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Eating disorder not otherwise specified presentation in the US population

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Abstract

Objective—To examine prevalence and clinical correlates of eating disorder not otherwise specified (EDNOS) in the U.S. population.

Method—Two cross-sectional surveys of adults and adolescents used the WHO CIDI to assess DSM-IV criteria for anorexia nervosa (AN), bulimia nervosa (BN), and EDNOS.

Results—Lifetime prevalence of EDNOS was 4.78% in adolescents and 4.64% in adults. The majority of adolescents and adults with an eating disorder presented with EDNOS. Three-quarters of participants with EDNOS met criteria for comorbid disorders, while one-quarter endorsed suicidality. Severity correlates were equally prevalent in EDNOS and AN whereas comparisons between EDNOS and BN varied by specific correlate and sample. Adolescents with subthreshold AN (SAN) endorsed more anxiety than AN ($p < 0.05$), and adolescents and adults with SAN endorsed more suicidal plans than AN (p 's < 0.05).

Discussion—Findings increase our understanding of the clinical relevance of EDNOS. Eating disorder diagnostic nomenclature requires modification to capture the full spectrum.

Keywords

Anorexia Nervosa; Bulimia Nervosa; EDNOS; EDNOS-subtypes; classification; DSM

Eating disorders represent a significant public health concern because they are associated with serious medical and psychiatric morbidity, role impairment, and often go under-treated.^{1,2} The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)³ currently includes three eating disorders: (i) anorexia nervosa

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(AN), restricting and binge/purge subtypes; (ii) bulimia nervosa (BN), purge and non-purge subtypes; and (iii) eating disorder not otherwise specified (EDNOS). The DSM is first and foremost a clinical tool and designed to guide clinical practice. However, the prevalence and heterogeneity of EDNOS in clinical settings are problematic and may limit the usefulness of the DSM-IV eating disorder criteria. Preparation for the fifth edition of the DSM has led to the re-evaluation of the significance of the current classification system with specific consideration being afforded to the category of EDNOS.⁴

The “not otherwise specified” (NOS) category in DSM-IV typically refers to a group of individuals that falls outside the main diagnostic categories. Consequently, EDNOS has received less empirical attention,⁵ which has led to limited knowledge about the prevalence and clinical characteristics of EDNOS. Several recent studies of clinical samples of adolescents⁶ and adults,^{7–13} as well as a meta-analysis of the relationship between EDNOS and the official eating disorder diagnoses,¹⁴ indicate that the majority (well over 50% across studies) of adolescents and adults presenting for eating disorder treatment are diagnosed with EDNOS. On the other hand, a recent study of college students showed that proposed DSM-5 diagnostic criteria significantly reduce reliability on EDNOS.¹⁵ Nonetheless, the heterogeneity of an EDNOS diagnosis is problematic and limits the information conveyed with this classification. Relatively precise sets of diagnostic criteria are mapped out for AN and BN, and DSM-IV defines the preliminary research criteria for one type of EDNOS (binge eating disorder [BED]), yet no other criteria for EDNOS are specified.¹⁶ Thus, EDNOS is a combination of individuals who narrowly fall short of meeting full criteria for AN and BN, those with BED, as well as a variety of other poorly defined presentations.

Taken together, and as we have argued before,⁶ the diagnosis of EDNOS is unwieldy for at least three reasons: first, the majority of patients presenting for eating disorder treatment are assigned a diagnosis that was intended to be a residual category, second, little specific information about eating disorder pathology is conveyed in this diagnosis, and third, this diagnosis fails to convey much information about appropriate treatment strategies. Systematic research that improves the description of EDNOS or investigates efficacious treatments for individuals with EDNOS remains sparse. Several have been proposed, however, there is limited agreement regarding potential resolutions to this diagnostic conundrum. For instance, some have argued for the relaxation of the strict diagnostic criteria for AN or BN, which would allow for the reclassification of individuals with EDNOS based upon specific clinical features such as weight loss or binge eating and/or purging.^{12,16–18} The remainder of EDNOS could then be subdivided into specific types or potentially distinct disorders (e.g., individuals who purge without binge eating).¹⁹ Another, and perhaps more radical proposal, is to highlight the similarities rather than differences between individuals with eating disorders, also referred to as a ‘transdiagnostic’ solution to the problems of nosology¹⁶ based on the lack of differences between subthreshold AN and BN and their full-syndrome counterparts.¹² However, the latter approach may overlook meaningful differences between EDNOS subgroups.¹⁹ A recent study of EDNOS in adolescents further complicates this depiction by highlighting similarities between AN and BN on the one hand that in turn differ from the EDNOS subgroups on the other.⁶

The present study was designed to add to the growing body of literature on EDNOS in order to provide information that may inform the validity of the classification system of eating disorders. Prior studies have focused on clinical samples with little information available about the presentation of EDNOS in the population at-large. Therefore, the first goal of our study was to describe the relative distribution of AN, BN, and EDNOS in two large population-based surveys, the National Comorbidity Survey Replication Adolescent Supplement (NCS-A) sample of adolescents, and the National Comorbidity Survey Replication (NCS-R) sample of adults. NCS-A was a population-based sample of adolescents aged 13–18 years and NCS-R was a separate survey for adults over 18 years of age. The prevalence rates of eating disorders and subtypes thereof in adults¹ and adolescents² were presented in earlier publications. Our second goal was to examine comparisons between AN, BN and EDNOS on a variety of clinically meaningful indicators and to describe the range of EDNOS presentations on these indicators. These comparisons allowed us to specifically examine the prevalence, clinical severity, and heterogeneity of EDNOS in these large population-based surveys of adolescents and adults. Third, data from this examination may suggest revisions to the DSM, which could have significant implications for clinical research and practice, as well as for public policy.

METHOD

Samples

The data for these analyses were drawn from the National Comorbidity Survey Replication Adolescent Supplement (NCS-A)²⁰ as well as the National Comorbidity Survey Replication (NCS-R).²¹ Demographic information of the adolescent and adult samples is presented in Table 1.

The NCS-A was a nationally representative face-to-face survey of 10,123 adolescents living in the continental United States. The survey included a national representative household sample (n=879) as well as a school sample (n=9,244); the overall response rate was 82.9%. One parent or parent surrogate of each participating adolescent was asked to complete a self-administered questionnaire (SAQ) that contained questions about the adolescent's mental health and services; the SAQ had a conditional response rate of 83.3%.

The NCS-R was a nationally representative survey of 9,282 English-speaking participants age 18 and older; the response rate was 70.9%. A two-part survey was used, with Part I including the core diagnostic assessment. Part II examined additional disorders and disorder correlates among 5,692 participants (all participants who met lifetime criteria for a Part I plus a probability sample drawn from other participants); a 50% random draw from Part II participants was asked to provide data on eating disorders (n=2,980). Analyses on NCS-R for this paper are based upon this subsample of 2,980 participants.

The present study utilizes the data reported by Hudson et al.¹ and Swanson et al.² and expands upon it in significant ways with the specific goal to shed light on EDNOS.

Assessment

DSM-IV diagnoses were established using the World Health Organization Composite International Diagnostic Interview (CIDI version 3.0)²¹ for the NCS-R sample, and a slightly modified version for age-appropriateness for the NCS-A sample. Trained lay interviewers administered this fully structured interview to the participants. For adolescents, parent report from the SAQ was utilized to assess attention deficit/hyperactivity disorder. For conduct disorder and oppositional defiant disorder, the adolescent was considered to have the disorder if either informant (adolescent or parent/surrogate) reported the presence of the disorder. For the purposes of these analyses, all diagnoses are lifetime. A more complete description of the diagnostic measures has been reported elsewhere.²⁰

In the CIDI, participants were further asked about lifetime suicidal ideation, plans, and attempts. Due to the sensitive nature of the questions, participants who were able to read were not asked those questions directly but rather read the questions and responded to them independently. Questions regarding suicide plans and suicide attempts were asked only if suicide ideation was endorsed.

Eating Disorder Subtype Definitions

Unlike in clinical settings, where one can assume the vast majority of referrals are “clinically significant”, and thus if not AN or BN are most likely EDNOS, in population-based samples the start off point is first to identify symptom configurations believed to be clinically significant and then find individuals that map onto these configurations. This is further complicated by the skip rule design of the CIDI, which, for example, only captures compensatory behaviors in the presence of binge eating. As such, only a subset of commonly identified EDNOS presentations could be identified in these samples.

To start, AN, BN, and BED were identified in accordance with the diagnostic algorithms previously developed and reported.^{1,2} These algorithms tend to act as a DSM-IV criteria checklist; of exception, the CIDI does not directly assess loss of control associated with binge eating but addresses this through related cognitions. Additionally, diagnostic algorithms were created for subthreshold anorexia nervosa (SAN) and subthreshold binge eating disorder (SBED). The definition of SAN included: (a) lowest body weight less than 90% of the participant’s ideal body weight; (b) intense fear of weight gain at the time of the lowest weight; and (c) no history of another threshold-level eating disorder. SBED was defined as (a) binge eating at least twice a week for several months; (b) perceived loss of control; and (c) no history of another threshold-level eating disorder or SAN. For the purposes of this study, EDNOS can be viewed as the combination of individuals meeting criteria for BED, SAN, or SBED. Of note, it is conceivable that SBED included mostly subthreshold BN cases. However, for consistency with our prior work,^{1,2} this subtype of EDNOS is called SBED.

Statistical Analysis

All analyses were completed using the SUDAAN software system version 10 (RTI, Research Triangle Park, NC). The data were weighted to adjust for differential probabilities of selection of respondents, differential non-response, and residual differences between the

sample and the United States population on the cross-classification of socio-demographic variables. Data in the NCS-R were further weighted to adjust for the differential probability of the Part II sampling. Taylor series linearization method implemented in SUDAAN was used to adjust for the effects of weighting and clustering of the NCS-A data on variance estimates and significance tests. Statistical significance was consistently evaluated using 0.05-level, two-sided test.

RESULTS

Prevalence of EDNOS

Lifetime relative prevalence estimates of eating disorder subtypes by sex for adolescents and adults are presented in Table 2. EDNOS is the most common eating disorder in both adolescents and adults, representing 80.97% and 75.38% of those with an eating disorder, respectively. Lifetime prevalence of EDNOS was 4.78% (SE: 0.39) in adolescents, and 4.64% (SE: 0.37) in adults. Within EDNOS, the most prevalent subtype ascertained was SBED, followed by BED and then SAN in adolescents; in adults BED was most prevalent followed by SAN and SBED at equal percentages. The relative prevalence of EDNOS did not differ between the adult and adolescent samples ($p=0.27$).

Clinical Severity of EDNOS

In comparison to adolescents with AN or BN, adolescents with EDNOS tended to endorse comorbid psychopathology and suicidal behavior as frequently on a number of measures. When compared to adolescents with AN, adolescents with EDNOS reported more frequent mood disorders [31.4% (SE=4.3) vs. 10.9% (SE=4.6)], anxiety disorders [58.7% (SE=3.9) vs. 26.6% (SE=9.9)], and suicide plans [6.7% (SE=1.0) vs. 2.3% (SE=1.4)] (all p 's<0.05). No differences were seen for substance use, behavioral disorders, any comorbid disorders, or suicide ideation or attempts. Adolescents with BN did report more frequent anxiety disorders [73.1% (SE=5.9) vs. 58.7% (SE=3.9)], suicide ideation [52.9% (SE=6.3) vs. 25.1% (SE=4.2)] and suicide attempts [36.4% (SE=6.8) vs. 9.2 (SE=2.8)] than adolescents with EDNOS (all p 's<0.05). Adolescents with BN and EDNOS did not differ on mood, substance use, behavioral disorders, any comorbid disorder, or on suicide plans.

For adults, participants with EDNOS reported more suicide plans than participants with AN [16.8% (SE=3.1) vs. 2.1 (SE=2.0), $p<0.05$], but did not differ on other comorbid psychopathology or suicidality measures. Participants with BN reported more comorbidity than participants with EDNOS, in particular mood disorder [61.6% (SE=7.8) vs. 40.1% (SE=5.1)], anxiety disorder [82.8% (SE=6.5) vs. 60.9% (SE=6.2)], behavioral disorders [44.9% (SE=8.0) vs. 20.3% (SE=5.0)], and any comorbid disorder [94.0% (SE=3.9) vs. 74.3 (5.8)] (all p 's<0.05). These groups did not differ on substance use disorders or on suicidality measures. A summary of the comparisons between AN and EDNOS and BN and EDNOS are provided in column 1 of Table 3.

Heterogeneity of EDNOS—The correlate and severity comparisons of EDNOS Subtypes are provided in Table 3. Examining EDNOS within subtypes, BED, SAN, and SBED appeared to have different associations with demographic, comorbidity, and suicidality

measures. In particular, there was significant variation in these subtypes in the adolescent sample for sex, race, mood and anxiety disorder comorbidity, and suicide ideation (all p 's<0.05). The BED and SAN groups showed higher rates of these disorders compared to SBED. In the adult sample, many of these same trends were apparent, although only sex and suicide ideation were significant (all p 's<0.05).

Anorexia Nervosa Spectrum

AN and SAN reflect the only hierarchical comparison between a full-threshold diagnosis and an EDNOS subtype, and as such investigations were made to whether these differed on the severity measures (Table not shown). In adolescents, SAN and AN did not differ in terms of mood, substance use, behavior, or any comorbid disorder, while adolescents with SAN had a significantly higher prevalence of anxiety disorders (p <0.05). These groups did not differ in terms of suicide ideation or attempts, but adolescents with SAN were significantly more likely to endorse suicide plans than adolescents with AN (p <0.05). In adults, SAN and AN did not differ on any of these measures except SAN endorsed suicide plans more so than AN (p <0.05). Further, looking within all adolescents with either AN or SAN, percent ideal bodyweight (as a continuous measure) was not a significant predictor of any of these severity measures (p 's>0.05). The same was true for adults (p 's>0.05). Taken together, these results suggest that SAN is as severe, if not more severe, than AN in terms of comorbidity and suicidality measures.

DISCUSSION

The present investigation was designed to assess the distribution of DSM-IV-TR eating disorders in two large population-based samples of adolescents and adults. Our primary goal was to describe EDNOS presentations and their clinical characteristics in comparison to AN and BN. These data increase our understanding of the clinical relevance of EDNOS, may inform the validity of the current diagnostic system as it applies to adolescents and adults, and have significant implications for clinical research and practice, as well as for public policy.

The majority of adolescents and adults in these population-based surveys with a lifetime history of an eating disorder reported symptom configurations of EDNOS relative to AN and BN. There was no difference in the proportion of EDNOS vs. AN and BN, between adolescents and adults with EDNOS. Substantial numbers of adolescents and adults with EDNOS also met criteria for comorbid psychopathology, e.g., anxiety and mood disorders. Likewise, there was also substantial comorbidity among those with each of the three subthreshold subtypes of EDNOS.

These findings extend those from earlier clinical samples of adolescents⁶ and adults⁷⁻¹⁴ that demonstrate that fewer patients meet criteria for threshold eating disorders (i.e., less than 20% of patients meet criteria for AN and approximately 25% for BN) than they do for EDNOS (i.e., approximately 60%). However, the prevalence of EDNOS was meaningfully higher in both of these population-based surveys (81% of all adolescent cases and 75% of all adult cases) compared to most prior clinical samples (~60%). We do need to interpret this finding with some caution as both NCS-A and NCS-R surveys report lifetime diagnoses

while clinical samples of both adolescents²² and adults^{23,24} either allude to or show a fair degree of diagnostic fluidity. At the very least, though, it would appear that EDNOS is as prevalent in the population as it is in clinical samples.

Because EDNOS is a residual ‘umbrella classification’ for all cases that do not meet criteria for threshold eating disorders, there is the risk for these cases to be perceived as less severe. However, alarmingly high numbers of adolescents and adults with EDNOS also met criteria for comorbid psychopathology, e.g., anxiety and mood disorders. In fact, more than two thirds of both adolescent (74%) and adult (71%) EDNOS cases presented with a comorbid DSM-IV diagnosis. While these percentages were lower than for BN (adolescents 86% and adults 94%), comorbid psychopathology was meaningfully higher for EDNOS cases than for AN (adolescents 46% and adults 56%). There were no notable differences between adolescents with EDNOS and adults with EDNOS. These data would suggest that EDNOS in the population is at least as severe as full syndrome cases, at least in terms of the prevalence of comorbid psychiatric disorders.

For the purposes of this study, EDNOS is the combination of diverse groups of individuals meeting criteria for binge eating disorder (BED), subthreshold binge eating disorder (SBED), and subthreshold AN (SAN) (we were unable to subtype subthreshold BN [SBN]). All three groups showed strong associations with comorbid psychopathology. Overall comparisons among these EDNOS subgroups indicated significant between-group differences for adolescents in mood and anxiety disorders, as well as suicidal ideation. The BED and SAN groups showed higher rates of these disorders compared to the SBED group. To some extent, this was also the case for adult EDNOS subgroups, although only suicidal ideation was significantly higher for SAN and BED and lower for SBED. Taken together, high levels of comorbidity were reported across the EDNOS subgroups, with BED and SAN perhaps showing greatest association with comorbid psychopathology. These findings need to be interpreted with some caution; as indicated earlier, the EDNOS category for the present study was not all-inclusive. For instance, we could not define a subgroup for either subthreshold BN or EDNOS-purging with both these diagnoses comprising substantial subgroups in prior clinical samples.^{6,9,19,25} Findings from these adolescent and adult clinical samples were mixed regarding similarities and/or differences between BN and SBN.^{6,9,22} Consequently, our study was unable to shed light on this question.

SAN was the only EDNOS subgroup that allowed for a direct comparison with AN, its full syndrome counterpart. Approximately 15% of those with an eating disorder narrowly missed criteria for AN and were categorized as SAN. Yet, in terms of comorbid psychopathology, SAN would appear at least as severe as their full syndrome counterparts. In fact, in some instances SAN appears to present with higher prevalence of comorbid psychopathology, e.g., 46% of adolescents with AN endorsed comorbid psychopathology while 83% of adolescents with SAN endorsed comorbid psychopathology. This finding would provide additional support for the suggestion to relax the strict diagnostic criteria for AN¹³, thus allowing those with SAN to be included in a broader AN diagnostic category. For instance, there already is substantial support for the amenorrhea criterion to be dropped because it is not always a meaningful clinical indicator,²⁷ as some individuals continue to menstruate at low weight while others become amenorrheic at normal weight.²⁸ On the other hand, we

cannot rule out that the eating disorder symptoms for these SAN cases are not perhaps secondary to the mood and/or anxiety disorders endorsed.

Some limitations to our study need to be considered. First, the combined prevalence of the presentations of EDNOS captured in this study (BED, SAN, and SBED) makes up 81% of the adolescents and 75% of the adults who have an eating disorder. Despite these high proportions of EDNOS cases, the full spectrum of EDNOS might not be represented here due to the skip rule design of the CIDI, e.g., adolescents who purge but do not binge eat, or adolescents who meet most criteria for BN or BED but only binge weekly (which is the proposed frequency for the DSM5 for both BN and BED)^{3,18,29} might have been excluded. On the other hand, the definitions of SAN and SBED used here encompass a broad spectrum of eating disordered behaviors and cognitions that may be sensitive, but not specific, to reliably identify clinically significant cases of EDNOS. Therefore, we cannot rule out that false positives were included as ‘cases’ given our definitions of EDNOS. However, the prevalence of comorbidity and suicidality reported in these “sub-threshold” cases underscores their severity. A second limitation is the restricted assessment of clinical characteristics other than the more typical eating disorder pathology. A more complete description of associated features of EDNOS, such as medical complications due to the eating disorder, treatment initiation for an eating disorder, duration of illness (operationalized on the basis of when symptoms first became clinically impairing/distressing), and family psychiatric history, is warranted. Third, our findings may not be generalizable to younger samples and it therefore would be important to extend this research to also include lifetime history of eating disorders in children as their presentation may in fact be different from those of adolescents.^{30,31,32} Finally, these data are cross-sectional and as diagnostic migration in eating disorders is quite prevalent,^{23,24,33} longitudinal data with more refined measures are needed to determine the course of EDNOS types and to examine whether some EDNOS variants may represent prodromal conditions for full-syndrome AN or BN.

This study contributes to the literature on classification of eating disorders by providing a detailed description of lifetime prevalence and clinical characteristics of EDNOS in two large population-based samples. Our findings extend the growing literature on EDNOS, suggesting that this diagnostic group predominates among population-based samples as it does in treatment-seeking samples. These data also underscore the clinical severity of EDNOS and the need for empirically supported interventions for this broad diagnostic group. Most significant, our findings highlight the importance of increasing research attention to EDNOS and support modifying the current criteria for AN and BN in the DSM-IV-TR revision.

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Table 1

Demographic Characteristics of the Adolescent and Adult Samples

	Adolescents ¹	Adults ²
Sample size	10,123	2,980
Age		
Range (median)	13–18 (14.67)	18–95 (42.44)
Sex, % (SE)		
Male	51.25 (0.95)	53.69 (1.27)
Female	48.75 (0.95)	46.31 (1.27)
Race/Ethnicity, % (SE)		
Hispanic	14.38 (1.20)	10.09 (1.10)
Non-Hispanic Black	15.08 (0.96)	11.3 (1.09)
Other	4.98 (0.59)	4.00 (0.50)
Non-Hispanic White	65.55 (1.62)	74.08 (1.72)

¹ National Comorbidity Survey Adolescent Supplement (Merikangas et al, 2010)² 50% Random Subsample of Part II of the National Comorbidity Survey Replication (Kessler et al, 2003)

Table 2
Relative Distribution of Eating Disorder Subtypes by Sex in Adolescents and Adults

	Adolescents						Adults					
	Female			Male			Female			Male		
	N ^a	%(SE) ^b		N ^a	%(SE) ^b		N ^a	%(SE) ^b		N ^a	%(SE) ^b	
	20	4.00 (1.44)		14	6.33 (2.04)		19	11.16 (4.01)		4	5.85 (3.06)	
Anorexia Nervosa	68	16.52 (3.10)		18	10.17 (3.82)		40	17.19 (2.73)		7	10.84 (5.47)	
Bulimia Nervosa	330	79.48 (3.51)		203	83.49 (4.16)		135	71.65 (4.09)		54	83.31 (6.18)	
Eating Disorders NOS	119	29.88 (3.47)		43	19.44 (4.18)		66	35.95 (4.49)		26	36.88 (7.12)	
<i>Binge Eating Disorder</i>	88	19.99 (2.68)		10	2.47 (1.10)		49	27.82 (4.11)		2	1.72 (1.26)	
<i>Subthreshold Anorexia Nervosa</i>	123	29.60 (3.35)		150	61.58 (4.45)		20	7.89 (1.40)		26	44.71 (6.91)	
<i>Subthreshold Binge Eating Disorder</i>												

Note:.

^aReported unweighted N's may differ slightly from those reported by Hudson et al. (1) and Swanson et al. (2) due to enforcement of hierarchies to create mutually exclusive groups.

^bRelative prevalence among eating disorder for AN, BN, and EDNOS, and relative prevalence among EDNOS for BED, SAN, SBED

Table 3
Demographic Correlates, Comorbid Disorders and Suicidal Behavior by EDNOS Subtypes among Adolescents and Adults, % (SE)

	Adolescents				
	EDNOS ^a	BED	SAN	SBED	Chi Square (df) P-Value ^b
Sex					15.98 (2) <0.0001
Male	38.26 (4.45)	27.73 (5.77)	6.79 (2.88)	55.10 (5.84)	
Female	61.74 (4.45)	72.27 (5.77)	93.21 (2.88)	44.90 (5.84)	
Race/Ethnicity^e					3.48 (6) 0.0070
Hispanic	19.05 (2.64)	22.55 (6.83)	17.29 (5.78)	17.43 (2.74)	
Non-Hispanic Black	17.04 (2.38)	14.42 (4.30)	7.47 (3.31)	21.80 (2.98)	
Other	5.78 (1.66)	4.62 (1.89)	4.06 (1.77)	7.07 (2.86)	
Non-Hispanic White	58.13 (3.07)	58.41 (7.38)	71.18 (5.73)	53.70 (3.95)	
Comorbid Disorders					
Mood	31.43 (4.28) ^c	44.66 (6.54)	32.95 (8.22)	22.63 (4.31)	3.31 (1) 0.0463
Anxiety	58.68 (3.99) ^{c,d}	74.82 (5.12)	63.26 (7.14)	47.06 (5.31)	5.22 (1) 0.0095
Substance	23.71 (4.50)	27.31 (6.86)	20.19 (5.77)	22.61 (4.48)	0.45 (1) 0.6385
Behavior	18.39 (2.90)	24.23 (7.01)	21.63 (6.08)	13.68 (2.26)	1.58 (1) 0.2177
Any	73.52 (3.47)	81.26 (4.74)	82.50 (4.16)	65.75 (5.18)	3.06 (1) 0.0576
Suicidality					
Ideation	25.11 (4.22) ^d	33.50 (6.41)	30.01 (6.04)	18.25 (4.32)	5.01 (1) 0.0112
Plans	6.66 (1.01) ^c	5.17 (1.90)	14.18 (5.40)	5.14 (1.37)	1.1 (1) 0.3435
Attempts	9.24 (2.78) ^d	13.88 (7.39)	12.36 (4.83)	5.32 (1.56)	1.81 (1) 0.1765
Adults					
	EDNOS ^a	BED	SAN	SBED	Chi Square (df) P-Value ^b

Adolescents						
	EDNOS ^a	BED	SAN	SBED	Chi Square (df)	P-Value ^b
Sex					17.17 (2)	<0.0001
Male	35.34 (5.24)	32.54 (6.00)	2.82 (1.99)	72.71 (6.62)		
Female	64.66 (5.24)	67.46 (6.00)	97.18 (1.99)	27.29 (6.62)		
Race/Ethnicity ^e					1.78 (6)	0.1260
Hispanic	7.15 (2.24)	5.77 (2.35)	6.45 (4.00)	10.41 (7.21)		
Non-Hispanic Black	11.20 (3.11)	10.85 (3.72)	1.48 (1.48)	21.45 (9.00)		
Other	3.24 (1.63)	2.09 (2.01)	5.62 (2.69)	2.99 (2.13)		
Non-Hispanic White	78.41 (4.42)	81.29 (4.19)	86.45 (4.96)	65.15 (10.77)		
Comorbid Disorders						
Mood	34.88 (3.79) ^d	40.08 (5.14)	33.52 (7.29)	26.62 (7.19)	0.91 (1)	0.4121
Anxiety	52.72 (4.47) ^d	60.94 (6.18)	49.84 (9.69)	40.43 (7.85)	1.55 (1)	0.2244
Substance	26.67 (3.06)	21.44 (4.60)	27.51 (6.78)	35.47 (9.05)	0.68 (1)	0.5102
Behavior	19.67 (3.33) ^d	20.33 (5.02)	20.36 (5.95)	17.78 (6.03)	0.08 (1)	0.9272
Any	70.54 (4.65) ^d	74.25 (5.84)	71.36 (9.71)	62.92 (9.82)	0.4 (1)	0.6741
Suicidality						
Ideation	30.33 (4.04)	32.95 (4.93)	40.71 (7.87)	15.23 (3.74)	6.27 (1)	0.0041
Plans	13.87 (2.31) ^c	16.78 (3.12)	15.69 (5.33)	6.71 (2.79)	2.71 (1)	0.0783
Attempts	11.98 (2.30)	15.30 (2.86)	10.96 (4.54)	6.88 (3.20)	2.58 (1)	0.0879

Note: AN=anorexia nervosa; BN=bulimia nervosa; EDNOS=eating disorder not otherwise specified; BED=binge eating disorder; SAN=subthreshold anorexia nervosa; SBED=subthreshold binge eating disorder. Numbers reported here may differ slightly from those reported by Hudson et al. (1) and Swanson et al. (2) due to enforcement of hierarchies to create mutually exclusive groups.

^a Comparisons are between AN and EDNOS and BN and EDNOS;

^b Comparisons between BED, SAN and SBED;

^c EDNOS is significantly greater than AN (p<0.05);

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p EDNOS is significantly less than BN ($p < 0.05$);

e significant race/ethnicity differences between AN and EDNOS in adolescents and between BN and EDNOS in adults.