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Adolescent Eating Disorders: Treatment and Response in a Naturalistic Study

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Abstract

This naturalistic study investigated the treatment and outcome of adolescents with eating disorders (EDs) in the community. Clinicians from a practice-research network provided data on ED symptoms, global functioning, comorbidity, treatment, and outcome for 120 adolescents with EDs. ED “not otherwise specified” was the most common ED diagnosed. After an average of 8 months of treatment, about one third of patients had recovered, with patients with anorexia nervosa showing the most improvement. Clinicians utilized a range of psychotherapy interventions and two thirds of the patients had received adjunct psychoactive medication. Although CBT showed the strongest association with outcome in a subsample characterized by poor relational/personality functioning, dynamic therapy was associated with better global outcome in the overall sample.

Keywords

Adolescent; eating disorder; treatment

Individuals with eating disorders (EDs) are frequently first diagnosed in adolescence (Kaye, Bulik, Thornton, Barbarich, & Masters, 2004; le Grange, Loeb, Van Orman, & Jessar, 2004), and studies suggest many adolescents also experience subthreshold ED symptoms (Tanofsky-Kraff et al., 2007). Adolescents are commonly diagnosed with anorexia nervosa (AN), which is characterized by extreme dietary restriction and being underweight, bulimia nervosa (BN), which is characterized by binge eating and compensatory behaviors such as purging without being underweight, and ED “not otherwise specified” (EDNOS), which currently includes a range of clinical presentations such as regular binge eating without purging, purging without binge eating, and subclinical or partial variants of AN and BN (*Diagnostic and Statistical Manual of Mental Disorders* [4th ed.; *DSM-IV*; American Psychiatric Association], 1994).

A few descriptive studies of adolescents with EDs in the community have been published (le Grange et al., 2004; Tanofsky-Kraff et al., 2007); however, treatment data for adolescents are generally lacking (Wilson, Grilo, & Vitousek, 2007). Furthermore, the limited treatment data available focus on AN and BN, though research shows that adolescents are most frequently diagnosed with EDNOS (Bravender et al., 2007; Keel & Haedt, 2008; Walsh et

al., 2005). Data are needed concerning the effectiveness of treatments for the wide range of EDs that adolescents typically develop, as well as predictors of treatment response.

Treatment Approach and Outcome for Adolescent EDs

ED outcome in adolescents has been examined in longitudinal studies and treatment trials, and more data are available for AN than BN or EDNOS (Keel & Haedt, 2008). One longitudinal study of adolescents with AN in Sweden suggested that long-term outcome for AN may be more favorable among adolescents than among adults, with only one in four still meeting criteria for an ED after 10 years, though poor global functioning—reflecting difficulties with social interactions, affective disorders, and personality difficulties—persisted in half the sample (Wentz, Gillberg, Gillberg, & Rastam, 2001). Adolescent AN outcome in treatment trials has also been good, with 60% of those adolescents treated with family-based treatment (FBT) showing remission from AN in one trial from the United States (Lock, Couturier, Bryson, & Agras, 2006), and similarly good outcomes (the majority showing good to excellent outcomes) reported in other clinical trials of FBT and individual therapy conducted in the United States and England (Loeb et al., 2007; Robin, Siegel, & Moye, 1999). The treatment data for adolescent BN are somewhat more discouraging, however. In one trial of 6 months of FBT versus supportive treatment for BN in adolescents conducted in the United States, only 39% of patients in family-based treatment and 18% of patients in supportive treatment recovered (le Grange, Crosby, Rathouz, & Levanthal, 2007). In another study of FBT versus guided self-help cognitive-behavioral therapy (CBT) for adolescents in the United Kingdom, only 13% and 19% of the patients had recovered after 6 months of the two treatments, respectively, and approximately 40% of both groups were recovered by 12 months follow-up (Schmidt et al., 2007). Aside from research on binge-eating disorder in adults, treatment data for EDNOS are sparse for both adults and adolescents (Wilson et al., 2007).

The published trials of medications for EDs have sampled adult participants, and data specifically for adolescents are rare (Rossi et al., 2007). One naturalistic report on the use of psychopharmacological agents to treat nineteen inpatient adolescents with AN in Italy found that a sizeable minority of patients (32%) had received prescription medication in this setting, most commonly antidepressants (76% of prescriptions) followed by atypical antipsychotics (22%) and benzodiazepines (3%; Rossi et al.). Antidepressants were prescribed for both depression and obsessions, while antipsychotics were prescribed for “thought disorders and anguish” (Rossi et al., p. 808). A retrospective examination of the use of antidepressant medications with 19 adolescents with AN in Germany did not find significant differences in outcome from the ED, depression, or anxiety compared with 13 adolescents who did not receive medication, though the power to detect effects was limited (Holtkamp et al., 2005). Research with adults suggests that antidepressants show utility for treating BN and BED, but other psychopharmacological interventions with some promise (such as atypical antipsychotics for AN) have not yet been adequately tested (Ramos, Versini, & Gorwood, 2007), and others (such as fluoxetine to prevent AN relapse) have not shown benefit (Walsh et al., 2006). It is not known whether medications are widely used in the outpatient treatment of adolescents with EDs in the United States, or whether they are effective when used in this population and in conjunction with psychotherapy.

Predictors of Outcome in Adolescent EDs

Most data concerning predictors of adolescent outcome come from longitudinal studies. Two such studies of AN in Sweden found that personality pathology predicted poor outcome (Rastam, Gillberg, & Wentz, 2003), and psychiatric comorbidity predicted poor outcome (Hjern, Lindberg, & Lindblad, 2006). Very few trials of treatments for adolescents with EDs have had large enough samples to examine predictors of outcome. In the United States, Lock and colleagues (2006) found that family characteristics, early treatment response, and child behavioral problems predicted outcome, but age, comorbidity, treatment intensity, length of treatment, and the use of conjoint hospitalization all failed to predict outcome in FBT for AN (severity of body weight was not tested; Lock et al., 2006). Furthermore, the degree of patient obsessional characteristics interacted with treatment length, such that longer treatment was more effective particularly for the subgroup with very high obsessional characteristics, but not for the whole sample (Lock, Agras, Bryson, & Kraemer, 2005).

The more extensive data from adult studies may provide guidance in the selection of predictor and outcome variables to test in studies of adolescents. Adult studies indicate that severity of ED symptoms (e.g., Keel, Dorer, Franko, Jackson, & Herzog, 2005), interpersonal/personality functioning (including interpersonal problems, as well as avoidant, borderline, and obsessional personality characteristics; e.g., Hilbert et al., 2007; Keel et al.; Steinhausen, 2002; Thompson-Brenner et al., 2007), comorbidity such as depression and posttraumatic stress disorder (e.g., Keel et al.), and treatment length and approach (e.g., Keel & Mitchell, 1997; Thompson-Brenner & Westen, 2005) may be important predictors. Adult data suggest that global functioning may be a more sensitive outcome measure than ED outcome (Thompson-Brenner, Weingeroff, & Westen, 2008).

Additional important questions regarding treatments for EDs have not been fully investigated in either adult or adolescent populations. Though psychodynamic psychotherapy is frequently used in the community, it has not received widespread attention in treatment trials or review articles (see Thompson-Brenner, Glass, & Westen, 2003; Thompson-Brenner & Westen, 2005; Thompson-Brenner et al., 2008). Additionally, although the use of a treatment team is frequently recommended for outpatient treatment of EDs (e.g., Kinoy, 2001), the actual utility of conjoint outpatient treatments has not been investigated.

At this time, we do not know what treatments are widely utilized with adolescents with EDs, the response of adolescents to these treatments, predictors of treatment response, or the relationship between treatment approach and treatment response. Exploring the treatment of adolescents with EDs using a naturalistic study design provides a way of addressing some of the gaps in research to date. Though naturalistic data are inherently limited, they are essential to inform the design of treatment trials and to provide a comparison for outcome data from treatment trials. The current study was intended as a preliminary, naturalistic investigation of the treatment of adolescents with EDs in the community, using clinicians as informants. We deliberately placed a minimum number of constraints on the sampling procedure to allow for the description and examination of a wide range of pretreatment and treatment differences and their relationship to treatment response.

The study sampled from a practice-research network of randomly selected, experienced clinicians who treat adolescents in the community, using measures designed and validated for use with clinician-informants. Specific reliability and validity data for the measures we employed are reported below. Clinicians provided data regarding their own characteristics, their patients' characteristics, and characteristics of the therapy they provided. The main advantage of this method is that clinicians are experienced observers with longitudinal knowledge of their patients, possessing skills and normative bases with which to make observations, with access to a range of patient diagnostic groups within their caseloads that may be sampled fairly easily without compromising patient confidentiality. The primary objection to the method is the possibility of bias in clinical judgment. Although detailed reviews of evidence supporting the utility of this method are presented elsewhere (e.g., Shedler & Westen, 2004; Westen & Muderrisloglu, 2006; Westen & Weinberger, 2004), we highlight evidence particularly relevant to this investigation below. In other studies using clinician report methods, we have attempted to address the possibility of clinician bias by checking for systematic differences among definable groups of clinicians and have not found such differences; clinician training (e.g., psychiatry vs. psychology) and theoretical orientation predict little variance in the description of clinical phenomena (e.g., Thompson-Brenner & Westen, 2005). We also observe that clinicians do not appear to bias their reporting by only reporting favorable outcomes, and they are willing to describe failure of the patient to recover in treatment (Thompson-Brenner & Westen, 2005) and negative feelings toward the patient (Satir, Thompson-Brenner, & Boisseau, 2008).

Therefore, as a preliminary survey and initial characterization of ED treatment of adolescents in the community, this study was particularly well-suited to the clinician-report method. Namely, it provides a way to explore the range of psychotherapeutic practices normally employed in the community and allows for initial estimates of outcome and predictors of outcome. More specifically, this study aimed to provide preliminary data concerning the following: (a) the characteristics of clinicians who treat adolescent patients with EDs in the community; (b) the characteristics of patients with EDs who receive treatment in the community; (c) treatment interventions that the clinicians commonly employ; and (d) the predictors of clinician-reported treatment response.

Methods

The clinician practice-network was initially formed in 2003 for a study, funded by the National Institute of Mental Health (NIMH), of adolescent psychopathology. At that time, we attempted to contact all members of the American Psychological Association and American Psychiatric Association with at least 5 years of experience posttraining, with recorded interest in the treatment of adolescents or children (approximate $N = 3,600$), by letter inviting them to join the adolescent practice research network. Over one-third agreed to participate by postcard and 950 became members of the network. For the current study, we re-contacted 850 randomly selected members with a letter briefly describing the current study and subject criteria. Out of 850, 462 returned the enclosed card indicating willingness to participate, for an overall response rate of 54%. However, only $N = 191$ indicated they were treating a female patient between 15–18 years old with an ED and, therefore, were sampled in the study. Of these, 124 (65%) returned the completed measures prior to the

deadline. Four members were excluded due to unusable data. Participating clinicians received a consulting fee of \$200 for a procedure that required approximately 3 hours of time.

Clinicians were directed to describe “a female adolescent patient between the ages of 15–18 with an eating disorder” currently in treatment. We selected the age range according to the rationale that adolescent EDs typically develop in this range (Kaye et al., 2004), and our intended sample was not large enough to investigate potential differences in presentation among very young subjects. We directed clinicians to select a patient whose treatment to date had included *at least* 6 hours of meetings, but was *no longer than 1 year* in duration, to obtain a sample that was well-known to the informants but whose presenting information was still easily remembered or accessed.¹ Individuals with chronic psychosis and mental retardation were excluded. Clinicians received a packet containing a cover letter, a consent form, a postage-paid return envelope, and the study measures. Clinicians did not provide identifying information about the patient and were instructed to use only information already available to them from their regular contacts with the patient and their records. To minimize rater-dependent variance, if clinicians had more than one patient meeting study criteria currently in treatment, then they were directed to describe the patient they had met with most recently; each clinician contributed data on one patient only. The procedure for this study was approved by the Institutional Review Board at Boston University.

Measures

Clinicians were instructed to describe the patient as she was at the beginning of treatment in every measure excepting the Psychotherapy Effectiveness Form.

Adolescent eating symptom form—ED symptoms and diagnoses were assessed in a comprehensive eating symptom form that listed each criterion of the three ED diagnoses (AN, BN, and EDNOS), including frequency and duration criteria, to allow for independent accurate (exclusive) diagnosis by the researchers. Our research suggests that clinician reports are more reliable when individual ED criteria, rather than full diagnosis, are rated by clinicians (Thompson-Brenner, Eddy, Satir, Boisseau, & Westen, 2008). Other assessment research suggests that clinician reports are particularly reliable and valid with regard to adolescent EDs and that adolescents may under-report some symptoms (such as restriction and body image concern), which require expert observation to assess (Couturier, Lock, Forsberg, Vanderheyden, & Yen, 2007).

Clinical Data Form for Adolescents (CDF-A)—The CDF and CDF-A (adapted for adolescents) are clinician-report measures frequently used by this research group (Westen & Shedler, 1999; Westen, Shedler, Durrett, Glass, & Martens, 2003) to assess a wide range of demographic, diagnostic, developmental history, and family history variables. The version used for this study assessed clinician and patient demographic data, patient adaptive

¹In similar studies conducted previously, we sampled completed treatments (e.g., Thompson-Brenner & Westen, 2005); however, given the length of the completed treatments we observed in prior research, we felt that the recollection of the patient as she began treatment, or a coherent representation of the interventions used in treatment, were compromised by this approach. Though we are only able here to characterize treatment response to date, and not completed treatment outcome, we considered this preferable to compromising reliability.

functioning (e.g., global assessment of functioning score, suicide attempts, and psychiatric hospitalizations), and patient developmental history (e.g., parental divorce, separations from primary caregiver, physical and sexual abuse). For data analytic purposes, we calculated an aggregate variable reflecting the number of significant adverse events representing the sum of positive histories for physical abuse, sexual abuse, witnessing violence, frequent geographical moves, substance abusing parent in the home, separations from parent in early childhood, deceased parent, and parental divorce. Prior research using these methods suggests that these data demonstrate convergent validity and interrater reliability when aggregated (Nakash-Eisikovits, Dutra, & Westen, 2002), and that clinicians tend to make judgments on developmental and family history variables using appropriately conservative decision rules (Russ, Heim, & Westen, 2003; Wilkinson-Ryan & Westen, 2000).

Comparative Psychotherapy Process Scale for Adolescents With EDs (CPPS-ED-A)—For a previous study (Thompson-Brenner & Westen, 2005), we adapted a reliable psychotherapy process/intervention measure particularly suited for description of nonmanualized (naturalistic) psychotherapies, the Comparative Psychotherapy Process Scale (CPPS; Blagys & Hilsenroth, 2000; Hilsenroth, Blagys, Ackerman, Bonge, & Blais, 2005). Based on reviews of the literature across treatments for various disorders, Hilsenroth and colleagues identified items assessing the distinctive elements of psychodynamic and cognitive-behavioral therapies. The original CPPS includes 20 items reflecting therapy practices that significantly differentiated psychodynamic therapy and CBT in published studies (e.g., Goldfried, Raue, & Castonguay, 1998; cited in Blagys and Hilsenroth, 2000). Interrater reliability for individual items of the CPPS is good-to-excellent (Hilsenroth et al., 2005).

To be maximally relevant to the treatment of EDs, we originally modified the CPPS for an earlier study by adding the following items: (a) items specific to the treatment of eating disorders adapted from the CBT manual (Fairburn, Marcus, & Wilson, 1993); (b) items assessing psychodynamic interventions not addressed in the original item set (e.g., interpretation of conflict, focus on sexuality, exploration of aggression); and (c) items assessing interventions commonly employed for personality problems of relevance to ED patients (e.g., perfectionism, assertiveness, emotional dysregulation). The 41-item CPPS-ED showed good reliability and validity in prior investigations (Thompson-Brenner & Westen, 2005).

For this study of adolescents, we added 10 items reflecting common family therapy and parent guidance interventions utilized in family therapy in general and with EDs specifically (e.g., “Encouraged the parents to become more supportive in general;” “Focused on communication between patient and parents in family therapy;” “Shifted power and control from the patient to the parental dyad;” “Taught parents strategies for helping patient with eating disorder symptoms;” “Helped the parents become less critical of the patient”). The CPPS-ED-A instructs clinicians to rate the extent to which each item was characteristic of their work with their patient, 1 (*not at all characteristic*) and 5 (*very characteristic*). In factor analyses reported below, all 10 family items loaded extremely highly on the family therapy scale, and the 10-item Cronbach’s alpha was .90.

Axis I checklist—Given the large number of variables assessed in this study and to maximize time efficiency, we used a checklist to obtain comorbid diagnostic information (which was not the main focus of the study) in a time-efficient manner. The major comorbid Axis I diagnoses were listed in a checklist form and clinicians were directed to indicate whether the patient met criteria for these diagnoses, to obtain a general estimate of comorbid psychopathology in the population.

Axis II rating form—Comorbid Axis II personality disorders were assessed by listing the complete description and criteria for each personality disorder (PD), and clinicians were directed to rate the degree to which the patient's personality matched each prototypical description on a 5-point scale with anchors. The prototype rating indicates that a score of 4 or 5 indicates enough criteria are met for full diagnosis and a score of 3 indicates “features” of the disorder. A score of 2 indicates that the patient has “minor features” of this disorder, and a score of 1 indicates that the patient's personality “does not resemble” this disorder. This form of prototype assessment maximizes the benefits of dimensional assessment of personality (see Endler & Kocovski, 2002), anchored by the actual criteria for each disorder, without imposing the burden of rating each diagnostic criterion individually. The prototype-matching approach in the Axis II rating form has shown good validity relative to diagnosis via *DSM-IV* criteria as well as other benefits (ease of use, minimization of artifactual comorbidity) in assessment research (Westen, Shedler, & Bradley, 2006).

Social Cognition and Object Relations Scale (SCORS)—The SCORS was originally developed by Westen (1995) as a Q-sort rating of projective test narratives that reflect the relational aspects of personality functioning. The SCORS comprises eight global rating scales: complexity of representations of people, affective quality of representations, emotional investment in relationships, emotional investment in values and moral standards, understanding of social causality, experience and management of aggressive impulses, self-esteem, and identity and coherence of self. The global scales are scored on a 7-point anchored rating scale; lower scores (e.g., 1 or 2) indicate greater pathology and higher scores (e.g., 6 or 7) indicate greater psychological health.

The SCORS has demonstrated good to excellent interrater reliability (Ackerman, Clemence, Weatherill, & Hilsenroth, 1999; Fowler, Ackerman, Speanburg, Bailey, & Blagys, 2004). The SCORS discriminates among individuals with cluster B and cluster C personality disorders (Ackerman et al.) and among borderline, major depressive, and nonclinical groups (Westen, Lohr, Silk, Gold, & Kreber, 1990). The SCORS global rating scales have been adapted and validated for application to interviews and psychotherapy sessions (Callahan, Price, & Hilsenroth, 2003; Hilsenroth, Stein, & Pinsker, 2007; Peters, Hilsenroth, Eudell-Simmons, Blagys, & Handler, 2006; Price, Hilsenroth, Callahan, Petretic-Jackson, & Bonge, 2004) showing a good convergent validity with Global Assessment of Relational Functioning (GARF; APA, 1994) and Social and Occupational Functioning Assessment Scale (SOFAS; APA, 1994; Peters et al., 2006). Interrater reliability on the SCORS global rating scale has been established by independent ratings of recorded sessions of psychotherapy and independent ratings of written narratives such as stories regarding relationships and responses to the Thematic Apperception Test (Callahan et al., 2003; Price

et al., 2004; Hilsenroth et al., 2007). For the purposes of this study, we created an aggregate (mean) of all 8-scale scores, reflecting the global SCORS score of relational/personality functioning (Hilsenroth et al., 2007).

Psychotherapy effectiveness form (PEF)—The PEF was collected concurrently with the other measures, and it provided multiple estimates of the effect of the psychotherapy to date regardless of the length of time in treatment (which was also measured and included as a covariate in assessments of psychotherapy effectiveness). The PEF includes 15 items directing clinicians to indicate whether the patient received psychotherapy and/or psychotropic medication and to rate the effectiveness of the psychotherapy to produce recovery and improvement in ED symptoms and overall global functioning according to explicit criteria. Items include the clinicians' rating of the patient's current GAF score ("after treatment to date") with explicit anchors provided. Certain variables were more objective, such as whether the patient recovered from ED symptoms, defined as the "complete cessation of binge eating and purging for 4 weeks or more and resumption of regular menstrual cycle and weight within 10% of normal," and whether the patient improved in ED symptoms, defined as a "50% reduction" in ED behavioral symptoms. Other items are more subjective, for example, the clinician's overall rating of the effectiveness of the psychotherapy for global functioning and ED symptoms, taking into account all relevant factors.

From this measure, we used only the most reliable and best validated items, namely, the length of treatment to date, whether the patient received therapy and medication, the current GAF score, and whether the patient had improved and recovered from ED symptoms. Interrater reliability for clinician assessed and independent ratings of the GAF scale are excellent (Hilsenroth et al., 2000). Clinician-rated GAF scores show convergent validity with other scales such as structured ratings of depression (e.g., Zimmerman, Posternak, Chelminski, & Friedman, 2005), interpersonal/relational functioning (Hilsenroth et al., 2000), and social/occupational functioning (Hilsenroth et al., 2000). As noted earlier, research indicates that clinician reports are particularly reliable and valid with regard to adolescent EDs (Couturier et al., 2007).

Data Analysis

We used Pearson's chi-square tests and independent samples *T* tests to assess differences in global functioning, the types of treatments utilized, and comorbid diagnoses among ED diagnostic groups. We also calculated descriptive statistics concerning the types of treatment provided in the community, including the mode of intervention employed (e.g., individual psychotherapy, medication, family therapy), the primary setting, and the length of treatment. We then sought to explore the treatment interventions assessed on the CPPS-ED-A using principal components analysis (PCA) to reduce the number of variables to subscales reflecting basic psychotherapy interventions. As described in detail below, we conducted PCAs both unrotated and using a varimax rotation. We assessed differences in the use of specific interventions as well as treatment response according to several clinician and patient demographics, conducting similar analysis to those described above. Finally, we conducted multiple linear regressions, when the dependent outcome variable was dimensional (i.e.,

GAF score), and logistic regressions, when the outcome was dichotomous (i.e., ED recovery), including multiple predictor variables of interest to the investigation and indicated in bivariate analyses. The rationales for data analytic decisions are also described in detail below. Because these were exploratory analyses intended to provide preliminary data regarding a wide range of patient, treatment, and clinician variables, we did not employ Bonferroni or similar procedures to correct for multiple analyses, but clearly describe the number of analyses conducted.

Results

Clinician Descriptive Statistics

Table 1 shows the descriptive data regarding the clinicians, which are also published in Thompson-Brenner and colleagues (2008). Almost half of the clinicians identified as primarily cognitive-behavioral in their theoretical orientation, and over one third of them identified as primarily psychodynamic, although many (40.9%) also indicated that they commonly integrated psychotherapeutic approaches or were eclectic in their orientation. The clinicians were relatively evenly split between men and women, were two-thirds psychologists, and were very experienced (Table 1). In addition, 21 clinicians (17.5%) reported they were specialists in EDs, while the remainder stated they did not hold a particular specialty in this area.

Patient Descriptive Statistics

Table 1 also shows the descriptive data regarding the patients. As noted earlier, all were female between the ages of 15 and 18. We diagnosed 15% of the sample with AN ($N = 18$), 36.7% with BN ($N = 44$), and 47.5% with EDNOS ($N = 57$); one patient was excluded from further analyses because there was not enough information provided to make a valid diagnosis. Half of those with AN ($N = 9$) had the symptoms of binge-purge AN and the same number with restricting AN. The majority of patients (90.8%) were Caucasian. Almost half were identified as upper class or upper middle class ($N = 58$, 48.3%), while another near-half was identified as middle class ($N = 51$, 42.5%), and a minority as working class or poor ($N = 11$, 9.2%). They were fairly severely impaired on average, but variable in adaptive functioning (mean GAF = 51.34, $SD = 8.65$, range 30–75).

The patients were reported to have a variety of adverse events and comorbid diagnoses. The mean number of adverse events (e.g., physical abuse, sexual abuse, witnessing violence; see the Methods section) in the patients' developmental histories was 1.18 ($SD = 1.33$). The mean number of comorbid Axis I diagnoses indicated on the checklist was 2.39 ($SD = 1.73$), and the most common being major depressive disorder (MDD; 37.5%) and obsessive-compulsive disorder (18.3%). Clinicians less frequently indicated a high level of Axis II psychopathology; on a 5-point scale, from 1 (*not at all characteristic*) to 5 (*met all criteria for the diagnosis*), the mean across all Axis II diagnoses was 1.76 ($SD = 0.41$). The diagnosis rated highly most often (4 or 5 on a 5-point scale, indicating the patient met enough criteria to receive the diagnosis) was borderline PD, rated highly in 11.8% of the cases. Obsessive-compulsive PD was the next most common, rated highly in 8.4% of the cases.

Treatment Descriptive Statistics

Table 1 displays basic descriptors regarding treatment, including the primary setting (largely outpatient) and the mean length of treatment (more than 8 months). Almost all patients received psychotherapy (97.5%), and—surprisingly—more than two-thirds were reported to also have received medication. We next assessed associations among medication usage and pretreatment global functioning and diagnostic factors. Pretreatment ED diagnosis was not associated with the use of medications; the only diagnosis consistently associated with the use of medications was MDD (88.9% of those diagnosed with MDD were prescribed medications, while only 57.3% of those without MDD received medication, $\chi^2[1, N = 120] = 13.13, p < .001$). The clinicians were asked to estimate within their treatment how much of the time was spent in individual versus family interventions: The clinicians reported that 82.0% of the psychotherapy ($SD = 16.5\%$) was delivered individually and 19.9% was delivered to the family ($SD = 15.6\%$). Although all clinicians reported that they conducted some treatment individually, a small minority of clinicians reported no use of family intervention (7.4%).

Treatment Response Descriptive Statistics

Clinicians reported that the patients with binge eating symptoms averaged 2.82 binge eating episodes per week at the beginning of treatment ($SD = 3.05$), as compared with an average of 1.16 binge eating episodes per week ($SD = 1.76$) at the current time point. At pretreatment, clinicians reported that the patients averaged 2.90 purging episodes per week ($SD = 3.57$), compared with an average of 0.77 purging episodes per week at the current time point ($SD = 1.60$). Clinicians reported that 69.7% of the patients ($N = 83$) were showing “clinically significant improvement” in ED symptoms, and of those who had improved, they reported this improvement had been achieved after $M = 12.51$ weeks of treatment ($SD = 8.46$). Clinicians reported 30.0% of the patients ($N = 36$) were “recovered” from ED symptoms and that recovery had been achieved in this group at $M = 29.60$ weeks of treatment ($SD = 19.77$). The average length of treatment to date for the group that had recovered from their ED was significantly higher than that for the group who had not recovered $t(115) = 2.86, p < .01, d = .53$, and length of treatment to date was significantly associated with current GAF in partial correlations controlling for pretreatment GAF, $r = .37, p < .001$.

Chi-square analyses comparing recovery rates in AN (38.9%), BN (38.6%) and EDNOS (21.1%) were nonsignificant, $\chi^2(2, n = 119) = 4.39, p = \text{n.s.}$ Somewhat unexpectedly, however, adolescents with AN ($N = 18$) showed larger mean change-in-GAF scores ($M = 28.11, SD = 12.35$) than the BN ($N = 43; M = 16.88, SD = 12.97$) and EDNOS groups ($N = 54; M = 11.11, SD = 10.63$), $F(2, 112) = 14.17, p < .001, \eta_p^2 = .20$, as well as higher overall midtreatment GAF scores: AN ($M = 73.89, SD = 11.95$); BN ($M = 66.79, SD = 12.09$); EDNOS ($M = 65.09, SD = 11.49$), $F(2, 112) = 3.78, p < .05, \eta_p^2 = .06$.

Baseline Predictors of Treatment Response

We next examined a range of possible predictors of global and ED treatment response, including baseline ED diagnosis and comorbid Axis I and II diagnoses that have been

identified in previous research (see Berkman, Lohr, & Bulik, 2007, for review). We chose to focus on GAF score as the best measure of global functioning because the anchors were well established and we had both pretreatment and midtreatment ratings of this variable. We chose to focus on “recovery” as the measure of ED response because this was also the most objectively defined of the ED treatment response variables, and it had substantial variance. Because we assessed two treatment response variables (GAF, recovery from ED) and nine predictor variables selected on the basis of the adult literature and the comorbidity present in our sample (ED diagnosis, treatment length, major depression, OCD, PTSD, borderline personality, avoidant personality, obsessive-compulsive personality, and relational functioning), we conducted 18 analyses in total.

The only two significant predictors of treatment response in bivariate analyses of pretreatment comorbidity variables were as follows. Partial correlation coefficients controlling for pretreatment GAF score indicated that the OCPD prototype score was significantly negatively associated with current midtreatment GAF ($r = -.22, p < .05$). The relational functioning variable, on the other hand, was significantly positively associated with current GAF ($r = .30, p < .001$), after controlling for pretreatment GAF. Other analyses of pretreatment variables and global functioning were nonsignificant. Among the independent samples t tests comparing pretreatment mean scores between the group that recovered and the group that did not recover from their ED in treatment, only the pretreatment OCPD score was significant at the .05 level. Although neither mean reflects a diagnosis of OCPD, the mean value on this 5-point dimensional Axis II rating scale for the group that did recover ($N = 35$) was 1.80 ($SD = 0.80$), while the mean value for those who did not recover ($N = 83$) was 2.40 ($SD = 1.01$), $t(116) = 3.11, p < .01, d = .66$.

Treatment Interventions

To characterize the types of treatment conducted in the community, we conducted a principal components analysis (PCA) to reduce the data included in the CPPS-ED-A to scale scores. We examined the scree plot, eigenvalues, and percent of variance accounted for in unrotated analyses, and we conducted parallel analyses (Horn, 1965) to identify the number of factors to rotate. Based on these data, we rotated six to nine factors using a varimax rotation. The most robust and interpretable solution was the 6-factor solution, which accounted for 51.6% of the variance. Table 2 shows the items from the CPPS-ED-A that loaded most highly on the six components. These components clearly reflect cognitive behavioral therapy for EDs (CBT), family intervention, emotion regulation, dynamic therapy, trauma therapy, and conjoint treatment. There was some item crossloading, particularly between items in the emotion regulation factor and items in the dynamic therapy factor. We retained the SPSS-generated scale scores for use in statistical analyses.

To describe the degree to which these six intervention dimensions were used by the therapists to treat their patients, we created mean scores for items loading above .5 on the scale, or the top eight items on the scale if more than eight items loaded above .5 (see Table 2 for the items that were included). The mean ratings for the top items on the 7-point scale, where 1 = *not at all* and 7 = *very characteristic of the treatment*, were as follows: emotion regulation scale $M = 5.20, SD = 1.10$; CBT $M = 4.93, SD = 1.56$; dynamic therapy $M = 4.70,$

$SD = 1.10$; family interventions $M = 4.22$, $SD = 1.60$; trauma $M = 4.04$, $SD = 1.32$; and conjoint therapy $M = 3.13$, $SD = 1.78$. We also assessed whether there were differences in usage of specific interventions according to several clinician and patient demographics. The only significant association between treatment scales and clinician discipline was a significantly higher mean score for psychiatrists than psychologists on the conjoint treatment factor ($t[108] = 2.92$, $p < .01$, $d = .57$). The only significant association between patient demographic data and treatment scale score was a small correlation between age and the use of CBT ($r = .20$, $p < .05$). The only significant associations between treatment factors and pretreatment ED diagnoses was clinicians reported using more CBT for both AN and BN than for EDNOS, after post hoc tests were conducted, $F(2,106) = 8.41$, $p < .001$, $\eta_p^2 = .14$; $p < .05$ for both Scheffé post hoc tests.

Treatment Interventions and Treatment Response

Next, we attempted to obtain preliminary estimates of associations between the treatment intervention scale scores and treatment response in the sample, including bivariate and multivariate analyses of current GAF and recovery from the ED. We examined the correlations between the treatment intervention factors and current GAF, controlling for pretreatment GAF. Only the association between GAF and dynamic therapy was statistically significant ($r = .23$, $p < .05$). T tests comparing mean intervention scale scores for the group that had recovered from the ED and the group that had not recovered were nonsignificant in every case. Assessments of the use of medication indicated that there were no significant differences in ED recovery rates or change-in-GAF score between those on medications or those not on medications, even within the subgroup with major depressive disorder.

We next conducted multivariate analyses to assess the relative influence of treatment intervention factors along with multiple covariates. We considered including all the treatment factors together in the regression equations; however, multicollinearity diagnostics prohibited including all factors in one equation. Given the item overlap between the Dynamic Therapy scale and the emotion regulation scale (Table 2) and the significant partial correlation between Dynamic Therapy and treatment response, we elected to include only the Dynamic Therapy scale in the equation. Given the item overlap between the conjoint treatment factor and CBT (one of the two items loaded highly for conjoint treatment cross loaded on CBT) and the absence of a detectable relationship between conjoint treatment and GAF in partial correlations, we elected to include only CBT. With the removal of emotion regulation and conjoint treatment, the multicollinearity diagnostics improved to acceptable levels. Given that change-in-GAF score was significantly higher in the AN group, we included this diagnosis as well. Table 3 shows the results from these stepwise analyses including pretreatment factors as independent variables in the first step, and treatment interventions as independent variables in the second step, and current (midtreatment) GAF as the dependent variable. As Table 3 shows, patient pretreatment factors and dynamic therapy were significant predictors of current GAF.

We were also interested particularly in the question of which interventions were useful for patients in the lowest 50% in terms of relational/personality functioning, as it has been posited previously that certain therapeutic approaches might be particularly effective and

particularly ineffective for this population (Thompson-Brenner et al., 2008). We split the sample around the median on the SCORS aggregate variable. For regression equations for the half of the sample below this median ($N = 57$), we needed to reduce the number of variables substantially. Therefore, we removed the SCORS (as the variability was now constrained), as well as AN diagnosis (as there were now only 6 cases with AN in the subsample), and we tested a similar linear equation model including pretreatment GAF, OCPD prototype, length of treatment, and the four selected treatment factor scores. As Table 4 shows, in the lower 50% in terms of relational/personality functioning, CBT was a significant positive predictor of current GAF in addition to pretreatment GAF score and length of time in treatment.

Finally, we conducted logistic regression analyses with ED recovery as the dependent variable, and the same independent variables as above, with the exception that we excluded ED diagnoses, as we knew that recovery rates were equivalent among diagnostic groups. In all steps and analyses, only the OCPD prototype score was a significant negative predictor at the .05 level of significance ($\beta = -5.45$, $SE = .25$, Wald chi-square = 4.60, $p < .05$).

Discussion

Characteristics of Adolescent ED patients

This study of adolescents in treatment supports epidemiological research (see Bravender et al., 2007), which suggests that the majority of adolescents with EDs have variants of “eating disorder not otherwise specified,” as opposed to anorexia nervosa or bulimia nervosa. This study suggests, however, that the patients with EDNOS are not simply subclinical and, therefore, easier to treat than other diagnostic groups. In fact, those patients showed the least change in global functioning score during treatment. The only distinctive difference in clinicians’ treatment approach to adolescents with EDNOS was a tendency to use less CBT for EDs with this group. It is clear that more studies of EDNOS in adolescents are needed. Furthermore, given the heterogeneity within EDNOS, researchers might consider adapting transdiagnostic approaches such as enhanced cognitive behavioral therapy (Fairburn et al., 2009; Fairburn, Cooper, & Shafran, 2003) or integrative psychodynamic psychotherapy (Thompson-Brenner et al., 2008) for use with adolescents.

The study also supports prior observations that adolescents with AN respond very well to treatment (Nilsson & Hagglof, 2005), and, in fact, in this study, the individuals with AN responded better than other diagnostic groups. Clinicians treating patients with AN in the community reported using somewhat more cognitive behavioral interventions than they did with EDNOS, but did not use more family interventions, in spite of the fact that both family therapy and family-based treatments focused on weight restoration have been supported by research (see Robin et al., 1999).

The characteristics of adolescent patients that predicted treatment response were not surprising, but were somewhat more extensive than those supported in treatment trials to date. Good pretreatment global functioning, low obsessive compulsive personality traits, good relational functioning, and the diagnosis of AN were all robust predictors of higher midtreatment global functioning, in addition to the length of time in treatment to date. There

were fewer identified predictors of ED response, however, and the only predictor of ED recovery in multivariate analyses was the absence of obsessive-compulsive personality traits. The observation that obsessional traits predict poor treatment response reflects the results from multiple other studies, particularly of AN (see Steinhausen, 2002; Lock et al., 2005), and extends these results to a mixed-diagnosis ED sample of adolescents in which patients with AN (who might be thought to have more OCPD traits) actually did very well in treatment, while OCPD traits predicted poor response in the entire sample. New treatment approaches for adolescents might consider targeting OCPD traits (such as perfectionism and overly detailed-oriented cognitive styles) and interpersonal relatedness to provide foundation for treatment success. Furthermore, treatment research studies might consider including sensitive measures of general adaptive functioning as well as ED outcome to identify treatment that is more efficacious.

General Treatment Response

Clinicians reported that their patients were responding to treatment; however, these improvements required an application of time and effort. The treatments described here were sampled before their conclusion, at an average of 8 months into treatment, and the clinicians reported that almost 70% were showing significant improvements in treatment and 30% had recovered from their ED. The observed improvements were associated with the amount of time in treatment (though this naturalistic study could not control for the passage of time in an untreated sample). Notably, the average length of treatment before achievement of recovery was more than 6 months, suggesting that *at least* 6 months of treatment is required for recovery among this population, and the majority seem to require additional treatment to achieve remission. This finding runs counter to the general trend to design treatments of 6 months or less for use in treatment trials, as well as the specific findings from a single study controlling treatment length that found few benefits for longer treatment (Lock et al., 2005).

Treatment Interventions

The results from this study suggest that clinicians in the community are utilizing a wide range of interventions, despite the absence of data regarding the efficacy of interventions. The clinicians who treat adolescents with EDs report that they came from a variety of theoretical backgrounds, and 40% reported intentionally integrating treatment approaches. The therapists reported using psychodynamic psychotherapy and therapy focused on traumatic experiences very commonly, though these interventions have not been tested with adolescents with EDs. More than two thirds of the patients had received psychotropic medication during the course of their therapy, and this usage was associated with a comorbid diagnosis of MDD. Though adult data suggest antidepressants are most effective for patients with BN and BED (Ramos et al., 2007), and show little utility in the treatment of AN (Wilson et al., 2007), there were no differences in medication usage observed between ED diagnostic groups. Furthermore, no obvious associations between treatment response and medication usage were found for the sample as a whole, though more fine-grained analyses are necessary to control for factors possibly associated with selective prescription of a range of medications.

Analysis of the treatment intervention measure suggested there were several identifiable types of treatment intervention, including CBT, family intervention, dynamic therapy, emotion regulation, trauma therapy, and conjoint therapy. The items that loaded most highly on the naturalistic scales did not include several important interventions that are highlighted in the treatment manuals for randomized controlled trials. For example, the CBT factor was not best characterized by the explicit use of self-monitoring eating or in-session weighing, although these two interventions are considered cornerstones of treatment with adults as described by Fairburn and colleagues (Fairburn et al., 2009). The family intervention factor was most characterized by interventions that reflected support and understanding, rather than the parents taking control of the child's eating behavior and symptoms, which is the focus of family-based treatment as tested in treatment trials (see le Grange et al., 2007; Lock et al., 2005). Furthermore, there was substantial variability in the use of family interventions by the clinicians; though most did employ some family treatment, they did so to widely different degrees, and a small minority did not intervene with parents at all. Further research might investigate the use interventions for the family or the parents in conjunction with individual therapy for adolescents.

These findings highlight the necessity of further research on the dissemination of manual-based treatment in adolescent ED populations and the utility of these interventions in the community. Several studies in the past decade have supported the observation that clinicians treating EDs commonly integrate interventions from different theoretical approaches and do not adhere strictly to the manuals tested in treatment trials (Tobin, Banker, Weisberg, & Bowers, 2007) because of the following reasons: comorbidity or other individual client needs that are not addressed by manuals (Haas & Clopton, 2003; von Ranson & Robinson, 2006); a lack of training in empirically supported treatments (Mussell et al., 2000); and the absence of data regarding clinicians' preferred methods (Tobin et al., 2007). This study extends these findings to clinicians specifically treating adolescents with EDs, a population with even less data available to guide treatment. This study did not examine whether the clinicians had received training in the few empirically supported treatments for adolescents that exist (e.g., Lock et al., 2006; le Grange et al., 2007), but it is unlikely that experienced generalists have had access to training in these newly developed treatments. This research suggests that new treatments for EDs in adolescents might usefully incorporate elements of both dynamic therapy and CBT and allow for treatment tailoring to the patient's level of psychological maturity.

Data reduction analyses in this study discriminated emotion regulation and trauma therapy from dynamic therapy. In a similar study of adults with EDs using the CPPS-BN, emotion regulation and trauma interventions loaded together on the larger dynamic therapy factor (Thompson-Brenner & Westen, 2005). Though some items overlap among these factors in this study, dynamic therapy was distinguished focusing on (a) unconscious processes, (b) wishes, fantasies, and dreams and (c) exploration of repetitive patterns in relational interactions. Though both trauma-focused and emotion regulation-focused therapies have been tested in research with adolescents with other disorders (see Kazdin & Weisz, 2003), and psychodynamic approaches have been empirically validated for specific adult disorders (Leichsenring, Rabung, & Leibling, 2004), reviewers have concluded that studies of psychodynamic approaches with children and adolescents are virtually nonexistent and

urgently needed (Leichsenring et al., 2004). Additional research is needed to confirm the results from our study suggesting that helpful components of dynamic therapy for adolescents with EDs include the exploration of ideas and affects held outside awareness and the relational patterns associated with these self-states and interpersonal schema.

Analyses of patterns of use of the different treatment approaches yielded only a few significant results. It appeared that clinicians used CBT somewhat more frequently with older patients and with patients who had full-syndrome AN and BN as opposed to those with EDNOS. One limitation of this study is the fact that we do not know whether the child or family considered the ED to be the focus of the treatment. It is possible that a subset of the heterogeneous group of patients with EDNOS were not as motivated to address the ED, compared with other more pressing concerns, although it is often the case that adolescents with AN and BN lack motivation to change ED behaviors as well. Motivation to change has proven to be a robust predictor of outcome in a few recent studies (e.g., Geller, Drab-Hudson, Whisenhunt, & Srikameswaran, 2004), including one study of adolescents in residential treatment (McHugh, 2007), and although we did not have the means to assess this construct through clinician-report methods, research in this area could be fruitful.

Preliminary explorations of the associations between treatment interventions and outcome in this study suggested that when pretreatment patient factors and length of treatment were controlled, the use of dynamic therapy was associated with better global outcome in the full sample. In the subsample that was characterized by poor relational/personality functioning—a particularly difficult-to-treat population, with limited capacities to take social perspectives or reflect on the self—CBT showed the strongest association with global outcome, and family intervention and dynamic therapy approached statistical significance. These findings support the results from prior studies indicating that naturalistic, clinician-informant data—including reports from self-described CBT and dynamic therapists—show associations among dynamic therapy and global outcome (see Thompson-Brenner & Westen, 2005). However, these data contrast with adult naturalistic data that found that dynamic therapy was particularly effective with the subgroup with low personality functioning (see Thompson-Brenner et al., 2008).

Limitations

There are a number of limitations to these preliminary findings regarding patients and treatment in the community. First, all of the data are collected from a single informant, the treating clinician. The limitations to this method include the real possibility that clinicians do not systematically evaluate all the constructs involved but instead report their beliefs regarding associations among variables that do not actually exist by independent observation. In addition, the retrospective assessment of certain pretreatment variables by the clinician creates additional limitations—for example, poor treatment response may create a retrospective bias toward describing patients as more severe before treatment. We have tried to constrain these limitations in a variety of ways. We attempted, wherever possible, to ground pretreatment measurement in specific observations that would have been included in pretreatment assessment, and we focused on the relationship among variables that are more objective and commonly assessed in individual psychotherapy (rather than, for

example, obscure developmental history or other family members' psychopathology). We attempted to limit the sample to those who had been in treatment a short enough time to permit accurate recollection of pretreatment psychopathology (1 year). Furthermore, we used assessment instruments, as explained above, that were developed and validated particularly for use by clinicians and, in many cases, have shown interrater reliability between treating clinicians and "independent" assessors (see Westen & Muderrisloglu, 2006). Nonetheless, these are real limitations, and we consider these data to be very preliminary and requiring replication by other methods of assessment.

Another major and obvious limitation to the data is their naturalistic nature. First, patients were not randomized, so the data are possibly biased by patient selfselection, in which certain types of patients seek out certain types of psychotherapists. Second, because we could not systematically vary the treatment intervention, the use of an intervention might be confounded with another factor accounting for the apparent lack of response—for example, the negative relationship between the use of interventions focused on trauma and change in GAF in treatment may reflect a temporary lowering of functioning, while therapy is focused on distressing historical events. We attempted to address this limitation as much as possible by controlling for as many salient variables as possible in multivariate analyses; however, without a randomized design, it is impossible to completely separate patient factors from therapy and clinician factors.

Several limitations also followed from our judgments regarding what clinicians could reliably report within the naturalistic design. Because we elected to conduct analyses of response data midtreatment to maximize clinician reliability, treatments that take a longer time to take effect may not have had as much of an opportunity to show benefit. We also assumed clinicians could not accurately report difficult-to-assess historical information, such as the first time that the patient had shown ED symptoms ("duration of illness"), particularly in the case of EDNOS, which may show atypical early signs. Although duration of illness may be a significant predictor of treatment response, it did not appear on the surface to confound other variables, such as ED diagnosis: We asked clinicians to report the age of the patient when first diagnosed with AN or BN, and these two means [AN ($M = 14.52$, $SD = 1.39$, range 12–18); BN ($M = 14.83$, $SD = 1.49$, range 10–18)] were not significantly different. Furthermore, given the constrained age range (15–18), the importance of this variable may be less than observed in adult samples. Nonetheless, this factor should be investigated in future studies. In general, the advantages of our design—in which a number of patient and treatment factors showed significant positive relationships to outcome, and treatments were not constrained to the typical 5–6 months characteristic of treatment trials—are apparent. These observations may usefully inform and focus randomized trials in the future.

There are a number of limitations that are common in treatment research studies in general. Although the clinician-informant design allows for a fairly economic and efficient set of data, clinician-informants do require sizeable payments, and our sample size was constrained by these budgetary issues. These analyses must be considered preliminary and exploratory; we elected to conduct a large number of analyses to investigate a wide range of possible relationships in this naturalistic examination and did not correct for the number of

analyses we conducted. Given that the results must be considered preliminary and exploratory, they clearly require replication. Pertaining to issues of generalizability, we had a good response rate; however, a limited number of clinicians had patients with EDs in their practice—we do not have data in this study that can speak to possible differences between clinicians who do and do not have patients with EDs. Controlled clinical trials to date typically provide therapists with specialized training in the ED treatments under investigation in the study, and this study is an important contribution to the empirical support for treatment of EDs by experienced generalists. Finally, our calculated decision to examine the naturalistic presentation of a heterogeneous group of patients—maximizing our external validity—predictably resulted in the sampling of diagnostic subsamples limiting statistical comparisons that could be conducted. Nonetheless, this is a unique contribution to the literature on adolescent EDs, which have been neglected in treatment research to date.

Conclusion: Directions for Future Research

We hope these results may inform a wide range of outcome studies in the future. Our findings suggest that future research might fruitfully focus on the development of new treatments for adolescents that include elements of those that appear successful in clinical practice, including dynamic therapy and CBT. Additional research is needed to test whether longer treatment protocols (>5 or 6 months duration) are more effective for adolescent patients with BN and EDNOS. Randomized, controlled research is essential to investigate whether psychotropic medications, which are widely used for adolescent patients (particularly those with major depression), actually provide benefit for patients with EDs, in general, and those with comorbid depression, in particular. Research is needed to investigate the reasons why patients with EDNOS—the most common diagnosis among adolescents in treatment in the community—do not appear to respond quickly to treatment, and whether particular approaches can address the broad concerns of patients in this diagnostic group. Finally, research might continue to investigate those with different levels of maturity, including personality and relational functioning, to investigate the relative utility of different interventions for those with different psychological skills.

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Table 1

Descriptive Statistics (N = 120)

	Self-defined primary orientation	Discipline	Years experience	Sex
Clinicians	Cognitive behavioral = 55 (45.8%)	MD = 38 (31.7%)	<i>M</i> = 21.72	Female = 61 (50.8%)
	Dynamic = 40 (35.0%)	PhD = 82 (68.3%)	<i>SD</i> = 8.54	Male = 59 (49.2%)
	Biological = 10 (8.3%)			
	Family systems = 7 (5.8%)			
	Other = 6 (5.0%)			
	Diagnosis	Years of age	Race/ethnicity	GAF
Patients	AN = 18 (15.0%)	<i>M</i> = 16.43	Caucasian = 109 (90.8%)	<i>M</i> = 51.34
	BN = 44 (36.7%)	<i>SD</i> = 1.14	Hispanic = 6 (5.0%)	<i>SD</i> = 8.65
	EDNOS = 57 (47.5%)		African-American = 2 (1.7%)	
			Asian = 1 (0.8%)	
			Other = 2 (1.7%)	
	Primary setting	Weeks treatment duration	Intervention	Medication type
Therapy	92 private practice (76.7%)	<i>M</i> = 35.94	97.5% therapy	63.0% anti-depressants
	18 outpatient clinic (15.0%)	<i>SD</i> = 26.17	69.2% medication	11.8% mood stabilizers
	6 residential facility (5.0%)			6.7% anxiolytics
	3 hospital inpatient (2.5%)			5.9% antipsychotics
	1 school (0.8%)			

Note: AN = anorexia nervosa; BN = bulimia nervosa; EDNOS = eating disorder not otherwise specified; GAF = Global Assessment of Functioning.

Table 2
Principal Components Analysis of Treatment Intervention Scales and Individual Scale Items (With Factor Loadings)

	1	2	3	4	5	6
1. Cognitive-behavioral therapy						
Offered explicit advice or suggestions	.72					
Suggested specific activities or tasks for the patient to attempt outside of session	.71					
Taught the patient specific techniques for coping with her symptoms	.68					
Challenged irrational or illogical conscious beliefs about food, diet, and eating	.66		.30			
Encouraged the patient to practice behaviors of coping strategies learned in therapy between sessions	.66					
Helped the patient develop strategies for eating appropriately or controlling impulses to binge, purge, fast, etc.	.64					.41
Interacted with the patient in a didactic or teacher-like way	.62					
Encouraged the patient to reward or punish herself for adaptive and maladaptive behaviors	.62					
2. Family intervention						
Encouraged the parents to become more supportive in general		.84				
Focused on communication between patient and parents in family therapy		.82				
Provided practical "parent guidance"		.75				
Taught parents strategies for helping patient with eating disorder symptoms		.74				
Helped the parents become less critical of the patient		.73				
Worked on significant psychological issues experienced by the parents		.69				
Shifted power and control from the patient to the parental dyad		.66				
Focused on problems in the parental unit in family or couples therapy		.65				
3. Emotion regulation						

	1	2	3	4	5	6
Helped the patient regulate intense emotions			.73			
Focused on ways the patient deals with anger or aggression			.70			
Focused on conflicting feelings or desires			.56	.38		
Encouraged the awareness and exploration of feelings the patient found uncomfortable or unacceptable			.58	.38		
Addressed the patient's avoidance of important topics and shifts in mood			.51	.50		
4. Dynamic therapy						
Focused on the influence of unconscious processes on behavior, emotions, or beliefs				.70		
Linked the patient's current feelings or perceptions to experiences from the past				.59	.30	
Encouraged discussion of wishes, fantasies, dreams, etc.				.58		
Focused on similarities between the patient's relationships and perceptions of relationships repeated over time, settings, people			.36	.51		
Focused on the relationship between the therapist and patient			.38	.51		
5. Trauma therapy						
Dealt with issues of physical or sexual abuse				.80		
Helped the patient deal with traumatic experiences				.69		
Helped the patient come to terms with her relationships with and feelings about significant others from the past (e.g., mother father)				.55		
Helped the patient think of other ways to respond when impulsive or self-destructive				.52		
Addressed significant deficits in the family structure or resources (e.g., absence of primary caretakers, neglect, poverty)		.46		.51		
6. Conjoint treatment						
Used conjoint inpatient or day treatment					.72	
Encouraged the patient to be weighed regularly (possibly by other professional)					.61	

Note: Table includes items loading above .5, or the top 8 items per scale if more than eight loaded above .5.

Table 3

Predicting Global Functioning (Hierarchical Linear Regression) (N = 120)

	B	SE	β
Model 1			
Pretreatment GAF	.40	.15	.29**
AN diagnosis	10.10	2.66	.31***
OCPD rating	-1.94	.97	-.16*
Relational functioning	3.48	1.26	.22**
Treatment length	.131	.04	.28**
Model 2			
Pretreatment GAF	.41	.11	.30***
AN diagnosis	8.17	2.67	.25**
OCPD rating	-2.52	.98	-.21*
Relational functioning	3.29	1.24	.21**
Treatment length	.12	.04	.26**
CBT	1.51	.94	.12
Family intervention	1.14	.89	.10
Dynamic therapy	2.35	.96	.19*
Trauma therapy	-.85	.85	-.07

Note: GAF = Global Assessment of Functioning; AN = anorexia nervosa; OCPD = obsessive compulsive personality disorder; CBT = cognitive behavioral therapy. $R^2 = .34$ for Model 1; $R^2 = .06$ for Model 2 ($ps < .05$).

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 4

Predicting Global Functioning in Lower 50% of Relational Functioning (N = 57)

	B	SE	β
Model 1			
Pretreatment GAF	.56	.17	.39**
OCPD rating	-.65	1.35	-.06
Treatment length	.22	.07	.36*
Model 2			
Pretreatment GAF	.50	.16	.35**
OCPD rating	-2.22	1.27	-.20
Treatment length	.24	.06	.41***
CBT	3.71	1.42	.29*
Family intervention	2.12	1.20	.20
Dynamic therapy	2.61	1.43	.20
Trauma therapy	-2.19	1.24	-.19

Note: GAF = Global Assessment of Functioning; OCPD = obsessive compulsive personality disorder; CBT = cognitive behavioral therapy. $R^2 = .26$ for Model 1; $R^2 = .20$ for Model 2 ($ps < .01$).

* $p < .05$;

** $p < .01$;

*** $p < .001$.