

The Natural Course of Bulimia Nervosa and Eating Disorder not Otherwise Specified is not Influenced by Personality Disorders

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Abstract: Objective: To examine prospectively the natural course of bulimia nervosa (BN) and eating disorder not otherwise specified (EDNOS) and to test the effects of personality disorder (PD) comorbidity on the outcomes. **Method:** Ninety-two female patients with current BN (N = 23) or EDNOS (N = 69) were evaluated at baseline enrollment in the Collaborative Longitudinal Personality Disorders Study (CLPS). Eating disorders (EDs) were assessed with the Structured Clinical Interview for DSM-IV Axis I Disorders. Personality disorders (PDs) were assessed with the Diagnostic Interview for DSM-IV PD (DIPD-IV). The course of BN and EDNOS was assessed with the Longitudinal Interval Follow-up Evaluation and the course of PDs was evaluated with the Follow-Along version of the DIPD-IV at 6, 12, and 24 months. **Results:** Probability of remission at 24 months was 40% for BN and 59% for EDNOS. To test the effects of PD comorbidity on course, ED patients were divided into groups with no, one, and two or more PDs. Cox proportional regression analyses revealed that BN had a longer time to remission than EDNOS ($p < .05$). The number of PDs was not a significant predictor of time to remission, nor was the presence of Axis I psychiatric comorbidity or Global Assessment of Functioning scores. Analyses using proportional hazards regression with time-varying covariates revealed that PD instability was unrelated to changes in ED. **Conclusions:** BN has a worse 24-month course (longer time to remission) than EDNOS. The natural course of BN and EDNOS is not influenced significantly by the presence, severity, or time-varying changes of co-occurring PDs, co-occurring Axis I disorders, or by global functioning. © 2003 by Wiley Periodicals, Inc. *Int J Eat Disord* 34: 319–330, 2003.

Key words: eating disorders; personality disorders; natural course; comorbidity

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INTRODUCTION

Although there are several reports of the course of bulimia nervosa (BN) in the literature (Keel, Mitchell, Miller, Davis, & Crow, 1999), they are generally treatment-outcome studies that do not employ repeated and prospective assessments. Two notable exceptions are the long-term and ongoing study of individuals with BN and anorexia nervosa (AN) by Herzog et al. (1999) and the 5-year naturalistic and community-based follow-up study of individuals with BN and binge eating disorder (BED) by Fairburn, Cooper, Doll, Norman, and O'Connor (2000). In their study of the natural course and outcome at 7.5 years of women with BN and AN, Herzog et al. (1999) reported that AN women had a lower recovery rate than BN women, that an AN diagnosis (and duration of initial AN episode and lower percentage of adult body weight) predicted a poor outcome, and that no predictors were found for BN recovery or recurrence. Fairburn et al. (2000) reported that the natural course of BN was significantly worse than that for BED in a young female community-based sample. The assessment methodology employed by Fairburn et al., although strong and based on an investigator-based interview, utilized a cross-sectional ("dipstick") method. Thus, unlike the Herzog et al. (1999) study, no information is available on periods between the assessments conducted 15 months apart.

One other study (Cachelin et al., 1999) examined the short-term (6-month) natural course of a small ($N = 31$) community sample of women with BED. This small study had a high rate of drop-outs (10 of the 31 participants dropped out by the 3-month follow-up). At the 6-month follow-up, 11 of the 21 remaining participants still had full diagnosis level BED and the remaining 10 generally demonstrated only partial remission. Although the limitations (small sample size, high rate of drop-out, and short follow-up period) preclude firm conclusions, the findings suggest a more negative natural course for BED subjects than reported by Fairburn et al. (2000).

Eating disorder not otherwise specified (EDNOS) is believed to be the most prevalent category of eating disorders (EDs), but it is also the least studied (Andersen, Bowers, & Watson, 2001; Grilo, Devlin, Cachelin, & Yanovski, 1997). Except for BED (Grilo, 1998), a specific example included in Appendix B of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association [APA], 1994), EDNOS as a general category has received strikingly little research attention. This represents a research need for several reasons. Many patients who present for treatment of EDs meet EDNOS criteria (Bunnell, Shenker, Nussman, Jacobson, & Cooper, 1990). They have significant features and associated impairment but fail to meet diagnostic threshold for either of the "formal" categories (BN or AN). Research has documented the clinical significance of subthreshold eating-related problems for the development of later disorders (Lewinsohn, Striegel-Moore, & Seeley, 2000), but little is known about the natural course and outcome of EDNOS.

Empirically supported predictors of outcome and course of EDs are needed. Although some predictors have emerged for AN (Herzog et al., 1999; Strober, Freeman, & Morrell, 1997), less is known about predictors for BN. Clinical practice and research suggest that personality disorders (PDs), which are defined as persistent and pervasive maladaptive patterns, are associated with a plethora of negative outcomes. Many studies suggest that PDs may have a negative impact on the course or outcome of some Axis I psychiatric disorders (Grilo, McGlashan, & Oldham, 1998; Grilo, McGlashan, & Skodol, 2000). However, a recent critical review (Grilo, 2002) concluded that PDs are weak negative prognostic

predictors of ED outcome. Others suggest that PD may be a more meaningful predictor of longer-term general psychiatric and psychosocial impairment in patients with BN (Steiger & Stotland, 1996; Steiger, Stotland, & Houle, 1994; Wonderlich, Fullerton, Swift, & Klein, 1994). Numerous methodologic limitations characterize much of the existing outcome literature (Grilo, 2002). Of the two prospective studies of the natural course of BN, one (Fairburn et al., 2000) did not include measures of PDs and the other (Herzog et al., 1999) assessed the fluctuating nature of BN and AN but not whether changes in PD status predicted ED outcomes (Grilo et al., 2000; Steiger & Stotland, 1996).

The Collaborative Longitudinal Personality Disorders Study (CLPS; Gunderson et al., 2000; McGlashan et al., 2001) is a prospective, longitudinal, repeated measures study designed to provide comprehensive data on the course and outcome of patients meeting DSM-IV (APA, 1994) criteria for one (or more) PDs: schizotypal (STPD), borderline (BPD), avoidant (AVPD), and obsessive-compulsive (OCPD). The CLPS also includes a comparison group of patients with major depressive disorder (MDD) without any personality disorder. The current study examined prospectively the 24-month natural course of BN and EDNOS, the effects of PD co-occurrence on the time to remission from EDs, and whether changes in PD status predicted changes in EDs.

METHODS

Participants

Participants for this study were recruited from the CLPS, a multisite prospective naturalistic study. The overall study aims, design, assessment methodology, and the demographic and clinical characteristics of the participants are provided by Gunderson et al. (2000) and McGlashan et al. (2000). The CLPS enrolled 668 participants (age range, 18–45 years) who had at least one of four target PDs (STPD, BPD, AVPD, or OCPD) or (current) MDD without any PD. Exclusion criteria included the following: schizophrenia and schizoaffective disorders; active psychosis; confusional states due to organic disorders, post-ECT status, or substance intoxication or acute withdrawal; IQ score below 85; or an inability to read English. Of the 668 participants, 64% were female and 36% were male. The ethnic composition comprised 76% Caucasians, 11% African Americans, 9% Hispanic Americans, and 4% of other ethnicities. The mean age of the sample was 32.8 ($SD = 8.1$) years. Participants were generally well-distributed across the social classes, except for the relatively small representation from the lowest socioeconomic class. Forty-five percent were outpatients in a variety of mental health settings, 11% were psychiatric inpatients, 5% were from medical settings, and 39% were self-referred (from postings and advertisements) and were either in psychiatric treatment or were seeking treatment. All participants provided written informed consent after the procedures had been explained fully.

The current report is based on the 92 female participants who met criteria for either current BN or EDNOS at baseline entry into CLPS and had follow-up data. We focused on females because the majority of ED cases are females. In addition, the limited number of males with current ED diagnoses and follow-up data ($N = 11$) precluded meaningful analysis. Grilo et al. (2003) provided lifetime co-occurrence rates of Axis I psychiatric and Axis II PDs for all patients with EDs enrolled in CLPS. Of the 92 female patients, 23 met criteria for BN and 69 met criteria for EDNOS. The BN and EDNOS patients did not differ significantly in age ($M = 30.6$ [$SD = 6.6$] vs. $M = 31.6$ [$SD = 8.8$]).

Procedures

Baseline Screening

Potential participants were screened for PDs using a self-report Personality Screening Questionnaire (PSQ). The PSQ comprises items from the Personality Diagnostic Questionnaire (Hyler, Skodol, Kellman, Oldham, & Rosnick, 1990) that pertain to the four targeted PDs. Participants positive on the PSQ for one or more of the PDs were referred for further assessment. Participants were also screened for possible current MDD using a self-report Depression Screening Questionnaire (DSQ) based on DSM-IV (APA, 1994) diagnostic criteria. Those who screened positive on the DSQ and had no PD on the PSQ were referred for further assessment to the MDD control group.

Baseline Diagnostic Evaluation

All participants were interviewed in person by experienced interviewers with masters or doctoral degrees in a mental health discipline. Research interviewers underwent extensive standardized training to achieve reliability in the administration of the major diagnostic measures for both Axis I and II disorders (Zanarini et al., 2000). They were monitored and received regular ongoing supervision by the investigators at each site, as well as supervision across sites to prevent drift over time.

Interviewers administered the Structured Clinical Interview for DSM-IV Axis I Disorders-Patient version (SCID-I/P; First, Spitzer, Gibbon, & Williams, 1996) to assess Axis I psychiatric disorders and the Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV; Zanarini, Frankenburg, Sickel, & Yong, 1996) to assess all PDs.

Follow-Up Evaluations

Participants were interviewed again at 6, 12, and 24 months following the baseline assessment. The course of EDs (BN and EDNOS) was assessed using the Longitudinal Interval Follow-Up Evaluation (LIFE; Keller et al., 1987). The course of PDs was assessed using a modified version of the DIPD-IV, the DIPD-FA (Zanarini et al., 1996). The follow-up interviews were not blind and were conducted by the same (baseline) interviewer whenever possible.

Assessment Instruments

DIPD-IV

The DIPD-IV is a semistructured diagnostic interview for the assessment of all DSM-IV Axis II personality disorders. Each of the criteria for all diagnoses is assessed with one or more questions, which are then rated on a 3-point scale (0 = not present, 1 = present but of uncertain clinical significance, 2 = present and clinically significant). The DIPD-IV criteria must be present and pervasive for at least 2 years and they must be characteristic of the person for most of adulthood to be counted toward a diagnosis.

In the current study, the interrater reliability (based on 84 pairs of raters) kappa values for 12 (10 formal and 2 research categories) PDs ranged from .58 to 1.0 (Zanarini et al., 2000). Kappa coefficients for interrater reliability for the four PDs ranged from .68 (BPD) to .73 (AVPD) and 100% agreement for STPD and test-retest reliability kappa values (based on 52 cases) ranged from .69 (BPD) to .74 (OCPD).

SCID-I/P

The SCID-I/P is used extensively to assess current and lifetime Axis I psychiatric disorders. In the current study, median kappa coefficients for interrater reliability for

Axis I psychiatric disorders ranged from .57 to 1.0. The median kappa coefficient for any ED was .77 (Zanarini et al., 2000).

Global Assessment of Functioning

GAF was used to evaluate DSM-IV Axis V psychiatric disorders at baseline as part of the overall psychosocial assessment (Skodol et al., 2002). GAF is rated on a 100-point scale, with higher scores reflecting higher functioning. We utilized current GAF ratings at baseline determined for the past month.

LIFE

The LIFE is a semistructured interview rating system with demonstrated reliability and validity (Warshaw, Keller, & Stout, 1994; Warshaw, Dyck, Allsworth, Stout, & Keller, 2001) for assessing the longitudinal course of mental disorders. It is the primary measure in major longitudinal studies of AN and BN (Herzog et al., 1999; Strober et al., 1997) and other Axis I disorders, including depressive disorders (e.g., the National Institute Mental Health-Collaborative Depression Study [NIMH-CDS]; Keller, Shapiro, Lavori, & Wolfe, 1982; Solomon et al., 1997) and anxiety disorders (Warshaw et al., 1994). In the current study, the LIFE was administered weekly to measure the presence and severity of psychopathology. The severity of psychopathology is quantified using weekly psychiatric status ratings (PSRs) for each Axis I disorder present. For ED, PSRs are based on the following three-point scale: PSR = 1 (no symptoms), PSR = 2 (subthreshold symptoms with moderate impairment in functioning), and PSR = 3 (full criteria for diagnosis).

Definition of Remission

Remission from EDs (BN and EDNOS) was defined as 8 consecutive weeks with A LIFE PSR rating of less than 2 for any type of ED diagnosis. This definition of remission (PSR < 2) for EDs parallels that used in studies of other Axis I psychiatric disorders (Keller et al., 1982; Solomon et al., 1997).

Data Analyses

Time to ED Remission

Lifetable survival methods (Kalbfleisch & Prentice, 1980) were used to analyze time to remission during the 24-month follow-up period. The Kaplan–Meier (1958) method was used to estimate cumulative remission rates. These methods, which were applied initially in a number of medical illnesses (Berkson & Gage, 1950), were well suited for analyzing longitudinal data for psychiatric illnesses such as depressive disorders (Fleiss, Dunner, Stallone, & Fieve, 1978). Keller et al. (1982) cogently presented the strengths of lifetable analyses (over cross-sectional methods), including the ability to make use of length of episode data.

Creation of PD Groups

Patients with ED were divided into groups with no, one, and two or more PDs. This grouping was used to predict time to ED remission overall.

Prediction of Time to ED Remission

For the omnibus predictor analysis of time to ED remission, we employed Cox proportional hazards regression tests for significance (Cox, 1972).

Dynamic “Time-Varying” Axis II/I Effects: Conceptual and Analytic Approach

We examined how the course of PDs affects the course of EDs. We focused on three of the four PDs targeted by CLPS (BPD, AVPD, and OCPD) in relation to EDs. The small number of cases with co-occurring STPD and ED at baseline precluded analysis of their time-varying effects. The three PDs considered (BPD, AVPD, and OCPD) are the most prevalent in clinical samples (Gunderson et al., 2000) and have received the most consistent attention in the ED literature (Grilo, 2002; Grilo, Levy, Becker, Edell, & McGlashan, 1996; Wilfley et al., 2000).

Analyses were performed on follow-up data obtained using LIFE for EDs and the DIPD-FA for BPD, AVPD, and OCPD. These analyses considered only patients who met criteria at baseline for both disorders. For example, in considering BPD as a predictor of ED, the patients who were evaluated had to meet criteria for both diagnoses at baseline. For the ED analysis, we collapsed the two EDs (BN and EDNOS) given the sample size. To parallel the definition of Axis I remission (Keller et al., 1987) that we applied to the EDs, we also used a criterion of 2 successive months at no/minimal criteria (assessed on the DIPD-FA) for Axis II PD remission. Although this categorization represents a departure from prevailing views and clinical lore regarding the stability of PDs, recent empiric studies challenge this view (Grilo et al., 1998, 2000) and suggest that PDs can change and fluctuate.

Proportion hazards regression analyses with time-varying covariates were used to test changes in PDs as predictors of changes in EDs. This approach extends the analyses presented above. Cox regression tested how “static” covariates such as PD at baseline predicted time to remission for EDs. Time-varying covariates entail the test of dynamic rather than static associations. In this time-varying analysis, variations in a predictor variable over time are related to the odds of remission for the disorder (dependent variable). Therefore, the changes in ratings for PD (DIPD-FA) are used to predict timing in the changes in ratings for EDs (LIFE). Although there are some ambiguities to this method (e.g., this method always looks forward in time), this represents a reasonably strong method for relating events such as remission (or change) to time-varying predictors. A significant finding would provide strong evidence that the two variables are related.

RESULTS

24-Month Remission from BN and EDNOS

Figure 1 shows the survival curves for time to remission for BN and EDNOS patients. Overall, 40% of patients with BN and 59% of patients with EDNOS at baseline had remission of their illness during the 24-month follow-up period.

Time to MDD Remission by PD Comorbidity

Time to remission of EDs was examined as a function of PD comorbidity. Overall, the mean number of PD diagnoses, based on the DIPD-IV, was 1.8 ($SD = 1.1$). Patients with BN and EDNOS did not differ significantly in the mean number of co-occurring PDs ($M = 1.8$ [$SD = 1.0$] vs. $M = 1.8$ [$SD = 1.2$]), $F(90) = 0.17$, $p = .86$. This finding plus the limitations in sample size for BN led us to group both BN and EDNOS in these analyses. Among the ED patients, 14 (15%) had no PDs, 26 (29%) met criteria for one PD, and 51 (56%) met criteria for two or more PDs. Patients with BN and EDNOS did not differ

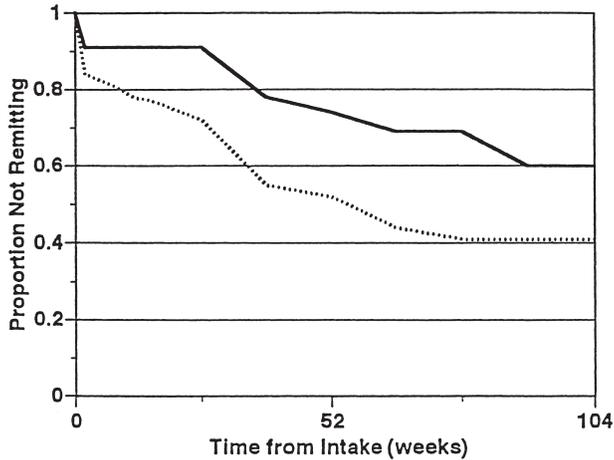


Figure 1. Time to remission from eating disorder for bulimia (straight line) and eating disorder not otherwise specified (dotted line) for females only.

significantly in the distribution of grouping by the number of PDs, $\chi^2 (df = 2) = 1.06, p = .59$. Survival curves (time to remission) for EDs as a function of PD co-occurrence are shown in Figure 2. ED remission rates by PD comorbidity were 75% (no PD present), 58% (one PD present), and 48% (two or more PDs present).

Multivariate Prediction of Time to ED Remission

We performed an overall multivariate analysis to predict time to ED remission. We considered four predictor variables: ED diagnosis (BN or EDNOS), number of PDs, number of Axis I psychiatric disorders, and GAF. The BN and EDNOS groups did not differ significantly in the number of co-occurring PDs or co-occurring current Axis I

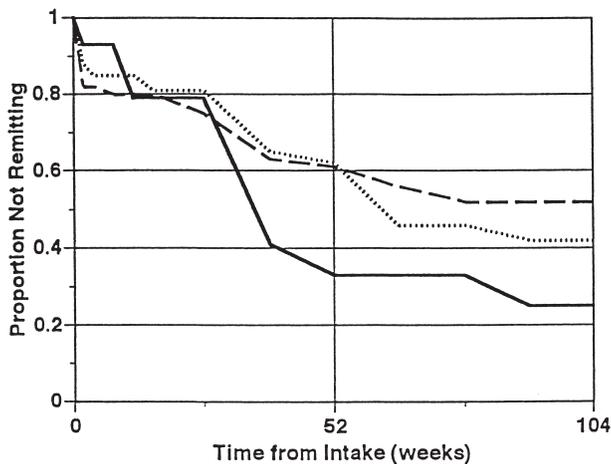


Figure 2. Time to remission from eating disorders (bulimia or eating disorder not otherwise specified) by number of comorbid personality disorders (PDs). The study included females only. Straight line = no PDs; dotted line = one PD; dashed line = two or more PDs.

psychiatric disorders ($M = 3.3$ [$SD = 1.6$] vs. $M = 3.1$ [$SD = 1.5$]); $F(90) = .43$, $p = .67$; or GAF ($M = 58.8$ [$SD = 10.4$] vs. $.57.6$ [$SD = 9.2$]); $F(90) = .54$, $p = .59$. The overall Cox proportion hazards regression (PHREG) analysis with the four predictor variables (likelihood ratio = 8.49 [$df = 4$], $p = .075$) approached significance. ED diagnosis (BN vs. EDNOS) made an independent contribution, $\chi^2(df = 1) = 4.02$, $p = .045$, to the prediction of time to ED remission. Although the overall PHREG only approaches significance ($p = .075$), it is noteworthy that the hazards ratio for an ED diagnosis (BN or EDNOS; $p = .045$) is 0.473. This hazards ratio suggests at least a medium effect for the slowed time to remission observed for BN patients relative to EDNOS patients when considered jointly with the three other predictor variables.

PDs as Time-Varying Predictors of ED Remission

Table 1 summarizes analyses for variations in PDs (DIPD-FA) as predictors of variations in EDs (LIFE). Proportion hazards regression analyses with time-varying covariates were used. Table 1 includes the risk ratio (RR) and the p value for a two-tailed test that the RR is different from 1.0. The RR is a good index of effect size (RR = 1.0 indicates no association between the variables). It is important to attend to the effect size because sample sizes vary. The findings in Table 1 suggest that time-varying changes in PDs were unrelated to ED remission.

DISCUSSION

The current study is a novel contribution to the literature on the association between PDs and EDs and addresses several important issues (Grilo, 2002; Grilo et al., 1997). First, BN has a worse natural course overall than EDNOS over a 24-month follow-up period. BN patients have a lower remission rate and a longer time to achieve disease remission. This finding is in agreement with the result reported by Fairburn et al. (2000) for BN and BED in their study of a community-based sample. Second, the natural course of BN and EDNOS is not (counterintuitively) influenced significantly by the presence or severity of PDs. Comorbid Axis I disorders and GAF were unrelated to the natural course of EDs. Third, time-varying changes in PDs do not predict prospectively changes in EDs.

Table 1. Personality disorders as time-varying predictors of ED remission

Personality Disorder	ED ^a		N/Remit ^d
	RR ^b	p^c	
Borderline	0.94	.86	34/12
Avoidant	1.00	.99	42/13
OCPD	0.92	.80	30/10

Note: ED = eating disorder; OCPD = obsessive-compulsive personality disorder; RR = risk ratio.

^aCombined bulimia nervosa and eating disorder not otherwise specified cases.

^bHazard ratio.

^cSignificance level for the two-tailed test.

^dTotal number of cases and number of remitted cases, respectively.

Several methodologic issues should be noted when considering our findings. First, our results pertain to female treatment-seeking patients who were recruited for a longitudinal study with a primary focus on PD and MDD. Therefore, they cannot be generalized to males or to ED patients who present to specialty clinics for treatment. Given our recruitment focus (du Fort, Norman, & Bland, 1993), the rates of PD in our ED patients are higher than the rates reported in clinic samples (see reviews by Grilo, 2002; Skodol et al., 1993; Vitousek & Manke, 1994, for discussions of the extent and variability of co-occurrences among EDs and PDs across recruitment methods). Fairburn, Welch, Norman, O'Connor, and Doll (1996) reported differences in the patterns of psychopathology observed for patient (clinic-recruited) versus community samples of EDs, whereas Wilfley, Pike, Dohm, Striegel-Moore, and Fairburn (2001) did not. In addition, our sample size precluded us from performing the time-varying analyses separately for BN and EDNOS, which may have prevented us from detecting significant effects of a small magnitude. However, the hazards ratios for changes in PDs that predict changes in EDs are extremely close to 1.0, which is indicative of no association.

Research interviewers were not blind to the baseline status of patients. Although this factor may have contributed a bias, the use of the same interviewer over the study period provides the advantage of repeated contacts with the subject. This may increase the validity of the PSR for EDs on the LIFE and diminish the error due to rater variance. A related issue concerns the nature and preciseness of the ED assessments. We relied on the LIFE, which was used in previous studies with AN (Herzog et al., 1999; Strober et al., 1997) and BN patients (Herzog et al., 1999) and represents the primary instrument in major longitudinal studies of several other Axis I disorders (Solomon et al., 1997). Although it could be argued that other assessment instruments produce more detailed and specific data regarding the features of EDs for specific points in time (Fairburn et al., 2000), these approaches do not lend themselves well to survival analyses (Fleiss et al., 1976; Keller et al., 1982). Regardless, our results that "large" differences in ED (i.e., remission and time to remission) were unrelated to PDs would not be expected to change if we had looked for "small" differences that other ED assessment methods provide (Grilo, Masheb, & Wilson, 2001a, 2001b).

Another limitation of naturalistic longitudinal studies of clinically ascertained subjects is the potential for confounding by treatment. In our initial analysis of treatment utilization, Bender et al. (2001) reported that MDD patients without PD required significantly less treatment than patients with PD and that patients with the more severe forms of PDs (including patients with more assigned PD) reported receiving the most treatment. These findings suggest that the amount of treatment received is driven by the severity of the disorder, a typical finding in naturalistic studies because of the selection bias of treatment-seeking patients (Cochran, 1983). Consistent with this, we found that higher treatment utilization was associated with less change in PD when we examined the change and outcome of PDs reported elsewhere (Shea et al., 2002). The current study was designed to address the course of ED in patients in real-world clinical settings and the treatment they received in current practice. Our study was not designed to address the important, but distinct, questions related to the untreated course of ED or the outcome of ED with experimentally manipulated treatments (controlled treatment or efficacy trials).

These findings have significant implications for models of the nature of the relationships between PDs and EDs (Shea, Widiger, & Klein, 1992). Grilo et al. (2003) tentatively concluded that although EDs and PDs frequently co-occur, they do not differentially co-occur across diagnoses, and therefore do not reflect meaningful comorbidity.

The current findings, which are based on longitudinal course, support that general conclusion. More specifically, the findings for females with BN and EDNOS are clearly inconsistent with spectrum models (i.e., that EDs and PDs are manifestations of shared underlying pathology). It is important to note that the absence of longitudinal associations between EDs and PDs does not rule out the possibility of other causal relationships. Numerous possibilities exist, including, for example, that certain disorders share some causes but their manifestations differ.

Our study results suggest that EDs are characterized by considerable independence or uniqueness from psychiatric and personality problems. EDs certainly co-occur with both Axis I psychiatric disorders and Axis II PDs, but they are not comorbid, that is, EDs are not influenced by psychiatric disorders and PDs in any clinically or functionally meaningful way. We found that the course of EDs was not influenced significantly by the presence, severity, or time-varying changes in co-occurring PDs, Axis I disorders, or by deficits in functioning associated with psychopathology (GAF). Several earlier studies also described the uniqueness of EDs from other psychopathology. First, Niether Herzog et al. (1999) nor Wilson et al. (1999) found predictors for BN remission. Second, as noted in a recent review (Grilo, 2002), two prospective studies (Steiger & Stotland, 1996; Wonderlich et al., 1994) found that PDs predicted outcomes for general psychiatric and functioning domains but not for ED-specific psychopathology. Third, a factor analysis of BN patients characterized eating-related psychopathology and general psychological disturbances as separate "semiautonomous" components (Gleaves, Williamson, & Barker, 1993). Finally, a multivariate twin analysis revealed a pattern of genetic and environmental factors for BN that differed from other Axis I disorders, particularly on familial environment effects (Kendler et al., 1995).

To conclude, BN has a worse overall 24-month course (longer time to disease remission) than EDNOS. Remission and time to remission for BN and EDNOS are not influenced significantly by the presence or severity of co-occurring PDs, by change in the levels of these PDs, by Axis I co-occurrence, or by deficits in functioning.

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