Published in final edited form as:

Int J Eat Disord. 2011 November ; 44(7): 625–629. doi:10.1002/eat.20860.

Does the Broad Categories for the Diagnosis of Eating Disorders (BCD-ED) Scheme Reduce the Frequency of Eating Disorder not Otherwise Specified?

Robyn Sysko, Ph.D.^{1,2} and B. Timothy Walsh, M.D.^{1,2}

¹ Division of Clinical Therapeutics, New York State Psychiatric Institute, New York, NY

² Department of Psychiatry, College of Physicians and Surgeons of Columbia University, New York, NY

Abstract

Objective—This study evaluated whether the Broad Categories for the Diagnosis of Eating Disorders (BCD-ED) proposal (Walsh & Sysko, 2009) reduces the number of individuals who receive a DSM-IV eating disorder not otherwise specified (EDNOS) diagnosis.

Method—Individuals calling a tertiary care facility completed a brief telephone interview and were classified into a DSM-IV eating disorder category (anorexia nervosa, bulimia nervosa, EDNOS). Subsequently, the proposed DSM-5 criteria for eating disorders and the BCD-ED scheme were also applied.

Results—A total of 247 individuals with telephone interview data met criteria for an eating disorder, including 97 (39.3%) with an EDNOS. Of patients with an EDNOS diagnosis, 97.6% were re-classified using the BCD-ED scheme.

Discussion—The BCD-ED scheme has the potential to virtually eliminate the use of DSM-IV EDNOS; however, additional data are needed to document its validity and clinical utility.

A major problem with the current Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; 1) categories for eating disorders is that a large fraction of treatment-seeking patients are grouped into a residual category of eating disorder not otherwise specified (EDNOS). Different options have been suggested to reduce the number of individuals classified with an EDNOS in the next version of the DSM, including: (1) changes in wording to the existing diagnostic criteria (e.g., 2); (2) modest changes such as deleting the amenorrhea criterion for anorexia nervosa (AN; 3) and changing the required frequency of binge eating for bulimia nervosa (BN) and binge eating disorder (BED) from twice weekly to once weekly episodes (4); (3) major changes such as including BED as a formal diagnosis (5) or eliminating the requirement of “large amount” during episodes of binge eating (6); and (4) adopting a revised conceptual scheme such as the Broad Categories for the Diagnosis of Eating Disorders (BCD-ED) proposal (7).

Corresponding author and address reprint requests to: Dr. Robyn Sysko, Columbia Center for Eating Disorders, New York State Psychiatric Institute, 1051 Riverside Drive, Unit 98, New York, NY, 10032.

Financial Disclosures/Conflict of Interest

The project described was supported in part by Award Number K23DK088532 from the National Institute of Diabetes and Digestive and Kidney Diseases (to RS). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Diabetes and Digestive and Kidney Diseases or the National Institutes of Health. Dr. Sysko reports holding stock in Pfizer Pharmaceuticals, and in the last year, Dr. Walsh reported receiving research support from AstraZeneca.

The BCD-ED proposal was designed to improve the existing diagnostic classification scheme by significantly reducing the number of individuals who would receive an EDNOS diagnosis, while preserving a three-category system resembling that of DSM-IV (7). In the BCD-ED scheme, there are three broadly defined disorders: AN and Behaviorally Similar Disorders (AN-BSD), BN and Behaviorally Similar Disorders (BN-BSD), and BED and Behaviorally Similar Disorders (BED-BSD); like DSM-IV and DSM-5, BCD-ED also includes a residual EDNOS category. Each broad category includes a “prototypical” case and sub-groups, which could be used to describe less typical clinical presentations (7). However, there are a number of concerns about adopting this system. For example, while existing studies suggest that the BCD-ED scheme would reduce cases of EDNOS (7), the broad categories have not yet been applied prospectively to assess patients with eating disorders to evaluate the effect on the prevalence of EDNOS. Further, it is possible that a more inclusive system for diagnosis like BCD-ED could result in overdiagnosis; that is, an eating disorder diagnosis might be given when it is not warranted.

The purpose of the current study was two-fold. First, to evaluate individuals with an eating disorder to determine the proportion with a DSM-IV EDNOS diagnosis that would be reclassified into a broad category using BCD-ED or the proposed DSM-5 criteria (www.dsm5.org). Second, to evaluate whether the BCD-ED scheme would “overdiagnose” eating disorders among overweight individuals, we assessed adolescents enrolled in a bariatric surgery program using the BCD-ED criteria. We hypothesized that, as intended by the BCD-ED scheme, the application of the broad categories would reduce the prevalence of DSM-IV EDNOS, and that the proportion of overweight adolescents diagnosed with an eating disorder would not increase substantially under the BCD-ED scheme.

METHOD

Telephone Interview

All individuals calling the Columbia Center for Eating Disorders (CCED), a tertiary care facility, expressing interest in receiving clinical treatment for an eating disorder or participating in a research study (control participants) completed a brief interview over the telephone. The screening assessed six domains over the prior month: (1) self-reported height and weight; (2) restriction of food intake or other behaviors that might result in a low body weight or a significant decrease in weight (e.g., excessive exercise); (3) out of control eating; (4) purging behaviors (vomiting, laxatives, diuretics); (5) concern about shape and weight; and (6) distress and functional impairment related to eating problem. The questions regarding out of control eating and concern about shape and weight were modeled on the assessment of objective and subjective bulimic episodes and the importance of shape and weight items, respectively, from the Eating Disorder Examination (EDE-12; 8). To simplify the telephone interview, callers were asked to estimate the number of times per week objective or subjective bulimic episodes occurred during the month prior to the screening. Patients were required to endorse distress about their eating symptoms, and not just their current weight, to be considered distressed. Functional impairment was operationalized in a similar fashion to DSM-IV Major Depressive Episode (e.g., the eating problem making it hard for the individual to do their work, take care of things at home, or get along with other people). All telephone interviews were conducted by bachelor’s level research assistants.

Evaluation of Bariatric Surgery Candidates

In-person evaluations are completed at the CCED for severely obese adolescents enrolled in the Center for Adolescent Bariatric Surgery program at the Morgan Stanley Children’s Hospital at the Columbia University Medical Center prior to weight-loss surgery. During

this evaluation, adolescents were asked questions assessing the aforementioned six domains related to eating and weight by a doctoral level clinician.

Assignment of BCD-ED Categories

Diagnoses were first made using the DSM-IV and the proposed DSM-5 criteria for eating disorders (www.dsmv.org). Subsequently, on the basis of information from the telephone interview or in-person evaluation, individuals were classified as either: not having an eating disorder according to the definition described by Walsh and Sysko (2009; 7), or according to the BCD-ED scheme. Individuals reporting symptoms consistent with one of the broad categories were further classified into a subgroup of the broad category. If an individual did not describe symptoms consistent with a specific subgroup (e.g., AN without Evidence of Distortions Related to Body Shape and Weight), the Not Otherwise Classified subgroup within the broad category was assigned (e.g., Disorders Behaviorally Similar to Anorexia Nervosa Not Otherwise Classified).

The BCD-ED scheme (7) intentionally does not include guidelines for certain behaviors, including “inappropriately low body weight for the individual taking into account their age and height” for AN-BSD or “recurrent out of control eating” or the “recurrent use of inappropriate purging behaviors.” Currently, there is no empirical basis for choosing a specific body weight threshold or minimum number of episodes of binge eating per week, and the BCD-ED proposal allows for clinical judgment when assigning a diagnosis. However, operational definitions are necessary to evaluate the utility of this scheme. For the current study, we considered an inappropriately low body weight as either less than 85% of Ideal by the 1959 Metropolitan Life Insurance Tables (9) or evidence of significant weight loss below a normal weight for the individual (e.g., using information about weight history provided as part of the telephone interview), and recurrent out of control eating or purging as occurring a minimum of twice monthly. Initial classifications were made by the first author (R.S.) and difficult cases were resolved via discussion and additional review by the second author (B.T.W.).

Statistical Analysis

Data from the telephone interview and in-person evaluations were summarized, and are presented below. Means and standard deviations were calculated for continuous demographic measures. T-tests were used to evaluate differences between patients classified with typical variants of the BCD-ED categories (e.g., Typical AN) and other subgroups (e.g., AN, without Evidence of Distortions Related to Body Shape and Weight), and one-way analysis of variance compared patients categorized as AN-BSD, BN-BSD, BED-BSD, and EDNOS. The fraction of patients endorsing dichotomous demographic variables was calculated and chi-square tests used to assess the statistical significance of differences on these variables both within (e.g., typical vs. other subgroups) and between the BCD-ED categories. An alpha of $p \leq .05$ was set for all analyses described below.

This study was approved by the New York State Psychiatric Institute/Columbia University Institutional Review Board.

RESULTS

Telephone Interview

Two hundred sixty-seven telephone interviews were completed between April and December, 2009. Of these, 247 (92.5%) met criteria for an eating disorder, including 84 (34.0%) with DSM-IV AN, 66 (26.7%) with DSM-IV BN, and 97 (39.3%) with a DSM-IV EDNOS. The 20 individuals without an eating disorder consisted of overweight or obese

individuals calling for weight loss treatment or individuals calling in response to advertisements designed to recruit control subjects for research studies. Of the 97 individuals classified with a DSM-IV EDNOS diagnosis, a total of 58 patients (59.8%) were assigned a diagnosis of AN, BN, or BED using the proposed DSM-5 criteria. The remaining 39 individuals (40.2%) continued to receive a DSM-5 EDNOS diagnosis due to factors such as a denial of concern related to shape or weight, weights not less than minimally normal for age and height, frequencies of binge eating and/or purging less than once weekly, or the consumption of amounts of food that were not consistent with the definition of binge eating proposed for DSM-5.

When the BCD-ED scheme was applied to the 97 patients with a DSM-IV EDNOS diagnosis, 18 were re-classified as having AN-BSD, 19 were re-classified as having BN-BSD, 54 were re-classified as BED-BSD, and 6 were still classified as having an EDNOS. Using the diagnostic criteria for subgroups described by Walsh and Sysko (2009; 7) for individuals with a DSM-IV EDNOS diagnosis within the AN-BSD category, 10 individuals were classified with AN, without Evidence of Distortions Related to Body Shape and Weight, five as AN-BSD with Significant Weight Loss at or above a Minimally Acceptable Weight, and three as Typical AN. For the BN-BSD category, six individuals with DSM-IV EDNOS were classified under Disorders Behaviorally Similar to BN Not Otherwise Classified for denying concern about shape or weight, five as Purging Disorder, five as BN, Low Frequency, and three as Typical BN. Within the BED-BSD category, all of whom had DSM-IV EDNOS, 48 were given a Typical BED classification, 4 a Subjective Binge Eating classification, and 2 BED, Low Frequency. The individuals with an EDNOS diagnosis using the BCD-ED classification reported recurrent purging without a loss of control over eating. Thus, 93.8% of patients with an EDNOS according to DSM-IV were reclassified into one of the three broad categories of the BCD-ED scheme. Data related to the demographic characteristics of all 247 patients classified using the BCD-ED proposal are provided in Table 1.

Overall, using the BCD-ED scheme, 87 patients were classified with typical AN, and 15 were classified into another AN-BSD subgroup. Individuals with Typical AN reported significantly lower body mass indices than the other subgroups (mean of 15.9 vs. 17.1 kg/m², $t(99) = -2.1$, $p = 0.04$). In comparison to the other subgroups, a greater proportion of patients in the Typical AN group reported weights less than 85% of Ideal (96.5% vs. 60.0%, $\chi^2(1) = 21.2$, $p < 0.001$) and concern about body shape and weight (96.5% vs. 33.3%, $\chi^2(1) = 46.0$, $p < 0.001$). Of the 85 individuals classified in the BN-BSD category, 69 were assigned Typical BN. Individuals with Typical BN reported significantly more objective bulimic episodes (mean of 5.1 vs. 2.4 episodes per week, $t(83) = 4.9$, $p < 0.001$) and vomiting (mean of 5.0 vs. 3.2 episodes per week, $t(19) = 2.1$, $p = 0.05$) than the other subgroups, and a larger percentage endorsed concern about body shape and weight (100.0% vs. 50.0%, $\chi^2(1) = 38.1$, $p < 0.001$). In the BED-BSD group, individuals with Typical BED reported significantly more objective bulimic episodes (mean of 4.52 vs. 0.13 episodes per week, $t(51.6) = 12.8$, $p < 0.001$) and significantly fewer subjective bulimic episodes (mean of 0.72 vs. 1.8 episodes per week, $t(52) = -2.1$, $p = 0.04$) than the other subgroups.

Evaluation of Bariatric Surgery Candidates

Of 31 adolescents completing in-person evaluations in the CCED prior to bariatric surgery, four had a DSM-IV EDNOS diagnosis (subthreshold BED). Two of the adolescents received a DSM-5 diagnosis of BED, while the other two remained in the EDNOS category. Using the BCD-ED scheme, one of the four individuals was not given an eating disorder diagnosis because he denied distress or impairment related to his out of control eating episodes, which consisted of one objective and one subjective binge eating episode per week. The other three

adolescents in the BED-BSD category were diagnosed with (1) Typical BED; (2) BED, Low Frequency, and; (3) Subjective Binge Eating.

DISCUSSION

As hypothesized, among callers to a specialty eating disorders clinic, the BCD-ED scheme nearly eradicated the use of DSM-IV EDNOS. When the proposed DSM-5 criteria for eating disorders were applied to the sample, a total of 40.2% of the 97 callers with a DSM-IV EDNOS remained in this category, while 6.2% of these callers had an EDNOS diagnosis using the BCD-ED scheme. Further, the use of this scheme did not increase the number of patients with an eating disorder diagnosis among severely obese adolescent bariatric surgery candidates completing a psychiatric evaluation prior to surgery.

Although this study suggests that the BCD-ED scheme has the potential to be clinically useful, there are also concerns about adopting this classification system, including limited data evaluating the scheme. In addition, the possibility exists that when this scheme is applied to samples from the community, or individuals who seek treatment outside of tertiary care centers, the number of people with an EDNOS diagnosis might increase. Broader categories for AN, BN, and BED would be more heterogeneous than the current DSM-IV categories, which could affect the interpretation of existing data on course, outcomes, or treatment response. Finally, it may be easier to utilize this scheme in specialty programs, where providers are familiar with the assessment of eating disorder symptoms, than more general practice settings or primary care clinics.

There are also limitations to the current study. Our telephone assessment was designed to be a brief interview with only a few questions to capture symptoms, and thus not all of the DSM-IV criteria were consistently assessed. In particular, not all callers were asked questions regarding: fear of weight gain or becoming fat, menstrual status, the five features characterizing binge eating episodes in BED, and symptoms for all three months prior to the interview. The proportion of individuals with DSM-IV EDNOS included in our sample is smaller than in other treatment-seeking samples (e.g., 10–13), which may limit the generalizability of the findings.

Adopting a revised conceptual scheme such as the BCD-ED proposal would be a major change to the existing DSM-IV classification system. Although there are potential disadvantages to this scheme, it offers the potential to virtually eliminate the use of EDNOS while maintaining the broad distinctions between the three widely recognized eating disorder categories. Additional assessments of its utility and validity would be helpful.

Acknowledgments

We would like to acknowledge the assistance of Michael Devlin, M.D., members of the Center for Adolescent Bariatric Surgery team, and the Columbia Center for Eating Disorders research assistants, including: Laura Berner, AB, Staci Berkowitz, BA, Lindsay Bodell, AB, Jennifer Bush, AB, Benny Chen, AB, Leora David, ScB, Marina Gershkovich, BA, Rachel Ojserkis, BA, and Rebecca Shingleton, AB.

References

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4. Washington, DC: American Psychiatric Association; 1994. Revised
2. Becker AE, Eddy KT, Perloe A. Clarifying criteria for cognitive signs and symptoms for eating disorders in DSM-V. *Int J Eat Disord.* 2009; 42:611–619. [PubMed: 19650082]
3. Attia E, Roberto CA. Should amenorrhea be a diagnostic criterion for anorexia nervosa? *Int J Eat Disord.* 2009; 42:581–589. [PubMed: 19621464]

4. Wilson GT, Sysko R. Frequency of binge eating episodes in bulimia nervosa and binge eating disorder: Diagnostic considerations. *Int J Eat Disord.* 2009; 42:603–610. [PubMed: 19610014]
5. Wonderlich SA, Gordon KH, Mitchell JE, Crosby RD, Engel SG. The validity and clinical utility of binge eating disorder. *Int J Eat Disord.* 2009; 42:687–705. [PubMed: 19621466]
6. Wolfe BE, Baker CW, Smith AT, Kelly-Weeder S. Validity and utility of the current definition of binge eating. *Int J Eat Disord.* 2009; 42:674–686. [PubMed: 19610126]
7. Walsh BT, Sysko R. Broad categories for the diagnosis of eating disorders (BCD-ED): an alternative system for classification. *Int J Eat Disord.* 2009; 42:754–764. [PubMed: 19650083]
8. Fairburn, CG.; Cooper, PJ. The Eating Disorder Examination. In: Fairburn, CG.; Wilson, GT., editors. *Binge eating: Nature, assessment, and treatment.* New York: Guilford Press; 1993. p. 317-60.
9. Metropolitan Life Insurance Company. New weight standards for men and women. *Stat Bull Metrop Life Insur Co.* 1959; 40:1–11.
10. Eddy KT, Celio Doyle A, Hoste RR, Herzog DB, le Grange D. Eating disorder not otherwise specified in adolescents. *J Am Acad Child Adolesc Psychiatry.* 2008; 47:156–164. [PubMed: 18176335]
11. Fairburn CG, Cooper Z, Bohn K, O'Connor ME, Doll HA, Palmer RL. The severity and status of eating disorder NOS: implications for DSM-V. *Behav Res Ther.* 2007; 45:1705–15. [PubMed: 17374360]
12. Mitchell JE, Crosby RD, Wonderlich SA, Hill L, le Grange D, Powers P, Eddy K. Latent profile analysis of a cohort of patients with eating disorders not otherwise specified. *Int J Eat Disord.* 2007; 40:S95–8. [PubMed: 17886266]
13. Thaw JM, Williamson DA, Martin CK. Impact of altering DSM-IV criteria for anorexia and bulimia nervosa on the base rates of eating disorder diagnoses. *Eat Weight Disord.* 2001; 6:121–129. [PubMed: 11589414]

Table 1
Demographic Characteristics among the 247 Individuals with an Eating Disorder Classified using the Broad Categories for the Diagnosis of Eating Disorders Proposal

	AN-BSO n=102, 41.3%	BN-BSO n=85, 34.4%	BED-BSO n=54, 21.9%	EDNOS n=6, 2.4%	Statistics*
Age (in years)	27.5 ± 8.1	27.2 ± 8.5	35.7 ± 13.6	25.2 ± 2.5	F(3, 245)=8.2, <i>p</i> < 0.001 BED-BSO > AN-BSO BED-BSO > BN-BSO
Gender (% female)	95.1%	95.3%	88.8%	83.3%	$\chi^2(3)=4.8$, <i>p</i> = 0.19
Mean Body Mass Index (kg/m ²)	16.1 ± 2.0	23.9 ± 5.0	34.2 ± 9.5	22.0 ± 2.8	F(3, 245)=131.9, <i>p</i> < 0.001 BN-BSO > AN-BSO BED-BSO > AN-BSO BED-BSO > BN-BSO BED-BSO > EDNOS
Body Weight < 85% of Ideal (%)	91.2%	1.2%	0.0%	0.0%	$\chi^2(3)=210.8$, <i>p</i> < 0.001 AN-BSO > BN-BSO AN-BSO > BED-BSO AN-BSO > EDNOS
Objective bulimic episodes (average number per week, % reporting symptom)	2.3 ± 2.8, 50.5%	4.6 ± 2.3, 95.3%	3.8 ± 2.4, 90.7%	0.0 ± 0.0, 0%	F(3, 245)=17.3, <i>p</i> < 0.001 BN-BSO > AN-BSO BN-BSO > EDNOS BED-BSO > AN-BSO BED-BSO > EDNOS
Subjective bulimic episodes (average number per week, % reporting symptom)	1.8 ± 2.7, 38.6%	2.5 ± 2.8, 55.3%	0.84 ± 1.2, 38.9%	0.0 ± 0.0, 0%	F(3, 245)=6.2, <i>p</i> < 0.001 BN-BSO > BED-BSO
Vomiting episodes (average number per week, % reporting symptom)	2.6 ± 3.0, 58.4%	4.7 ± 2.7, 88.2%	0.01 ± 0.05, 3.7%	5.2 ± 2.8, 83.3%	F(3, 245)=40.7, <i>p</i> < 0.001 AN-BSO > BED-BSO BN-BSO > AN-BSO BN-BSO > BED-BSO EDNOS > BED-BSO
Laxative episodes (average number per week, % reporting symptom)	0.71 ± 1.9, 18.6%	0.99 ± 2.0, 29.4%	0.05 ± 0.03, 1.9%	2.9 ± 3.4, 50.0%	F(3, 245)=6.7, <i>p</i> < 0.001 BN-BSO > BED-BSO EDNOS > AN-BSO EDNOS > BED-BSO
Diuretic episodes (average number per week, % reporting symptom)	0.04 ± 0.20, 3.9%	0.08 ± 0.28, 8.2%	0.00 ± 0.0, 0%	0.50 ± 0.55, 50.0%	F(3, 245)=6.4, <i>p</i> < 0.001 EDNOS > AN-BSO EDNOS > BN-BSO EDNOS > BED-BSO
Concern about Body Shape or Weight (%)	87.3%	90.6%	96.2%	66.7%	$\chi^2(3)=5.6$, <i>p</i> = 0.13
Distress about Eating Behavior (%)	94.0%	100.0%	96.3%	83.3%	$\chi^2(3)=7.5$, <i>p</i> = 0.06
Impairment related to eating behavior (%)	92.9%	92.9%	76.9%	83.3%	$\chi^2(3)=9.8$, <i>p</i> = 0.02 AN-BSO > BED-BSO BN-BSO > BED-BSO

Note. AN=anorexia nervosa, BN=bulimia nervosa, BED=binge eating disorder, BSD=Behaviorally Similar Disorders, EDNOS=eating disorder not otherwise specified,

* for continuous variables, values are means $\pm$ standard deviations and the statistics are one-way analysis of variances for all four groups, with significant post-hoc tests ($p < 0.05$); for dichotomous variables, values are average percents and the chi-square omnibus and follow-up tests ($p < 0.05$) are reported.