

The Natural Course of Bulimia Nervosa and Binge Eating Disorder in Young Women

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Background: Little is known about the relative course and outcome of bulimia nervosa and binge eating disorder.

Methods: Two community-based cohorts were studied prospectively over a 5-year year period. One comprised 102 participants with bulimia nervosa and the other 48 participants with binge eating disorder (21% [9/42] of whom had comorbid obesity). All participants were female and aged between 16 and 35 years at recruitment. The assessments were at 15-month intervals and addressed eating disorder features, general psychiatric symptoms, and social functioning.

Results: Both cohorts showed marked initial improvement followed by gradual improvement thereafter. Between half and two thirds of the bulimia nervosa cohort had some form of eating disorder of clinical severity at each assessment point, although only a minority contin-

ued to meet diagnostic criteria for bulimia nervosa. Each year about a third remitted and a third relapsed. The outcome of the binge eating disorder cohort was better, with the proportion with any form of clinical eating disorder declining to 18% (7 of 40) by the 5-year follow-up. The relapse rate was low among this cohort. There was little movement of participants across the 2 diagnostic categories and few sought treatment. Both groups gained weight, with 39% of the binge eating disorder cohort (14 of 36) meeting criteria for obesity at 5-year follow-up.

Conclusions: These findings suggest that, among young women in the community, bulimia nervosa and binge eating disorder have a different course and outcome. Whereas the prognosis of those with bulimia nervosa was relatively poor, the great majority of those with binge eating disorder recovered.

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FUNDAMENTAL TO the classification of psychiatric disorders¹ and their management is knowledge of their course and outcome. We describe the findings of a prospective community-based study of the 5-year course of 2 eating disorders, bulimia nervosa and binge eating disorder.

The diagnosis of bulimia nervosa was introduced by Russell in 1979.² It is characterized by recurrent binge eating and extreme weight-control behavior, such as self-induced vomiting, strict dieting, and the misuse of laxatives. Binge eating disorder is a new diagnostic concept that has provisional status in *DSM-IV*.³ It too has binge eating as a central feature but, in contrast with bulimia nervosa, there is little or no extreme weight-control behavior.^{3(p550)} The clinical features of binge eating disorder have begun to be delineated and contrasted with those of bulimia nervosa.⁴⁻⁷ Much less is known about the relative course of the 2 disorders. To our knowl-

edge, this is the first prospective study to compare their longer-term course and outcome. The study was community-based since eating disorders are subject to referral bias.⁸

RESULTS

CHARACTERISTICS AT RECRUITMENT

The bulimia nervosa cohort comprised 102 participants, 92 (90%) of whom were reassessed by interview at the final follow-up (5.0±0.3 years after recruitment). Eighty-seven participants were interviewed face-to-face, and 5 by telephone. Of the other 10 participants, 1 could not be traced, 2 did not reply, and 7 declined participation. Those not followed up had somewhat more severe symptoms at recruitment, as indicated by higher frequencies of binge eating (objective bulimic episodes) and self-induced vomiting ($P=.07$ and $P=.13$, respectively) and higher scores

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PARTICIPANTS AND METHODS

PARTICIPANTS

Two community-based cohorts of female participants with *DSM-IV* eating disorders were recruited and followed up prospectively over a 5-year period. One cohort had bulimia nervosa and the other had binge eating disorder. The study was approved by the local research ethics committee.

The two cohorts were originally recruited for case-control studies of risk factors for bulimia nervosa⁹ and binge eating disorder.¹⁰ They were identified from among women registered with family practices across Oxfordshire, England. All women aged between 16 and 35 years listed on these registers were sent the self-report version of the Eating Disorder Examination interview (EDE).¹¹ Those whose ratings suggested that they might have either eating disorder were subsequently interviewed using the EDE.^{12,13} Participants who met *DSM-IV* diagnostic criteria for bulimia nervosa or binge eating disorder formed the baseline sample. Further details of the sample and recruitment methods are given in the original reports.^{9,10}

The participants were recontacted at 15-month intervals over 5 years. Those who agreed to be reassessed were interviewed face-to-face whenever possible. The great majority of the interviews took place in participants' homes. Strenuous efforts were made to retain the 2 cohorts.

MEASURES

Specific Psychopathology

At each assessment point, the EDE interview^{12,13} was used to measure the severity and character of eating disorder psychopathology. Participants were weighed using calibrated portable scales, and at the initial assessment their height was also measured (thereby allowing their body mass index [BMI] to be calculated; weight in kilograms divided by the square of height in meters). With this information it was possible to apply operational definitions of the *DSM-IV* diagnoses anorexia nervosa, bulimia nervosa, and binge eating disorder. Diagnoses of the residual *DSM-IV* eating disorder category, eating disorder not otherwise specified (ED-NOS), of which binge eating disorder is one example,^{3(p550)} were made by 2 experienced clinicians (C.G.F. and Z.C.) after being briefed in detail about each eligible participant's clinical status. They were given this diagnosis if they did not meet the diagnostic criteria for anorexia nervosa, bulimia nervosa, or binge eating disorder, yet clearly had an eating disorder of clinical

severity (ie, it was a source of distress or disability^{3(ppxxi,7)} that was comparable in severity to that seen among patients attending eating disorder clinics). These judgments were made independently, blinded to the participant's identity, original diagnosis, and follow-up point. There were few disagreements between the clinicians' judgments (14/208; 7%), and these invariably concerned cases of threshold severity. They were resolved on discussion, with the rule being not to make an ED-NOS diagnosis if either remained uncertain about case status. The same procedure had been used in our study of the long-term clinical course of bulimia nervosa.¹⁴

General Psychopathology and Social Adjustment

A continuous measure of the severity of general psychiatric symptoms was provided by the Brief Symptom Inventory.¹⁵ Sections from the Structured Clinical Interview for *DSM-III-R*^{16,17} were used to identify mood and anxiety disorders at follow-up. Self-esteem was measured using the Robson self-esteem questionnaire,¹⁸ and social adjustment was assessed using the Social Adjustment Scale.¹⁹

Exposure to Treatment

Exposure to treatment was assessed at each time point by asking the participant about any forms of help that she had received, either for the eating problem or for other related difficulties.

STATISTICAL METHODS

The statistical significance of changes from recruitment to follow-up in individual variables was assessed using parametric (paired *t*) or nonparametric (Wilcoxon matched pairs or McNemar) tests, as appropriate for the distribution of the data. Similarly, the statistical significance of any differences between groups of participants was assessed using parametric (grouped *t*) or nonparametric tests (Mann-Whitney, χ^2 , or Fisher exact tests). Relationships between continuous variables were assessed using the Pearson *r* correlation coefficient. To examine differences between the 2 groups in pattern of change of eating disorder status over time (proportion remitted or relapsed since previous assessment), logistic models of group and time were fitted.²⁰

Data are presented as mean \pm SD unless otherwise indicated. The significance level was set at 2-sided $P < .05$, although because of the number of comparisons performed, differences significant at $P < .01$ are considered most reliable.

on the Brief Symptom Inventory ($P = .08$) and Social Adjustment Scale ($P = .03$).

The binge eating disorder cohort comprised 48 participants, 40 (83%) of whom were reassessed by interview at the final follow-up (5.0 ± 0.3 years after recruitment). Thirty-six participants were interviewed face-to-face, and 4 by telephone. Of the other 8 participants, 2 could not be traced, 2 did not reply, and 4 declined participation. The characteristics of those followed up and those not were very similar.

The cohorts did not differ significantly at baseline in terms of age, marital status, or social class (**Table 1**). There was, however, a tendency for those with bulimia nervosa to be younger at the onset of their eating disorder ($P = .06$), and they were more likely to have ever received treatment for an eating disorder (26% vs 5%; Fisher $P = .01$).

There were no significant differences between the cohorts in their frequency of binge eating, EDE Weight Concern and Shape Concern scores, or self-esteem

Table 1. Characteristics of the 2 Cohorts at Recruitment*

	Bulimia Nervosa Cohort (n = 92)	Binge Eating Disorder Cohort (n = 40)	Test Statistic	P
Age, mean (SD), y	23.9 (5.0)	24.7 (5.8)	$t_{130} = 0.84$.40
Marital status, No. (%)				
Single	54 (59)	18 (45)	$\chi^2 = 1.59$ ‡	.21
Married/cohabitating	33 (36)	21 (52)		
Separated/divorced	5 (5)	1 (3)		
Social class, No. (%)†				
I-II	42 (46)	15 (39)	$\chi^2 = 3.85$ §	.28
III (nonmanual)	7 (8)	4 (10)		
III (manual)	33 (36)	12 (31)		
IV-V	8 (9)	8 (21)		
Other	2 (2)	0		
Age at onset of eating disorder, y				
Mean (SD)	15.7 (4.3)	17.2 (4.6)	$z = 1.92$.06
Median (range)	15 (6-31)	16 (9-34)		
History of anorexia nervosa, No. (%)	14 (15)	2 (5)	Fisher exact	.15
Treatment for eating disorder, No. (%)				
Current	9 (10)	1 (3)	Fisher exact	.28
Past	15 (16)	1 (3)	Fisher exact	.06

*Numbers vary slightly because of missing data.

†I-II indicates high; III, middle; and IV-V, low.²¹

‡Single vs others.

§Excluding "other."

||Mann-Whitney.

(Table 2). The participants with bulimia nervosa did, however, have greater eating disorder psychopathology, as measured by the EDE Restraint and Eating Concern subscales. They also had more general psychiatric symptoms and poorer social adjustment. There were no differences between the cohorts in the proportions misusing alcohol or psychoactive drugs. The binge eating disorder cohort weighed more than the bulimia nervosa group, although only a minority met criteria for obesity (BMI ≥ 30 : 21% [9/42] vs 12% [9/74]; $\chi^2 = 1.25$, $P = .26$).

FIVE-YEAR OUTCOME

Eating Disorder Diagnoses

At 5-year follow-up, 15% (14/92) of the bulimia nervosa cohort met *DSM-IV* criteria for this disorder. An additional 36% (33/92) had some other form of clinical eating disorder (2% with anorexia nervosa and 34% with ED-NOS). Eight percent (7/92) met diagnostic criteria for binge eating disorder. (Following the *DSM-IV* ruling,^{3(p550)} binge eating disorder is classified in this article as a subtype of ED-NOS.) The outcome of the binge eating disorder group was better, with 18% (7/40) having a clinical eating disorder of some form (compared with 51% [47/92] of the bulimia nervosa cohort; $\chi^2 = 11.66$, $P < .001$), and with 3% (1/40), 0%, and 15% (6/40) meeting criteria for bulimia nervosa, anorexia nervosa, and ED-NOS, respectively. A comparable proportion (10%; 4/40) met criteria for their original diagnosis ($\chi^2 = 0.28$, $P = .60$).

Overeating and Purging. The frequency of binge eating declined to a lesser extent in the bulimia nervosa cohort than in the binge eating disorder group (mean decreases, 56% and 77%, respectively; $z = 2.25$, $P = .03$) with the result that their frequency at follow-up was higher ($z = 2.34$, $P = .02$). Half (53%; 49/92) reported having had no episodes of binge eating over the preceding 3 months compared with 78% (31/40) of the binge eating disorder group ($\chi^2 = 4.87$, $P = .03$).

The average frequency of self-induced vomiting and laxative misuse decreased in the bulimia nervosa cohort by 47% and 75%, respectively. At follow-up in these 92 patients, 67% were not inducing vomiting, 87% were not misusing laxatives, and 62% reported having done neither over the previous 3 months. Among the binge eating cohort, only 1 participant induced vomiting at follow-up and none misused laxatives. Forty-one percent (38/92) of the bulimia nervosa cohort and 77% (30/39) of the binge eating disorder group were fully abstinent ($\chi^2 = 12.53$, $P < .001$); ie, they reported having had no objective bulimic episodes, no self-induced vomiting, and no laxative misuse over the preceding 3 months.

Dietary Restraint and Attitudes to Shape, Weight, and Eating. There was a reduction in dietary restraint in both cohorts, with the average decrease in Restraint subscale scores being 45% among the bulimia nervosa cohort and 27% among the binge eating disorder group ($z = 1.13$, $P = .26$), with the result that the groups were no longer significantly different ($z = 0.83$, $P = .41$). The levels of concern about shape, weight, and eating also decreased to an equivalent extent in both groups (Shape Concern: 32% and 39% mean decreases in the bulimia nervosa and binge eating disorder cohorts, respectively [$z = 0.70$, $P = .49$]; Weight Concern: 30% and 39% mean decreases, respectively [$z = 0.97$, $P = .36$]; Eating Concern: 61% mean decrease in both cohorts). As at recruitment, there were no significant differences between the cohorts on the Shape Concern ($z = 1.73$, $P = .08$) and Weight Concern ($z = 1.55$, $P = .12$) subscales, and the groups no longer differed in their Eating Concern scores ($z = 1.48$, $P = .14$).

General Psychiatric Disturbance and Social Adjustment

The level of general psychiatric symptoms decreased by an average of 30% in the bulimia nervosa cohort and 42% in the binge eating group ($z = 1.50$, $P = .13$) with the result that, as at recruitment, the score of the bulimia nervosa group was significantly higher ($z = 2.24$, $P = .03$). At follow-up, 41% (38 women) of the bulimia nervosa cohort met *DSM-III-R*²² criteria for major depressive disorder compared with 23% (9 women) of the binge eating disorder group ($\chi^2 = 3.52$, $P = .06$). Within the bulimia nervosa cohort, comorbid major depressive disorder (present in 38 women [41%]) was associated with the presence of an eating disorder (55% among those with a *DSM-IV* eating disorder [26 women], 27% among the remainder [12 women]; $\chi^2 = 6.65$, $P = .01$), whereas this was not true of the binge eating disorder cohort in which comorbid major depressive disorder

Table 2. Characteristics of the 2 Cohorts at Recruitment and Final Follow-up and Between-Group Differences at Both Time Points*

	Bulimia Nervosa Cohort (n = 92)		Binge Eating Disorder Cohort (n = 40)		Between-Group Difference, Mean (SE)/Proportion‡	
	Recruitment	Follow-up†	Recruitment	Follow-up†	Recruitment§	Follow-up§
Frequency over previous 3 mo of						
Objective bulimic episodes						
Mean (SD)	34.3 (25.4)	15.3 (29.4)	29.6 (21.3)	6.7 (20.6)	4.7 (4.6)	8.6 (4.5)#
Median (range)	27 (12-159)	0 (0-158)	24 (12-104)	0 (0-122)
Self-induced vomiting						
Mean (SD)	29.3 (51.7)	15.5 (42.9)	0.1 (0.7)	0.1 (0.8)	29.2 (5.4)	15.4 (4.5)
Median (range)	6 (0-336)	0 (0-294)	0 (0-4)	0 (0-5)
Laxative misuse						
Mean (SD)	13.5 (25.6)	3.4 (14.8)	0.2 (0.7)	0.0 (0.0)	13.4 (2.7)	3.4 (1.5)#
Median (range)	0 (0-180)	0 (0-100)	0 (0-3)	0 (0-0)
EDE subscale scores, mean (SD)						
Restraint	3.33 (1.08)	1.82 (1.59)	2.18 (1.41)	1.59 (1.47)#	1.15 (0.25)	0.23 (0.30)
Shape concern	3.73 (1.15)	2.55 (1.49)	3.38 (1.31)	2.06 (1.46)	0.35 (0.23)	0.49 (0.28)**
Weight concern	3.34 (1.21)	2.35 (1.50)	3.06 (1.15)	1.88 (1.32)	0.28 (0.23)	0.47 (0.27)
Eating concern	2.14 (1.33)	0.84 (1.13)	1.37 (1.10)	0.53 (0.77)	0.77 (0.24)¶	0.31 (0.17)
BSI, mean (SD)	1.28 (0.82)	0.90 (0.77)¶	0.95 (0.73)	0.55 (0.47)¶	0.34 (0.17)#	0.35 (0.12)#
Alcohol misuse (>14 U/wk), No. (%)	12 (13)	24 (26)#	8 (20)	7 (18)	-7%	8%
Psychoactive drug use, No. (%)	1 (1)	3 (3)	0	0	1%	3%
Self-esteem (SEQ), mean (SD)	39.7 (15.6)	42.3 (9.7)	46.0 (8.5)	53.4 (14.9)#	-6.3 (2.4)**	-11.2 (3.1)
Social adjustment (SAS), mean (SD)	1.45 (0.43)	1.40 (0.28)	1.17 (0.33)	1.06 (0.35)	0.28 (0.09)¶	0.34 (0.07)
Weight, mean (SD), kg	66.6 (14.3)	69.8 (19.2)¶	73.7 (12.5)	77.9 (16.8)#	-7.13 (2.74)¶	-8.06 (3.67)¶
Body mass index, mean (SD)	24.4 (4.8)	25.5 (6.4)#	27.1 (5.4)	28.8 (6.6)¶	-2.69 (1.02)¶	-3.33 (1.31)¶
Body mass index, No. (%)						
<20.0	8 (11)	9 (12)	0	0	11	12
20.0-24.9	39 (53)	39 (53)	17 (47)	15 (42)	6	11
25.0-29.9	18 (24)	11 (15)	11 (31)	7 (19)	-7	6
≥30.0	9 (12)	15 (20)	8 (22)	14 (39)	-10	-19**

*Numbers vary slightly because of missing data. EDE indicates Eating Disorder Examination; BSI, global severity index of the Brief Symptom Inventory; SEQ, Robson self-esteem questionnaire; SAS, Social Adjustment Scale role area score; and ellipses, data not applicable.

†Statistical significance of change from recruitment to follow-up.

‡Bulimia nervosa cohort value minus binge eating disorder value.

§Statistical significance of difference between cohorts.

||P<.001.

¶P<.01.

#P<.05.

**P<.10.

der was present in 23% (9 women) (the equivalent figures being 14% and 24%, respectively; Fisher $P>.99$). The rates of anxiety disorder diagnoses were similar at 15% in the bulimia nervosa cohort (14 of 92 women) and 11% (4 of 38 women) in the binge eating disorder group ($\chi^2=.14$, $P=.71$). Alcohol misuse increased over follow-up in the bulimia nervosa cohort (binomial $P=.02$), whereas there was little change in the binge eating disorder group (binomial $P>.99$) with the rates at follow-up among the groups remaining equivalent ($\chi^2=.60$, $P=.44$). There was little drug misuse in either cohort.

Self-esteem scores did not change significantly in the bulimia nervosa cohort ($z=1.01$, $P=.31$), but improved in the binge eating disorder group ($z=2.22$, $P=.03$), resulting in their score being higher ($z=3.63$, $P<.001$). There were no significant changes in social adjustment, with the binge eating disorder cohort continuing to function at a better level ($z=4.16$, $P<.001$).

Body Weight

There was an increase in weight and BMI in both cohorts with the bulimia nervosa participants gaining on

average 3.3 ± 10.1 kg and the binge eating disorder participants gaining 4.2 ± 9.8 kg ($z=0.98$, $P=.33$). This resulted in the binge eating disorder group remaining heavier (for BMI: $t_{108}=2.65$, $P=.009$) and showing a tendency for a greater proportion to have a BMI of 30 or higher (39% [14/36] vs 20% [15/74]; $\chi^2=3.42$, $P=.06$). Within the bulimia nervosa cohort, there was evidence of a positive correlation between initial weight and magnitude of weight gain ($r=0.21$, $P=.07$). There was no such relationship within the binge eating disorder group ($r=0.12$, $P=.48$). Among the bulimia nervosa cohort, participants with a DSM-IV eating disorder at follow-up gained the most weight, particularly if they had been overweight at recruitment (data not shown). This relationship could not be examined within the binge eating disorder group since so few participants had an eating disorder at follow-up.

Exposure to Treatment

During follow-up, 28% of the bulimia nervosa cohort (23 of 81 women) received treatment for an eating disorder, compared with 3% of the binge eating disorder group (1

Table 3. Changes in Diagnostic Status of the Bulimia Nervosa and Binge Eating Disorder Cohorts Over 5 Years*

	Assessment Point, No. (%) of Participants†				
	1	2	3	4	5
Bulimia nervosa cohort (n = 74)					
Bulimia nervosa	74 (100)	23 (31)	15 (20)	14 (19)	11 (15)
Binge eating disorder	0	3 (4)	6 (8)	4 (5)	5 (7)
Anorexia nervosa	0	2 (3)	2 (3)	3 (4)	1 (1)
ED-NOS‡	0	24 (32)	30 (40)	26 (35)	24 (32)
Any <i>DSM-IV</i> eating disorder	74 (100)	49 (66)	47 (64)	43 (58)	36 (49)
Binge eating disorder cohort (n = 34)					
Bulimia nervosa	0	2 (6)	2 (6)	0	1 (3)
Binge eating disorder	34 (100)	8 (24)	4 (12)	1 (3)	3 (9)
Anorexia nervosa	0	0	0	0	0
ED-NOS‡	0	12 (35)	9 (26)	6 (18)	4 (12)
Any <i>DSM-IV</i> eating disorder	34 (100)	14 (41)	11 (32)	6 (18)	5 (15)

*Data are based on the subgroup of participants assessed at all 5 time points.

†The assessments were made at 15-month intervals (ie, approximately 15, 30, 45, and 60 months after recruitment).

‡ED-NOS indicates eating disorder not otherwise specified. Following the *DSM-IV* ruling,^{2(p650)} ED-NOS figures include those for binge eating disorder.

of 40 women) ($\chi^2=9.72, P=.002$). By the end of follow-up, 40% (33/82) of the bulimia nervosa cohort had ever had treatment for an eating disorder compared with 8% (3/38) of the binge eating disorder group ($\chi^2=11.4, P<.001$).

COURSE OVER 5 YEARS

Three quarters of the participants (73% [n=74] and 71% [n=34] in the bulimia nervosa and binge eating disorder cohorts, respectively) were assessed at all follow-up points. Their data were used to describe the course of the cohorts over the 5 years. Comparison of these subgroups with the remainder of their respective cohorts revealed no significant differences in their outcome at 5 years ($P>.25$ for all comparisons).

The course of the 2 cohorts differed (**Table 3**). Thirty-one percent of the bulimia nervosa group still had bulimia nervosa at assessment 2 (ie, after 15 months), with this figure declining to 15% by 5 years. The comparable figures (with respect to presence of the original diagnosis) for the binge eating disorder group were 24% ($\chi^2=.33, P=.56$) and 9% ($\chi^2=.31, P=.58$), respectively. The proportion of the bulimia nervosa participants with any *DSM-IV* eating disorder decreased to 66% at assessment 2 and thereafter fairly steadily to 49%, the majority belonging to the ED-NOS category with a small subgroup (<10% at each point) having binge eating disorder. Few participants developed anorexia nervosa. Among the binge eating disorder group, the proportion with any *DSM-IV* eating disorder also showed a sharp initial decrease to 41% at assessment 2 (comparison with bulimia nervosa cohort; $\chi^2=5.02, P=.03$), followed by a steady decline to 15% (comparison with bulimia nervosa cohort; $\chi^2=10.0, P=.002$). Almost all these participants belonged to the ED-NOS category; few developed bulimia nervosa and none developed anorexia nervosa. The cohorts did not differ in their pattern of change over time in the proportion with any *DSM-IV* eating disorder (group \times time effect $\chi^2=2.02, P>.25$).

The rates of "remission" to not having any *DSM-IV* eating disorder (ie, anorexia nervosa, bulimia nervosa,

or ED-NOS) were similar at each applicable assessment point within the 2 cohorts (bulimia nervosa cohort: point 2, 34% [25/74]; point 3, 20% [10/49]; point 4, 28% [13/47]; and point 5, 35% [15/43]; binge eating disorder cohort: point 2, 59% [20/34]; point 3, 36% [5/14]; point 4, 55% [6/11]; and point 5, 50% [3/6]; time effect $\chi^2=5.94, P>.10$), although the rates were lower in the bulimia nervosa cohort (group effect $\chi^2=10.95, P<.01$). The rates of "relapse" to having any *DSM-IV* eating disorder were also similar at each of the 3 applicable assessment points within the 2 cohorts (bulimia nervosa cohort: point 3, 32% [8/25]; point 4, 33% [9/27]; and point 5, 26% [8/31]; binge eating disorder cohort: point 3, 10% [2/20]; point 4, 4% [1/23]; and point 5, 7% [2/28]; time effect $\chi^2=.47, P>.50$), although in this case the rates were higher in the bulimia nervosa cohort (group effect $\chi^2=14.14, P<.001$).

With regard to the course of individual participants, different findings are again obtained depending on whether the focus is the presence of the original diagnosis or the presence of any *DSM-IV* eating disorder. With respect to the former, a comparable proportion of both cohorts did not fulfill criteria for their original diagnosis at 3 or more consecutive time points (69% of the bulimia nervosa cohort and 85% of the binge eating disorder group; Fisher $P=.10$), whereas the cohorts differed markedly in the proportion not meeting criteria for any *DSM-IV* eating disorder at 3 or more consecutive time points (24% and 65%, respectively; Fisher $P<.001$). At the other end of the spectrum of severity, a small minority of the 2 cohorts met criteria for their original diagnosis at 3 or more consecutive time points (9% of the bulimia nervosa cohort and 3% of the binge eating disorder cohort; Fisher $P=.43$), whereas the comparable figures for any *DSM-IV* eating disorder were 51% and 12%, respectively (Fisher $P<.001$).

COMMENT

The main finding is that the bulimia nervosa and binge eating disorder cohorts had a different course and outcome over 5 years of prospective follow-up. Whereas the

outcome of those with bulimia nervosa was relatively poor, that of the binge eating disorder cohort was favorable, with the great majority making a full recovery despite not having received treatment. There was little movement of participants between the 2 diagnostic categories.

At recruitment, the bulimia nervosa sample had somewhat less severe psychopathology than some clinic samples. This is to be expected since most people with bulimia nervosa are not receiving treatment,^{9,23} and those who do seek help have more severe symptoms and worse social adjustment.⁸ Despite this, their outcome was not good. While a minority (15%) continued to meet diagnostic criteria for bulimia nervosa at 5-year follow-up, between half and two thirds had an eating disorder of clinical severity. In addition, they had a high level of general psychiatric symptoms, with more than 40% meeting criteria for major depressive disorder at follow-up and self-esteem remaining low.

There have been 6 other studies of the long-term outcome (at least 5-year follow-up) of bulimia nervosa.^{14,24-28} None is directly comparable to the present study since all have been of treatment-seeking participants and, with the exception of the study by Herzog and colleagues,²⁸ none has had repeated assessments. Nevertheless, their overall findings are broadly consistent with the present findings with between a third and a half of each sample having some form of clinical eating disorder at long-term follow-up and between 10% and 25% having bulimia nervosa.

The binge eating disorder participants resembled clinic samples with the disorder except that the association with obesity was much less strong. This might be because they were younger. The outcome of this cohort was more favorable than that of the bulimia nervosa group. Even though they started with a comparable frequency of binge eating, 5 years later only 18% had an eating disorder of clinical severity (compared with 51% of the bulimia nervosa cohort) and just 10% had binge eating disorder. Their self-esteem also improved, and their social functioning remained at a higher level. In one respect their outcome was worse: not only did they start at a higher weight but they remained heavier over the 5 years with 39% eventually meeting criteria for obesity (compared with 20% of the bulimia nervosa group). The explanation for this weight gain is unclear since it occurred in the context of a marked decrease in their frequency of binge eating.

There have been 2 other studies of the outcome of binge eating disorder. The outcome of the German cohort^{29,30} is not directly comparable since the participants had received extensive inpatient treatment. More relevant is the 6-month follow-up of a community-based sample in New England in which it was found that half of those reassessed no longer had the disorder.³¹

The findings with respect to course reveal interesting similarities and differences across the cohorts. In both, most of the improvement occurred during the first 15 months with gradual improvement thereafter. Several processes are likely to have contributed to this pattern. These include regression to the mean³²; the fact that all the participants were cases to start with so relapse in terms of

diagnostic status could not occur until after assessment 2; and a change in the balance of developmental risk and protective processes that may occur at this time of life (20s to 30s). Life events and treatment are other possible influences, although treatment cannot account for the more favorable outcome of the binge eating disorder cohort since almost all those who received treatment were from the bulimia nervosa group.

It is important to highlight the considerable flux among the bulimia nervosa sample. Each year about a third remitted and a further third relapsed. Instability was also observed in the only other detailed prospective study of the course of bulimia nervosa.³³ In contrast, there was little flux among the binge eating disorder group; instead, there was a steady trend toward improvement, with about 50% of participants remitting each year and few relapsing.

Strengths of this study include its prospective design, thereby reducing problems of recall; the community sampling to avoid the selection biases that affect clinic samples⁸; the 5-year follow-up, which provided sufficient time for longer-term changes to be revealed; the broad range of psychopathological conditions assessed; and the focus on course as well as outcome. The high response rate is also of note. The study's limitations include the largely "dipstick" method of assessment, whereby limited information is available on periods between each reassessment; the likelihood of response bias in the bulimia nervosa cohort, such that its true outcome was possibly worse than that reported; the modest size of the binge eating disorder sample; and the possibility that participating may have influenced the findings. The need for replication must be stressed.

An additional caveat concerns the age of the binge eating disorder sample since it was relatively young compared with clinical samples. It was also exclusively female. Caution is therefore warranted in generalizing from this community sample to patients with binge eating disorder and to men with the condition.

The findings have 3 main implications. First, they are relevant to the standing of binge eating disorder as a diagnostic concept. The fact that the cohorts had a different course and outcome, and that few participants moved across the 2 categories, supports retaining the distinction between bulimia nervosa and binge eating disorder, as do the data on risk factors.^{9,10} Second, the findings have a bearing on the clinical significance of prevalence figures for these disorders, since it seems that, among community samples of young women, the diagnosis of bulimia nervosa carries a relatively poor prognosis whereas that of binge eating disorder does not. Unlike anorexia nervosa and bulimia nervosa, binge eating disorder may be an unstable state that has a tendency to remit. This would account for its apparent responsiveness to a wide variety of treatments. Third, it is evident that further work is needed on the relationship between these disorders and obesity since weight gain is likely to occur in both conditions. Among the bulimia nervosa cohort, weight gain was associated both with initial weight and with persistence of the eating disorder, whereas among the binge eating disorder cohort it occurred in the context of recovery. This suggests that the

mechanisms responsible for the weight regain may have been different.

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