Each item is rated on a 4-point intensity scale, ranging from "not at all so" to "very much so". Both STAI-Y State (S-Anxiety) and Trait (T-Anxiety) scales were developed as uni-dimensional measures. The STAI-Y also yielded a test-retest correlation of 0.54 (state) and 0.86 (trait), indicating strong reliability [13]. The STAI-Y has also shown strong content validity, as 5 of 8 criteria for a DSM-IV diagnosis of Generalized Anxiety Disorder were represented among the items. Furthermore, the STAI-Y has demonstrated solid concurrent validity as there are high correlations between this assessment and The Anxiety Scale Questionnaire and Manifest Anxiety Scales (0.73 and 0.85, respectively). Thus, the STAI-Y is particularly useful in determining patient anxiety [14].

Statistics

To examine the convergent validity, test-retest reliability, and discriminant validity of the YBC-EDS-SRQ, we conducted Pearson correlations. We utilized a very stringent alpha level of .001 in order to correct for possible false positives among the correlation analyses.

Results

Convergent Validity

Table 1 shows the intercorrelations between the Preoccupations, Rituals, and Total subscale scores of the YBC-EDS-SRQ and the YBC-EDS. The intercorrelations ranged from .598–.756 (all significant at the $p < .001$ level). The correlations during the Worst period were large and all significant at $p<.001$, but they were slightly smaller than those in the Current period.

Test-Retest Reliability

Table 2 shows the intercorrelations representing the Test-Retest Reliability for the YBC-EDS-SRQ. The correlations ranged from .646–.935 (all significant at the $p<.001$ level). Overall, the strongest correlations were found between the two administrations of the Rituals

Subtotal Worst and Total Worst subscales. These correlations indicate a high degree of test-retest reliability for the YBC-EDS-SRQ.

Discriminant Validity

Table 3 shows the correlations between the YBC-EDS-SRQ and BDI, STAI-State and STAI-Trait. There were no significant correlations between the various symptom dimensions of the YBC-EDS-SRQ Preoccupations, Rituals, and Total subscale variables and the BDI, STAI-State, and STAI-Trait.

Discussion

The YBC-EDS-SRQ was derived from the YBC-EDS interview, which has long been established as a robust assessment tool [3, 7]. Studies have also utilized the YBC-EDS interview to evaluate the effectiveness of different treatment options for AN patients [15]. The current study revealed excellent test-retest reliability for the YBC-EDS-SRQ, as well as very strong convergent validity between the YBC-EDS interview and the YBC-EDS-SRQ. The SRQ had non-significant correlations with measures of depression (i.e., BDI) and anxiety (i.e., STAI), indicating discriminant validity. The absence of significant covariation with the STAI and BDI represented a rigorous test of discriminant validity, because the preoccupations and rituals measured by the YBC-EDS-SRQ certainly overlap with anxiety, and depression is related to anxiety. In addition, despite the potential overlap between anxiety symptoms measured by the STAI and the anxiety implicit in the fears measured by the YBC-EDS-SRQ, we did not find statistically significant relationships among the subscales or total scores of the STAI and the YBC-EDS-SRQ. These results also provide strong evidence that the SRQ measures eating disorder symptoms, and is not merely a measure of general distress.

The results of the current study are quite encouraging, given the multiple advantages of utilizing a self-report version of this effective assessment. The YBC-EDS-SRQ can be completed in a notably shorter amount of time than it takes to administer the YBC-EDS interview; the SRQ takes approximately 20–25 minutes to complete, while the interview typically takes 45–60 minutes to administer to patients. The YBC-EDS-SRQ can also be administered to a number of patients at one time, if necessary, which makes it a very cost-effective assessment option for treatment centers as well as researchers conducting studies.

While completing the YBC-EDS-SRQ, patients are often surprised to learn that they are not alone in experiencing certain thoughts and behaviors related to food, eating and weight. The SRQ can therefore minimize the patient’s sense of feeling “abnormal” relative to other ED patients. In addition, the specific preoccupations and rituals endorsed by each patient can allow the clinician to individualize his or her treatment approach for each patient.

We recognize that there are limitations associated with a self-report assessment like the YBC-EDS-SRQ. Reporting eating disorder symptoms can be embarrassing for some, so it is possible that some patients will under-report their ED symptoms. However, some patients may feel more comfortable completing assessments independently as opposed to describing their problematic symptoms to an interviewer. While they may be apt to deny or minimize

their symptoms during the course of a face-to-face interview, the format of the YBC-EDS-SRQ allows for more privacy while answering questions. This, in turn, may increase the probability that patients completing the YBC-EDS-SRQ can feel more comfortable reporting the frequency and intensity of their ED symptoms.

The YBC-EDS-SRQ can provide clinicians and researchers with a more efficient means of evaluating the symptom severity and impairment associated with the wide range of preoccupations and rituals experienced by patients struggling with eating disorders.

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Table 1

Convergent Validity Between the Yale Brown Cornell-Eating Disorders Scale-Self-Report Questionnaire (YBC-EDS-SRQ) and the Yale Brown Cornell-Eating Disorder Scale (YBC-EDS)

Subscales Correlated	**N**	**R**	***P***
Preoccupations Subtotal Current	112	.714	<.001
Preoccupations Subtotal Worst	112	.601	<.001
Rituals Subtotal Current	112	.657	<.001
Rituals Subtotal Worst	112	.598	<.001
Total Current	112	.756	<.001
Total Worst	112	.638	<.001

Table 2

Test-Retest Reliability for the Yale Brown Cornell-Eating Disorders Scale-Self-Report Questionnaire (YBC-EDS-SRQ)

Subscales Correlated	**N**	**R**	***P***
Preoccupations Subtotal Current	31	.646	<.001
Preoccupations Subtotal Worst	31	.858	<.001
Rituals Subtotal Current	31	.810	<.001
Rituals Subtotal Worst	31	.935	<.001
Total Current	31	.794	<.001
Total Worst	31	.935	<.001

Table 3

Discriminant Validity Between the Yale Brown Cornell-Eating Disorders Scale-Self-Report Questionnaire (YBC-EDS-SRQ) and Beck Depression Inventory (BDI), State Trait Anxiety Inventory-State (STAI-State), State Trait Anxiety Inventory-Trait (STAI-Trait)

YBC-EDS-SRQ	N	BDI	*p**	N	STAI State	*p**	N	STAI Trait	*p**
Preoccupations Subtotal Current	24	.383	.065	22	.124	.581	21	.187	.417
Preoccupations Subtotal Worst	24	.342	.102	22	.050	.825	21	.313	.168
Rituals Subtotal Current	24	.207	.333	22	.284	.200	21	.192	.403
Rituals Subtotal Worst	24	.296	.159	22	.245	.273	21	.351	.119
Total Current	24	.298	.158	22	.218	.329	21	.197	.392
Total Worst	24	.342	.102	22	.174	.440	21	.368	.101

*All *p*'s > .05, non-significant