Classification of Eating Disorders: Toward DSM-V

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ABSTRACT

Objective: A goal of the DSM-IV revision is to increase clinical and research utility by improving diagnostic validity through reliance on empirical evidence. Currently defined eating disorder (ED) categories have limited validity and require refinement based on data.

Method: The available scientific evidence is considered in evaluating the current ED nosology.

Results: Specific recommendations include modifying ED classification by retaining categories but adding a dimensional component; removing the amenorrhea criterion for anorexia nervosa (AN); removing the subtypes for AN and bulimia nervosa (BN); making binge eating disorder (BED) an official diagnosis; and unifying the frequency and duration cut-points for BN and BED to once per week for 3 months. Priority research areas should include epidemiologic studies of full-range ED symptomatology and should focus on empirical validation for individual criterion.

Conclusion: There are significant issues to address in revising ED nosology as we move toward a more valid and useful DSM-V. © 2007 by Wiley Periodicals, Inc.

Keywords: DSM-V; eating disorders; anorexia nervosa; bulimia nervosa; binge eating disorder; classification

Introduction

Over 25 years ago, the field of mental health underwent a major transformation with the publication of DSM-III. Prior to that time, psychiatric classification was unreliable, using nonoperationalized definitions of disorder based on unproven theories of etiology.[1] The move from DSM-II to DSM-III brought a diagnostic shift—an atheoretical model of classification based on concrete criteria that increased reliability of diagnosis from one clinician to another.[1] The next major revision of the diagnostic criteria, DSM-IV, continued the descriptive approach and focused on further refining diagnostic criteria based on a comprehensive review of the literature and limited analysis of available research data.[1] However, final decisions about diagnostic criteria were primarily left to the consensus of experts in the field.[1]

The eating disorders classification system has paralleled the development of the overall DSM. Disorders were first based on clinical description, and then further refined through expert opinion and literature review.[2] Currently there are two recognized eating disorders, anorexia nervosa (AN) and bulimia nervosa (BN).[3] AN was described in DSM-III, and BN was added in DSM-III-R. A third disorder, binge-eating disorder (BED), was included in DSM-IV as a diagnosis worthy of further study for which a set of provisional criteria was created. BED is considered part of the "eating disorder not otherwise specified" (EDNOS) category, which is reserved for patients who have significant eating disorder psychopathology but who do not meet full criteria for either AN or BN. AN can be further divided into a binge-purge subtype and a restricting subtype, and BN can be either of the purging or nonpurging subtype. As in psychiatric classification as a whole, the eating disorder diagnostic criteria are not primarily based on empirical research, but rather on an expert consensus about the available evidence.[2]

It is useful to make a distinction between the two uses of the DSM classification, namely, clinical and scientific. The research use of the DSM is longstanding, as changes from DSM-II to DSM-III were based on research operationalization of diagnoses

using the Feighner and Research Diagnostic Criteria.[1] However, clinical utility is of fundamental importance to the DSM, as illustrated by the statement in the introduction that the "highest priority has been to provide a helpful guide to clinical practice."[3] Clinicians routinely think in terms of diagnostic categories, which provide useful information about usual presentation, possible treatment response, and expected prognosis. The current DSM classification is built on such a categorical model, with the assumption that mental disorders are valid, discrete entities, demarcated by firm boundaries between one another and normality and separated by "zones of rarity."[4] However, investigators seeking to elucidate the etiology of mental disorders have found categorical classification limiting, as it does not allow for examination of the full spectrum of the disorder. Evidence to date has suggested that many mental disorders seem to merge both into one another and into normality, leading to the suggestion that dimensions,[1] which would convey richer and more complete information, may more accurately capture the variation in psychiatric symptomatology. The two approaches to classification are not in fact mutually exclusive, as both are compatible with a threshold model of disease. There are numerous examples in medicine where the line between disease (such as diabetes or hypertension) and normality is blurred, and cutpoints are defined based on prognostic indicators, thus simultaneously employing a dimensional and categorical model.

The research and clinical uses of the DSM are in many respects complementary, as empirical investigation improves diagnostic validity, which in turn often leads to improved clinical utility.[4] One of the major goals of the revision process toward DSM-V is to increase the validity of diagnoses and, as a result, the power of preventative and treatment interventions. However, an unfortunate consequence of the current DSM system has been the reification of the criteria by both clinicians and researchers.[1,2] Rigid adoption of DSM definitions can (and likely does) hinder investigation of the etiology of eating disorders, because researchers tend to study what is defined.[2] Thus valuable information is not collected, and the current diagnostic criteria are not challenged. Currently defined eating disorder categories are not well validated[2]; as such, they should not be considered definitive answers but rather suggestions subject to change and refinement as evidence-based findings dictate. While a complete overhaul of the diagnostic system is premature at this time, there are significant issues to consider in revising the diagnostic structure of eating disorder nosology as we move toward a more valid, clinically and scientifically useful DSM-V. This study will consider the available empirical evidence regarding the validity of the extant diagnostic system for eating disorders, first as it applies to EDNOS, then as it applies to all eating disorder categories, followed by some specific recommendations.

Main Diagnostic Consideration: EDNOS

One major criticism of the current eating disorders classification system pertains to the EDNOS category. The "not otherwise specified" (NOS) category in DSM-IV was designed to include those clinically significant disorders within a class that are "residual" to the specific categories within that class.[3] The EDNOS category as it stands now is problematic for several reasons. For one, EDNOS encompasses too many cases. Instead of being a "residual" diagnostic category, it is well documented that EDNOS is the most common eating disorder diagnosis given in outpatient clinical settings; for example, in a recent study by Fairburn and colleagues classifying 170 consecutive referrals to two outpatient eating disorder clinics, 4.7% met criteria for AN, 35.3% for BN, and 60% for EDNOS (of those, 4.1% had BED).[5] Furthermore, individuals assigned to the EDNOS category do not have "residual" symptoms; it has been shown that these patients have the same distinctive attitudes, behaviors, and severity of comorbid psychiatric disorders as those with a diagnosis of AN or BN.[5] EDNOS encompasses a heterogeneous array of clinical entities, and thus does not inform clinical description or treatment—a diagnosis of EDNOS could describe a patient who weighs 80 pounds or 280 pounds, or one who purges without bingeing or binges without purging. The diagnosis of EDNOS fails to define the course of a disorder, as EDNOS patients have a varied course on follow-up.[5] In addition, a diagnosis of EDNOS fails to capture possible temporal changes in symptom profile associated with stage of disorder. For example, it is especially common for adolescents in the early stages of AN or BN (and thus not meeting full criteria) to receive a diagnosis of EDNOS[5]; this can make it seem like there is diagnostic crossover between categories (i.e., EDNOS to AN), when in fact there is mislabeling of the same disorder at different stages. Finally, it fails to inform research, since limited attention and empirical investigation have been directed toward the study of these "residual" disorders.[5]

Reevaluate Individual Diagnostic Criteria for AN and BN

The first step to reducing the size of EDNOS might be to reevaluate the validity of the individual diagnostic criteria for AN and BN. Many of the cases diagnosed as EDNOS represent "atypical" cases of AN and BN.[5] For example, a retrospective study of 397 consecutive admissions to an eating disorders unit found that 30% of cases were diagnosed as EDNOS. Of those, 47% were AN without amenorrhea, 28% AN with greater than 85% ideal body weight (but more than a 20% reduction of initial weight), and 3% BN not meeting frequency or duration criteria.[6] In addition, in the study by Fairburn and colleagues,[5] nearly 40% of EDNOS cases could be reclassified as AN or BN by loosening the diagnostic criteria for these disorders. In both studies the reclassified patients were similar to their full threshold counterparts in terms of eating disorder psychopathology and psychiatric comorbidity. This suggests that the individual diagnostic criteria, which were never empirically validated, must be reevaluated and assessed on evidence-based criteria and cut-points.

Anorexia Nervosa

AN was the first eating disorder described and appears to be present at different points in history and throughout different cultures. The key clinical feature is defined as a refusal to maintain body weight at or above a minimally normal level for age and height. Currently, "minimally normal level" is defined as less than 85% of expected body weight. However, there is no empirical validation for this cut-off, and it has been criticized as arbitrary, nonpredictive of treatment outcome, and insensitive to issues of age, gender, frame size, and ethnicity.[6] It would be important to determine if there is a weight cut-off below which there is a differential course or outcome, as has been done for medical illnesses (such as diabetes and hypertension) that define disorder by specific cut-points on a continuous dimension (such as glucose and blood pressure, respectively). In addition, unlike BN, which specifies a minimum duration of symptoms, there is no minimum time required for the "maintained" low weight of AN (although it is specified in the amenorrhea criterion); it would be worthwhile to explore what duration (if any) would be of value in predicting patient course or outcome. The criterion that patients must have a fear of weight gain has been criticized as being culture bound; nevertheless, this criterion has been demonstrated to have diagnostic specificity and to predict outcome.[7] Currently, the full diagnosis of AN requires amenorrhea

for three consecutive months. However, this criterion is problematic because it is not relevant for men or prepubescent girls, it has been shown to be an unreliable indicator of weight status, and it does not provide information with regard to clinical features, psychiatric comorbidity, or outcome.[6] For these reasons, it has been suggested that this criterion be abandoned altogether.[6] Finally, the utility of the two AN subtypes (restricting and binge-purge) is unclear. The subtypes were originally differentiated on the basis of early observations that anorexic women with bulimic symptoms showed more comorbid psychopathology and distress than those with restricting AN.[7] However, recent studies, including prospective longitudinal studies, have failed to find significant evidence of differences between the binge purge and restricting subtypes of AN in comorbid psychopathology, recovery, relapse, or mortality rates.[8] In addition, most individuals with restricting AN are likely to report some binge-purge behaviors over time.[8] This evidence may suggest that AN binge-purge subtype represents a more severe or chronologically advanced form of AN, rather than a distinct diagnostic subtype. Further research is needed to determine the most valid way to subtype patients based on empirical evidence.

Bulimia Nervosa

The characteristic features of BN are recurrent episodes of binge eating with recurrent inappropriate compensatory behavior. "Binge eating" is defined as eating an unusually large amount of food in a short period of time while also experiencing a loss of control over eating during the episode. This definition of a binge has been criticized on a number of points. For one, the time limited criterion of a "short period of time" is not empirically based, and there is no evidence suggesting that the distinction between longer or shorter binge episodes has clinical utility.[9] "Large amount" has been difficult to operationalize. It has instead been suggested that "loss of control" is the more salient feature defining a binge episode.[10] Studies examining the significance of binge size on clinical correlates yield conflicting results,[9,11,12] and there have been questions regarding the reliability of subjective binge episode recall.[13] The answer to the question of what constitutes a binge will help to clarify the classification of eating disorders as a whole, since it impacts not only the diagnosis of BN, but also several EDNOS categories. In addition, for full BN the DSM-IV specifies that bingeing and compensatory behaviors must occur with a minimum frequency and duration of at least twice a week for 3 months.

However, these cut-points are not evidence based. Current research does not support a distinction between those engaging in behaviors once a week versus twice a week[10]; the minimum frequency and duration criteria that distinguish clinically significant cases have yet to be determined. Finally, "compensatory behavior" has been subtyped based on the type of behavior used—purging versus non-purging. However, there are virtually no data to support the validity of the BN subtypes; in taxometric and latent class analysis studies the two subtypes have clustered together.[7] Other methods of subtyping have been suggested; however, further empirical evidence is needed to determine which method, if any, is most valid.

Reassess the Number of Valid Eating Disorder Diagnoses

The next step to improving the utility of the EDNOS category might be to reassess, based on validation criteria and empirical evidence, the number of officially recognized eating disorder categories. Validators based on etiology are the ultimate goal of psychiatric nosology; however, this is currently impractical because the etiology of most psychiatric disorders is still largely unknown.[1] Other indicators of validity must therefore be substituted. A model for establishing diagnostic validity in psychiatric disorders was proposed by Robins and Guze,[14] describing five elements: clinical description (including symptom profiles, demographic characteristics, and typical precipitants); laboratory studies (including psychological tests); delimitation from other disorders; follow-up study (including evidence of diagnostic stability); and family study. Over the years this list has been refined and expanded by others, yet the goal of improving diagnostic validity through empirical methods has been maintained.[4] Empirical evidence can be evaluated through the use of statistical methods such as latent class analysis and taxometric analysis. To date, all such studies have identified more than the two recognized eating disorder categories.[7] The data available from over a decade of research suggest that, based on these standards for establishing diagnostic validity, BED is as valid and clinically significant as the officially recognized eating disorders of AN and BN, and warrants inclusion as an officially recognized diagnosis.

BED as a Valid Disorder

With respect to clinical description and delimitation from other disorders, BED has been shown to be unique from other eating disorders in terms of the demographic profile (older age of onset, lower female to male ratio, more ethnic minorities), possible risk factors (less influence of previous history of dieting in retrospective studies), and association with obesity.[9,15] Yet BED has also been shown to be similar to AN and BN in the degree of weight and shape concerns, psychopathology, functional impairment, and healthcare utilization.[16] Thus, BED differentiates from noneating disordered individuals on these indices to the same extent as AN and BN. In addition, in latent class analyses and taxometric analyses both BN and BED have been shown to be distinct classes independent from other eating disorders and from normality.[7] Furthermore, individuals with BED have been shown to be different from non-BED obese individuals in community and clinical samples on a number of indices, including eating patterns, eating in response to emotional states, levels of eating disorder psychopathology, work and social impairment, and quality of life, with the eating disorder associated with significantly more impairment when compared with obesity alone.[9,15–17] In addition, binge eating in the absence of compensatory behaviors has been associated with elevated obesity and overweight, increased symptoms of eating disorders, greater psychiatric symptoms, and reduced life satisfaction in both men and women independent of the effects of BMI.[18] Furthermore, the increased psychiatric comorbidity among individuals with BED is accounted for by the severity of binge eating rather than by the degree of obesity.[15] Thus, BED is not just a subset of the obese.

Follow-up studies of individuals with eating disorders further support BED as a valid diagnosis on par with AN and BN. Early community-recruited prospective studies on the clinical course of BED suggested that BED was not a stable diagnosis and that it spontaneously remitted over time, raising concerns about its validity.[19,20] However, these studies may have underestimated the chronicity of BED due to samples that were not reflective of what is now considered a more typical BED population (i.e., both studies included only females and the participants were younger than the typical individual with BED). More recent evidence suggests that, in fact, individuals with BED have the disorder for long periods of time, and that it is clinically significant over the duration.[16,21] Data from the prospective McKnight longitudinal study on the course of eating disorders, which includes older participants, showed that at the end of 1 year only about 7% of those diagnosed with BED were recovered.[12] A recent study retrospectively assessing the stability of BED in a community sample found that the mean lifetime duration of BED was 14.4 years, sig-

nificantly longer than for either BN or AN.[21] Similarly, data from a nationally representative survey demonstrated that the mean number of years with BED was 8.1 years, with the majority of respondents reporting at least some role impairment.[16] In addition, individuals with AN and BN, as compared to those with BED, seem more likely to move between diagnostic categories over time.[7] For instance, individuals diagnosed with BED are unlikely to have a history of AN, unlike patients with BN.[7,22] Doubt had also previously been cast on the validity of BED because it was shown to be responsive in the short term to a broad range of treatments as well as placebo.[23] However, recent evidence has demonstrated a relationship between type of treatment and outcome.[24] Moreover, placebo response in BED is similar to that seen for other psychiatric disorders; a recent study found that at 1 year follow up, one third of BED placebo responders met diagnostic criteria for BED, and over two thirds had experienced loss of control eating in the previous month.[25] In addition to demonstrating diagnostic stability and treatment specificity, BED is also associated with predictable complications, the most significant of which is an increased association with severe obesity, the morbidity and mortality consequences of which are well documented.[9,15]

Recent research has shed light on the validity of BED with regard to family and laboratory studies. A recent family study has shown that BED aggregates in families, independent of obesity.[26] In addition, a recent population-based twin study indicated significant additive genetic influences on binge eating in the absence of compensatory behaviors.[27] Laboratory studies examining eating behavior have consistently found that obese women with BED consume more calories during a binge eating episode than weight and sex matched non-BED obese.[28] Research has also demonstrated that there may be differences between participants with BN and BED in food intake and selection during a binge.[28]

Reevaluate Individual Diagnostic Criteria for BED

It is as important to reevaluate the validity of the individual diagnostic criteria for BED as it is to do so for AN and BN. The key clinical feature of BED is recurrent binge eating episodes without the regular use of inappropriate compensatory behavior. The same concerns about "binge eating" that exist for BN apply to BED. Frequency and duration criteria for BED are specified as, on average, two binge days a week for 6 months. As with BN, there is no empirical support for these cut-points. In fact, several studies have shown clinically significant impairment in patients with much lower binge frequency and duration.[10] For example, in a study by Striegel-Moore and colleagues[29] participants with subthreshold BED with binge eating occurring at a minimum average frequency of once a month over a 6-month period did not differ from participants with BED on eating disorder psychopathology, psychiatric distress, or history of treatment seeking. In addition, studies have found significant results using a three-month duration criterion.[16] Thus, it remains to be determined what the optimal frequency and duration criteria are. The provisional criteria also specify that patients must endorse three out of five features associated with BED (eating more rapidly, eating alone due to embarrassment about amount, feeling guilty after eating, eating until uncomfortably full, and eating when not physically hungry) and be "clinically distressed" by their binge eating episodes. Recent data have suggested, however, that these criteria might better be replaced by a criterion of "undue influence of shape and weight concerns," which would simplify the diagnosis and bring it more in line with the other eating disorder diagnoses.[30]

Other Diagnostic Considerations

Common Core Eating Disorder Psychopathology

Despite the differences in demographics, clinical course, and treatment of the different eating disorders, there is evidence that they all share common "core psychopathology" that helps to define the diagnostic category "eating disorder."[31] This core psychopathology has been suggested to be the over-evaluation of shape and weight. It has been shown that AN, BN and BED patients do not differ from each other in their level of shape and weight concern, but do differ from those without eating disorders.[9] However, there have been cases described of individuals who seem to have a clinically significant disorder but deny weight or shape concerns (i.e., Chinese patients with AN who deny fat-phobic rationales).[32] This topic merits further research.

Categories Versus Dimensions

There would be significant advantages to adding a dimensional component to eating disorder diagnosis. Adding dimensions would provide more information, which would help in both clinical care (for example, as a method to monitor treatment

response) and in research (since any level of quantification would increase the statistical power to detect significant differences).[33] Perhaps the easiest way of adding a dimensional component to the classification system would be to add an element of dimensionality to each individual criterion.[33] For example, possible dimensional criterion might include compensatory behavior number and frequency, binge eating (or loss of control eating) frequency and size, or a measure of weight (such as body mass index). An advantage of these dimensional categories would be that they may allow better cut-points to emerge as data are collected that were not previously recorded because categorical diagnosis inhibited such distinctions. Once the data are collected, correlations with validators can be made in order to help refine diagnostic criteria. Possible additional dimensions to consider including would be duration, impairment, personality, or severity. Of course, as with the categorical criteria, the dimensional criteria should be derived from empirical findings. Ideally this would be done by combining data from clinical research with that obtained from epidemiological studies. It will be important to conduct a benchmarking study, without gated questions, on a community sample of individuals asking about a range of eating behaviors and associated cognitive and affective features, to help determine normal from abnormal eating and behaviors in order to inform eating disorder nosology.[2]

Summary

Although the current classification system has shortcomings, including diagnostic overlap and longitudinal crossover of patients from one category to another, it is unlikely that it will be replaced by a radically different system for the next iteration of DSM. Any changes that are made from one revision to the next should be conservative in order to minimize loss and discontinuity of past and future research. However, there are also potential benefits to change such as greater diagnostic reliability and validity, streamlined ease of use, and improved discriminatory capability.[1] These potential benefits of change must be carefully weighed against the costs.

Based upon our review of the available evidence, we suggest that the eating disorder classification be modified as follows: (1) retain the categorical classification, and add a dimensional component to each individual criterion[33]; (2) remove the amenorrhea criterion for AN[6]; (3) remove the sub-categories for both AN and BN[7]; (4) formally recognize BED as a diagnosis[10]; and (5) reduce the frequency cut-points for BN and BED to once per week,[10,29] and standardize the duration criterion at 3 months. These suggested changes do have empirical support, although additional research to further refine the criteria is important. Critical research questions to be addressed include: (1) epidemiologic studies on the full range of eating disorder symptomatology and outcome, and (2) empirical validation for the definition of a binge.

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