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The impact of DSM-5 on eating disorder diagnoses

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Abstract

Objective—Eating disorder diagnostic criteria were revised from the fourth to the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV and -5, respectively). This study examines the impact of these revisions on rates of eating disorder diagnoses in treatment-seeking youth.

Method—Participants were 651 youth, ages 7–18 years, presenting to an outpatient eating disorders program who met criteria for a DSM-IV eating disorder diagnosis on intake. Patients completed well-validated semi-structured interviews to assess eating disorder psychopathology and psychiatric comorbidity.

Results—Participants were predominantly female (n = 588; 90.3%) with an average age of 15.28 years (SD = 2.21), mean percent of median Body Mass Index (mBMI) of 101.91 (SD = 31.73), and average duration of illness of 16.74 months (SD = 17.63). Cases of DSM-IV Eating Disorder Not Otherwise Specified (EDNOS), now most consistent with DSM-5 Other Specified Feeding or Eating Disorder, decreased from 47.6% to 39.0%, Anorexia Nervosa increased from 29.6% to 33.5%, and Bulimia Nervosa increased from 22.7% to 24.7%.

Discussion—Consistent with previous studies, and in keeping with the aims of the DSM-5 for eating disorders, the revised diagnostic criteria reduced cases of DSM-IV EDNOS and increased cases of specified eating disorders.

Keywords

eating disorder; loss of control; binge eating; purging disorder; classification; child; adolescent

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Introduction

Lifetime prevalence estimates of adolescent eating disorders range from 0.5–2.0% for anorexia nervosa (AN), 0.9–3.0% for bulimia nervosa (BN), and 4.8% for other eating disorders (EDs)[1], based on Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria. However, the DSM-IV ED classification system has been problematic, with up to three-quarters of ED cases falling into the heterogeneous Eating Disorder Not Otherwise Specified (EDNOS) category[2]. The 5th edition of the DSM[3] updated the ED diagnostic criteria to better capture the range of ED psychopathology observed in clinical practice. For AN, amenorrhea was eliminated as a diagnostic criterion, and the low weight criterion was revised; for BN, the frequency of binge eating and compensatory behaviors was reduced to once per week; and binge eating disorder (BED) was introduced as a distinct diagnosis. Clinically significant EDs not meeting full criteria for AN, BN, or BED are now classified under Other Specified Feeding or Eating Disorders, including atypical AN (in which all criteria for AN are met except significantly low weight), BN/BED of low frequency/limited duration, and purging disorder. Avoidant/Restrictive Food Intake Disorder was also included to classify patients with significant weight loss or nutritional deficiency in the absence of body image disturbance. These changes reflect a move to broaden diagnostic categories and reduce the number of "not otherwise classified" EDs.

Several studies have compared ED prevalence rates using DSM-IV and DSM-5 criteria. Community-based studies report 3–5% increases[4,5] (and in one study, a 60% increase[6]) in AN diagnoses, paralleled by 15–30% reductions in EDNOS diagnoses.[4,5,6]. In a treatment-seeking sample of children and adolescents, EDNOS cases decreased from 62.3% to 32.6%, with increases in AN (30% to 40%) and BN (7.3% to 11.8%).[7] These data suggest that DSM-5 criteria capture more individuals within specified diagnoses, reducing rates of other or unspecified diagnoses.

The present study sought to replicate previous research examining changes in ED diagnoses from DSM-IV to DSM-5 criteria among treatment-seeking adolescents. We extend previous studies by exploring demographic and clinical differences for participants whose diagnosis is "revised," compared to those whose DSM-IV diagnosis remained unchanged. Our goal was to establish whether changes to diagnostic criteria have significantly altered the clinical presentation of EDs.

Methods

Participants and procedures

Participants were 651 consecutive clinical intakes (aged 7–18 years) who presented to The University of Chicago outpatient ED program between 1998 to 2015 for diagnostic evaluation and met criteria for a DSM-IV ED at intake. All patients were first-time treatment seekers in our program, although many had received previous outpatient (63.3%) or hospital-based treatment elsewhere (15.8%). Several patients presented to our program twice, in which case only their first presentation was included in this analysis. Of 732 participants approached, 651 (88.9%) agreed to participate in this observational study. Participants

provided informed assent/consent; study protocols were approved by the Institutional Review Board of The University of Chicago.

Measures

Height and weight were measured by trained assessors using a stadiometer and calibrated digital scale. BMI-for-age and sex percentiles were calculated based on the Centers for Disease Control and Prevention.[9] Median BMI (mBMI) was based on the 50th BMI-for-age percentile.

Individuals who conducted diagnostic assessments were eating disorder specialists (licensed psychologists, psychology trainees under the supervision of a licensed psychologist, or licensed clinical social workers), all of whom underwent intensive training in the EDE and were trained to reliability with an expert EDE interviewer (at least 80% agreement in scoring). All diagnoses were reviewed by an attending psychologist and discussed with the team. For this study, based on the results of the EDE, DSM-IV and DSM-5 diagnoses were assigned by the authors, using an algorithm according to their respective diagnostic criteria (Table 2).

The Eating Disorder Examination (EDE) is a semi-structured interview assessing ED psychopathology.[6] Participants reported on ED cognitions, attitudes, and behaviors in the last 3–6 months. EDE data were used to approximate DSM-5 ED diagnoses (described in Table 2). For DSM-5, we defined low weight for AN as less than 87% of mBMI[8,9] and removed the amenorrhea criterion. Participants were reclassified as ARFID if they were underweight but denied body image disturbance on the EDE, though this is an approximation since the EDE does not assess ARFID symptoms. EDs not meeting criteria for AN, BN, BED, or ARFID were classified as OSFED, and included atypical AN, BN/BED of low frequency or limited duration, and purging disorder; all others were classified as UFED.

The Mini International Neuropsychiatric Interview was used to assess DSM-IV psychiatric disorders, including mood, anxiety, and disruptive behavior disorders[10].

Statistical Analysis

Analyses were conducted in SPSS 23.0. Chi-square tests and ANOVA were used to evaluate group differences in demographic and anthropometric variables. ANCOVA with post-hoc Tukey tests were used to assess group differences on psychosocial variables. To control for Type I error given multiple tests of group differences, alpha was set to 0.01.

Results

Participants were predominantly female (n=588; 90.3%) with an average age of 15.28 years (SD = 2.21), mean %mBMI of 101.91 (SD = 31.73), and average duration of illness of 16.74 months (SD = 17.63) (Table 1). Despite significant changes to diagnostic criteria from DSM-IV to DSM-5, 59.8% of participants had no change in ED diagnosis (Table 2). Overall, diagnoses of EDNOS, most consistent with OSFED in DSM-5, decreased from 47.6% to 39.0%; as EDNOS no longer exists under DSM-5, we considered patients who were

classified as EDNOS under DSM-IV who received a diagnosis of OSFED under DSM-5 as not having a change in diagnosis. Cases of AN increased from 29.6% to 33.5%, and cases of BN from 22.7% to 24.7%.

Participants with a "new" DSM-5 ED diagnosis (compared to those with no change) did not differ on age ($t_{649} = 0.492$, $p = .62$), duration of illness ($t_{48.73} = -1.657$, $p = .10$), %mBMI ($t_{636} = -0.666$, $p = .51$), or EDE global score ($t_{583} = -0.395$, $p = .69$). Change in ED diagnosis was not associated with gender ($\chi^2[1,651] = 3.599$, $p = .058$), race/ethnicity ($\chi^2[2,646] = 0.755$, $p = .69$), co-occurring mood disorder ($\chi^2[1,610] = 1.331$, $p = .25$), co-occurring anxiety disorder ($\chi^2[1,610] = 2.938$, $p = .087$), or co-occurring disruptive behavior disorder ($\chi^2[1,610] = 6.350$, $p = .012$).

Discussion

Consistent with previous research,[4,5] applying DSM-5 criteria led to a decrease in EDNOS/OSFED diagnoses from 47.6% to 39.0%. Overall, 40.2% of adolescents had a change in diagnosis. Rates of AN and BN increased by less than 5% in this clinical sample of adolescents. Patients whose diagnosis changed did not differ on sociodemographic/illness-related characteristics, consistent with a previous study of adults.[8] Patients in this study who had a change in diagnosis did not differ in global EDE score, consistent with previous findings in adolescents[11] and adults.[8] Furthermore, patients with a change in ED diagnosis were not more likely to have a co-occurring psychiatric disorder than patients whose ED diagnosis was unchanged.

Taken together, our findings support other studies demonstrating a decrease in EDNOS cases with the use of DSM-5 criteria, now most consistent with OSFED in DSM-5. Despite this decrease, one-third of patients in this study met DSM-5 criteria for OSFED, with 19.4% meeting criteria for atypical AN. This finding calls into question the diagnostic threshold of "significantly low weight," especially for adolescents. While we used <87% of mBMI to define "low body weight," there is no clear consensus for how to define low body weight for adolescents in the context of an individual's growth trajectory and weight history, which impacts the diagnostic utility of both AN and atypical AN; in our sample, 46 participants (7.2%) were between 85–87% of mBMI. Adult studies have used BMI cutoffs ranging from 17kg/m^2 to 18.5kg/m^2 as thresholds for low weight.[10,11] A recent study also included patients with BMI >18.5kg/m^2 who exhibited persistent restriction of energy intake relative to their daily needs, and found them to be similar to the rest of the AN group in all other respects.[12] We also examined the proportion of patients with AN who fell below the 5th and 10th BMI percentile for age, and found that 64.1% of patients were below the 5th percentile, and 90.3% below the 10th percentile for BMI-for-age. Based on these results, more patients would be categorized as atypical AN when employing BMI percentile thresholds to determine "low weight" for AN. Furthermore, a recent Society for Adolescent Health and Medicine position paper on EDs discourages the use of strict percentile cutoffs for low weight for adolescents, instead encouraging the use of %mBMI, which we have used in our analysis.[13] While DSM-5 allows clinicians to use their judgment with respect to meeting an undefined "low weight criterion" in the diagnosis of AN, this presents a challenge because clinicians may be defining AN differently, impeding our understanding of differences

between AN and atypical AN. For consistency in studying these populations, researchers will likely need to determine a weight cut-off to distinguish between AN and Atypical AN, and there is likely to be much debate about how to operationalize this criterion.

Strengths of this study include the large sample size, and the use of well-validated interviews to assess DSM-IV eating-related and general psychopathology. Limitations include the retrospective design, particularly in our ability to detect cases of ARFID and atypical AN, given that DSM-IV-informed instruments were used for diagnostic purposes, as DSM-5 instruments were not yet available. Indeed, in some cases, DSM-5 diagnostic data were missing, and we could only conservatively assume that patients did not meet diagnostic criteria for another specified diagnosis. This resulted in 8.0% of patients being classified as OSFED Other.

This is the largest study of the impact of DSM-5 on a clinical sample of male and female youth. Fewer than half of patients had a change in diagnosis, and similar to previous studies, there was an overall reduction in EDNOS/UFED diagnoses. However, more research is needed to determine the impact of DSM-5 on ED diagnoses and treatment outcome in adolescents.

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Table 1

Demographics

	N	% or Mean (SD)	Range
Gender			
Female	588	90.3	
Male	63	9.7	
Race			
White	565	87.5	
Black/African American	42	6.5	
Asian	22	3.4	
American Indian/Alaskan Native	5	0.8	
Mixed Race	12	1.9	
Ethnicity (Latino)	90	14.0	
Age (years)	651	15.28 (2.21)	6.25–18.92
Duration of illness (months)	446	16.74 (17.63)	1–120
% mBMI	638	101.91 (31.73)	60.36–283.53
BMI percentile	640	37.54 (33.59)	0.01–99.80
BMI	646	20.21 (6.32)	11.40–57.00
EDE Global Score	585	2.54 (1.56)	0–5.73
Co-occurring Psychiatric Disorders			
Mood Disorder	219	33.6	
Anxiety Disorder	137	21	
Disruptive Behavior Disorder	36	5.9	

Table 2

DSM-IV and DSM-5 diagnoses

	DSM-IV		DSM-5		DSM-IV Diagnostic Criteria	DSM-5 Diagnostic Criteria
Diagnosis	**n**	**%**	**n**	**%**		
Anorexia Nervosa	193	29.6	218	33.5	<85% mBMI, amenorrhea in postmenarcheal females, fear of weight gain, disturbance in way body weight/shape is experienced/denial of seriousness of current low body weight	<87% mBMI, fear of weight gain, disturbance in way body weight/ shape is experienced/denial of seriousness of current low body weight
Bulimia Nervosa	148	22.7	161	24.7	Recurrent binge eating and compensatory behaviors, twice a week for >3 months	Recurrent binge eating and compensatory behaviors once a week for >3 months
Binge Eating Disorder			8	1.2		Recurrent binge eating once a week for >3 months
Avoidant/Restrictive Food Intake Disorder			11	1.7		Eating/feeding disturbance resulting in failure to meet nutritional needs without body image disturbance
Eating Disorder Not Otherwise Specified	310	47.6			Disorders not meeting criteria for specified diagnoses	
Other Specified Eating/Feeding Disorder			253	39		
Atypical Anorexia Nervosa			126	19.4		All criteria for AN are met, mBMI is >87%
BN (low frequency or limited duration)			42	6.5		Binge eating/compensatory behaviors <once/week or <3 months' duration
BED (low frequency or limited duration)			4	0.6		Binge eating <once/week or <3 months' duration
Purging Disorder			29	4.5		Purging in the absence of binge eating
OSFED Other			52	8		Disorders not meeting criteria for other diagnoses