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## Comparison of Methods for Identifying and Assessing Obese Patients with Binge Eating Disorder in Primary Care Settings

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### Abstract

**Objective**—Given the prevalence and health significance of binge eating disorder (BED) it is important to determine if time-efficient self-reports can adequately assess BED and its features in primary care settings. We compared the Eating Disorder Examination-Questionnaire (EDE-Q) and Questionnaire for Eating and Weight Patterns-Revised (QEWP-R), administered to obese patients with BED in primary care to the Eating Disorder Examination interview (EDE).

**Method**—Sixty-six participants completed questionnaires and were interviewed

**Results**—The EDE was significantly correlated with the EDE-Q (binge eating, four subscales, global score) and QEWP-R (binge eating, distress, body image). The EDE-Q yielded significantly lower estimates of binge eating and significantly higher scores on the EDE subscales. The QEWP-R yielded significantly higher scores on the behavioral indicators and distress about binge eating and body image variables.

**Discussion**—These findings suggest that these two self-report measures have potential utility for identifying BED in obese patients in primary care.

### INTRODUCTION

Binge eating disorder (BED) is characterized by recurrent binge eating without compensatory weight control behaviors. To date, the assessment of binge eating and other eating disorder psychopathology in persons with BED relies on self-reported information obtained either through interview or questionnaire methods [1, 2]. The Eating Disorder Examination (EDE) [3], is a widely used and well-established semi-structured interview for assessing a variety of overeating behaviors (e.g., including binge eating), inappropriate weight compensatory behaviors (e.g., purging methods), and specific behavioral and cognitive features of eating disorder psychopathology [2, 4]. Administering the EDE, however, can be time consuming, expensive, and requires trained clinicians. To address these concerns, researchers created a self-report questionnaire version, the Eating Disorder Examination-Questionnaire (EDE-Q) [5].

Research has compared the EDE-Q to the EDE in clinical [2, 4-11] and community [12, 13] samples. Overall, there has been some variability in the degree of concordance between self-report and interview methods across studies depending on type of patient group. Studies have generally reported that the two methods yield significantly correlated findings but that

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the self-report EDE-Q tends to yield significantly higher scores the EDE interview on the scales that reflect various behavioral and cognitive features of eating disorder (ED) psychopathology [2, 4, 9, 12, 14]. Findings from studies regarding the concordance between methods for assessing behavioral features (binge eating and purging) have been more mixed. Some studies have reported significant correlations and mean differences that did not reach statistical significance, while others have reported less adequate agreement for behaviors, such as binge eating, that are ambiguous or hard to define [6, 9, 14]. Two recent studies found that adding detailed descriptions and examples of binge eating to the self-report EDE-Q seemed to enhance its level of agreement with the EDE interview [7, 15].

Another widely used self-report instrument for eating and weight disorders is the Questionnaire on Eating and Weight Patterns-Revised (QEWP-R)[16]. The QEWP-R, which was developed for the DSM-IV field trials, obtains information about specific ED diagnoses as well as associated information about dieting and weight histories. The few studies performed to date have reported varied levels of agreement between the QEWP-R and other instruments. Poor concordance for detecting binge eating frequency has been reported between the QEWP-R and the EDE interview in adults [7] and no concordance between the adolescent version of the QEWP [17] and the children's version of the EDE [18]. However, studies have reported adequate convergence between the QEWP-R and diagnostic interviews for determining the presence or absence of BED [19, 20], suggesting the QEWP-R can be used as an initial screener for the BED diagnosis.

Collectively, this limited but growing literature indicates the need for continued research comparing different assessment methods, particularly in different patient groups and in different clinical settings, in light of the documented variability to date. Although recent studies have considered BED in specialty clinics [7, 15], little attention has been devoted to the assessment of BED in primary care settings. Mond and colleagues [21] recently reported that the EDE-Q had utility as a screening method for eating disorders in a primary care setting. Research, however, has not yet compared the EDE-Q to the EDE in such setting and the Mond et al. (21) study did not focus on BED (i.e., only 3 participants with BED were identified in that study). BED is common in primary care clinics and is related to increased health service utilization, health problems, and psychosocial impairment [22, 23]. Individuals struggling with BED often are missed by general healthcare providers [22-25] and may differ in important ways from individuals with BED who present to specialty research clinics (e.g., in severity of bingeing, social adjustment, age, education, and ethnicity [26]). Moreover, such "clinic" biases may even differ further by ethnicity [27]. Such potential "clinic" and "ethnicity" biases for BED highlight the need for psychometric research on assessment methods currently in use for identifying and characterizing eating disorder psychopathology. The well-known time and financial constraints typical of busy primary care settings make it particularly important to determine whether self-report methods can adequately assess BED and its features within this under-studied clinical setting. The present study compared two self-report methods (the EDE-Q and the QEWP-R) that are widely used in specialty clinics to the EDE interview for assessing obese patients with binge eating problems in a primary care setting.

## METHODS AND PROCEDURES

### Participants

Participants were a consecutive series of 66 (16 men and 50 women) obese (body mass index (BMI)  $\geq 30$ ) patients with subthreshold BED ( $\geq 1$  binges weekly,  $n= 17$ ) or full BED ( $\geq 2$  binges weekly,  $n= 49$ ) from primary care facilities in a large university-based medical center in an urban setting. Participants with subthreshold BED were included because research has found that they generally do not differ significantly from individuals with full

BED[28, 29]. Overall, participants had a mean age of 44.1 ( $SD=11.3$ ) years and a mean BMI of 38.1 ( $SD = 5.2$ ). Ethnicity was as follows: 47.0% Caucasian, 33.3% African-American, 13.6% Hispanic, 3.0% Asian, 1.5% Native American, and 1.5% multi-ethnic. Educationally, 9.1% had some high school education, 15.2% had a high school degree or GED, 36.4% had some college or Associates degree, and 39.4% had a college degree.

## Procedures

Participants were respondents for a treatment study being performed in primary care for obese persons who binge eat at least once weekly. Study procedures were IRB approved and all participants provided written informed consent. Participants completed a battery of self-report questionnaires, which included the EDE-Q and the QEWP-R, and were then interviewed by experienced doctoral-level research-clinicians who were trained in the administration of all of the study's interviews and measures. BED diagnoses (subthreshold and full DSM-IV-TR research criteria) were determined using the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/P) [30] and the Eating Disorder Examination [3].

## Measures

The *Eating Disorder Examination* (EDE) [3] is a semi-structured investigator-based interview that assesses the specific features of eating disorders. The EDE focuses on the previous 28 days, except for the diagnostic items that are rated for the durations stipulated in the DSM-IV-TR [31]. The EDE assesses the frequency of different forms of overeating, including *objective bulimic episodes* (OBEs; i.e., binge eating defined as unusually large quantities of food with a subjective sense of loss of control) and subjective bulimic episodes (SBEs; i.e., defined as a subjective sense of loss of control but a normal or small amount of food). The EDE also comprises four subscales: Dietary Restraint, Eating Concern, Weight Concern, and Shape Concern, and an overall Global score. The items assessing the features of EDs for the four EDE subscales are rated on a seven point forced-choice format (0-6), with higher scores reflecting greater severity or frequency. The EDE has demonstrated good inter-rater and test-retest reliability in diverse patient groups, including BED [32-34].

*Eating Disorder Examination Questionnaire* (EDE-Q) [5] is the self-report version of the EDE. The EDE-Q focuses on the previous 28 days and assesses the same ED features as does the EDE and generates the same four subscales and overall global score. The present study used the EDE-Q version with instructions; this version includes added written definitions and examples of binge eating which has been found to improve the performance of the self-report questionnaire in two studies with BED performed in specialty clinics [7, 15]. The EDE-Q has received psychometric support, including adequate test-retest reliability [35] and good convergence with the EDE in studies of BED performed in specialty clinics [2, 4].

*Questionnaire for Eating and Weight Patterns-Revised* (QEWP-R) [16] is a self-report instrument used in the DSM-IV field trials [20]. The QEWP-R assesses each criterion of BED, including the DSM-IV-TR [31] behavioral indicators to assist in determining binge eating. Studies have reported adequate convergence between the QEWP-R and diagnostic interviews for determining the presence or absence of BED [7, 19, 20].

## Data Analyses

For normally distributed data, Pearson's  $r$  coefficient was used to test the strength of associations and Student's paired samples  $t$ -test was used to examine mean score differences. For non-normally distributed data, Kendall's tau-b was used to test the strength of associations and Wilcoxon's related samples signed ranks test was used to examine

differences in mean scores. To compare the QEWP-R items to relevant items from the EDE interview, the QEWP-R scoring was changed from a 4- to a 7- point Likert scale to correspond with the EDE and allow for more direct comparisons (i.e., the revised scoring was generated for data analysis but the items appeared in their original format when participants completed the measure). To compare the behavioral indicators of a binge (e.g., “eating more rapidly”) on the QEWP-R and EDE interview, phi coefficient (an effect size measure for contingency table analyses) and kappa coefficient (a measure of agreement for categories that corrects for chance) were calculated.

## RESULTS

Table 1 shows the mean item scores for the EDE-Q and EDE with the correlations and tests of mean differences. While modestly correlated, the EDE yielded significantly more OBEs than the EDE-Q, however, there were no significant mean differences for SBEs. The four subscales were significantly correlated (ranging from 0.53 to 0.57) as were most of the individual items, however, there was more variability among the correlation coefficients for individual items. The scores for all EDE subscales differed significantly from the EDE-Q subscales, with the EDE-Q demonstrating higher scores. Similarly, the EDE and EDE-Q Global scores, while correlated, were significantly different with the EDE-Q again demonstrating higher scores.

Table 2 demonstrates the relationship between the QEWP-R and EDE interview on a number of binge eating-related items, including OBEs, distress related to out of control eating, and self-evaluation based on weight or shape. The EDE and QEWP-R both assess the average number of days per week that OBEs have occurred in the past 6 months. The agreement between these assessments was modestly correlated (0.33) and the mean difference was not calculated due to incompatible scales (i.e., continuous versus categorical). The QEWP-R resulted in significantly higher levels of distress related to out of control eating and self-evaluation based on weight or shape when compared to the EDE. Thus, these findings comparing the QEWP-R to the EDE interview, and the previous findings comparing the EDE-Q to the EDE interview suggest that both self-report measures result in higher scores reflecting distress.

Table 3 provides the analyses to test the agreement between the QEWP-R and EDE interview on the behavioral indicators of binge eating disorder (e.g., eating more rapidly than normal). There was significant agreement: phi coefficients ranged between 0.38 and 0.62 and kappa coefficients ranged between 0.36 and 0.62 for 4 of the 5 behavioral indicators. Effect sizes of approximately .10, .30, and .50 are considered small, medium, and large, respectively [36]. However, the agreement was poor for one item (Feeling disgusted, depressed, or very guilty after an OBE).

## DISCUSSION

This study was the first to examine the performance of two self-report measures, the EDE-Q with instructions and the QEWP-R, relative to the EDE interview for assessing obese patients with BED in primary care settings. Overall, the two self-report measures showed adequate levels of convergence with the EDE interview on many of the behavioral and attitudinal features of eating disorder psychopathology. The EDE-Q was significantly correlated with the EDE on frequency of binge eating, the four subscales, and global score. The QEWP-R was significantly correlated with the EDE on frequency of binge eating, the behavioral indicators and distress about binge eating, and body image variables. The EDE-Q yielded significantly lower estimates of binge eating frequency and significantly higher

scores on the subscales than the EDE. The QEWP-R yielded significantly higher scores on the behavioral indicators and distress about binge eating and body image variables.

The findings regarding the convergence between the EDE-Q and the EDE interview are generally consistent with those reported from various specialty clinics [2, 4, 9, 12, 14]. The levels of agreement across studies, although variable, do suggest the utility of these questionnaires and offer clinicians a low cost and potentially efficient tool. Clinicians should be aware that the EDE-Q may underestimate binge eating frequency and may overestimate levels of associated eating disorder psychopathology. Conversely, although the mean differences observed between the EDE interview and self-report methods on these features tend to be statistically significant across studies, from a clinical perspective their magnitude is not great. For example, in the present study, the mean frequency of binge eating on the EDE-Q was 11.8/month versus 15.9/month determined using the EDE interview. Although it is obviously important to obtain the most accurate clinical data whenever possible regardless of whether for clinical or research purposes, both the self-report and interview findings in this instance would tell a clinician that a substantial problem with binge eating is likely to exist. Similarly, in the present study, the mean score on the weight concern scale was 3.8 on the EDE-Q versus 3.2 on the EDE interview. Although the self-report score is inflated relative to the interview score, both findings would suggest to a clinician that the person is presently experiencing distress and dissatisfaction regarding their weight and that these concerns are substantially influencing their feelings of self-worth on nearly half of the days of every month.

The findings regarding the convergence between the QEWP-R and the EDE interview represent new and novel findings with implications for both clinical assessment and practice as well as for nosology given the largely untested validity of certain aspects of the DSM-IV research criteria for BED. First we note that due to differing scales, we did not test the mean difference in OBE days between the EDE and QEWP. Visual inspection of the means reveals not only a modest correlation but what appears to be good agreement. The EDE resulted in 2.9 OBE days a week (on average over the past 6 months). The mean from the QEWP was 3.1 with a 3 on the QEWP-R indicative of binges on average of two to three days a week for the past 6 months. Therefore it appears that the agreement between the QEWP-R and the EDE, in terms of OBE episodes, is greater than that observed between the EDE and EDE-Q. Perhaps obtaining an estimate of average days per week that an OBE has occurred – as is estimated with the QEWP-R – is easier for participants than estimating the actual number of OBEs over the past month as assessed by the EDE-Q. The agreement between the QEWP-R and EDE interview was medium to large for four of the five BED behavioral indicators. The agreement was small to medium for the fifth item, “feeling disgusted, depressed, or very guilty following a binge.” To our knowledge, this is the first study to directly compare the agreement between the QEWP-R and EDE interview on these behavioral indicators specified by the DSM-IV. We hypothesize that the behavioral indicators with fair to moderate agreement (e.g., eating more rapidly, eating when not hungry) inquired about aspects of eating that were more objective and less emotionally laden than the item “Feeling disgusted with yourself, depressed or feeling very guilty after overeating” which taps a subjective feeling state and may account for the poor agreement. As we noted above in regards to the EDE-Q, the magnitude of such differences between the QEWP-R and the EDE may hold greater significance for researchers and for nosology than for practicing clinicians. For clinicians, we can argue that the level of convergence is sufficiently adequate as a starting point for determining whether an obese patient is also suffering regularly from binge eating and distress regarding the binge eating and weight/shape concerns.



While the findings of this study provide preliminary support for the use of the EDE-Q and QEWP-R for assessing the features of eating disorders in obese patients in primary care, our study has several strengths and limitations that must be considered as context for the findings. Strengths of this study include an ethnically diverse sample and utilization of the EDE interview as the standard criterion by trained doctoral-level research clinicians. A limitation was that all participants met, at a minimum, criteria for subthreshold BED. This sampling precluded us from performing diagnostic efficiency analyses (sensitivity and specificity of the instruments) and resulted in somewhat of a restricted range of scores (i.e., for binge episodes). A second potential research limitation concerns the presentation order of the measures. In the present study, both self-reports were completed prior to the administration of the EDE interview, since giving the interview first would have likely resulted in a greater understanding of terms and perhaps enhanced agreement. Thus, our method was ideal for the study aim of examining the adequacy of the self-reports. However, all participants completed the QEWP-R before completing the EDE-Q; it is possible that this sequence may have primed or influenced participants when they then completed the EDE-Q. Future studies may wish to counterbalance the ordering of instruments when attempting to extend our findings. Lastly, even though our study was performed in primary care, we note that our participants were volunteers who agreed to participate in research studies and it is possible that they may differ from those who do not wish to participate in research.

Our findings suggest these two self-report instruments can provide clinicians with a wealth of information about complex and difficult to assess eating disorder psychopathology in obese persons. This is important because many generalist physicians may not be familiar with or skilled in the assessment of BED [22] and the use of these relatively brief self-report measures may help to identify patients with BED and to characterize the nature of their suffering. In both generalist [25] and specialist [37] settings obese patients with BED are characterized by greater psychological and medical problems than their non-binge-eating obese peers. Such relatively low-cost identification of patients with BED may help primary care physicians provide referrals efficiently to specialist clinicians who can deliver empirically supported treatments which include specific pharmacological [38, 39] and psychological [39] methods. Appropriate identification by physicians also may allow for BED treatments that can be delivered within primary care settings, an important area of future focus.

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**Table 1**  
 Comparison of Eating Disorder Examination and Eating Disorder Examination-Questionnaire.

	EDE		EDE-Q		Correlation	Difference ( <i>t</i> / <i>z</i> )
	Mean	SD	Mean	SD		
Overeating behaviors						
Objective bulimic episodes <sup>a</sup>	15.9	13.3	11.8	9.0	0.34**	-2.00*
Subjective bulimic episodes <sup>a</sup>	9.1	13.5	5.4	7.9	0.21*	-1.78
Restraint	1.7	1.3	2.1	1.4	0.57***	2.60*
Restraint over eating	3.4	2.3	3.4	2.2	0.40***	-0.19
Avoidance of eating	0.3	1.0	0.6	1.2	0.34**	-2.22*
Empty stomach	0.6	1.4	1.0	1.8	0.60***	-2.31*
Food avoidance	2.3	2.6	3.1	2.0	0.28**	-2.03*
Dietary rules	2.0	2.5	2.6	2.2	0.28**	-1.70
Eating concern	1.9	1.3	2.9	1.5	0.53***	5.69***
Preoccupation with food	1.5	2.1	1.8	2.1	0.30**	-1.06
Fear of losing control over eating	2.8	2.5	3.5	2.4	0.25*	-1.88
Social eating	2.3	2.2	3.0	2.0	0.32**	-2.39*
Eating in secret	1.6	1.9	2.0	1.8	0.54***	-1.94
Guilt about eating	1.3	1.9	4.1	1.8	0.13	-6.10***
Weight concern	3.2	1.2	3.8	1.1	0.57***	4.79***
Dissatisfaction with weight	4.3	1.2	5.4	1.1	0.32**	-5.45***
Desire to lose weight	4.5	2.1	5.6	1.0	0.20	-3.96***
Reaction to prescribed weighing	1.9	2.0	2.2	2.0	0.33**	-0.99
Preoccupation with shape or weight	1.7	2.3	2.0	2.1	0.45***	-1.29
Importance of weight	3.8	1.8	4.0	1.8	0.35***	-0.93
Shape concerns	3.2	1.3	4.3	1.2	0.54***	-5.63***
Dissatisfaction with shape	4.3	1.5	5.2	1.4	0.45***	-3.96***

	EDE		EDE-Q		Correlation	Difference (d/z)
	Mean	SD	Mean	SD		
Preoccupation with shape or weight	1.7	2.3	2.0	2.1	0.45***	-0.92
Importance of shape	3.7	1.9	4.0	1.9	0.46***	-1.08
Fear of weight gain	3.1	2.5	4.7	2.1	0.25*	-4.15****
Discomfort seeing body	4.2	1.5	5.0	1.4	0.39***	-4.16****
Avoidance of exposure	4.2	2.0	4.9	1.6	0.46***	-2.97**
Feelings of fatness	5.0	1.7	5.7	0.9	0.18	-3.14**
Flat stomach	1.0	2.1	3.3	2.8	0.29*	-5.15****
Global score	2.5	1.0	3.3	1.1	0.71***	7.94****

Note: EDE = Eating Disorder Examination; EDE-Q = Eating Disorder Examination – Questionnaire; Correlation = Kendall’s tau-b for non-normally distributed data and Pearson’s Correlation for normally distributed data; Mean score = Wilcoxon’s signed rank test for non-normally distributed data and Student’s paired t-tests for normally distributed data.

<sup>a</sup> = We repeated the analyses with the threshold group only, the results generally held but was limited by small sample size.

\*  $p < 0.05$ ,

\*\*  $p < 0.01$ ,

\*\*\*\*  $p < 0.001$ , two tailed.

**Table 2**  
Comparison of Eating Disorder Examination and Questionnaire for Eating and Weight Patterns - Revised.

EDE item	Mean	SD	QEWP-R item	Mean	SD	Correlation	Difference (t/z)
Average OBE days per week in past 6 months.	2.9	1.8	Average OBE days per week in past 6 months.	3.1 <sup>a</sup>	0.9	0.33 <sup>**</sup>	<i>b</i>
In general, over the past six months how distressed or upset have you felt about these episodes?	3.5	1.1	In general, during the past six months, how upset were you by the feeling that you couldn't stop eating or control what or how much you were eating?	3.9	1.1	0.32 <sup>**</sup>	-2.42*
Over the past four weeks has your weight been important in influencing how you feel about (judge, think, evaluate) yourself as a person?	4.7	1.9	During the past six months, how important has your weight or shape been in how you feel about or evaluate yourself as a person?	5.2	1.5	0.37 <sup>***</sup>	-2.10*
Over the past four weeks has your shape been important in influencing how you feel about (judge, think, evaluate) yourself as a person?	4.8	1.8	During the past six months how important has your weight or shape been in how you feel about or evaluate yourself as a person?	5.2	1.5	0.36 <sup>**</sup>	-2.16*
Over the past four weeks have you criticized yourself (or thought negatively about yourself) as a person for being the shape or weight that you are?	4.4	2.1	During the past six months, how important has your weight or shape been in how you feel about or evaluate yourself as a person?	5.2	1.5	0.45 <sup>***</sup>	3.25 <sup>**</sup>

Note: EDE = Eating Disorder Examination; QEWP-R = Questionnaire for Eating and Weight Patterns Revised; Correlation = Kendall's tau-b for non-normally distributed data and Pearson's Correlation Reported for normally distributed data; Mean score = Wilcoxon's signed rank test for non-normally distributed data and Student's paired t-tests for normally distributed data;

<sup>a</sup> = Mean based on QEWP-R categorical scoring, 1 = less than one day a week, 2 = one day a week, 3 = two to three times a week, 4 = four to five times a week, 5 = nearly every day.

<sup>b</sup> = differences not calculated due to incompatible scaling.

\*  $p < 0.05$ ,

\*\*  $p < 0.01$ ,

\*\*\*  $p < 0.001$ , two tailed.

**Table 3**

Agreement between Eating Disorder Examination and Questionnaire for Eating and Weight Patterns - Revised for DSM-IV behavioral indicators for binge eating episodes.

Objective Binge Episode (OBE) behavioral indicators	Phi	Kappa
Eating more rapidly than normal	0.48***	0.48***
Eating until uncomfortably full	0.38**	0.36**
Eating large amount when not physically hungry	0.39**	0.36**
Eating alone because embarrassed	0.62***	0.62***
Feeling disgusted depressed or very guilt after OBE	0.21	0.20

Note.

\*  $p < 0.05$ ,

\*\*  $p < 0.01$ ,

\*\*\*  $p < .001$ , two tailed. Effect sizes of approximately .10, .30, and .50 are considered small, medium, and large, respectively [37].