

# A Multicenter Comparison of Cognitive-Behavioral Therapy and Interpersonal Psychotherapy for Bulimia Nervosa

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**Background:** Research suggests that cognitive-behavioral therapy (CBT) is the most effective psychotherapeutic treatment for bulimia nervosa. One exception was a study that suggested that interpersonal psychotherapy (IPT) might be as effective as CBT, although slower to achieve its effects. The present study is designed to repeat this important comparison.

**Method:** Two hundred twenty patients meeting DSM-III-R criteria for bulimia nervosa were allocated at random to 19 sessions of either CBT or IPT conducted over a 20-week period and evaluated for 1 year after treatment in a multisite study.

**Results:** Cognitive-behavioral therapy was significantly superior to IPT at the end of treatment in the percentage of participants recovered (29% [n=32] vs 6%

[n=7]), the percentage remitted (48% [n=53] vs 28% [n=31]), and the percentage meeting community norms for eating attitudes and behaviors (41% [n=45] vs 27% [n=30]). For treatment completers, the percentage recovered was 45% (n=29) for CBT and 8% (n=5) for IPT. However, at follow-up, there were no significant differences between the 2 treatments: 26 (40%) CBT completers had recovered at follow-up compared with 17 (27%) IPT completers.

**Conclusions:** Cognitive-behavioral therapy was significantly more rapid in engendering improvement in patients with bulimia nervosa than IPT. This suggests that CBT should be considered the preferred psychotherapeutic treatment for bulimia nervosa.

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**T**HE RESEARCH literature on the treatment of bulimia nervosa suggests that cognitive-behavioral therapy (CBT) is the most effective psychotherapeutic treatment for this common and frequently chronic condition.<sup>1,2</sup> Cognitive-behavioral therapy seems more effective compared with other forms of psychotherapy.<sup>1,2</sup> One exception is a study that found that CBT was not superior to a form of interpersonal psychotherapy (IPT) adapted for the treatment of bulimia nervosa.<sup>3,4</sup> Although IPT was inferior to CBT at the end of treatment, it did not differ from CBT at follow-up<sup>3,4</sup> because of continued improvement in the IPT group.<sup>4</sup> This finding is important because, despite its slower action, IPT is the first psychotherapy to demonstrate effects equivalent to those of CBT in the treatment of bulimia nervosa. Hence, IPT may be a useful alternative to CBT in some circumstances.

Because the only study to date that compared CBT and IPT in the treatment of bulimia nervosa had a modest sample size and was based at 1 center, its results

may not be reliable or generalizable. The present multisite trial was designed to repeat the comparison with a larger sample and 2 treatment sites.

## RESULTS

### PARTICIPANT CHARACTERISTICS

The mean age of the participants was 28.1 years, with a body mass index (calculated as weight in kilograms divided by the square of height in meters) of 23.0 (**Table 1**). All the participants binged and purged by inducing vomiting; in addition, 69 (31%) used laxatives and 25 (11%) used diuretics as a purging method. The duration of binge eating was just over 11 years and of purging nearly 10 years. Binge eating and purging rates, and the duration of the eating disorder, are similar to those reported in other studies.<sup>7-11,21</sup> The participants were also similar to most other samples of bulimic subjects described in the literature on other aspects of psychopathology, with slightly more than half having lifetime major depression, 22%

## PATIENTS AND METHODS

### DESIGN

The study compared 2 different psychological treatments for bulimia nervosa: CBT, focusing on treating the eating disorder and associated cognitive disturbances, and IPT, focusing on achieving interpersonal change. There were 2 treatment sites (Stanford University, Stanford, Calif, and Columbia University, New York, NY) and a quality-control center (Oxford University, Oxford, England). The 2 treatment sites were needed to recruit the large sample of participants in a reasonable period. However, the need for 2 sites introduced the risk that the treatments and assessment interviews might be implemented differently across the 2 sites. To minimize this risk, Oxford University served as an independent quality control center; it was well qualified to perform this function because it had developed both the treatments being studied as well as the main measure of outcome, and had conducted the previous comparison of CBT and IPT.<sup>3,4</sup> Two levels of training and supervision were established for both the therapists and assessors. Week by week, they were provided by on-site supervisors (W.S.A. for Stanford and G.T.W. for Columbia), whereas across-site supervision and training came from Oxford, both in the form of detailed feedback on audiotapes, and at workshops.

Two hundred twenty participants meeting *DSM-III-R* criteria for bulimia nervosa were randomly allocated to the 2 treatment conditions. Randomization was performed at the Stanford Data Center using the Biased Coin Randomization developed by Efron<sup>5</sup> to assure approximately equal representation of participants in both treatment conditions at each site. Because a history of anorexia nervosa (or low body weight during adolescence) has been shown to predict a negative outcome of treatment with CBT in some studies,<sup>6,8</sup> the 2 treatment groups were stratified on this variable. Hence, 110 participants were allocated to CBT (54 at Columbia and 56 at Stanford) and to IPT (56 at Columbia and 54 at Stanford). Within each site, the number of patients treated in each condition by each therapist was approximately equal.

### PATIENTS

Participants were recruited by advertisements and by referrals from clinics. They were first screened by telephone (923 calls, of which 584 were screened out). The principal reasons for screening out were not meeting the binge/purge severity criteria for the diagnosis of bulimia nervosa, receiving antidepressants or other treatment, and disinterest in the study. Three hundred thirty-nine individuals made appointments for a baseline assessment. At this assessment, the study was described in detail to potential participants, who signed a consent form before undergoing any of the study procedures. Ninety-five potential participants did not keep their screening appointment or were unwilling to proceed with the study and 24 were ineligible, most of whom did not meet criteria for bulimia nervosa. The remaining 220 individuals meeting *DSM-III-R* criteria for bulimia nervosa were enrolled in the study, 110 at each of the 2 treatment sites.

Exclusion factors for the study included associated severe physical or psychiatric conditions that would interfere with treatment (eg, psychosis), current anorexia nervosa, current psychotherapeutic treatment of any type, all psychotropic medication, and pregnancy. Potential

participants who had received an adequate trial of CBT or IPT for bulimia nervosa were also excluded.

Four therapists at each site treated participants in each of the 2 treatment conditions, with approximately equal numbers of participants in each treatment condition for each therapist. The therapists were all experienced in the treatment of patients with eating disorders: 7 were doctorate-level psychologists and 1 (at Columbia) was a psychiatrist.

### TREATMENTS

The treatments were conducted on an outpatient basis, with each consisting of 19 individual sessions conducted over a period of 20 weeks. Each session was 50 minutes in length and occurred twice weekly for the first 2 weeks, weekly for the next 12 weeks, and then at 2-week intervals for the last 6 weeks. None of the patients received any other psychotherapy or pharmacotherapy during the treatment phase of the study. The treatment sessions were audiotape recorded. Three tapes, 1 from each third of the treatment, were randomly selected from a randomly selected 20% of patients treated with CBT and IPT. These tapes were audited at the Oxford Center (C.G.F.) and written feedback was faxed to the site principal investigator and to the therapist. The integrity and boundaries of each therapy were carefully defined and monitored.

#### Cognitive-Behavioral Therapy

This treatment was manualized,<sup>9</sup> and based on the therapy used in the previous treatment trial comparing CBT and IPT.<sup>3</sup> Similar forms of CBT had been used at each site in previous studies.<sup>10,11</sup> Cognitive-behavioral therapy has 3 overlapping phases. In the first phase, the main goal is to educate the patient about bulimia nervosa and the processes that maintain the disorder. Patients are helped to increase the regularity of their eating, and to resist the urge to binge eat and to purge. Use is made of detailed records of food intake, binge eating, purging, and related events and cognitions, and these records form the basis for each therapy session. In the second phase, beginning at about the ninth session, procedures to reduce dietary restraint continue (eg, broadening food choices). In addition, cognitive procedures supplemented by behavioral experiments are used to identify and correct dysfunctional cognitions, and avoidance behaviors related to eating, weight, and shape concerns. The third stage is composed of the last 3 therapy sessions and is primarily concerned with the maintenance of change after the end of treatment. Relapse prevention strategies are used to prepare for possible future setbacks.

#### Interpersonal Psychotherapy

This treatment, originally developed by Klerman and colleagues<sup>12</sup> for the treatment of depressed outpatients, was modified for use with bulimia nervosa for the previous controlled comparison of CBT and IPT.<sup>3</sup> The treatment is manualized.<sup>13</sup> As applied to bulimia nervosa, the treatment has 3 phases. The first phase (comprising the first 4 sessions) is devoted to a detailed analysis of the interpersonal context within which the eating disorder developed and was maintained. This leads to a formulation of the current interpersonal problem area or areas, which then form the focus of the second stage of therapy aimed at helping the patient make interpersonal changes in the specific area or areas identified. The last 3 sessions are

devoted to a review of the patient's progress, and an exploration of ways to handle future interpersonal difficulties. At no stage in the treatment is attention paid to eating habits or attitudes toward weight and shape, nor does the treatment contain any of the specific behavioral or cognitive procedures that characterize CBT. No self-monitoring is used in this treatment.

## ASSESSMENTS AND PROCEDURES

The areas of assessment included general psychopathology, specific eating disordered symptoms and psychopathology, measures of self-esteem, interpersonal functioning, and the perceived adequacy of therapy.

### General Psychopathology

At pretreatment, general psychopathology was assessed with structured interviews, the Structured Clinical Interview for the *DSM-III-R* (SCID).<sup>14</sup> In addition, the Hopkins Symptom Checklist-90-Revised (SCL-90-R), a questionnaire assessing general psychiatric symptoms, was administered before and after treatment.<sup>15</sup> The global severity index was used as the measure derived from this questionnaire.

### Eating Disorder

Patients were assessed before and after treatment using the Eating Disorder Examination (EDE),<sup>16</sup> an interview that measures the severity of the characteristic psychopathology of eating disorders. Measures derived from this interview included frequency of objective binge eating (eating an objectively large quantity of food accompanied by loss of control over eating); purging that included episodes of self-induced vomiting and laxative and diuretic use; concerns about weight and shape; and dietary restraint. These measures were assessed over the previous 28 days.

### Interpersonal Functioning

The Inventory of Interpersonal Problems<sup>17</sup> and the self-report form of the social adjustment scale<sup>18</sup> were used to measure domains of interpersonal functioning in order to assess interpersonal change. The global score of both scales were used. These assessments were administered before and after treatment.

### Self-esteem

The Rosenberg Self-esteem Scale<sup>19</sup> was used before and after treatment to assess the general level of self-esteem.

### Adequacy of Therapy

The randomly selected sample of audiotaped therapy sessions was rated for the adequacy of each therapy at the Oxford site. Ratings were made on a Likert scale ranging from 1 to 7, using the following dimensions: supportive encouragement, conveyance of expertise, communication style, therapeutic involvement, warmth, rapport, empathy, and formality. These scales were summed for the analysis reported here.

### Suitability of Treatment

Each participant rated the suitability of the 2 treatments on a 10-point visual analog scale at weeks 2, 10, and 20,

answering the question, "How suitable do you think this treatment is for your problems?" The anchor points for the scale were from "not at all suitable" (1) to "extremely suitable" (10). Patients' expectations of improvement were rated in a similar manner, answering the question, "How successful do you think your treatment here will be?" at session 1 and week 10 (session 12). The anchor points for this scale were from "not at all successful" (1) to "extremely successful" (10).

Trained interviewers (blind to the treatment allocation) assessed participants before and after treatment, and at the 4-, 8-, and 12-month follow-up. Participants also completed questionnaires at these times. A random sample of 20% of the EDE tapes were audited at the Oxford center and feedback was faxed both to the assessor and to the site principal investigator. Supervision meetings with the assessors were held regularly at each site. Training for the SCID occurred separately at each site.

## STATISTICAL ANALYSES

The sample size calculation for this study was based on the results of 2 previous controlled trials of CBT.<sup>3,11</sup> For the primary outcome variables, it was calculated that for 80% power and a 5% 2-tailed test of significance, it would be possible to detect an average difference of 2 episodes of binge eating or purging between treatments with a group size of between 57 and 78 participants. Assuming a dropout rate of 25% to 30%, the sample size for each group was set at 110 participants, ensuring a reasonable power for the completer analysis.

The primary analysis was by intention-to-treat. Where there were missing posttreatment or follow-up data, the pretreatment value was carried forward to characterize that participant's response. Three outcome categories were examined. First, the proportion of participants recovered, defined as no binge eating or purging during the previous 28 days. As expected, the rates of binge eating and purging were not normally distributed, hence a square-root transformation was used in the analyses of these data. Second, the proportion of participants remitted, defined as binge eating and purging less than twice per week over the previous 28 days (ie, below the *DSM-III-R* frequency threshold), hence this number includes those recovered. Third, the proportion of participants meeting the community level of disordered eating attitudes and behaviors as measured by the mean of the 5 EDE subscales. The measure is defined as being within 1 SD of the community mean of 1.73.<sup>20</sup> A logistic regression analysis was performed at the end of treatment and at the 1-year follow-up, using site and treatment as independent variables.

A secondary analysis used treatment completers, comparing the 2 treatments on all the variables assessed at pretreatment and throughout the course of treatment and follow-up. Completers were defined as individuals who had completed treatment as well as the 4-month and either the 8- or 12-month follow-up. For measures satisfying the assumptions of the model (using a square-root transformation if necessary), a 2-way analysis of covariance (site  $\times$  treatment), where the baseline value was used as the covariate to test the null hypothesis of no main effect of treatment by a 5% 2-tailed test. Where significance was found for the outcome analyses, effect sizes (ES) are reported using the mean difference between groups divided by the pooled within-group SD. In addition, site  $\times$  treatment interactions were examined to detect any differences between the sites in the efficacy of treatment.

**Table 1. Comparison of Pretreatment Means Between Treatment Groups and Sites, Together With the Total Sample\***

	Columbia		Stanford		By Treatment		Total Sample (N = 220)
	CBT (n = 54)	IPT (n = 56)	CBT (n = 56)	IPT (n = 54)	CBT (n = 110)	IPT (n = 110)	
Age, y†	28.2 ± 6.6	25.1 ± 5.4	28.5 ± 7.3	30.8 ± 8.3	28.3 ± 7.0	27.9 ± 7.5	28.1 ± 7.2
Ethnicity, No. (%)							
White	42 (78)	37 (66)	45 (80)	45 (83)	87 (79)	81 (74)	169 (77)
Hispanic	5 (9)	10 (18)	6 (11)	4 (7)	11 (10)	14 (13)	24 (11)
African American	4 (7)	5 (9)	3 (5)	2 (4)	7 (6)	7 (6)	13 (6)
Asian	3 (6)	4 (7)	1 (2)	3 (6)	4 (4)	7 (6)	11 (5)
American Indian	0 (0)	0 (0)	1 (2)	0 (0)	1 (1)	0 (0)	2 (1)
History of anorexia nervosa, No. (%)‡	15 (28)	18 (32)	11 (20)	9 (17)	26 (24)	26 (24)	53 (24)
Body mass index, kg/m <sup>2</sup>	23.0 ± 4.3	23.4 ± 5.5	22.4 ± 4.0	23.0 ± 5.0	22.7 ± 4.2	23.2 ± 5.2	23.0 ± 4.7
Duration binge eating, y§	12.1 ± 8.1	9.6 ± 6.5	10.8 ± 6.9	13.2 ± 8.1	11.5 ± 7.5	11.4 ± 7.6	11.4 ± 7.5
Duration purging, y	9.9 ± 7.3	8.0 ± 5.0	10.1 ± 7.1	11.6 ± 7.1	10.0 ± 7.2	9.7 ± 6.4	9.8 ± 6.8
EDE measures							
Objective Binges/28 days, median¶	22.5	24.0	25.0	28.0	24.5	25.5	25.0
Purges/28 days, median¶#	29.0	41.5	38.0	53.0	33.0	49.0	39.0
Restraint**	3.4 ± 1.3	3.8 ± 1.0	3.5 ± 1.3	3.2 ± 1.3	3.4 ± 1.3	3.5 ± 1.2	3.5 ± 1.2
Shape Concerns	3.8 ± 1.4	4.1 ± 1.3	3.6 ± 1.2	3.5 ± 1.3	3.7 ± 1.3	3.8 ± 1.3	3.8 ± 1.3
Weight Concerns	3.3 ± 1.6	3.4 ± 1.5	3.4 ± 1.3	3.3 ± 1.4	3.4 ± 1.4	3.4 ± 1.5	3.4 ± 1.5
Eating Concerns††	2.8 ± 1.5	3.2 ± 1.4	2.2 ± 1.3	2.6 ± 1.3	2.4 ± 1.4	2.9 ± 1.4	2.7 ± 1.4
Global Score	3.2 ± 1.1	3.5 ± 1.0	3.1 ± 0.9	3.1 ± 0.9	3.2 ± 1.0	3.3 ± 0.9	3.2 ± 1.0
IIP	1.7 ± 0.6	1.7 ± 0.5	1.6 ± 0.6	1.5 ± 0.6	1.6 ± 0.6	1.6 ± 0.5	1.6 ± 0.6
Rosenberg Self-esteem Scale	25.5 ± 5.8	26.8 ± 6.0	26.5 ± 6.3	25.2 ± 5.3	26.5 ± 6.0	26.0 ± 5.7	26.3 ± 5.8
SCL-90-R	1.2 ± 0.6	1.4 ± 0.7	1.1 ± 0.6	1.1 ± 0.7	1.1 ± 0.6	1.3 ± 0.7	1.2 ± 0.6
Social adjustment	2.3 ± 0.5	2.4 ± 0.6	2.2 ± 0.4	2.3 ± 0.4	2.3 ± 0.5	2.4 ± 0.5	2.3 ± 0.5
DSM-III-R diagnoses, No. (%)							
Lifetime major depression	23 (43)	33 (59)	31 (55)	30 (56)	54 (49)	63 (57)	117 (53)
Current major depression	10 (19)	14 (25)	12 (21)	11 (21)	22 (20)	25 (23)	48 (22)
Lifetime substance dependence/abuse‡‡	10 (19)	6 (11)	19 (34)	16 (30)	29 (26)	22 (20)	51 (23)
Personality disorder	15 (28)	22 (39)	21 (38)	23 (43)	36 (33)	45 (41)	81 (37)

\*CBT indicates cognitive-behavioral therapy; IPT, interpersonal therapy; EDE, Eating Disorder Examination; IIP, Inventory of Interpersonal Problems; and SCL-90-R, Hopkins Symptom Checklist-90-Revised. All participants were female.

†P = .002 for main effect of site and P = .005 for treatment × site interaction.

‡P = .04 for main effect of site.

§P = .01 for treatment × site interaction.

||P < .05 for main effect of site.

¶Square root transformation was used for analysis.

#P = .003 for main effect at treatment.

\*\*P < .05 for treatment × site interaction.

††P = .004 for main effect of site and P = .02 for main effect of treatment.

‡‡P < .01 for main effect of site.

with current major depression, just over one third with a personality disorder, and nearly one quarter with a lifetime history of substance dependence or abuse. Almost one quarter of the participants also had a history of anorexia nervosa.

## RANDOMIZATION AND ATTRITION

Significant differences were found at the pretreatment evaluation between treatment groups for episodes of purging ( $F_{1,214} = 8.77$ ,  $P = .003$ ) and for eating concerns ( $F_{1,216} = 5.3$ ,  $P = .02$ ) (Table 1). In both cases, the scores were higher in the IPT group than in the CBT group.

Nine participants were withdrawn from treatment. Eight of these received medication: 7 for severe depression and 1 for an acute onset of panic disorder. The remaining participant was withdrawn because of pregnancy. Six of these participants were allocated to CBT and 3 to IPT. Of the remaining participants, 27% ( $n = 57$ ) did not complete treatment. Thirty-one (28%) in the CBT group dropped out compared with 26 (24%) in the IPT group (Table 2). The reasons for dropout included re-

garding treatment as unhelpful ( $n = 13$ ) or moving away from the treatment site ( $n = 12$ ). In the remaining cases ( $n = 32$ ), the reason for dropout was unknown because the participant could not be contacted. In addition, 25 treatment completers did not complete the required follow-up assessments. Hence, 129 participants were included in the completers analysis.

## TREATMENT OUTCOME

### Intent-to-Treat Analyses

There were no significant differences between treatments or sites on the evaluation of the adequacy of the treatment provided by the therapists derived from scoring the randomly selected sample of therapy audiotapes. Participants randomized to IPT had a higher expectation of treatment effectiveness at session 1, as compared with those randomized to CBT ( $F_{1,203} = 7.06$ ,  $P = .008$ ). However, there was no significant difference between groups on this measure midway through treatment (session 12).

Cognitive-behavioral therapy was significantly superior to IPT at the end of treatment in the proportion of participants recovered. Thirty-two (29%) of those treated with CBT recovered, compared with 7 (6%) of those treated with IPT ( $\chi^2_1=14.8, P<.001$ ) (ES=1.80). Cognitive-behavioral therapy was also superior to IPT at the end of treatment in the percentage of participants remitted (53 [48%] in the CBT group and 31 [28%] in the IPT group [ $\chi^2_1=9.2, P=.003$ ] [ES=0.86]), and in the proportion meeting community criteria for eating attitudes and behaviors ( $\chi^2_1=4.3, P=.04$ ) (ES=0.61). However, there were no significant differences between treatments at any follow-up point for the 3 binary outcomes. The percentages of participants recovered and remitted are shown from pretreatment to the end of follow-up in the **Figure**.

### Completer Analyses

For completers, CBT was more effective than IPT in reducing objective binge episodes ( $F_{1,121}=11.9, P=.001$ ) (ES=-0.72); purging ( $F_{1,121}=20.7, P=.001$ ) (ES=0.92); and dietary restraint ( $F_{1,122}=10.76, P=.001$ ) (ES=0.54), at the end of treatment, but not at any other time point (**Table 3**). At the end of treatment, binge eating was reduced by 86% for patients given CBT and by 51% for those given IPT ( $F_{1,122}=6.5, P=.01$ ) (ES=0.49); purging was reduced by 84% for the CBT group and by 50% for the IPT group ( $F_{1,122}=22.1, P=.001$ ) (ES=0.83). There were no significant differences between treatments at any point on any other measure. Twenty-one (66%) of the 32 who recovered with CBT at the end of treatment remained recovered at follow-up, compared with 4 (57%) of the 7 treated with IPT. For those remitted at the end of CBT (not including those who recovered), 6 (29%) of 21 recovered compared with 8 (33%) of the 24 in the IPT group. Of the remaining participants, 4 (7%) of 57 had recovered at follow-up in the CBT group, compared with 7 (9%) of 79 in the IPT group. During follow-up, 19 participants (29%) treated with CBT and 17 (27%) treated with IPT sought further treatment for their eating disorder. For CBT, 9 (14%) received some form of psychotherapy, 7 (10%) received medication, and 3 (5%) received a combination of psychotherapy and medication; for IPT, 3 (5%) received psychotherapy, 9 (14%) received medication, and 3 (8%) received combined treatment. A post hoc analysis excluding those who received treatment during follow-up found no significant differences between treatments during follow-up.

### SITE DIFFERENCES

#### Pretreatment Differences

There were several differences in the pretreatment characteristics of participants between the 2 sites (Table 1). Participants at Stanford were, on average, 3 years older than those at Columbia ( $t_{218}=3.15, P=.002$ ) with a significant site  $\times$  treatment interaction ( $F_{1,216}=7.9, P=.005$ ). Participants at Columbia had a longer duration of purging ( $t_{218}=2.06, P=.04$ ) than those at Stanford; were less likely to have had a previous diagnosis of anorexia nervosa ( $\chi^2_1=4.2, P=.04$ ); had less concern about eating ( $t_{218}=2.9, P=.004$ ) and shape ( $t_{218}=2.4, P=.02$ ); and had

**Table 2. Number of Participants at Baseline, End of Treatment, 4-Month Follow-up, and 8- and 12-Month Follow-up\***

	Columbia		Stanford		By Treatment		Total Sample
	CBT	IPT	CBT	IPT	CBT	IPT	
Baseline	54	56	56	54	110	110	220
End of treatment	35	36	43	48	78	84	162†
4-mo follow-up	36	32	40	45	76	77	153
8- and 12-mo follow-up	37	33	40	41	77	74	151

\*CBT indicates cognitive-behavioral therapy; IPT, interpersonal therapy.  
 †Five CBT and 3 IPT participants completed the end of treatment assessment but had dropped out before completing treatment and are not included in the completer analysis.

a lower SCL-90 global score ( $t_{218}=2.01, P=.04$ ). On the other hand, the Stanford participants were twice as likely to have been diagnosed with lifetime substance abuse or dependence ( $\chi^2_1=9.2, P=.002$ ).

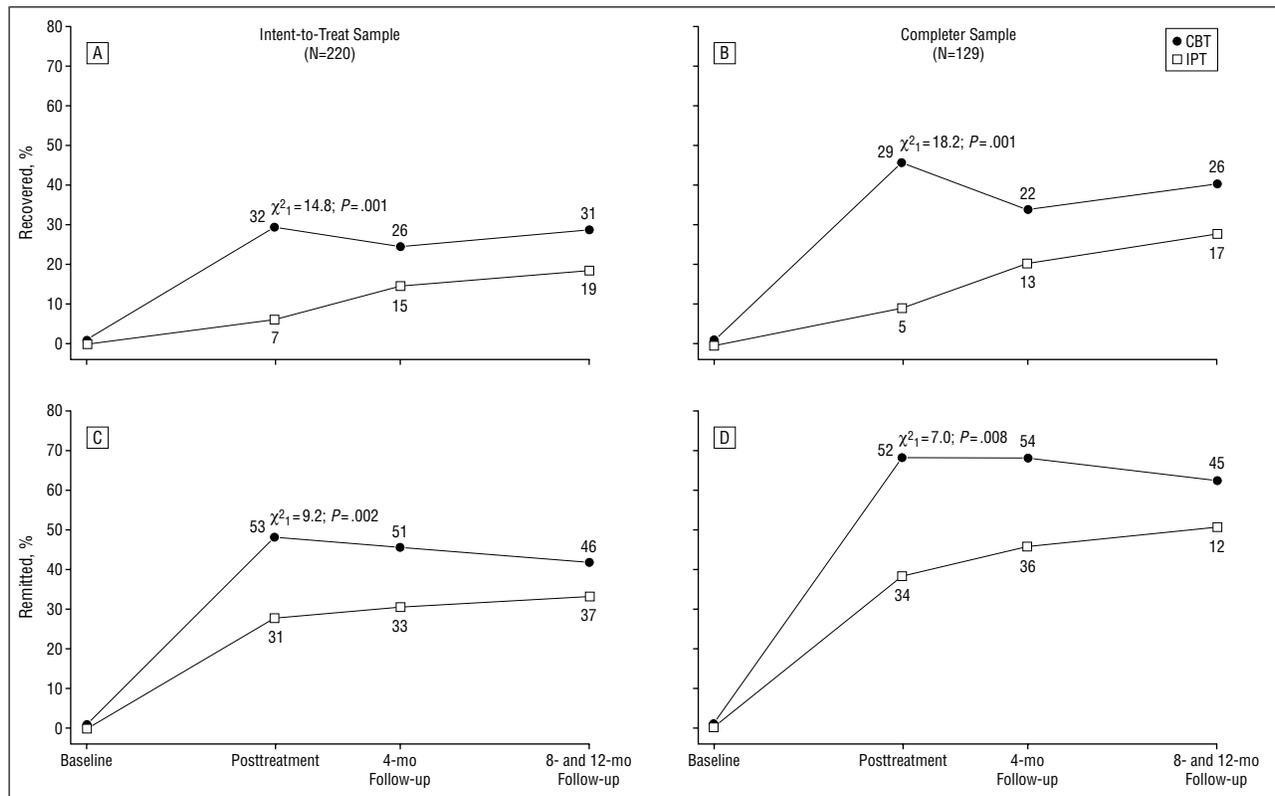
### Outcome Differences

For the treatment phase of the study, the major difference between the 2 centers was in the number of withdrawals and dropouts from treatment. Seven participants from Columbia and 1 from Stanford were withdrawn from the study because they had to be given medication during treatment. There was a differential dropout from treatment between sites: 20 participants (18.5%) from Stanford and 37 participants (35.9%) from Columbia ( $\chi^2_1=8.7, P<.01$ ). At Columbia, 17 (34.7%) in the CBT group and 20 (37.0%) in the IPT group dropped out compared with 14 (25.4%) in the CBT group and 6 (11.3%) in the IPT group at Stanford.

There were no significant site  $\times$  treatment interactions for the intent-to-treat analysis. However, there were 6 significant site  $\times$  treatment interactions for the treatment-phase completer analysis: objective binges ( $F_{1,121}=4.8, P=.03$ ); shape concerns ( $F_{1,122}=4.5, P=.04$ ); eating concerns ( $F_{1,122}=8.9, P=.003$ ); global EDE ( $F_{1,120}=5.21, P=.02$ ); self-esteem ( $F_{1,122}=5.9, P=.02$ ); and the Inventory of Interpersonal Problems ( $F_{1,122}=6.9, P=.01$ ). For these variables, there was somewhat greater improvement in the IPT group at Columbia as compared with Stanford, while the reverse was true for CBT. These differences may be because of the differential attrition rate between sites, if one assumes that the dropouts were individuals who would have responded poorly to treatment had they been retained in the study.

### COMMENT

The present study was designed to repeat a comparison between CBT, an established therapy for bulimia nervosa, and IPT, a treatment that, as noted earlier, was found to be as effective as CBT at follow-up in a previous study.<sup>3,4</sup> The results of this study can be regarded as reliable for the following reasons. First, the study was designed to have an adequate power to distinguish between the 2 treatments. Second, the treatment manuals were those used



Percentages of participants who recovered in each treatment at each time point by intent-to-treat and completer status (A and B), and the percentages of participants remitted in each treatment by intent-to-treat and completer status (C and D). Significant differences between the treatment groups are indicated.

**Table 3. Values for the Completer Sample by Treatment at Each Assessment\***

	Cognitive-Behavioral Therapy (n = 65)				Interpersonal Therapy (n = 64)			
	Baseline	End of Treatment	4-mo Follow-up	8- and 12-mo Follow-up	Baseline	End of Treatment	4-mo Follow-up	8- and 12-mo Follow-up
EDE measures, median (interquartile range)	20.0 (32)	0 (5)	0 (5)	0 (10)	23.5 (27)	5 (23.5)	6 (20)	2 (17.5)
Objective Binges/28 days†‡§	30.0 (32)	1.0 (8)	1.0 (8.5)	3.0 (14.5)	42.0 (54)	13.5 (32.25)	9.5 (35)	7.0 (27.5)
Purges/28 days†‡§	30.0 (32)	1.0 (8)	1.0 (8.5)	3.0 (14.5)	42.0 (54)	13.5 (32.25)	9.5 (35)	7.0 (27.5)
Body mass index, kg/m <sup>2</sup>	23.0 ± 5.0	23.3 ± 4.9	23.3 ± 5.1	23.3 ± 4.9	23.0 ± 4.8	23.0 ± 4.9	23.2 ± 4.9	22.9 ± 4.1
Global EDE¶	3.0 ± 0.9	1.4 ± 0.9	1.3 ± 0.9	1.4 ± 1.1	3.1 ± 0.9	1.8 ± 1.0	1.8 ± 1.1	1.6 ± 1.0
EDE Restraint‡	3.4 ± 1.3	1.4 ± 1.3	1.3 ± 1.3	1.4 ± 1.5	3.3 ± 1.3	2.1 ± 1.4	2.1 ± 1.5	1.8 ± 1.4
EDE Weight Concerns	3.2 ± 1.4	1.8 ± 1.2	1.7 ± 1.2	1.8 ± 1.3	3.2 ± 1.5	1.9 ± 1.4	2.0 ± 1.6	1.9 ± 1.3
EDE Shape Concerns§	3.5 ± 1.2	2.1 ± 1.3	1.8 ± 1.2	1.9 ± 1.4	3.5 ± 1.4	2.1 ± 1.4	2.1 ± 1.6	2.0 ± 1.4
EDE Eating Concerns#	2.2 ± 1.3	0.7 ± 0.8	0.6 ± 0.9	0.8 ± 1.2	2.6 ± 1.3	1.1 ± 1.1	1.0 ± 1.0	0.9 ± 1.0
IIP**	1.6 ± 0.6	1.1 ± 0.6	1.0 ± 0.7	1.1 ± 0.7	1.5 ± 0.5	1.1 ± 0.5	1.0 ± 0.6	1.0 ± 0.6
Rosenberg Self-esteem Scale§	25.6 ± 5.9	19.6 ± 6.6	20.1 ± 6.9	19.9 ± 6.5	25.3 ± 5.2	19.1 ± 5.8	20.0 ± 6.9	19.4 ± 6.3
SCL-90-R	1.1 ± 0.6	0.5 ± 0.5	0.5 ± 0.4	0.5 ± 0.6	1.1 ± 0.7	0.5 ± 0.5	0.6 ± 0.6	0.5 ± 0.6
Social Adjustment Scale	2.2 ± 0.4	1.9 ± 0.4	1.8 ± 0.5	1.8 ± 0.5	2.3 ± 0.5	2.0 ± 0.4	2.0 ± 0.5	1.9 ± 0.5

\*EDE indicates Eating Disorder Examination; IIP, Inventory of Interpersonal Problems; and SCL-90-R, Hopkins Symptom Checklist-90-Revised. Values are mean ± SD unless otherwise indicated.

†Square-root transformation was used for analysis.

‡P < .001 for main effect of treatment.

§P < .05 for treatment × site interaction.

¶P < .001 for main effect of treatment.

#P = .02 for treatment × site interaction.

\*\*P < .01 for treatment × site interaction.

in the previous comparison of these 2 therapies. Third, the quality of each therapy was monitored by the investigator (C.G.F.), who had carried out the previous study, as well as by on-site experienced supervisors, to ensure fidelity to each therapeutic modality. Fourth, the investigator who developed this standardized interview (C.G.F.) monitored the assessment of eating-disordered pathologic processes using the EDE. Fifth, both treatment sites were experienced in the conduct of controlled treatment studies, and both had previous experience with similar versions of CBT in such studies. Therefore, it seems likely that both the therapies and the assessment of eating-disordered psychopathologic processes were carried out with high fidelity. These design elements add to the confidence in the interpretation of the results of this multisite study.

The results of this study indicate both a clinical and statistical significant advantage for CBT over IPT at the end of treatment. Only 7 (6%) of those treated with IPT had stopped binge eating and purging by intent-to-treat, compared with 32 (29%) of those treated with CBT, and only 5 (8%) of IPT completers reached this level compared with 29 (45%) of those treated with CBT. The completer analysis also revealed a significant difference between treatments in reducing binge eating, purging, and dietary restraint. This differs from the previous study of these 2 treatments for bulimia nervosa, in which no significant difference was found between treatments for the percentages of participants no longer binge eating.<sup>3</sup> The reason for this difference between studies is unclear. However, similar to the present study, CBT was superior to IPT at the end of treatment in reducing self-induced vomiting and dietary restraint.

The follow-up analyses found no significant differences between the 2 treatments. The data shown in the Figure suggest that participants treated with CBT demonstrate either maintenance or slight relapse during the follow-up period, while those treated with IPT demonstrate an overall tendency toward continued improvement. These trends account for the lack of significant differences between treatments during the follow-up period.

The results of this study suggest that CBT has a specific effect in the treatment of bulimia nervosa, in contrast to the treatment of major depression, in which CBT and IPT seem equivalent in their effects.<sup>22</sup> Whereas no differences were found between CBT and IPT in improvement in weight and shape concerns, self-esteem, and interpersonal functioning (suggesting a shared psychological mechanism for these effects), CBT was superior in reducing the primary behavioral symptoms of bulimia nervosa (suggesting the operation of a nonshared mechanism of action). In contrast to the differential effects of CBT and IPT during treatment, the course of symptoms after the end of treatment seems similar, when posttreatment status is considered. Thus, during follow-up, there were similar percentages of participants who maintained their recovery, who changed their status from recovered to remitted, or who achieved recovery.

As is the case in most of multisite studies, there were significant differences between the 2 sites in the pretreatment characteristics of participants. On several measures, the participants at the Stanford site seemed ini-

tially less disabled than those at the Columbia site. Participants at the Stanford site were less likely to have experienced a previous episode of anorexia nervosa, an indicator considered to be a negative predictor of outcome,<sup>6,8</sup> and had somewhat less associated psychopathology than those at Columbia, although the Stanford participants were significantly more likely to have received a lifetime diagnosis of alcohol/drug abuse or dependence. Despite these differences, there were no significant site  $\times$  treatment interactions for the intent-to-treat analysis either at the end of treatment or at follow-up, indicating that there was little difference in the relative effectiveness of the 2 treatments at the 2 sites. This suggests that the findings are generalizable.

The differences in the treatment dropout rates between the 2 sites were significant, with Columbia (35.9%) having a significantly higher overall rate than Stanford (18.5%). The Stanford dropout rate is similar to those observed in other studies of CBT conducted at that site,<sup>11,23</sup> and is also similar to the dropout rate in the previous comparison of CBT and IPT.<sup>3,4</sup> The Columbia dropout rate is similar to that reported in a recent controlled study from that site, in which the CBT dropout rate was 36%.<sup>10</sup> This indicates that each site has a fairly consistent dropout rate, further suggesting either that the populations or some aspect of the sites differs. Drawing on the data from the present study, it is noted that a larger number of participants at Columbia left the area and were therefore unable to complete treatment than was the case at Stanford. Therefore, it is possible that the Columbia participants were more mobile and perhaps less committed to treatment than those at Stanford. Moreover, there are indications as noted earlier, that the Columbia participants had somewhat more severe associated psychopathology, which may have contributed to a higher dropout rate at that site.

Of the patients with bulimia who completed treatment with CBT, 29 (45%) had stopped binge eating and purging, and an additional 23 (35%) no longer met diagnostic criteria for bulimia nervosa. These results are comparable with those of other studies. In 7 controlled trials using similar assessment and reporting procedures, the median rate of cessation of binge eating and purging for completer analyses was 45% (range, 19%-64%).<sup>3,10,21,24-27</sup> The results of this study demonstrate that cognitive-behavioral therapy is significantly faster than IPT in ameliorating the primary symptoms of bulimia nervosa. This suggests that CBT should be considered the preferred psychotherapeutic treatment for bulimia nervosa.

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