Psychometric Properties of the Eating Disorder Examination-Questionnaire: Factor Structure and Internal Consistency

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ABSTRACT

Objective: The purpose of this investigation was to evaluate the factor structure and the internal consistency of the Eating Disorder Examination-Questionnaire (EDE-Q).

Method: The EDE-Q was administered to 203 women with bulimic symptoms, who were recruited from five Midwestern communities.

Results: Acceptable levels of internal consistency were observed for the EDE-Q total score (α = .90) and subscales: Restraint (α = .70), Eating Concern (α = .73), Shape Concern (α = .83) and Weight Concern (α = .72). Exploratory factor loadings using Principal Axis Analysis supported the Eating Concern and Restraint subscales. Most of the Shape Concern and Weight Concern items loaded on one factor, with the exception of the items focusing on the importance of weight and shape in self-evaluation and preoccupation with shape and weight.

Conclusion: The results of this study provide support for the internal consistency of the EDE-Q and indicate a need for further examination of the factor structure of this instrument.

Keywords: bulimia nervosa; assessment; eating disorders

Introduction

The Eating Disorder Examination (EDE)1 is an interview-based instrument, which is one of the most widely used measures in the field of eating disorders. The EDE has extensive reliability and validity data supporting its use1 and has been described as the most accurate measure of binge eating.2 A questionnaire version of the EDE (EDE-Q)3 has been used with increasing frequency in clinical and community investigations of eating disorder symptoms.4

Studies that have evaluated the correspondence between the EDE and the EDE-Q have yielded inconsistent findings.5–12 Because of the inconsistencies that have been observed between the questionnaire and interview versions of the EDE, evaluating the psychometric properties of the EDE-Q is imperative. However, few studies have examined its reliability and validity. Luce and Crowther13 observed Cronbach α coefficients of 0.78 and higher for the EDE-Q subscales, as well as good two-week test-retest reliability in a sample of undergraduate women. Similarly, Mond et al.,14 found internal consistency coefficients that ranged from .73 to .93, and more variable temporal consistency over several months in a community sample.

Although the EDE-Q was designed to assess eating disorders, the internal consistency of the EDE-Q has not been reported for samples of symptomatic participants. Previous research has not investigated the factor structure of the EDE-Q, and only

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one study has evaluated the factor structure of the interview version of the EDE. The purpose of this investigation was to examine the internal consistency and the factor structure of the EDE-Q in a multisite sample of women with bulimic symptoms.

Method

Participants

Female participants (N = 203) were recruited from five Midwestern communities. Among the participants, the average age was 25.7 (SD = 8.9; range = 18–57) and average body mass index was 23.0 (SD = 5.3; range = 16.2–53.4). The majority of participants were Caucasian (n = 184; 90.6%); Asian: n = 7; 3.4%; Black: n = 5; 2.5%; Hispanic: n = 3; 1.5%; Other: n = 4; 2.0%), unmarried (n = 151; 74.4%; married: n = 24; 11.8%; other: n = 28; 13.8%) and had at least some college education (n = 131; 64.5%; high school or less: n = 14; 6.9%; college degree: n = 29; 14.3%; graduate education: n = 25; 12.3%; other: n = 4; 2.0%).

Of the 203 participants, 144 (70.9%) met full criteria for bulimia nervosa (BN) as assessed by the Structured Clinical Interview for DSM-IV. The remainder (n = 59; 29.1%) met criteria for subthreshold BN, which was defined as binge eating and compensatory behavior occurring at least once per week for the past three months or compensatory behaviors occurring at least once per week accompanied by subjective binge eating episodes that were not objectively large.

Measures

Eating Disorder Examination-Questionnaire (EDE-Q). The EDE-Q is a 36-item self-report questionnaire that focuses on symptom occurrence for the past 28 days and includes four subscales: Restraint, Eating Concern, Weight Concern, and Shape Concern.

Structured Clinical Interview for DSM-IV (SCID). The SCID is a semi-structured interview for establishing DSM-IV diagnosis and has well-documented reliability and validity. For this investigation, the eating disorders module of the SCID was administered to determine current eating disorder diagnosis.

Procedure

This study was reviewed and approved by the institutional review board at each site. Potential participants were first screened by phone for eligibility. Phone screening included the administration of the eating disorders module of the SCID to determine current eating disorder diagnosis. Eligible participants were invited to the research clinic, where they completed informed consent procedures and the EDE-Q, which was administered on scannable forms as part of a larger battery of self-report questionnaires.

Statistical Analyses

Cronbach α coefficients were calculated for the global score and subscales. Exploratory factor analysis was performed using principal axis analysis (PAA) with nonorthogonal Promax rotation in order to allow for the anticipated correlation between factors. Four factors were extracted to attempt to replicate the EDE subscales.

Results

Cronbach α coefficients for the global score and subscales were acceptable, at 0.70 or greater: Global score: α = .90; Restraint: α = .70; Eating Concern: α = .73; Shape Concern: α = .83; Weight Concern: α = .72.

Factor loadings provided some support for the EDE-Q subscales (see Table 1). Factor 1 included eight items from the Shape Concern and Weight Concern subscales, with content that focused on body dissatisfaction, discomfort with body exposure, and a desire to change body shape and weight. Factor 2 contained seven items, five of which were from the Eating Concern subscale. The two exceptions were the preoccupation with weight and shape item from the Weight Concern and Shape Concern subscales and the importance of shape item from the Restraint subscale. Factor 3 consisted of five items from the Restraint subscale as well as the fear of weight gain item from the Shape Concern subscale. Factor 4 included the importance of weight item from the Weight Concern subscale and the importance of shape item from the Shape Concern subscale. In summary, exploratory factors from the PAA largely supported the Eating Concern and Restraint subscales. Most items from the Weight Concern and Shape Concern subscales combined into one factor, with the exception of the two items pertaining to the impact of weight and shape on self-evaluation, which were included in a separate factor, as well as the preoccupation with weight and shape item, which was included with the Eating Concern subscale factor. Correlations among the factors (shown in Table 2) were generally modest, ranging from 0.077 to 0.498.
Because of the lack of fit with four factors, post hoc analyses were conducted to extract three factors. Factor 1, 11 items, included all of the items from the Shape Concern and Weight Concern subscales except for preoccupation with weight and shape. Factor 2, seven items, included all of the Eating Concern subscale items along with preoccupation with weight and shape (Weight and Shape Concern subscales) and empty stomach from the Restraint subscale. Factor 3, four items, included all items from the Restraint subscale except for empty stomach.

Conclusion

Consistent with previous findings using different samples,13,14 this investigation provides support for the internal consistency of the EDE-Q in a sample of women with bulimic symptoms. The four factors extracted using PAA did not replicate the EDE-Q subscales. Although two of the factors resembled the Eating Concern and the Restraint subscales, the empty stomach item appeared to be more related to concerns about eating than to dietary restraint. In addition, the fear of weight gain item from the Shape Concern subscale loaded with the Restraint subscale items. Most of the items from Shape Concern and Weight Concern loaded on one factor, with the exception of the two items related to the impact of weight and shape on self-evaluation which formed a separate factor, and the preoccupation with weight and shape item, which appeared to be more closely related to the Eating Concern subscale. These findings suggest that the self-evaluation and preoccupation with weight and shape item, which appeared to be more closely related to the Eating Concern subscale.

The results of this study provide preliminary evidence that a three-factor solution may be a better fit for the EDE-Q than a four-factor solution. In particular, the Weight Concern and Shape Concern items appear to combine in one factor rather than in two separate ones. A one or two factor solution to the EDE-Q was not supported by the observed Eigenvalues. In contrast, the only study that has been published on the factor structure of the interview version of the EDE15 did obtain a two-factor solution in a sample of obese patients without binge eating disorder: the items from the Restraint subscale loaded on the first factor, and the items from the Eating Concern subscale loaded on the second factor.
subscales formed one factor, and the items from the other three subscales formed the second factor. The contrast between these two sets of findings may be due to the fact that participants respond to items differently when they are administered in a questionnaire rather than an interview format. Because the EDE is a clinician-based interview, participant misinterpretation of the items can be clarified by the examiner. Another possible explanation is that factor analysis results may vary among different types of eating and weight disorder samples.

Although the use of a relatively large sample of women with bulimic symptoms from five different sites is one strength of this study, the sample size is nonetheless a limitation of this investigation because it was not sufficiently large to conduct confirmatory factor analysis. In addition, participants were primarily Caucasian and well-educated, which may limit the generalizability of these findings. A strength of this investigation was the use of the SCID rather than self-report questionnaire to establish eating disorder diagnosis; however, it is unclear whether the administration of the SCID by phone rather than in person may have enhanced or detracted from the reliability of the instrument. A strength of this investigation was the use of the SCID rather than self-report questionnaire to establish eating disorder diagnosis; however, it is unclear whether the administration of the SCID by phone rather than in person may have enhanced or detracted from the reliability of the instrument, particularly in an eating disorder sample.21

This study is the first to examine the factor structure of the EDE-Q. Future investigations are needed to examine the factor structure of both the EDE and the EDE-Q in clinical as well as community samples. In addition, further reliability and validity data are needed to understand the psychometric properties of the EDE-Q, particularly its factor structure.

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