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Does Sex Matter in the Clinical Presentation of Eating Disorders in Youth?

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A B S T R A C T

Purpose: Eating disorders (EDs) impact both males and females, but little is known about sex differences in ED psychopathology and overall clinical presentation. This study compared demographic and clinical characteristics of child and adolescent males and females who presented for ED treatment.
Methods: Participants included 619 youth (59 males and 560 females) ages 6–18 years who presented for treatment between 1999 and 2011.
Results: Males presented for ED treatment at a significantly younger age ($p < .001$), earlier age of onset ($p = .004$), and were more likely to be nonwhite ($p = .023$). Females showed more severe ED pathology across the Eating Disorder Examination subscales (weight concern: $p < .001$; eating concern: $p < .001$; restraint: $p = .001$; and shape concern: $p = .019$) and global score ($p < .001$). Males were more likely to present with an ED other than anorexia nervosa or bulimia nervosa ($p = .002$). Females presented with significantly higher rates of mood disorders ($p = .027$) and had a lower average percent of expected body weight ($p = .020$). Males and females did not differ in duration of illness, prior hospitalization or treatment, binging and purging episodes, anxiety disorders, behavioral disorders, or self-esteem. All analyses were controlled for age.
Conclusions: Results indicate that further exploration into why the sexes present differently may be warranted. Developing ED psychopathology assessments that better capture nuances particular to males and reevaluating criteria to better categorize male ED diagnoses may allow for more targeted treatment.

IMPLICATIONS AND CONTRIBUTION

This study suggests that female youth with eating disorders are more likely to present for treatment at an older age with an accompanying mood disorder, whereas male youth with eating disorders are more likely to present with an atypical diagnosis. These results can help inform sex-specific treatment targets.

Eating disorders (EDs) are serious psychiatric illnesses that impact both youth and adults. EDs are more common in females with sex ratio estimates ranging from 3:1 to 18:1 [1]. Studies suggest that the clinical presentation of individuals with EDs also may differ by sex [1]. For example, young males report less severe ED symptom pathology than females [2,3], specifically lower weight and shape concerns [2], and they engage in significantly more overactivity than females [3,4]. Males' perceived "ideal body" also appears to shift across development (i.e., younger males desire a larger body and older males strive for a leaner body), whereas females consistently endorse a desire to be thinner [5].

Youth with EDs appear to present with high rates of comorbidities [4,6] without any sex differences in rates of anxiety or depression [4,6,7]. However, general population studies typically

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find that young females have higher rates of depression and anxiety, whereas males show higher instances of behavioral disorders [8]. Studies of adult populations also demonstrate high rates of comorbid diagnoses among males and females with EDs [9,10] but suggest that females with EDs have higher rates of both depression and anxiety [10,11]. Unfortunately, prior youth sex comparisons have been limited to a single ED diagnosis [2,7], a narrow age range [3,4,6,12], or a small subsample of young males [6]. Taken together, it is clear that large-scale comparison of youth across ED diagnoses is needed to recognize any likely sex differences in ED pathology and ultimately inform diagnosis and treatment.

The present study aims to examine differences between male and female youth presenting for ED treatment at a tertiary specialist ED program. Males and females were compared on demographics, ED clinical characteristics (including DSM-5 ED diagnosis), and comorbid symptomatology. We hypothesized that sexes would not differ significantly in terms of demographics, as found in previous studies [2,4,7], males would be less likely than females to present with bulimia nervosa (BN) [13,14], and females would report greater ED psychopathology [2]. Furthermore, we hypothesized that females and males would show similar rates of depression and anxiety as shown in a previous comparison of adolescent ED comorbidities [6], but females would exhibit lower self-esteem scores and rates of behavioral disorders than males, in line with findings of youth in the general population [8,15,16].

Methods

Participants and procedure

Participants in this study included youth who presented to the outpatient clinic at The University of Chicago Eating Disorders Program between 1999 and 2011 and met the DSM-5 [17] criteria for an ED. Although youth were initially diagnosed with an ED based on DSM-IV criteria, participants' diagnoses were recategorized to reflect DSM-5 criteria (i.e., elimination of amenorrhea criterion, relaxation of percent of expect body weight (%EBW) from 85% to 87%, and updated frequency criteria for binge and purge episodes) [17] in order for results to be more clinically relevant for practitioners working with the ED patients. Trained assessors with a master's or doctoral degree administered structured clinical interviews. The sample included 619 youth (59 males, 560 females) ages 6–18 years. The institutional review board at The University of Chicago approved this research study, and informed assent and consent was obtained from all youth and parent participants, respectively.

Measures

In addition to collecting demographic information (e.g., age, weight, height, sex, %EBW, race, and previous hospitalization), baseline assessment for all participants included:

Eating Disorder Examination. The Eating Disorder Examination (EDE) is a semistructured diagnostic interview that assesses the frequency and severity of ED attitudes, behaviors, and cognitions and is used to generate an ED diagnosis [18]. Participants reported on episodes of objective binge eating, subjective binge eating, vomiting, and other compensatory behaviors (i.e., laxative use, diuretic use, and driven exercise) over the past 3 months. The EDE produces four subscale scores (Restraint, Eating Concern, Weight Concern, and Shape Concern) and a composite global score that averages the four subscales and indicates overall ED psychopathology. Higher scores signify greater severity of symptoms. The EDE has good reliability and validity [18,19] and has been found to be appropriate for use with youth [20,21], although it may be slightly less reliable in adolescent males than females [2].

The Mini International Neuropsychiatric Interview for Children and Adolescents. The Mini International Neuropsychiatric Interview for Children and Adolescents is a semistructured clinical interview used to assess current comorbid DSM-IV-TR psychiatric disorders [22,23]. Psychiatric comorbidities were categorized into mood disorders, anxiety disorders, and behavioral disorders. Please refer to Table 2, footnote "g", for the full list of psychiatric diagnoses included in each diagnostic group.

Rosenberg Self-Esteem Scale. The Rosenberg Self-Esteem Scale (RSE) is a 10-item self-report measure of global self-esteem [24]. Items are rated from "Strongly Disagree" (0) to "Strongly Agree" (3), which are summed for total scores ranging from 0 to 30, with higher scores indicating higher self-esteem. This measure has good reliability and validity in children and adolescents [15]. The Cronbach's alpha test of reliability was .916. Removal of any of the questions would have resulted in a lower alpha.

Statistical analysis

Data were analyzed using IBM SPSS 22 Statistics (IBM Corp., Armonk, NY). The following variables were compared by sex using t and chi-square tests: age, race/ethnicity, time from ED onset to treatment (i.e., duration of illness), age of onset, %EBW, and prior service use (outpatient or inpatient treatment). ED diagnoses, binge and purge episodes, comorbid diagnoses, ED pathology, and self-esteem comparisons used multiple regression tests for continuous-dependent variables and logistic regression tests for categorical-dependent variables and were all controlled for age. A two-tailed significance level of .05 was used.

Missing data were observed for the following variables: duration of illness, age of onset, EDE scores, and RSE scores. Missing data for both duration of illness and age of onset ($n = 131$, 21.1%) were not associated with sex (p values $> .06$). Missing data for RSE ($n = 87$, 14.0%) were not associated with sex ($p > .10$). Missing data for the EDE scores ($n = 60$, 9.7%) were associated with sex with a significantly greater number of males missing (20.3% vs. 8.5%, $p = .004$).

Results

Demographics

Demographic differences by sex are presented in Table 1. Females (who presented to the ED clinic at the initial assessment) were significantly older than males ($p < .001$). Duration of illness and prior service use did not differ by sex, but males showed a significantly earlier age of onset ($p = .004$). Males were more likely to be of a racial minority (i.e., nonwhite) than females ($p = .007$); further comparisons by race were not possible due to small sample sizes for each nonwhite race. Detailed demographic data are presented in Table 1. When demographic data were compared using regressions with a control for age, significant