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The Course of Eating Disorders in Patients with Borderline Personality Disorder: A 10-Year Follow-up Study

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Abstract

Objective—The purpose of this study was to describe the longitudinal course of eating disorders in patients with borderline personality disorder.

Method—The SCID I was administered to 290 borderline inpatients and 72 participants with other axis II disorders during their index admission and at five contiguous two-year follow-up periods.

Results—The prevalence of anorexia, bulimia, and EDNOS declined significantly over time for those in both study groups but the prevalence of EDNOS remained significantly higher among borderline patients. While over 90% of borderline patients meeting criteria for anorexia, bulimia, or EDNOS at baseline experienced a stable remission by the time of the 10-year follow-up, diagnostic migration was common, particularly for those with anorexia or bulimia. In addition, both recurrences (52%) and new onsets (43%) of EDNOS were more common among borderline patients than recurrences and new onsets of anorexia (28% and 4%) and bulimia (29% and 11%).

Conclusion—The results of this study suggest that the prognosis for both anorexia and bulimia in borderline patients is complicated, with remissions being stable but migrations to other eating disorders being common. The results also suggest that EDNOS may be the most prevalent and enduring of the eating disorders in these patients.

Keywords

borderline personality disorder; eating disorders; longitudinal course

Clinical experience suggests that disordered eating and actual eating disorders are common among patients with borderline personality disorder (BPD). However, only six cross-sectional studies have assessed the prevalence of eating disorders in samples of criteria-defined borderline patients.^{1–6} In general, these studies found that both anorexia nervosa (range: 3–21%; median=6%) and bulimia nervosa (range: 0–26%; median=10%) are relatively uncommon. These studies have also found that neither anorexia nor bulimia was significantly more common among patients with BPD than among comparison subjects. In contrast, eating disorder not otherwise specified (EDNOS), which was first included in our nomenclature in DSM-III-R, has been found to be relatively common (range: 14–26%; median=22%) but not discriminating.^{4–6}

In addition, only two longitudinal studies have determined the course of eating disorders in samples of rigorously diagnosed borderline patients.^{7,8} The prevalence of anorexia, bulimia, and EDNOS were studied over six years of prospective follow-up in the McLean Study of Adult Development (MSAD).⁷ It was found that the prevalence of anorexia and bulimia (but

not EDNOS) declined significantly over time in both patients with BPD and patients with other axis II disorders. No between-group differences were found in the prevalence rates of any of the three disorders studied.

Rates of remission and relapse for both bulimia and EDNOS were studied over five years of prospective follow-up in the Collaborative Longitudinal Study of Personality Disorders (CLPS).⁸ Putting all subjects together (those with BPD, those with other personality disorders, and those with major depression but no significant axis II pathology), it was found that 74% of subjects meeting criteria for bulimia at baseline had a remission by the time of the five-year follow-up interview. The figure for EDNOS was 83%. The relapse rates were 47% for bulimia and 42% for EDNOS.

The current study, which is an extension of the MSAD study mentioned above, is the first longitudinal study to assess the prevalence of these disorders over 10 years of prospective follow-up in a large and well-defined sample of borderline patients and participants with other axis II disorders. It is also the first study to assess time-to-remission, time-to-recurrence, and time-to-new onset of each of these eating disorders in borderline patients followed prospectively for a decade. In addition, it is the first study to assess diagnostic migration from one type of eating disorder to another in a sample of criteria-defined borderline patients.

METHODS

Procedures

The methodology of this study, which was reviewed and approved by the McLean Hospital Institutional Review Board, has been described in detail elsewhere.⁹ Briefly, all subjects were initially inpatients at McLean Hospital in Belmont, Massachusetts. Each patient was first screened to determine that he or she: 1) was between the ages of 18–35; 2) had a known or estimated IQ of 71 or higher; 3) had no history or current symptoms of schizophrenia, schizoaffective disorder, bipolar I disorder, or an organic condition that could cause psychiatric symptoms; and 4) was fluent in English.

After the study procedures were explained, written informed consent was obtained. Each patient then met with a masters-level interviewer blind to the patient's clinical diagnoses for a thorough diagnostic assessment. Three semistructured diagnostic interviews were administered. These diagnostic interviews were: 1) the Structured Clinical Interview for DSM-III-R Axis I Disorders (SCID-I),¹⁰ 2) the Revised Diagnostic Interview for Borderlines (DIB-R),¹¹ and 3) the Diagnostic Interview for DSM-III-R Personality Disorders (DIPD-R).¹² The inter-rater and test-retest reliability of all three of these measures have been found to be good-excellent.^{13,14}

At each of five follow-up waves, separated by 24 months, axis I and II psychopathology was reassessed via interview methods similar to the baseline procedures by staff members blind to baseline diagnoses. After informed consent was obtained, our diagnostic battery was readministered (with the SCID I focusing on the past two years and not as at baseline, lifetime axis I psychopathology). The follow-up interrater reliability (within one generation of follow-up raters) and follow-up longitudinal reliability (from one generation of raters to the next) of these three measures have also been found to be good-excellent.^{13,14}

Participants

Two hundred and ninety patients met both DIB-R and DSM-III-R criteria for BPD and 72 met DSM-III-R criteria for at least one nonborderline axis II disorder (and neither criteria set for BPD). Of these 72 comparison subjects, 4% met DSM-III-R criteria for an odd cluster

personality disorder, 33% met DSM-III-R criteria for an anxious cluster personality disorder, 18% met DSM-III-R criteria for a nonborderline dramatic cluster personality disorder, and 53% met DSM-III-R criteria for personality disorder not otherwise specified (which was operationally defined in the DIPD-R as meeting all but one of the required number of criteria for at least two of the 13 axis II disorders described in DSM-III-R).

Baseline demographic data have been reported before.⁹ Briefly, 77.1% (N=279) of the participants were women and 87% (N=315) were white. The average age of the participants was 27 years (SD=6.3), the mean socioeconomic status was 3.3 (SD=1.5) (where 1=highest and 5=lowest),¹⁵ and their mean GAF score was 39.8 (SD=7.8) (indicating major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood).

In terms of continuing participation, 90.1% (N=309) of surviving patients were reinterviewed at all five follow-up waves. More specifically, 91.5% of surviving borderline patients (249/272) and 84.5% of surviving participants with other axis II disorders (60/71) were evaluated six times (baseline and five follow-up periods).

Statistical Analyses

Generalized estimating equations, with diagnosis and time as main effects were used in longitudinal analyses of prevalence data. Tests of diagnosis by time interactions were conducted (and none were found to be significant). These analyses modeled the log prevalence, yielding an adjusted relative risk ratio (RRR) and 95% confidence interval (95%CI) for diagnosis and time. Gender was included in these analyses as a covariate as borderline patients were significantly more likely than participants with other axis II disorders to be women. Alpha was set at the $p<0.05$ level, two-tailed.

Discrete survival analyses were used to assess time-to-remission of eating disorders, time-to-recurrence of these disorders, and time-to-new onsets. We defined time-to-remission of each of the three eating disorders studied as the follow-up period at which remission was first achieved. Thus, possible values for this time-to-remission measure were 2, 4, 6, 8, or 10 years, with time=2 years for persons first achieving a remission of a specified eating disorder during the first follow-up period, time=4 years for persons first achieving such a remission during the second follow-up period, etc. We defined time-to-new onset in a like manner. We defined time-to-recurrence in a somewhat different manner (i.e., the number of years after a remission had been achieved that recurrence first occurred). Thus, time-to-recurrences were 2, 4, 6, or 8 years after first remission.

We defined remission as any two-year period (any follow-up period) in which the criteria for a specified eating disorder were not met. We chose this length of time prior to the start of the study to mirror our definitions of remission of BPD and its constituent symptoms.¹⁶ In addition, a recurrence or new onset was defined as any three-month period in which the criteria for the three forms of eating disorder studied were met.

RESULTS

Table 1 details the prevalence of eating disorders reported by borderline patients and participants with other axis II disorders over 10 years of prospective follow-up. As can be seen, a significantly higher percentage of borderline patients than participants with other axis II disorders reported experiencing any eating disorder and EDNOS (but neither anorexia nor bulimia). When all subjects were considered together, the rates of each of these disorders declined significantly over time.

However as the relative risk ratios (RRRs) for diagnosis and time in the table contain more fine grained information, we believe that an example would be useful. As can be seen, about 54% of borderline patients (and about 26% of participants with other axis II disorders) had a history of any eating disorder at the time of their index admission. By the time of their 10-year follow-up, these prevalence rates had declined to about 20% and 13% respectively. The RRR of 1.95 indicates that borderline patients were about two times more likely to report experiencing any eating disorder than participants with other axis II disorders. The RRR of 0.39 indicates that the chance of experiencing any eating disorder over the course of the study for all subjects considered together decreased by 61% ($1-0.39 \times 100\%$).

Figure 1 details the rates of remission of anorexia, bulimia, and EDNOS for borderline patients who met criteria for these disorders at baseline (N=16, 41, and 59 respectively). As can be seen, over 90% of borderline patients reporting these disorders at baseline experienced a stable remission (N=15 for anorexia; N=38 for bulimia; N=49 for EDNOS).

Figure 2 details the rates of recurrence of anorexia, bulimia, and EDNOS for borderline patients who experienced a remission of these disorders at an earlier follow-up period. By the time of the 10-year follow-up, over 50% of borderline patients reporting a remission of EDNOS reported a recurrence of this disorder (N=17). As can also be seen, less than 30% of borderline patients who reported a remission of either anorexia or bulimia later reported a recurrence of these disorders (N=4 for anorexia and N=9 for bulimia).

Figure 3 details the rates of new onsets of anorexia, bulimia, or EDNOS among borderline patients who had not met criteria for these disorders at baseline. As can be seen, only 4% of these borderline patients reported a new onset of anorexia (N=8), only 11% reported a new onset of bulimia (N=25) but over 40% reported a new onset of some form of EDNOS (N=90).

In terms of crossover or diagnostic migration, of the 16 borderline patients with a diagnosis of anorexia at baseline, we found that 14 (87.5%) experienced a change in their ED diagnosis over time. More specifically, eight developed bulimia and six developed EDNOS. Of those who developed bulimia, four subsequently developed EDNOS.

Of the 41 borderline patients with a diagnosis of bulimia at baseline, we found that 29 (70.7%) experienced a change in their ED diagnosis over time. More specifically, five developed anorexia and 24 developed EDNOS. Of the five who developed anorexia, three subsequently developed EDNOS. Of the 24 who developed EDNOS, four subsequently developed anorexia.

Of the 59 borderline patients with a diagnosis of EDNOS at baseline, we found that 12 (20.3%) experienced a change in their ED diagnosis over time. More specifically, 11 developed bulimia and one developed anorexia. Of those who developed bulimia, one patient subsequently developed anorexia.

In terms of time to diagnostic migration, all but two crossovers occurred by the time of the third follow-up period (i.e., six years of follow-up). The remaining two crossovers occurred by the time of the fourth follow-up period (i.e., eight years of follow-up).

It should also be noted that the analyses of remission and recurrence were limited to borderline patients as no participants with other axis II disorders met criteria for anorexia at baseline, only 6 met criteria for bulimia at baseline, and only five met criteria for EDNOS at baseline. Five of the six comparison subjects meeting criteria for bulimia at baseline and all five meeting criteria for EDNOS at baseline had a remission over the years of follow-up. One of these remitting subjects experienced a recurrence of bulimia and three experienced a

recurrence of EDNOS. In terms of new onsets, one axis II comparison subject had a new onset of anorexia, three had a new onset of bulimia, and nine had a new onset of EDNOS.

DISCUSSION

Six main findings have emerged from the results of this study. The first finding is that the prevalence of each of these three eating disorders, which was about 20 times the prevalence of anorexia and bulimia and 10 times the prevalence of EDNOS in the general population, 17 declined significantly over time for borderline patients (and participants with other axis II disorders). More specifically, the prevalence of any eating disorder declined 61%, the prevalence of anorexia declined 73%, the prevalence of bulimia declined 91%, and the prevalence of EDNOS declined 38%. These findings are consistent with and extend the findings of our six-year follow-up study of this sample.⁷

The second main finding is that EDNOS (but neither anorexia nor bulimia) was significantly more common among borderline patients than among participants with other axis II disorders. This finding represents a new finding; one not found in this sample at six-year follow-up.⁷ This finding may suggest that between-group differences in this broad category of eating disorders may not reveal themselves for 10 years or more.

The third main finding is that over 90% of those borderline patients meeting criteria for anorexia, bulimia, or EDNOS at baseline experienced a remission by the time of the 10-year follow-up. These rates are somewhat higher with those found in studies of the course of anorexia,^{18–23} bulimia,^{8,20,23–26} or EDNOS^{8,27} where the median remission rates were 77%, 74%, and 75% respectively. Our remission rates may be higher because the eating disorders of our borderline patients may have been less severe as most were admitted to the hospital primarily for symptoms associated with BPD (e.g., self-mutilation, suicide threats or attempts) rather than for inpatient treatment of an eating disorder. Looked at another way, most of the subjects in these other studies were being treated for a primary eating disorder, while the borderline patients in the current study may well have been manifesting a secondary eating disorder.

The fourth main finding is that about a quarter of borderline patients who experienced a remission of anorexia or bulimia later experienced a recurrence. In contrast, over half of borderline patients who experienced a remission of EDNOS later experienced a recurrence. Our rates of recurrence were somewhat lower than those found in studies of the course of anorexia^{18–20} and bulimia,^{8,20} where the median recurrence rates were 30% and 41% respectively. Here too severity of eating-disordered pathology may be an important factor. However, our rate of recurrence of EDNOS was somewhat higher than the recurrence rate of EDNOS found in an earlier study (42%).⁸ Here the difference may well be that we were tracking recurrences for a decade, while Grilo et al. had been tracking them for a shorter period of time (five years).

The fifth main finding is that less than 5% of borderline patients who did not meet criteria for anorexia at baseline later developed a new onset of anorexia and about 10% of borderline patients who did not meet criteria for bulimia at baseline later developed a new onset of bulimia. In contrast, over 40% of borderline patients who did not meet criteria for EDNOS at baseline later developed a new onset of some form of this disorder. This too is a new finding and may suggest that as borderline patients get older they are more likely to develop patterns of disordered eating that are less obviously pathological than the ones they evidenced when they were younger.

The sixth main finding is that diagnostic migrations were common among borderline patients, particularly those who met criteria during their index admission for anorexia and

bulimia. The crossover rates we found were considerably higher than those found in earlier studies.^{23,28–30} The reasons for this are unclear but may be related to the issue of severity. More specifically, many of our crossovers may have been due to relatively minor changes in one or more criteria a common issue that Zimmerman has highlighted with regard to eating disorder diagnoses in general.³¹

It was also found that most of these diagnostic crossovers occurred during the first six years of prospective follow-up. This finding is consistent with the results of earlier studies of the timing of diagnostic migration.^{23,30}

One limitation of this study is that all of the patients were seriously ill inpatients at the start of the study. Another limitation is that about 90% of those in both patient groups were in individual therapy and taking psychotropic medications at baseline and about 70% were participating in each of these outpatient modalities during each follow-up period.³² Thus, it is difficult to know if these results would generalize to a less disturbed group of patients or people meeting criteria for BPD who are not in treatment.

Previous research has suggested that EDNOS is the most common form of eating disorder.^{4–6} An earlier study of the MSAD sample found that binge eating disorder was the most common form of EDNOS reported at baseline.³³ A future report will detail the longitudinal course of the various sub-variants of EDNOS that were studied in the MSAD sample (i.e., bingeing without purging, purging without bingeing, restricting without low weight, low weight without loss of menses, and sub-threshold bulimia).

In conclusion, the results of this study suggest that the prognosis for both anorexia and bulimia in borderline patients is complicated, with remissions being stable but migrations to other eating disorders being common. The results also suggest that EDNOS may be the most prevalent and enduring of the eating disorders in these patients.

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Figure 1.
Time-Remission of Anorexia, Bulimia, and EDNOS Among Borderline Patients Followed Prospectively for 10 Years

Figure 2.
Time-to-Recurrence of Eating Disorders Among Borderline Patients Over 10 Years of Prospective Follow-up

Figure 3.
Time-to-New Onsets of Eating Disorders Among Borderline Patients Over 10 Years of Prospective Follow-up

Table 1
Prevalence of Eating Disorders among Borderline Patients and Participants with Other Axis II Disorders Over 10 Years of Prospective Follow-up

	Borderline Patients						Axis II Comparison Subjects						RRR Diagnosis ^a Time ^b Interaction ^c	95 % CI Diagnosis Time Interaction
	BL (N=290)	2 Yr FU (N=275)	4 Yr FU (N=269)	6 Yr FU (N=264)	8 Yr FU (N=255)	10 Yr FU (N=249)	BL (N=72)	2 Yr FU (N=67)	4 Yr FU (N=64)	6 Yr FU (N=63)	8 Yr FU (N=61)	10 Yr FU (N=60)		
Any Eating Disorder	53.8 (N=156)	41.5 (N=114)	36.4 (N=98)	33.7 (N=89)	23.5 (N=60)	19.7 (N=49)	26.4 (N=19)	20.9 (N=14)	15.6 (N=10)	14.3 (N=9)	11.5 (N=7)	13.3 (N=8)	1.95 0.39 ---	1.36, 2.78 0.33, 0.47 ---
Anorexia	21.7 (N=63)	3.6 (N=10)	1.1 (N=3)	2.7 (N=7)	1.2 (N=3)	1.6 (N=4)	5.6 (N=4)	1.5 (N=1)	1.6 (N=1)	1.6 (N=1)	1.6 (N=1)	1.7 (N=1)	2.33 0.27 ---	0.78, 6.96 0.27, 0.11 ---
Bulimia	24.1 (N=70)	10.9 (N=30)	10.0 (N=27)	5.3 (N=14)	2.8 (N=7)	1.6 (N=4)	12.5 (N=9)	7.5 (N=5)	4.7 (N=3)	3.2 (N=2)	1.6 (N=1)	1.7 (N=1)	1.71 0.09 ---	0.89, 3.31 0.05, 0.15 ---
EDNOS	28.3 (N=82)	30.2 (N=83)	27.5 (N=74)	27.7 (N=73)	20.0 (N=51)	16.5 (N=41)	11.1 (N=8)	13.4 (N=9)	10.9 (N=7)	9.5 (N=6)	8.2 (N=5)	10.0 (N=6)	2.26 0.62 ---	1.37, 3.75 0.49, 0.79 ---

Level results for diagnosis were: any eating disorder, <0.001; anorexia and bulimia, NS; EDNOS, 0.001.

Level results for time were all <0.001.

Level results for interaction were all NS.