

Children into DSM Don't Go: A Comparison of Classification Systems for Eating Disorders in Childhood and Early Adolescence

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Abstract: **Objective:** To evaluate the reliability of diagnostic classification systems for eating disorders when applied to children and young adolescents. **Method:** Eighty-one patients were randomly selected from a population of 226 children (age 7–16) presenting with eating difficulties to a specialist clinic. Diagnoses were assigned according to three classification systems: the 10th edition of the International Classification of Diseases (ICD 10), the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), and Great Ormond Street (GOS) criteria. Ratings were performed by two clinicians blind to the diagnosis of the other. **Results:** Interrater reliability values (kappa) for the three systems were 0.357 (ICD 10), 0.636 (DSM-IV), and 0.879 (GOS). Using DSM criteria, more than 50% of children were classified as eating disorder not otherwise classified (EDNOS) or could not be classified. **Discussion:** DSM-IV and ICD 10 criteria are of little value in the classification of the eating difficulties of children. The GOS criteria, which were developed for this age range, are more reliable. The classification of eating disorders in childhood needs reevaluation. © 2000 by John Wiley & Sons, Inc. *Int J Eat Disord* 28: 317–324, 2000.

Key words: child; eating disorders; classification; DSM-IV; ICD 10

INTRODUCTION

No classification system is ever entirely satisfactory, and that for eating disorders is no exception (Wilson & Walsh, 1991; Halmi, 1985; Beumont, Garner, & Touyz, 1994; DaCosta

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& Halmi, 1992). The issue of diagnostic criteria for eating disorders in children has been debated on many occasions (Irwin, 1981; Treasure & Thompson, 1988; Bryant-Waugh & Lask, 1995; Gowers, Crisp, Joughin, & Bhat, 1991), but dissatisfaction remains with the current criteria. Each successive version of the Diagnostic and Statistical Manual of Mental Disorders (DSM) and the International Classification of Diseases (ICD) has been adapted in the face of increasing knowledge about eating disorders in childhood. The definitions now take into account prepubertal children, children who are still growing, children's vulnerability to emaciation, and children who are not necessarily able to describe or acknowledge specific psychopathologies. So, why are there continuing problems in applying current criteria to children and young adolescents?

Classical anorexia nervosa does present in children as young as 7 years old. But, as Bryant-Waugh and Lask (1995) have pointed out, only 50% of referrals to a specialist childhood onset eating disorders clinic (ages 7–15) fit the diagnostic criteria for anorexia nervosa or bulimia nervosa, despite adaptations in criteria. The alternative category of eating disorder not otherwise specified (EDNOS) suggests a quantitative rather than qualitative difference from the full-blown eating disorder syndromes. Beumont, Kopec Schrader, & Touyz (1995) have argued that within what they suggest should be called the "dieting disorders," the main subdivisions can be made on the basis of weight loss and the presence of purging. Our concern is that limiting the eating disorders to those for which dieting and/or purging are essential features would exclude the majority of children with major eating difficulties.

Until now, most papers reporting atypical eating disorders of childhood have been case studies or studies that contained cohorts of less than 10 (DiNicola, Roberts, & Oke, 1989; Jaffe & Singer, 1989; Higgs, Goodyer, & Birch, 1989; Pugliese, Lifshitz, Grad, Fort, & Marks-Katz, 1983). Nevertheless, the marked eating abnormalities described in these papers are qualitatively different from those seen in anorexia nervosa, bulimia nervosa, or EDNOS. How then should these disorders be classified? Should they be considered as eating disorders at all? One way of conceptualizing eating disorders of childhood is as "a disorder of childhood in which there is an excessive preoccupation with weight or shape, and/or food intake, and accompanied by grossly inadequate, irregular, or chaotic food intake" (Bryant-Waugh & Lask, 1995 page 191). The addition of "and/or food intake" broadens the definition significantly. Lask and Bryant-Waugh (2000) have suggested that the range of eating difficulties in childhood consists of anorexia nervosa, food avoidance emotional disorder (FAED) (Higgs, Goodyer, & Birch, 1989), selective eating (Bryant-Waugh, 2000), functional dysphagia (Bryant-Waugh, 2000), bulimia nervosa, and pervasive refusal syndrome (Lask, Britten, Kroll, Magagna, & Tranter, 1991). They have suggested syndrome recognition guidelines more applicable to children, which have become known as the Great Ormond Street (GOS) criteria (Table 1). Validation studies for these criteria are in progress (Watkins, Bryant-Waugh, Cooper, & Lask, in preparation, 2000). The purpose of this study is to investigate the applicability of current diagnostic criteria to the clinical spectrum of early onset eating disorders.

METHOD

The interrater reliability study was part of a larger project (Nicholls et al., in preparation, 2000) studying growth and development in all children referred to the eating disorders team at Great Ormond Street Hospital between 1992 and 1998. The eating disorders team offers a local and national service and the high profile of the hospital means a

Table 1. Great Ormond Street criteria

Anorexia nervosa		
<ul style="list-style-type: none"> • Determined weight loss (e.g., food avoidance, self-induced vomiting, excessive exercising, abuse of laxatives) • Abnormal cognitions regarding weight and/or shape • Morbid preoccupation with weight and/or shape 		
Food avoidance emotional disorder	Selective eating	Functional dysphagia
<ul style="list-style-type: none"> • Food avoidance not accounted for by primary affective disorder • Weight loss • Mood disturbance not meeting criteria for primary affective disorder • No abnormal cognitions regarding weight or shape • No morbid preoccupation regarding weight or shape • No organic brain disease or psychosis 	<ul style="list-style-type: none"> • Narrow range of foods for at least 2 years • Unwillingness to try new foods • No abnormal cognitions regarding weight or shape • No fear of choking or vomiting • Weight may be low, normal, or high 	<ul style="list-style-type: none"> • Food avoidance • Fear of swallowing, choking, or vomiting • No abnormal cognitions regarding weight or shape • No morbid preoccupation regarding weight or shape • No organic brain disease or psychosis
Bulimia nervosa	Pervasive refusal syndrome	
<ul style="list-style-type: none"> • Recurrent binges and purges • Sense of lack of control • Morbid preoccupation with weight and shape 	<ul style="list-style-type: none"> • Profound refusal to eat, drink, walk, talk, or self-care • Determined resistance to efforts to help 	

referral bias is inevitable. The study cohort contains a wide range of cases, including severe cases, the youngest patients, and many atypical patients.

For the interrater reliability study, 81 children (24.7% boys, 75.3% girls) were randomly selected from the total study population of 226 children (age range 6.31–16.15 years). Using information from the patients' case notes, a diagnosis was made by two clinicians (BL and DN) according to three sets of diagnostic criteria (ICD 10, DSM-IV, and GOS). Each patient underwent initial assessment, including a semistructured family and individual assessment and a physical and growth assessment. Since September 1995, assessment also included a child's version of the Eating Disorders Examination (EDE; Bryant-Waugh, Cooper, Taylor, & Lask, 1996). The clinicians were blind to each other's diagnoses. All patients were assigned an eating disorder diagnosis or a "not classifiable." A comorbid diagnosis was only given for non-eating disorder diagnoses clearly independent of the eating disorder. For example, depression was only rated if primary or severe.

A kappa statistic (unweighted) was used to determine the extent of clinician agreement on each diagnosis, while allowing for chance. Arbitrary values for the evaluation of observed kappa values have been suggested as follows (Landis & Koch, 1977): strength of agreement: 0 = poor; 0.01–0.2 = slight; 0.21–0.4 = fair; 0.41–0.6 = moderate; 0.61–0.8 = substantial; 0.81–1.0 = perfect.

RESULTS

ICD 10 has eight eating disorder diagnoses (Tables 2–5). The kappa statistic requires that there are no empty cells, that is, where one rater had not included a category that the other had. Two of the diagnostic codes were therefore excluded from the analysis (50.5 and 50.4; 6 patients) as only one clinician had used each of these codes. The kappa value for ICD 10 was 0.357. Of those agreed upon (49.3%), 49% were diagnosed with anorexia nervosa (24% of total) and 5.4% with bulimia nervosa. 13.2% of patients were diagnosed with anorexia nervosa by one clinician and with atypical anorexia nervosa by the other.

Table 2. Interrater reliability: ICD 10 cross tabulation

		Rater 1					Total		
		0	50.0	50.1	50.2	50.8		50.9	
Rater 2	0—Not classifiable	Count	3	1			1	5	
		% of total	4.0%	1.3%			1.3%	6.7%	
	50.0—Anorexia nervosa	Count	1	18	1	1		21	
		% of total	1.3%	24%	1.3%	1.3%		28%	
	50.1—Atypical anorexia nervosa	Count		8	9			17	
		% of total		10.7%	12%			22.7%	
	50.2—Bulimia nervosa	Count		1		2		3	
		% of total		1.3%		2.7%		4%	
	50.8—Other eating disorders	Count	6		7		2	4	19
		% of total	8%		9.3%		2.7%	5.3%	25.3%
	50.9—Eating disorder unspecified	Count					7	3	10
		% of total					9.3%	4%	13.3%
	Total		10	28	17	3	10	7	75
			13.3%	37.3%	22.7%	4%	13.3%	9.3%	100%

Additional ICD 10 codes: 50.3 = atypical bulimia nervosa; 50.4 = overeating with psychological disturbance; 50.5 = vomiting with psychological disturbance.

A total of 16.2% of the patients were diagnosed with other eating disorder by one clinician and eating disorder unspecified by the other. 10.3% were diagnosed with atypical anorexia nervosa by one clinician and with other eating disorder by the other. Finally, another 10.3% of patients were diagnosed as having no eating disorder by one clinician and other eating disorder by the other clinician.

DSM-IV contains three eating disorder categories. The kappa value for DSM-IV was 0.636, and 77.8% of the patients' diagnoses were agreed on by both clinicians. However, 42% of these patients were diagnosed as having EDNOS. Differences particularly occurred for patients who did not have fear of fatness and other core psychopathology. 16.25% of the patients were diagnosed as having EDNOS by one clinician, but not by the other.

There are six eating disorder categories within the GOS diagnostic criteria. Functional dysphagia was excluded as a diagnosis in this study because it is found as a symptom of both FAED and selective eating. The validity of functional dysphagia as a diagnostic category needs clarification. Five diagnoses were included in the analysis.

Table 3. Interrater reliability: DSM cross tabulation

		Rater 1				Total	
		0	1	2	3		
Rater 2	0—Not classifiable	Count	4	1		1	6
		% of total	4.9%	1.2%		1.2%	7.4%
	307.1—Anorexia nervosa	Count	1	23	1	1	26
		% of total	1.2%	28.4%	1.2%	1.2%	32.1%
	307.51—Bulimia nervosa	Count			2		2
		% of total			2.5%		2.5%
	307.50—Eating disorder not otherwise specified	Count	7	6		34	47
		% of total	8.6%	7.4%		42%	58%
	Total		12	30	3	36	81
			14.8%	37%	3.7%	44.4%	100%

Table 4. Interrater reliability: Great Ormond Street cross tabulation

		Rater 1						Total
		0	1	2	3	4	5	
Rater 2	0—Not classifiable	Count	2					2
		% of total	2.7%					2.7%
	1—Anorexia nervosa	Count	1	33	1	1		36
		% of total	1.2%	45.2%	1.2%	1.2%		49.6%
	2—Bulimia nervosa	Count			3			3
		% of total			4.1%			4.1%
	3—Food avoidance emotional disorder	Count		1		17	1	19
		% of total		1.2%		23.3%	1.2%	26%
	4—Selective eating	Count					10	10
		% of total					13.7%	13.7%
5—Pervasive refusal	Count	1					2	
	% of total	1.2%					2.7%	
	Count	4	34	4	18	11	2	73
	% of total	5.5%	46.6%	5.5%	24.7%	15.1%	2.7%	100%

The kappa value for GOS criteria was 0.879. This high level of interrater agreement was not accounted for by any one diagnosis. Of the 11 patients for whom there was disagreement, no specific patterns were found in the discrepancy.

A comorbid ICD 10 diagnosis was given in 4 (4.9%) and 5 (6.2%) patients by the two clinicians, respectively. For DSM, a second diagnosis was given in 5 (6.2%) patients (by both clinicians). For GOS criteria, a non-eating disorder diagnosis was made in 5 (6.2%) patients (by both).

DISCUSSION

We studied the application of three diagnostic systems (DSM-IV, ICD 10, and GOS) to a cohort of children and adolescents referred with eating difficulties to a specialist clinical setting. ICD 10 had the lowest interrater reliability. It has eight categories, some of which are not mutually exclusive. For example, a patient who had lost a large amount of weight associated with a fear of (and actual) vomiting was diagnosed as having psychogenic loss of appetite (F50.8) by one clinician, and as having vomiting associated with psychological disturbance (F50.5) by the other. The value of having two separate diagnoses of other eating disorder (F50.8) and eating disorder unspecified (F50.9) must also be questioned. Within the typical eating disorders, ICD 10 defines atypical anorexia nervosa as either a milder form of anorexia nervosa or "when one or more key features of anorexia nervosa

Table 5. Classification system

Classification System	Number of Cases Included	Kappa Value
ICD 10	75	0.357
DSM-IV	81	0.636
GOS	73	0.879

Note: ICD 10 = 10th edition of the International Classification of Diseases; DSM-IV = 4th edition of the Diagnostic and Statistical Manual of Mental Disorders; GOS = Great Ormond Street.

are absent." By these criteria, a typical case of anorexia nervosa in childhood would receive a diagnosis of atypical anorexia nervosa. Other key features of anorexia nervosa in ICD 10 are body image distortion and fear of weight gain. Can these features be absent and a diagnosis of atypical anorexia nervosa be made? This would then include a large number of our cohort, but challenges notions about the core psychopathology of eating disorders.

DSM-IV showed reasonable interrater reliability, aided by the limited number of categories. The main problem was with the use of EDNOS, into which 51.2% (mean) of patients fell. Although examples are given for inclusion in this category, it is less clear what should be excluded, that is, what does NOT constitute an eating disorder. In the absence of alternatives, a variety of pathologies could be rated within this category. Feeding disorder of infancy and early childhood may be a preferable diagnosis for a proportion of these cases. This diagnosis requires onset before the age of 6 and may be better equated to failure to thrive than to an eating disorder. We did not use this diagnostic category as it implied lifelong eating abnormalities. Our patients had either previously eaten normally, or their eating would have been considered normal at one time in their life, but had not adapted with age.

The highest agreement was with the GOS criteria. This is not surprising, because the criteria were developed for this clinical population. Agreement occurred not only for typical eating disorders, but across the spectrum of eating difficulties. Operational criteria for children need to be applicable across a wide age range. To address this, diagnoses need to be either very complex or to use exclusion criteria. A feature of the GOS criteria is that they include characteristics that must be absent for the diagnosis to be made. Thus, it may be easier to determine when preoccupation with weight and shape is not present in a child, than to clearly identify how such a preoccupation might be expressed across the developmental spectrum.

There was a tendency for disagreement to occur when a patient's symptoms had evolved during the process of assessment. For example, 1 boy with selective eating developed a pronounced functional dysphagia and weight loss, thus meeting criteria for FAED. In addition, 1 girl with FAED developed the characteristic psychopathology of anorexia nervosa. These longitudinal continuities are reminiscent of the well-established relationship between anorexia nervosa and bulimia nervosa and merit further examination as precursors of later eating disorders pathology.

The issue of when a feeding disorder becomes an eating disorder is far from clear. The classification of eating difficulties in middle childhood and young adolescence falls between two syndrome clusters, with the attendant risk of going unrecognized. Jaffe and Singer (1989 page 575-576) have noted that "abnormal eating behaviors are often observed in young children and are usually considered . . . to be benign, self-limited, minor behavioral aberrations." The patients these authors describe, like ours, are referred because of "medical or nutritional concerns related to intractable, adamant refusal to eat, with resultant conflict with families or teachers, and generalised disruption to home and school life." They described 8 patients (age range 5-11 years) who they believed comprise a specific syndrome within the family of eating disorders. None of these children expressed a fear of fatness.

Even if criteria are adapted to include all children who are preoccupied with weight and shape, there were still 51% of our sample who would not meet traditional diagnostic criteria for eating disorders. Eating disorders have been described as having "remarkably consistent phenomenology but very varied psychopathology" (Casper, 1987 page 159). There may be a category of eating disorders without dieting or morbid preoccupation

with weight and shape, about which we know little. Within the younger population, distinguishing subsyndromes on the basis of physical and behavioral symptoms may be more accurate than on the basis of psychopathology. With the continuities between childhood and adult psychiatric disorders becoming ever more apparent in a number of disorders (Hotopf, Carr, Mayou, Wadsworth, & Wessely, 1998; Kovacs et al., 1984), it seems important to reexamine the features shared by children and adult patients.

Gowers et al. (1991) compared premenarcheal patients with females of all ages with anorexia nervosa and with a second group of age-matched postmenarcheal patients. The characteristics shared by the three groups were degree of weight loss, vomiting as part of the presentation, and overall severity on Morgan-Russell outcome scales. Differences were found in self-reported precipitants, family cohesion, self-consciousness about eating, and specific weight loss behaviors such as laxative abuse. In other words, biological correlates and illness severity showed more stability across ages than psychological or social characteristics.

Beumont et al. (1994) have argued that the only really rigid separation between bulimia nervosa and anorexia nervosa is the presence or absence of emaciation. Gull's (1874) original description of anorexia nervosa was based almost entirely on physical symptoms. The syndrome or phenotype we know as anorexia nervosa would be unusual in psychiatry if it were to rely so heavily on the belief systems of the patient. The fear driving the food avoidance, whether it be fear of fatness, fear of choking, fear of vomiting, or fear of new foods, could be considered irrelevant. Patients with obsessive-compulsive disorder are not subclassified on the basis of their specific fears (e.g., fear of contamination, fear of harm to others), but rather on the process and behaviors (obsessional thoughts or compulsions). Identifying the specific nature of the anxiety may be important for treatment, but does not necessarily validate a diagnostic category. Further exploration of EDNOS across the developmental spectrum may illuminate how and whether this applies for eating disorders.

One of the problems for early onset eating disorders has been the lack of large enough cohorts of such children to form the basis of empirical research. Nevertheless, we argue that current criteria for eating disorders are too preoccupied with body weight and shape to be applicable to children. As DiNicola et al. (1989) have said, "it is inadequate to simply portray children's cases that do not fit into a narrow adult standard as atypical." It is often the study of those who do not fit the typical mould that yields new clues or directions. Adequate study starts with basic agreements over case matching, most commonly by means of diagnosis. We suggest that the traditional eating disorder categories are not sensitive to the diagnosis of eating disorders in children. The categories proposed by Bryant-Waugh and Lask (1995) improve clinician-based diagnosis. Experience tells us that disorders not included in the classification systems are underrecognized, with potentially serious consequences.

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