2-1-2017

# Eating disorder examination-questionnaire (EDE-Q): Norms for a clinical sample of males

Karen Jennings

Kathryn Phillips
*Fairfield University*, kphillips1@fairfield.edu



## Published Citation

Jennings, Karen. & Phillips, Kathryn. E. (2017). Eating disorder examination-questionnaire (EDE-Q): Norms for a clinical sample of males. Archives of Psychiatric Nursing. 31, no. 1 : 73-76.doi: 10.1016/j.apnu.2016.08.004

Elsevier Editorial System(tm) for Archives of Psychiatric Nursing

Manuscript Draft

Manuscript Number: APN-D-16-00099

Title: Eating Disorder Examination-Questionnaire (EDE-Q): Norms for a clinical sample of males

Article Type: Research Paper

Keywords: Eating disorders; males; inpatient; EDE-Q

Corresponding Author: Dr. Kathryn Phillips,

Corresponding Author's Institution: Fairfield University

First Author: Karen Jennings, PhD, RN, PMHNP-BC

Order of Authors: Karen Jennings, PhD, RN, PMHNP-BC; Kathryn Phillips

Abstract: Normative data on the Eating Disorder Examination Questionnaire (EDE-Q) for a clinical sample of males in the United States are presented. Thirty-eight males completed the EDE-Q at time of admission to an inpatient unit for eating disorders. The majority of males were diagnosed with unspecified eating disorder (73.7%, n = 28). Mean age at time of admission was 24.4 years (SD = 12.6), mean body mass index at time of admission was 21.5 kg/m2 (SD = 9.5), and mean length of stay was 13.6 days (SD = 9.3). Mean scores, standard deviations, and percentile ranks for the global and subscale scores are provided. Although the prevalence of eating disorders remains lower among males compared to females, body dissatisfaction and eating disorder psychopathology are fairly common among males.

***Title Page (showing Author Details)**

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**Authors:**

Karen Jennings, PhD, RN, PMHNP-BC
Boston College, William F. Connell School of Nursing
140 Commonwealth Avenue
Chestnut Hill, MA 02467
jenninkf@bc.edu

Kathryn E. Phillips,* PhD, ANP-BC
Assistant Professor
Fairfield University
1073 N. Benson Rd.
Fairfield, CT 06825
Kphillips1@fairfield.edu

* Corresponding Author

*Cover Letter

Joyce J. Fitzpatrick, PhD, MBA, RN, FAAN
Editor
Archives of Psychiatric Nursing

June 2, 2016

Kathryn E. Phillips, PhD, ANP-BC
Assistant Professor
Fairfield University
1073 N. Benson Rd.
Fairfield, CT 06824

Dear Dr. Fitzpatrick,

We are submitting a manuscript that presents normative data for the eating disorders examination questionnaire (EDE-Q) in a clinical sample of male patients. To the authors knowledge this is the first reported data in a male clinical sample. None of the mean scores on the global score or subscale scores of the EDE-Q reached clinical significance, indicating this may not be a valid measure in male clinical populations.

We look forward to any feedback you and the reviewers have. Thank you for your consideration of our manuscript.

Sincerely,

Kathryn E. Phillips, PhD, ANP-BC
Assistant Professor, Fairfield University
Corresponding Author

## Abstract

Normative data on the Eating Disorder Examination Questionnaire (EDE-Q) for a clinical sample of males in the United States are presented. Thirty-eight males completed the EDE-Q at time of admission to an inpatient unit for eating disorders. The majority of males were diagnosed with unspecified eating disorder (73.7%, *n* = 28). Mean age at time of admission was 24.4 years (*SD* = 12.6), mean body mass index at time of admission was 21.5 kg/m$^2$ (*SD* = 9.5), and mean length of stay was 13.6 days (*SD* = 9.3). Mean scores, standard deviations, and percentile ranks for the global and subscale scores are provided. Although the prevalence of eating disorders remains lower among males compared to females, body dissatisfaction and eating disorder psychopathology are fairly common among males.


**Key Words:** Eating disorders, males, inpatient, EDE-Q

## Introduction

In the U.S., muscularity and leanness is the ideal male body shape permeating main culture (Bazzini, Pepper, Swofford, & Cochran, 2015), which may contribute to body dissatisfaction and the drive for muscularity and leanness among males (Franko et al., 2015). The prevalence rates of anorexia nervosa (AN) and bulimia nervosa (BN) are lower in males compared to females (Hudson, Hiripi, Pope, & Kessler, 2007; Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011), but the prevalence rates of binge eating disorder (BED) are similar among the sexes (Hudson et al., 2007; Swanson et al., 2011). Unfortunately, males are less likely to be diagnosed with and seek treatment for an eating disorder compared to females (Merikangas et al., 2011). Furthermore, if diagnosed with an eating disorder, males are more likely to be diagnosed with an unspecified eating disorder versus any other eating disorder (Le Grange, Swanson, Crow, & Merikangas, 2012).

The Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 1994, 2008) is a well-established measure designed to assess eating disorder psychopathology, and is derived from the Eating Disorder Examination (EDE) interview (Fairburn & Cooper, 1993; Fairburn, Cooper, & O'Connor, 2008). Numerous studies have confirmed a high level of agreement between the EDE-Q and EDE in measuring core characteristics of eating disorders in community and clinical samples (Anderson, De Young, & Walker, 2009; Binford, Le Grange, & Jellar, 2005; Grilo, Masheb, & Wilson, 2001; Mond, Hay, Rodgers, Owen, & Beumont, 2004; Wilfley, Schwartz, Spurrell, & Fairburn, 1997). The EDE-Q is used for both research and clinical purposes, and is a relatively brief and cost-efficient assessment of eating disorder psychopathology.

Normative data are needed for appropriate interpretation of EDE-Q scores. Such data

are available for female (Carter, Stewart, & Fairburn, 2001; Luce, Crowther, & Pole, 2008; Mond, Robertson, & Vetere, 2006) and male (Lavender, De Young, & Anderson, 2010; Mond et al., 2014; Reas, Overas, Oyvind, 2012) populations. However, the majority of the studies have examined a community and/or non-clinical samples. To the knowledge of these researchers, despite increased research on the EDE-Q in male populations, normative data on the EDE-Q among a clinical sample of males has not been published. Thus, the purpose of the present study was to provide EDE-Q norms for an inpatient sample of males diagnosed with an eating disorder.

## Methods

### *Participants*

Participants were male patients who had been admitted to an inpatient eating disorders unit in the Northeastern U.S. between January 2014 and December 2015. All patients met criteria for an eating disorder (i.e., anorexia nervosa, bulimia nervosa, unspecified eating disorder) based on the *Diagnostic and Statistical Manual of Mental Disorders 4th and 5th editions* (American Psychiatric Association [APA], 2000; 2013). A clinical interview, conducted by a psychiatrist or psychiatric nurse practitioner, determined the diagnosis of the specific eating disorder. The study had Institutional Review Board approval.

Twenty male patients did not complete the EDE-Q. Thus, the final sample size was 38. There were not statistically significant differences between individuals who did not complete and individuals who completed the EDE-Q for age, $F(1, 56) = 1.252$, $p = .27$, diagnoses, $F(1, 56) = .096$, $p = .76$, body mass index (BMI) at time of admission, $F(1, 56) = .93$, $p = .34$, and length of stay, $F(1, 56) = .08$, $p = .78$.

### *Procedure*

Individuals completed the EDE-Q (© 2008 by Christopher G. Fairburn and Sarah Beglin) within 24 hours of admission to the inpatient unit for eating disorders. Anthropometric measurements (i.e., height, weight) were supervised and taken by nursing staff and occurred on calibrated scales with the patient wearing underwear and/or hospital gown. The anthropometric devices were inspected and calibrated per the treatment facility's protocol.

***Measures***

The EDE-Q 6.0 is a 28–item measure (© 2008 by Christopher G. Fairburn and Sarah Beglin) derived from the Eating Disorder Examination (EDE; Fairburn & Cooper, 1993). The EDE-Q is scored using a 7-point, forced-choice rating scale (0–6) with scores of 4 or higher indicative of clinical range. The subscale and global scores reflect the severity of eating disorder psychopathology. To obtain subscale scores, the ratings for the relevant items are added together and the sum divided by the total number of items forming the subscale. If ratings are only available on some items but more than half, then a score is obtained by dividing the resulting total by the number of rated items. A "global" score is the sum of the four subscale scores divided by the number of subscales (i.e., four).

Internal consistency in the EDE-Q has been shown to be good, with Cronbach's alpha coefficients ranging from .70 to .83 in a clinical sample and from .78 to .93 in a general population sample (Luce & Crowther, 1999; Peterson et al., 2007). Among studies included in a recent systemic review of the psychometric properties of the EDE-Q, internal consistency was acceptable with the following range of alpha coefficients: Restraint (.70–.85), Eating Concern (.73–.86), Shape Concern (.83–.93), and Weight Concern (.72–.89) (Berg, Peterson, Frazier, & Crow, 2012).

***Statistical Analyses***

Data are presented as mean (SD) scores on the EDE-Q global and subscale scores. For the EDE-Q subscale scores, percentile ranks were provided. Analysis of variance (ANOVA) and chi-square analysis were used to compare continuous and categorical descriptive variables, respectively. Independent *t*-tests were used to compare the global and subscale scores between males diagnosed with AN, BN, and unspecified eating disorder, using two-tailed tests with a Bonferroni-corrected *p*-value set at .05 for statistical significance. Internal consistency was calculated using Cronbach's coefficient alpha ($\alpha$). All analyses were conducted using SPSS version 21.0. The statistical significance (alpha) level was set at $p \leq .05$, and all tests were two-tailed.

## Results

### *Demographics and Clinical Characteristics*

Participants had a mean age of 24.4 years (*SD* = 12.6, range = 12–65) and the mean BMI at time of admission was 21.5 kg/m$^2$ (*SD* = 9.5, range = 10.4–60.3). Six males (15.8%) met criteria for AN, 4 males (10.5%) met criteria for BN, and 28 males (73.7%) met criteria for unspecified eating disorder. The average length of stay was 13.6 days (*SD* = 9.3, range = 2–38), with the average change in body weight being 3.2 kg (*SD* = 7.6) and the average change in BMI was 0.85 kg/m$^2$ (*SD* = 0.27).

Table 1 presents the demographic information based on eating disorder diagnoses. Participants were demographically similar across diagnostic groups. No baseline between–group differences were detected for age at time of admission, $F(2, 35) = 2.23$, $p = .122$, or length of stay, $F(2, 35) = .145$, $p = .865$.

Table 1.
Demographics and clinical characteristics among males who are admitted to inpatient treatment for an eating disorder (*N* = 38)

| Characteristic | AN ($n$ = 6) $M$ ($SD$) | BN ($n$ = 4) $M$ ($SD$) | Unspecified ED ($n$ = 28) $M$ ($SD$) | $F$ |
|---|---|---|---|---|
| Age (years) at time of admission | 19.2 (5.6) | 35.5 (19.9) | 23.9 (11.9) | 2.23 |
| Weight (kg) at time of admission | 51.6 (4.9) | 94.5 (45.8) | 63.3 (34.5) | 2.10 |
| BMI (kg/m$^2$) at time of admission | 17.3 (1.8) | 31.1 (14.9) | 21.1 (9.0) | 2.89 |
| BMI (kg/m$^2$) at time of discharge | 17.9 (1.5) | 30.6 (14.1) | 21.8 (9.3) | 2.33 |
| Change in BMI (kg/m$^2$) | 0.6 (0.3) | –0.5 (0.8) | 0.8 (0.8) | 4.35* |
| Percent IBW at time of admission | 84.2 (6.2) | 145.3 (72.4) | 97.6 (28.8) | 4.50* |
| Percent IBW at time of discharge | 87.0 (5.3) | 143.3 (68.3) | 101.4 (29.2) | 3.80* |
| Change in percent IBW | 2.8 (1.7) | –2.0 (4.3) | 3.9 (3.6) | 5.04** |
| Length of stay (days) | 12.0 (7.0) | 12.5 (10.2) | 14.1 (9.9) | .145 |

Note: AN = anorexia nervosa; BN = bulimia nervosa; ED = eating disorder; BMI = body mass index; IBW = ideal body weight; kg = kilogram; m = meter.
* $p < .05$.
** $p < .01$.

As determined by one-way ANOVA, there were statistically significant differences between males based on diagnoses in percent of ideal body weight (IBW) at time of admission, $F(2,35) = 4.50$, $p = .02$, percent of IBW at time of discharge $F(2,35) = 3.80$, $p = .03$, change in BMI, $F(2,35) = 4.35$, $p = .02$, and change in percent of IBW, $F(2,35) = 5.04$, $p = .01$. Post hoc comparisons using Tukey HSD revealed males with BN had statistically significantly higher percent of IBW at time of admission, 95% CI [4.39, 90.97], $p = .03$, lower change in percent of IBW, 95% CI [1.34, 10.38], $p = .01$, and lower change in BMI, 95% CI [0.21, 2.25], $p = .02$, compared to males with unspecified eating disorder. Males with BN had statistically significantly higher percent of IBW at time of admission, 95% CI [8.81, 113.36], $p = .02$, and at time of discharge, 95% CI [4.77, 107.73], $p = .03$, compared to males with AN.

***Eating Disorder Examination–Questionnaire***

Table 2 presents the mean EDE-Q global and subscale scores, standard deviations, and percentile ranks. Utilizing a cut-off of ≥ 4 as a marker of clinical significance, 42.1% of males (n = 16) scored in the clinically significant range on the Restraint subscale, 39.5% (n = 15) scored

in the clinically significant range on the Eating Concern subscale, 55.3% (n = 21) scored in the clinically significant range on the Shape Concern subscale, 47.4% (n = 18) scored in the clinically significant range on the Weight Concern subscale, and 44.7% (n = 17) scored in the clinically significant range on the Global scale. Table 3 presents the mean EDE-Q subscale and global scores by eating disorder diagnoses. There were no difference/significant difference for global and subscale scores.

Table 2.

Means, standard deviations (*SD*), and percentile ranks for EDE-Q global and subscale scores among males who are admitted to inpatient treatment for an eating disorder (*N* = 38)

| | Restraint | Eating concern | Shape concern | Weight concern | Global score |
|---|---|---|---|---|---|
| Mean (*SD*) | 3.10 (2.44) | 2.95 (2.15) | 3.74 (1.95) | 3.52 (1.93) | 3.31 (1.98) |
| Percentile rank | | | | | |
| 5 | – | – | – | 0.19 | 0.19 |
| 10 | – | – | 0.68 | 0.76 | 0.47 |
| 15 | – | 0.17 | 1.13 | 0.97 | 0.75 |
| 20 | 0.16 | 0.40 | 1.35 | 1.16 | 1.06 |
| 25 | 0.35 | 0.55 | 2.28 | 1.60 | 1.53 |
| 30 | 0.60 | 1.30 | 2.59 | 2.40 | 1.76 |
| 35 | 1.20 | 2.04 | 3.00 | 2.86 | 2.35 |
| 40 | 1.84 | 2.32 | 3.53 | 3.20 | 2.70 |
| 45 | 3.00 | 2.60 | 4.02 | 3.60 | 3.11 |
| 50 | 3.60 | 3.00 | 4.31 | 3.70 | 3.54 |
| 55 | 3.76 | 3.09 | 4.50 | 4.00 | 3.96 |
| 60 | 4.00 | 3.88 | 4.65 | 4.48 | 4.43 |
| 65 | 5.08 | 4.07 | 5.13 | 4.80 | 4.55 |
| 70 | 5.60 | 4.52 | 5.17 | 4.86 | 4.73 |
| 75 | 5.80 | 5.00 | 5.50 | 5.05 | 5.23 |
| 80 | 5.84 | 5.28 | 5.65 | 5.64 | 5.37 |
| 85 | 6.00 | 5.83 | 5.79 | 5.83 | 5.66 |
| 90 | 6.00 | 6.00 | 6.00 | 6.00 | 5.80 |
| 95 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 |
| 99 | – | – | – | – | – |

Table 3.

Mean EDE-Q global and subscale scores among males who are admitted to inpatient treatment for an eating disorder by diagnoses (*N* = 38)

| | AN ($n$ = 6) | BN ($n$ = 4) | Unspecified ED ($n$ = 28) | $F$ |
|---|---|---|---|---|
| Restraint subscale | 2.92 | 4.45 | 2.94 | .674 |
| Eating concern subscale | 2.70 | 3.30 | 2.94 | .089 |
| Shape concern subscale | 3.75 | 4.38 | 3.64 | .239 |
| Weight concern subscale | 3.00 | 4.25 | 3.52 | .492 |
| Global | 3.02 | 4.09 | 3.27 | .691 |

Note: AN = anorexia nervosa; BN = bulimia nervosa; ED = eating disorder.
* $p < .05$.
** $p < .01$.

In this study, Cronbach's alpha was .96 for the global score, .92 for the restraint subscale, .89 for the eating concern subscale, .92 for the shape concern subscale, and .86 for the weight concern subscale.

**Discussion**

The EDE-Q is a well-established assessment instrument of eating disorder psychopathology, and is used for both research and clinical purposes. To date, normative data exclusively for a clinical sample of males has not been published. Therefore, the primary purpose of the current study was to establish norms for the EDE-Q among an inpatient sample of males diagnosed with an eating disorder.

Males in the present study scored higher on the global and subscales of the EDE-Q compared to prior studies of community samples of males and females (Barode-Cone & Boyd, 2007; Carter et al., 2001; Hilbert, De Zwaan, & Braehler, 2012; Lavender et al., 2010; Mond et al., 2014; Mond et al., 2006; Mond et al., 2004; Reas et al., 2012; Rose, Vaewsorn, Rosselli-Navarr, Wilson, & Striegel-Weissman, 2013; White, Haycraft, Goodwin, & Meyer, 2014). In other words, this sample of male participants reported greater severity of eating disorder psychopathology compared to community samples in previously published studies. This finding

indicates that the EDE-Q discriminates in assessing the severity of eating disorder psychopathology between clinical and community populations for not only females but also males.

The comparison of scores on the EDE-Q between males in the present study and clinical samples of females in previous research is inconsistent. Compared to 60 women with AN (Wolk, Loeb, & Walsh, 2005) and 21 adolescent females with BN (Binford et al., 2005), males in the present study reported a lower severity of eating disorder psychopathology. However, compared to two samples of adolescent females with AN (Binford et al., 2005; Passi, Bryson, & Lock, 2003), the current sample of males scored higher on all EDE-Q subscales. Males are less likely to be diagnosed with and seek treatment for an eating disorder compared to females (Merikangas et al., 2011). Thus, it is possible that males who are admitted to an inpatient treatment facility for eating disorders have a greater severity of eating disorder psychopathology compared to adolescent females with AN but not compared to adolescents with BN and women with AN.

Although all males were diagnosed with an eating disorder and admitted for inpatient treatment, only 39.5–55.3% of the sample reported clinically significant scores on the subscales and/or global EDE-Q scores. Additionally, the majority of males in the current study (n = 28; 73.7%) were diagnosed with unspecified eating disorder, which is consistent with previous research (Le Grange, Swanson, Crow, & Merikangas, 2012). Since the EDE-Q was developed using female populations, this measure may not capture the unique male desire for both leanness and muscle mass (Jones, Bain, & King, 2008). For example, Darcy and colleagues (2012) found that males and females had similar clinical presentations for eating disorder psychopathology, but males often do not endorse features consistent with AN (e.g. desire for a flat stomach, desire for an empty stomach, fear of weight gain). Males also tended to have lower EDE scores, from

which the EDE-Q is derived (Darcy et al., 2012). To accurately assess eating disorder psychopathology in males, a supplementary measure to better capture the uniqueness of the male body ideal needs to be taken into consideration. For example, the Eating Disorder Assessment for Men assesses eating disorder behaviors and attitudes using 4 factors: binge eating, muscle dysmorphia, body dissatisfaction, and disordered eating behaviors (Stanford and Lemberg, 2012). Once eating disorder psychopathology in males is more adequately assessed, then more appropriate diagnoses and treatment options are possible.

In this study, there were no differences in EDE-Q subscale and global scores between the eating disorder diagnostic categories. This finding is inconsistent with previously published research which found statistically significant differences in subscales scores between diagnostic categories of a clinical population of males and females (Brewin, Baggott, Dugard, & Arcelus, 2014). Compared to the current study, Brewin and colleagues (2014) had a much larger sample size (N = 726), which may have enabled the researchers to statistically capture differences in EDE-Q scores between eating disorder diagnostic categories.

Although the current study provides new information on the norms for the EDE-Q among an inpatient sample of males with eating disorders, a few limitations should be noted when interpreting the results. The present sample was small and consisted of male patients admitted to an acute care setting exclusively for eating disorders. Future research will need to determine the validity of the EDE-Q compared to the EDE in clinical samples of males, as well as non-clinical and community population samples of males.

As far as the authors are aware, this study provides the first normative data on the EDE-Q in a clinical sample of male patients. Findings are consistent with prior research on community samples, indicating males score lower on the EDE-Q compared to females.

However, two samples of adolescent females with AN (Binford et al., 2005; Passi et al., 2003) scored lower on the EDE-Q subscales compared to the current sample of males. Future research that examine differences in severity of eating disorder psychopathology between the sexes, will need to take into consideration eating disorder diagnostic categories as well as age. It is also important to note that the mean subscale and global EDE-Q scores did not reach clinical significance in this sample, indicating that the EDE-Q may not be an adequate measure of eating disorder psychopathology in male clinical populations.

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