

Psychopathology of EDNOS patients: To whom do they compare?

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Abstract

Do the levels of psychopathology displayed by patients with an eating disorder not otherwise specified (EDNOS) more closely resemble those displayed by full-criteria anorexia and bulimia nervosa patients than they do those of non-eating-disorder controls? Three groups of eating disorder patients (anorexia nervosa, $n = 27$; bulimia nervosa, $n = 23$; EDNOS, $n = 19$) and a group of non-eating-disorder controls ($n = 25$) were compared on four subscales of the Eating Disorders Inventory–2 (EDI-2), and on the Eating Disorders Belief Questionnaire, the Rosenberg Self-Esteem Scale, and the Depression Anxiety Stress Scales. EDNOS patients were indistinguishable from the other two eating disorder groups on all of the measured variables, except for the Perfectionism subscale of the EDI-2. The findings of the present study support the view that EDNOS should not be considered a subclinical eating disorder. However, much remains to be understood about who EDNOS patients are.

Until recently, research and treatment in eating disorders has focused on the two most widely recognised and discretely categorised disorders, namely, anorexia nervosa (AN) and bulimia nervosa (BN). However, clinical research indicates that a substantial number of those individuals presenting for treatment of eating disorders do not fulfil criteria for either AN or BN; it has been found that between 33% and 61% of patients presenting for treatment of an eating disorder do not meet full criteria for either disorder according to the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., revised; *DSM-III-R*; American Psychiatric Association [APA], 1987) (Beumont, Kopec-Schrader, Talbot, & Touyz, 1993; Bunnell, Shenker, Nussbaum, Jacobsen, & Cooper, 1990; Williamson, Gleaves, & Savin, 1992). Despite revised criteria for AN and BN, similar findings have been reported in studies using the *DSM-IV* (APA, 1994) diagnostic criteria (e.g., Hay & Fairburn, 1998; Mizes & Sloan, 1998; van der Ham, Meulman, van Strien, & van Engeland, 1997). In fact, the prevalence of patients with an eating disorder who do not meet either set of diagnostic criteria but become distressed by their symptoms and ultimately seek treatment approximates twice that of the recognised AN and BN categories.

The eating disorders not otherwise specified (EDNOS) category was introduced to account “for disorders of eating that do not meet the criteria for any specified Eating Disorder” (APA, 1994, p. 550). Like all other *not otherwise specified* categories in the *DSM-IV*, EDNOS was originally intended to classify patients with an atypical presentation of the disorders that was clinically severe enough to warrant formal diagnosis. This atypical label, however, is somewhat misleading because it denotes the EDNOS group as comprising a small percentage of eating disorder patients; in reality, as noted above, a diagnosis of EDNOS is even more common than the other diagnostic categories.

Comparing EDNOS to full-syndrome eating disorders

Because EDNOS patients are symptomatically quite similar to full-syndrome eating disorder patients, and because of the fact that many of the particular diagnostic criteria for eating disorders are somewhat subjective (and contentious) (Thaw, Williamson, & Martin, 2001; Walsh & Garner, 1997), researchers have been interested in whether EDNOS patients differ from their full-criteria counterparts in terms of various psychopathological features. For example,

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Bunnell et al. (1990) compared patients who met full criteria for AN with others who were “subclinical”, that is, who did not fulfil all criteria (usually the severity of weight loss criteria), and patients who met full criteria for BN with “subclinical” BN cases (based on the frequency of bingeing and compensatory behaviours). There were no differences found between the two AN groups on a number of demographic, clinical, and psychological variables that were examined. The subclinical BN group was also quite similar to full-criteria BN patients, but did differ with respect to affect regulation and impulse control.

Following the Bunnell et al. (1990) lead, Ricca et al. (2001) compared AN and BN patients to EDNOS patients who met all but one criteria for AN (amenorrhoea or severity of weight loss; EDNOS-A) and for BN (frequency of bingeing or compensatory behaviour; EDNOS-B) on a number of psychopathological features. There were no significant differences between the AN and EDNOS-A groups, or between the BN and EDNOS-B groups. These findings suggest that EDNOS patients display levels of psychopathology that are comparable to their full-criteria counterparts. There were, however, some reliable differences between anorexic-type patients (AN and EDNOS-A) and bulimic-type patients (BN and EDNOS-B), specifically in terms of levels of depression (bulimic types were more depressed than anorexic types), and dietary restraint and eating concerns (anorexic types scored higher on both factors). The authors suggest that it would be useful to consider subdividing the EDNOS category in terms of anorexic type and bulimic type patients.

Rather than dividing EDNOS patients into groups of anorexic-type and bulimic-type patients, Williamson et al. (1992) used cluster-analytic techniques to determine whether any homogeneous subgroups of EDNOS patients would emerge. They identified three distinct subgroups that were similar in symptom profiles to: (a) “subthreshold” AN (i.e., with relatively mild degree of emaciation), (b) nonpurging BN (now recognised in the *DSM-IV*), and (c) binge eating disorder (a diagnosis proposed for further study in *DSM-IV*). The three EDNOS subgroups were then compared with groups of AN and BN patients on psychopathological variables specific to eating disorders. The cognitive disturbances (e.g., body image and drive for thinness) of the subthreshold AN group was comparable to the disturbance found among full-syndrome AN and BN patients. The atypical, nonpurging BN group differed only from the true BN group in terms of the extent of purgative methods used to control their weight. The third atypical group, individuals with “binge eating disorder”, binge ate but did not engage in self-induced vomiting or extreme dieting to control their

weight, and these individuals were in fact quite overweight. This group also expressed equivalent levels of body dissatisfaction compared to the AN and BN groups, but had lower drive for thinness. Overall, most cases diagnosed as EDNOS were more similar than dissimilar to full-criteria cases.

Continuity versus discontinuity in eating disorders

It is important to note that discussions of subthreshold eating disorders are part of a debate that has been lively for years regarding the nature of eating disorders; that is, whether eating disorders form a discrete entity, separate from normal eating patterns, or whether eating pathology exists on a continuum from nonpathological eating to eating disorders, with dieting and subthreshold eating disorders falling somewhere in between. There is some evidence in support of each view (Garfinkel et al., 1995; Lowe et al., 1996; Mintz & Betz, 1988; Ruderman & Besbeas, 1992; Stice, Killen, Hayward, & Taylor, 1998). A recent taxometric analysis by Williamson et al. (2002; see also Gleaves, Lowe, Green, Cororve, & Williams, 2000), however, suggests that it may be more appropriate to consider eating disorders as a distinct entity, qualitatively different from nonpathological forms of eating behaviour.

Present Study

Despite the marked similarities between EDNOS patients and full-syndrome eating disorders, what has not been demonstrated is whether EDNOS patients are more similar to their full-criteria counterparts than they are to the general weight- and image-conscious public. We compared a group of EDNOS patients to groups of AN, BN, and non-eating-disorder controls on four subscales of the Eating Disorders Inventory–2 (EDI-2; Drive for thinness, Body Dissatisfaction, Perfectionism, and Ineffectiveness), on assumptions and beliefs associated with eating disorders, and on measures of self-esteem, depression, anxiety, and stress. In line with previous research on EDNOS, and the taxometric analysis of Williamson et al. (2002), we expected that EDNOS patients would more closely resemble their full-criteria counterparts than the control group on all measures of psychological characteristics and psychopathology.

Method

Participants

Participants were 27 patients with AN (M body mass index [BMI, kg/m^2] = 15.3, SD = 1.9), 23 patients with BN (M BMI = 22.9, SD = 4.1), 19 patients with

EDNOS (M BMI = 20.5, SD = 4.2), and 25 non-eating-disorder controls (M BMI = 20.7, SD = 2.7). The AN group had a significantly lower BMI compared to the three other groups ($p < .05$), who in turn did not differ from one another. The eating disorder patients were either inpatients or day patients commencing treatment at clinics affiliated with the University of Sydney, and all patients met the *DSM-IV* diagnostic criteria for an eating disorder. The control group consisted of first-year psychology students, who received course credit for participation. The mean age of all participants was 21.3 years (range = 14–51 years), and the four groups did not differ with respect to age.

Measures

Participants were assessed on a number of variables commonly associated with eating disorders, including psychological traits, assumptions and beliefs relevant to eating disorders, self-esteem, and emotional states.

Psychological traits. The EDI-2 (Garner, 1991) was used as a measure of psychological traits associated with eating disorders. Four of the 11 subscales were selected that we believed were most closely representative of the core psychological features of such disorders. These included: (a) Drive for Thinness, (b) Body Dissatisfaction, (c) Ineffectiveness, and (d) Perfectionism.

The EDI-2 Symptom Checklist (EDI-2 SC; Garner, 1991) was used as a screening instrument for identifying eating disorders in the nonclinical sample, and also to verify the diagnosis given to eating disorder patients.

Eating disorder beliefs. The Eating Disorder Beliefs Questionnaire (EDBQ; Cooper, Cohen-Tovee, Todd, Wells, & Tovee, 1997) is a 32-item questionnaire designed to assess assumptions and beliefs relevant to eating disorders. It consists of four subscales including: (a) negative self-beliefs; (b) weight and shape as a means to acceptance by others (*acceptance by others*); (c) weight and shape as a means to self-acceptance (*self-acceptance*); and (d) control over eating. The EDBQ has been shown to possess good psychometric properties (Cronbach's α coefficients were in the range 0.89–0.94) and significant correlations were found between the subscales of the EDBQ and other measures of specific and general psychopathology of eating disorders (Cooper et al., 1997).

Self-esteem. The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) is a 10-item self-report measure of global self-esteem, with higher scores

reflecting higher self-esteem. It has demonstrated good reliability and validity with eating disorder patients (Griffiths et al., 1999).

Emotionality. The Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995) is a 42-item self-report questionnaire that measures features of depression, hyperarousal (anxiety), and tension (stress). The DASS has been shown to have good reliability and validity (e.g., Antony, Bieling, Cox, Enns, & Swinson, 1998).

Procedure

Over a 6-month period, patients admitted to eating disorder clinics associated with the University of Sydney were asked to complete the questionnaires. Diagnostic classification for each patient was determined both by an experienced clinician and by the EDI-2 SC. All questionnaires were completed within the first 2 weeks of treatment.

Control participants completed the questionnaires in a laboratory as part of their first-year psychology course requirement. Four of these participants were excluded from the study because they reported symptoms characteristic of a diagnosis of an eating disorder, as indicated by the EDI-2 SC.

Results

One-way analyses of variance (ANOVA), with Tukey HSD post hoc tests ($\alpha = .05$), were conducted on each of the dependent measures. Degrees of freedom vary slightly among the measures due to missing values.

Psychological traits

Table I presents mean scores for each of the psychological traits assessed by the EDI-2 separately for each group of participants. There were significant differences between the groups on each of the four EDI-2 subscales: Drive for Thinness, $F(3,84) = 14.06$, $p < .001$; Body Dissatisfaction, $F(3,84) = 7.39$, $p < .001$; Ineffectiveness, $F(3, 84) = 21.37$, $p < .001$; and Perfectionism, $F(3,84) = 4.37$, $p < .01$. On the first three measures, post hoc analyses revealed that the control group scored lower than each of the eating disorder groups, but the three eating disorder groups did not differ from one another. Scores for each of the eating disorder groups fell within the clinical range on these subscales, whereas the control group scored within the nonclinical range. In contrast, the AN and BN groups scored significantly higher on the Perfectionism subscale than did either the EDNOS or control groups; scores for the AN and BN groups fell within

the clinical range, whereas scores for the EDNOS and control groups fell within the normal range.

Eating disorder beliefs

Table II shows the mean scores for each of the subscales assessing assumptions and beliefs associated with eating disorders, separately for each of the four groups. There were significant differences between the four groups on all four measures of assumptions and beliefs, including: negative self-beliefs, $F(3,74) = 20.66$, $p < .001$; acceptance by others, $F(3,74) = 14.46$, $p < .001$; self-acceptance, $F(3,74) = 9.85$, $p < .001$; and control over eating, $F(3,74) = 24.25$, $p < .001$. Post hoc analyses showed that the EDNOS group was not significantly different from the other two eating disorder groups on any of the four measures of eating disorder beliefs, but did differ significantly from the control group on each measure.

Self-esteem

Mean scores on the RSES by participant group are presented in Table III. There were significant group differences in levels of self-esteem, $F(3,82) = 24.07$, $p < .001$. Post hoc analysis revealed that the control group scored significantly higher on the RSES than did the three eating disorder groups, who in turn did not differ from one another.

Emotionality

Table III also presents the mean scores for each emotional-state measure assessed by the DASS, as a function of participant group. There were significant differences between groups on all three of the measures, including: Depression, $F(3,74) = 19.08$, $p < .001$; Anxiety, $F(3,74) = 5.96$, $p < .01$; and Stress, $F(3,74) = 14.01$, $p < .001$. Post hoc analyses revealed that the control group scored significantly lower than the three eating disorder groups on each of the three measures. Scores for the control group fell within the normal (Depression and Stress) to mild (Anxiety) range on each of the subscales, whereas scores for the three eating disorder groups fell within the moderate (Stress) to severe (Depression and Anxiety) range on each of the subscales.

In summary, EDNOS patients were found to more closely resemble patients with AN and BN than non-eating-disorder controls on virtually every measure of psychopathology, with the only exception being the Perfectionism subscale of the EDI-2.

Discussion

The aim of the present study was to determine if EDNOS patients more closely resembled full-criteria eating disorder patients than they do normal controls. We found that EDNOS patients were not significantly different to the other eating disorder

Table I. Mean scores on the Eating Disorders Inventory-2 subscales

Subscale	<i>M (SD)</i>			
	AN	BN	EDNOS	CON
Drive for thinness	12.52 ^a (6.76)	15.10 ^a (5.80)	13.00 ^a (7.22)	4.04 ^b (5.60)
Body dissatisfaction	18.24 ^a (8.08)	21.62 ^a (6.67)	18.12 ^a (7.80)	11.12 ^b (8.57)
Ineffectiveness	14.92 ^a (7.26)	15.81 ^a (8.25)	11.59 ^a (7.71)	2.16 ^b (2.30)
Perfectionism	8.48 ^a (4.48)	9.05 ^a (5.10)	6.88 ^b (4.83)	4.76 ^b (3.59)

Note. AN = anorexia nervosa; BN = bulimia nervosa; EDNOS = eating disorder not otherwise specified; CON = non-eating-disorder control.
^{a,b}Means within each row with differing superscripts differ at $p < .05$.

Table II. Mean scores on the Eating Disorder Beliefs Questionnaire

Subscale	<i>M (SD)</i>			
	AN	BN	EDNOS	CON
Negative self-beliefs	66.13 ^a (25.57)	48.50 ^a (33.89)	63.41 ^a (25.18)	15.04 ^b (14.07)
Acceptance by others	48.18 ^a (20.88)	51.06 ^a (31.69)	53.62 ^a (28.76)	13.64 ^b (12.71)
Acceptance by self	47.78 ^a (13.27)	45.16 ^a (14.62)	47.91 ^a (11.68)	29.32 ^b (14.12)
Control over eating	30.60 ^a (11.31)	33.00 ^a (15.47)	39.50 ^a (14.32)	9.78 ^b (8.60)

Note. AN = anorexia nervosa; BN = bulimia nervosa; EDNOS = eating disorder not otherwise specified; CON = non-eating disorder control.
^{a,b}Means within each row with differing superscripts differ at $p < .05$.

Table III. Mean scores on self-esteem, depression, anxiety, and stress scales

Measure	<i>M (SD)</i>			
	AN	BN	EDNOS	CON
Self-esteem	19.35 ^a (4.54)	21.83 ^a (6.94)	21.76 ^a (6.93)	31.36 ^b (3.32)
Depression	21.55 ^a (10.70)	26.56 ^a (14.02)	26.29 ^a (11.28)	6.24 ^b (5.04)
Anxiety	16.15 ^a (9.05)	15.25 ^a (8.05)	17.18 ^a (8.23)	8.04 ^b (7.09)
Stress	24.75 ^a (9.31)	26.00 ^a (11.72)	27.47 ^a (7.15)	12.36 ^b (6.95)

Note. AN = anorexia nervosa; BN = bulimia nervosa; EDNOS = eating disorder not otherwise specified; CON = non-eating disorder control.
^{a,b}Means within each row with differing superscripts differ at $p < .05$.

patients on commonly recognised measures of psychological traits and beliefs associated with these disorders. The patient groups also did not differ in terms of self-esteem and emotional states. More specifically, the three patient groups were similar on their desire or drive for thinness, their level of dissatisfaction with their body weight and shape, and their feelings of ineffectiveness. They were also similar in their beliefs about weight and shape as a means of self-acceptance and acceptance by others, in their beliefs about controlling their food intake as a means of controlling their weight and shape, and in their negative self-views. Finally, the three patient groups had similarly high levels of depression, anxiety, and stress. Thus, on virtually every measure that we examined, EDNOS patients were indistinguishable from full-criteria AN or BN, but did differ markedly from normal controls.

Not only do these findings clearly indicate that EDNOS patients are not simply individuals with common eating disturbances and weight concerns, but they also speak to the debate regarding the continuum versus discrete-entity views of eating disorders. Consistent with the findings of Williamson et al. (2002), who looked at diagnostic symptoms of eating disorders, we found that EDNOS patients were not part of the way along a continuum from nonpathological eating to a full-blown eating disorder, but actually paralleled the full-blown eating disorders in terms of psychopathological characteristics. These findings add support for the view that eating disorders (including EDNOS) are qualitatively different, and not simply quantitatively different, from nonpathological eating (for a related discussion, see Beumont & Touyz, 2003).

Patients with EDNOS did differ from AN and BN patients (but not from normal controls) on one measure: the Perfectionism subscale of the EDI-2. EDNOS patients have extreme body dissatisfaction and drive for thinness similar to other eating disorder patients, but seem to have less extreme standards for personal achievement. Thus, these individuals may be less likely to engage in the symptoms of eating disorders to the same degree or severity as AN and

BN patients (Vohs, Bardone, Joiner, Abramson, & Heatherlow, 1999). Further research is needed to clarify the role of perfectionism in eating disorder behaviour (Joiner, Heatherton, Rudd, & Schmidt, 1997).

Despite previous research demonstrating the marked similarity of EDNOS patients to full-syndrome cases, it is still not clear exactly who EDNOS patients are. Is there a group of patients with EDNOS who have been overlooked? Mizes and Sloan (1998) conducted a cluster analysis of a group of EDNOS patients and found one subgroup of binge-eating disorder-type patients, and another heterogeneous subgroup. Thus, perhaps it is the case that if we remove the anorexic-type, bulimic-type, and binge eating-disorder patients from the EDNOS category, we would be left with a group of unclassified eating disorder patients. Do we know who these individuals are? Are they simply chronic dieters? Are they a group of clinical cases with a set of characteristics that could differentiate them from other groups of eating disorder patients? Or are they rather a truly atypical, or not otherwise specified, heterogeneous group of patients? It seems that we are clear about the NOS part of the diagnostic label, but not about the ED part. This is an area that is clearly in need of further research.

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