Published in final edited form as:

J Psychiatr Pract. 2008 March ; 14(2): 77–85. doi:10.1097/01.pra.0000314314.94791.c9.

Common and Specific Elements of Psychosocial Treatments for Bipolar Disorder:

A Survey of Clinicians Participating in Randomized Trials

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Abstract

Background—There are 14 randomized trials that indicate the benefits of various adjunctive psychosocial interventions for bipolar disorder. Efficient planning of future interventions requires identification of the common, putatively active components of these treatments. We investigated whether different forms of psychotherapy consisted of overlapping versus modality-specific ingredients.

Methods—We identified five categories of active psychosocial treatment in 14 trials: cognitive-behavioral therapy (CBT; 4 studies), family psychoeducation (5 studies), interpersonal and social rhythm therapy (IPSRT; 2 studies), individual psychoeducation (3 studies), and group psychoeducation (5 studies). In this study, 31 investigators and therapists who participated in these trials completed a questionnaire in which they rated the frequency of 17 treatment strategies in their active and treatment-as-usual (TAU) conditions. A content analysis of the results of this questionnaire was then done, in which the active treatments were compared with each other and with TAU on the frequency of use of each strategy.

Results—The active modalities were distinguished from TAU by more frequent use of problem-solving and interventions to enhance patients' ability to cope with the stigma of mental illness. With regard to specific approaches, CBT made frequent use of cognitive restructuring and self-rated mood charts. The signature features of IPSRT—regulation of sleep/wake cycles and daily routines—were also regular features in the CBT and group psychoeducation interventions. Communication skills training was a distinctive feature of family treatments.

Conclusions—Whereas active psychosocial interventions for bipolar disorder have common ingredients, they can also be distinguished from each other and from TAU by the degree to which specific strategies are emphasized. Future research should compare the treatment ingredients identified in this study in terms of their ability to bring about clinical change.

Keywords

bipolar disorder; psychosocial treatment; psychoeducation; cognitive-behavioral therapy; family-focused therapy; interpersonal and social rhythm therapy; group psychoeducation

There is increasing evidence that psychosocial interventions are effective adjuncts to pharmacotherapy in the stabilization and prevention of episodes of bipolar disorder.¹⁻⁴ A total of 14 randomized trials have found benefits for a variety of psychosocial approaches, including cognitive-behavioral therapy (CBT), family-focused therapy (FFT), individual psychoeducation, group psychoeducation, and interpersonal and social rhythm therapy (IPSRT). A meta-analysis of 7 randomized trials conducted prior to 2003 concluded that adjunctive psychotherapy is more effective than medication alone in relapse prevention.² The recent 15-site Systematic Treatment Enhancement Program for Bipolar Disorder (STEP-BD) found that bipolar patients receiving medication plus CBT, FFT, or IPSRT recovered from depressive episodes an average of 110 days faster than patients receiving medication and minimal psychoeducation.⁵

Despite consistent reports of treatment efficacy, psychosocial treatments are by their nature complex, and it remains unclear which psychosocial procedures, techniques, or content emphases (“ingredients”) are essential to a successful outcome in bipolar disorder. This issue is important if we are to refine our approach to psychosocial intervention so that it is as effective, acceptable, and efficient as possible. Some ingredients appear to be quite treatment-specific. Depending on the specific treatment approach, the predominant focus of psychotherapy may involve modifying dysfunctional cognitions,⁶ stabilizing sleep/wake cycles and disruptions in daily routines,⁷ modifying aversive communication styles in families,⁸ or learning adaptive coping strategies from other individuals with bipolar disorder.⁹⁻¹³ Other ingredients seem to be common to several, if not most, of the specific therapies, including encouraging a better understanding of bipolar illness, recognition and management of prodromal symptoms of relapse, adherence with medication regimens, and adapting to life stressors that may precipitate episodes.²

Are there methods that will allow us to identify the common active ingredients of efficacious psychotherapeutic approaches for the treatment of bipolar disorder, without carrying out expensive, large-scale, multiple treatment arm studies with dismantling or unbundling designs? The purpose of this study was to determine 1) whether putative ingredients can be identified that distinguish active treatments with known efficacy from treatment as usual (i.e., treatment rendered without explicit reference to specific manuals, henceforth referred to as TAU), and 2) the extent to which such features are shared versus distinctive across these active modalities. We surveyed investigators and clinicians who conducted trials of psychosocial interventions to clarify what they actually did. We believed that surveying the developers of these treatments would yield more accurate information about the characteristic features of the treatments than extracting core ingredients from clinicians’ manuals or therapist fidelity scales.

We hypothesized that the various active treatment modalities would have common elements (for example, a psychoeducational approach to disease management) that would differentiate these approaches from TAU and specific elements that would distinguish them from one another. We considered the identification of the common and the treatment-specific dimensions as a first step in determining which therapeutic ingredients bring about the most powerful clinical changes in patients with bipolar disorder.¹⁴

METHODS

Overview

We sent a questionnaire to 31 investigators and practitioners who participated in the 14 randomized trials of psychosocial interventions for bipolar disorder. The questionnaire asked the respondents to rate the active and control treatments in their trial in terms of 17 treatment ingredients, each of which was to be rated on a 1-3 scale of frequency of usage. We then compared the active treatments to each other and to each study's TAU condition to determine which ingredients were specific to a particular treatment modality and which were common across modalities.

Study Design

All randomized clinical trials conducted between 1999 and 2007 were included in this survey. We identified 14 trials through a Medline search (using key words such as psychosocial intervention and bipolar disorder, interpersonal and social rhythm therapy, cognitive-behavioral therapy, and *group psychoeducation*) and through a separate search conducted for the preparation of the bipolar disorder practice guideline of the National Institute for Health and Clinical Excellence of the United Kingdom.¹⁵ We also perused published reviews of the literature^{1,3,4,16} and the meta-analysis of trials conducted prior to 2003 referred to above.² The trials are summarized in Table 1.

We constructed the 17-item questionnaire by 1) abstracting the essential ingredients of each active treatment as described in published articles from the trials (see Table 2) and in a previous review of the bipolar psychotherapy literature,² and 2) consulting three experts on the psychotherapy literature concerning their views of the common and specific ingredients of the various approaches. Each of the 17 items was rated on a 3-point dimensional scale, in which 1 = *never or very rarely* did this intervention, 2 = *occasionally* did this intervention but it was not a focus of treatment, and 3 = *frequently* did this intervention and it was a major focus of treatment.

Subjects

Data collection began in October, 2006 and ended in July, 2007. We sent an introductory letter to the principal investigator or co-principal investigator of each study, asking them to complete one set of questionnaires concerning their active treatment and control conditions, and to ask one primary clinician from the trial to do the same. Two studies^{5,20} compared more than two treatment conditions, so respondents from those studies were asked to fill out one questionnaire for each treatment. Because the STEP-BD trial was conducted at 15 sites, we contacted clinicians at the three sites that recruited the largest number of patients (Massachusetts General Hospital, Case Western Reserve University, and Baylor College of Medicine). In all, 12 principal or co-principal investigators and 19 clinicians ($N = 31$) from 14 studies responded, for a total of 63 completed questionnaires. Investigators and clinicians were free to refuse to fill out the questionnaire, but none did so. Thus, the findings are not likely to reflect the biased opinions of a preselected group of investigators and clinicians working within each site.

Statistical Analysis

We posed two primary questions:

1. What ingredients distinguish active treatments from control (TAU) treatments?
2. What qualities are common to all or most of the active therapies, and what qualities are distinctive to one or more of the methods?

Data were analyzed in two stages. First, we identified 19 forms of active psychotherapy (Table 1), which were reduced to six major classes of therapy, based on how the investigators described their treatments in published articles:

1. *Individual psychoeducation*, including the relapse prevention method of Perry and associates¹⁷ and the intensive clinical management interventions of Rea et al.¹⁹ and Frank et al.⁷
2. *Individual CBT*^{4,5,6,13,21}
3. *Individual IPSRT*^{5,7}
4. *Family psychoeducation*, including FFT,^{5,8,19} the multifamily psychoeducation groups for bipolar children and parents studied by Fristad et al.,¹⁸ and the single and multifamily group psychoeducation models of Miller et al.²⁰
5. *Group psychoeducation*, including the Colom et al.⁹ structured group approach, the multicomponent collaborative care treatment studied by Bauer et al.^{12,13} and Simon et al.,¹¹ both of which included a structured psychoeducation group as manualized by Bauer and McBride,²² the 6-session psychoeducational comparison groups of Zaretsky et al.,⁴ and the integrated group therapy for bipolar disorder with comorbid substance abuse of Weiss et al.¹⁰
6. *TAU*: The TAU interventions always included pharmacotherapy but otherwise varied across studies. They included a) the unstructured support groups used by Colom et al.,⁹ b) the standard drug counseling groups used by Weiss et al.,¹⁰ c) the STEP-BD⁵ three-session collaborative care psychoeducational intervention, d) the two-session family psychoeducational intervention used in the Colorado FFT trial,⁸ e) usual care as defined in the Department of Veterans Affairs and Group Health Cooperative studies (typically, pharmacotherapy and outpatient clinic management),¹¹⁻¹³ and f) self-selected community care.^{6,9,17,18,20,21} A key question in our study was whether the experimental and control treatments differed on key content dimensions other than the number of sessions given.

Interrater reliability was calculated using intraclass correlation coefficients, with treatment as the independent variable, raters as subjects, and questionnaire items (rated as 1, 2, or 3) as the dependent variables. Next, we compared mean levels of the 17 attributes across the 6 treatment categories, using mixed model univariate analyses of variance, once again with treatment as the independent variable and raters as subjects. For each of the 17 items, we examined the omnibus F test to determine whether a statistically reliable difference ($p < 0.01$) existed between any active treatment and TAU, or between any of the active treatments. Post-hoc Tukey tests, corrected for the experimenterwise error rate, were conducted if the omnibus F comparisons were significant at the 0.01 level.

In a final stage of the analysis, we determined the combination of questionnaire items that best distinguished each active treatment from the other treatments. We classified treatments into each of five dichotomous (yes/no) categories: cognitive-behavioral, family, interpersonal, group psychoeducational, and individual psychoeducational. For this analysis, treatments could be listed in more than one dichotomous category (for example, the Weiss et al.¹⁰ integrated group model was described as both a group psychoeducational and a CBT treatment. The questionnaire items that distinguished the treatments in the univariate analyses were then regressed on each of these dichotomous class variables in five separate stepwise logistic regression analyses. Data from all completed questionnaires ($N = 63$) were used in each analysis. For example, there were 15 completed questionnaires concerning family treatment. Ratings from these 15 questionnaires were compared with the 28 ratings of individual or group treatments and the 20 ratings of the TAU conditions.

Logistic regression is based on the maximum likelihood method and enables the testing of multiple predictor variables in determining membership in a dichotomous classification.²³ The stepwise nature of this analysis helped determine which predictors accounted for the greatest proportion of variance in each treatment classification. Probability-to-enter and probability to exit values were both set at 0.10 (two-tailed).

RESULTS

Reliability

A total of 31 raters made 17 judgments about the five classes of active treatment and TAU. Cronbach's coefficient alpha (standardized) for the questionnaire was 0.91. All three levels of the scale items (1, 2, or 3) were well represented in the clinicians' ratings, and the distributions of most of the items approximated normality. High intraclass correlations indicated that raters agreed that a particular questionnaire item distinguished among the different types of treatments, and a low coefficient indicated that raters could not distinguish among the treatments or between any of the treatments and the TAU intervention. Intraclass r 's averaged 0.71, with items ranging from 0.40 ($p = 0.07$) to 0.89 ($p < 0.0001$). The treatments were least distinguishable on education about medications and side effects ($r = 0.40$) and community advocacy for the patient ($r = 0.46$), and most distinguishable on cognitive restructuring (identifying and challenging automatic negative thoughts or core dysfunctional beliefs, or challenging hyperpositive thinking) ($r = 0.89$), use of communication training exercises (enhancement of skills for effective negotiating, problem-solving, and empathic listening) ($r = 0.88$), and an interpersonal focus of treatment ($r = 0.86$).

Distinguishing Treatments from Each Other and from TAU: Univariate Comparisons

The means and univariate pairwise comparisons of the five active treatments and the TAU conditions are presented in Table 2. As was apparent from the reliability analyses, three items did not significantly ($p < 0.01$) distinguish any of the active treatments from TAU: psychoeducational focus (a didactic orientation to treatment and self-management of the disorder), specific education regarding medications and side effects, and community advocacy for the patient. All other items distinguished at least one of the treatments from TAU. Notably, interventions to enhance medication adherence, cognitive restructuring, behavioral activation (developing plans to increase the patient's rewarding contact with the environment), relapse prevention planning, and the use of written materials distinguished CBT and (less consistently) group psychoeducational treatments from TAU. Interventions to regulate sleep/wake cycles and daily routines most clearly distinguished IPSRT and CBT treatments from the other active modalities and TAU; and communication skills training distinguished family modalities from all other active modalities (including CBT) and TAU. Regular use of mood charts distinguished CBT, group psychoeducation, and IPSRT from family interventions, individual psychoeducation, and TAU. CBT was best distinguished from IPSRT by the more frequent use of cognitive restructuring, behavioral activation, and written psychoeducational materials.

Two questionnaire items, problem-solving and strategies to enhance coping with the stigma of mental illness, distinguished all of the active "branded" treatments (CBT, family, IPSRT, and group psychoeducation) from TAU. CBT, group psychoeducation, and family interventions focused on comorbid disorders to a greater extent than individual psychoeducation or TAU. Finally, only CBT was described by respondents as having both an intra-individual and an interpersonal focus; all other modalities were described as primarily intra-individual (structured group psychoeducation) or primarily interpersonal (IPSRT, family).

Distinguishing Treatments from Each Other: Multivariate Comparisons

As expected, the questionnaire items were inter-correlated. Logistic regression analyses enabled us to examine the relative contributions of each questionnaire item to discriminating between the active modalities, after controlling for the contribution of the other items. The results are summarized in Table 3 and in the Appendix, which presents the logistic regression analysis results.

DISCUSSION

The present study is best conceptualized as a content analysis of modern, empirically-supported psychosocial interventions for bipolar disorder. Through a survey of 31 principal investigators and clinicians who worked on the 14 randomized trials of adjunctive psychotherapy published between 1999 and 2007, we were able to identify key treatment ingredients that did and did not statistically distinguish between cognitive-behavioral, family, interpersonal, group psychoeducational, individual psychoeducational, and control treatments.

There were two treatment ingredients that characterized nearly all of the active treatments compared with TAU, notably, problem-solving about community functioning and strategies to cope with the stigma of mental illness (e.g., how to explain the disorder to other people). Thus, the core components of modern psychosocial approaches to bipolar disorder attempt to enhance the goals of pharmacotherapy by teaching coping skills for managing psychosocial stressors, recurrences, and the social stigma of the disorder.

Other ingredients distinguished specific treatments from one another. Not surprisingly, cognitive restructuring and behavioral activation clearly separated CBT from the other interventions. Sleep/wake cycle stabilization and regularization of daily routines were most closely associated with IPSRT, although CBT and group psychoeducation also emphasized sleep and lifestyle regularity. As expected, communication training was mainly a feature of the family interventions. Communication training was originally introduced into family psychoeducation models as a way of altering high levels of expressed emotion and/or negative family interactional behavior, which are associated with poorer prognoses in bipolar disorder and schizophrenia.^{25,26}

The content of the control interventions (especially when provided as TAU) is rarely described in detail in the publications from these trials. TAU appears, on average, to contain some of the ingredients of active treatments, including psychoeducation about medications, adherence, and side effects; and community advocacy (e.g., facilitating the patient's communication with the treating psychiatrist). While these ingredients are clinically sensible and important, the present study suggests that, when used alone, they do not have a sufficient impact to yield the augmented effects seen with the investigational treatments. Moreover, TAU interventions were most clearly distinguished from the active interventions by the absence rather than the presence of certain key ingredients. These included teaching patients to solve problems regarding stressful life events, to better cope with the stigma of mental disorders, to communicate effectively, to challenge dysfunctional cognitions, to regulate sleep/wake cycles, to track symptom fluctuations through a mood chart, and to develop relapse prevention plans. These components, therefore, are candidates for the "active ingredients" by which the experimental interventions may confer augmented clinical benefits compared to TAU.

This study had several limitations. First, the data were obtained through self-reports from investigators and clinicians regarding the therapeutic ingredients that they believed constituted the active treatments at their sites. Investigators and primary clinicians are probably the most reliable sources of information about the content of manual-based psychosocial interventions as actually delivered in randomized trials. We did not, however, directly observe treatment

sessions or rate session audiotapes for adherence to the clinicians' manuals. Hence, the data may reflect what the respondents believe treating clinicians should have done to be in accord with the manuals, rather than what they actually did. Of course, observer ratings of session audiotapes can introduce other biases. For example, an observer can miss the clinical context that kept a clinician from introducing a particular intervention in a session, such as when a clinician avoids assigning behavioral activation tasks to a depressed patient who has previously voiced feeling like a failure when performing these tasks.

Secondly, the questionnaire may not have adequately assessed subtleties in the ways that interventions were delivered across the modalities and sites. Although most of these group, family, and individual treatments are associated with clear, rigorous, and well-operationalized manuals (e.g., 6^{-9,22}), practice often varies considerably even within a manualized protocol. The ratings of personal practice may have been contaminated to a greater or lesser degree by social desirability effects. A study of evidence-based psychosocial interventions in community settings, among clinicians who did not rely on treatment manuals, might have yielded different results.

Third, we did not assess nonspecific factors such as the quality of the therapeutic alliance, which has been identified as a key element in outcomes of psychotherapies and pharmacotherapy for unipolar depression or psychosis.²⁷⁻²⁹ We also did not examine personal characteristics of the therapists—such as age, gender, theoretical orientation, or previous experience with research protocols—that might have influenced the degree to which clinicians emphasized one feature over another in implementing manual-based treatments.

Fourth, the fact that a clinician identified an ingredient (e.g., use of mood charting, relapse prevention planning) as a key characteristic of treatment (e.g., in CBT) does not necessarily suggest that this ingredient was clinically valuable for patients, or that the treatment operated through this mechanism. We did not examine the clinical effectiveness of specific therapeutic foci and procedures, which would be necessary in order to enhance the power of our current approach.

Finally, the results from randomized trials suggest that these active psychosocial treatments differ in their relative impact on the depressive versus the manic pole of the disorder. Specifically, FFT and CBT appear to have a greater impact on depressive than manic symptoms,^{5,6,8,19} whereas individual and group psychoeducational approaches appear more effective in reducing the length of manic than depressive episodes.^{9,11-13,17} Future studies should attempt to identify the core ingredients of treatments as a function of their relative impact on the polarity of episodes.

Despite these limitations, the findings presented here are a first step towards allowing clinicians to choose among the variety of strategies described in evidence-based treatments. They also provide direction to investigators wishing to develop or revise psychosocial interventions for bipolar disorder. Specifically, education about signs and symptoms, reviewing medications and expected side effects, and community advocacy are not likely to be sufficient for maximal impact, whereas problem-solving about specific psychosocial stressors and anti-stigma components are likely to augment treatment effects over those of care as usual. Moreover, specific treatment components (e.g., sleep/wake cycle stabilization, cognitive restructuring, mood charting, relapse prevention planning, family communication training), when incorporated into a desired treatment orientation (e.g., cognitive, family, interpersonal, or group or individual psychoeducation) may augment the power of these modalities.

More systematic prospective measurement of the process variables in any intervention would greatly inform the design of the next generation of treatment/outcome studies. Ideally, future studies would examine specific strategies at the individual patient level to determine what

interventions were most helpful at which stages of the disease process. Possibly, a treatment representing an amalgam of the most effective core interventions for bipolar disorder at various stages of the illness would prove more effective than any of the specific treatments studied to date in single-center trials.^{5,30}

Acknowledgements

The authors acknowledge the assistance of the investigators and clinicians from the cited randomized trials who completed the study questionnaire. L. Miriam Dickinson provided statistical consultation.

Appendix. Logistic regression analysis results

The CBT interventions were distinguished by two attributes: use of cognitive restructuring tools, which entered the regression equation on the first step (Wald $\chi^2(1) = 9.37$, $p = 0.002$; odds ratio (OR) = 0.08, 95% confidence interval (CI) = 0.016-0.40; odds ratios less than 1.0 indicate that a higher score on the questionnaire item was more characteristic of the treatment, and odds ratios greater than 1.0 indicate that the item was less characteristic of the treatment); and greater use of self-rated mood charts, which entered on the second step ($\chi^2(1) = 3.33$, $p = 0.068$; OR = 0.20, 95% CI = 0.035-1.13). The Hosmer and Lemeshow Goodness of Fit Test²⁴ suggested that this two-predictor solution provided an adequate fit to the data ($\chi^2(1) = 0.34$, $p = 0.56$). (Note Hosmer and Lemeshow Goodness of Fit Tests indicate that the data provide a better fit to a model when the p value is less significant. Thus, the best fitting model would be $p = 0.99$, and the poorest fit would be indicated by a p value < 0.0001 .)

Family interventions were best distinguished by two factors: greater use of communication skills training (Wald $\chi^2(1) = 8.34$, $p = 0.004$; OR = 0.01; 95% CI = 0.00-0.23) and the less frequent use of individualized mood charts ($\chi^2(1) = 5.54$, $p = 0.019$; OR = 8.99; 95% CI = 1.45-55.94). The two variable model had a close fit to the data ($\chi^2(6) = 1.87$, $p = 0.93$). In contrast, IPSRT was best distinguished by tracking and encouraging the stabilization of sleep/wake cycles (Wald $\chi^2(1) = 5.07$, $p = 0.024$; OR = 0.01, 95% CI = 0.001-0.548). Low use of written psychoeducational materials (pamphlets, handouts, websites) for patients distinguished IPSRT from the other treatments on the second step (Wald $\chi^2(1) = 4.96$, $p = 0.026$; OR = 31.83, 95% CI = 1.52-668.61). The two variable model provided an adequate fit to the data ($\chi^2(1) = 17.29$, $p = 0.14$), but the logistic model failed to converge after fitting these two predictors.

Structured group treatments were distinguished from the other interventions by one variable: a greater focus on relapse prevention planning ($\chi^2(1) = 4.99$, $p = 0.025$; OR = 0.01, 95% CI not calculable). This single variable model had a good fit to the data ($\chi^2(13) = 17.49$, $p = 0.18$).

Finally, clinicians described individual psychoeducation as having a greater focus on medication adherence (Wald $\chi^2(1) = 4.72$, $p = 0.03$; OR = 0.19, 95% CI = 0.04-0.85), a lesser focus on interventions to regulate daily routines (Wald $\chi^2(1) = 3.13$, $p = 0.077$; OR = 8.59, 95% CI = 0.79-93.13), and less of a focus on interpersonal relationships (Wald $\chi^2(1) = 3.51$, $p = 0.06$; OR = 5.95, 95% CI = 0.92-38.38). This three variable model provided a good fit to the data ($\chi^2(7) = 1.96$, $p = 0.96$).

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Table 1
Fourteen randomized controlled trials of psychotherapy for bipolar disorder

<i>Citation</i>	<i>Site</i>	<i>Experimental treatment</i>	<i>Comparison treatment</i>	<i>Number of patients</i>	<i>Number of raters</i> [*]
Perry et al. 1999 ¹⁷	University of Manchester, UK	Individual psychoeducation	TAU	69	1
Colom et al. 2003 ⁹	University of Barcelona, Spain	Group psychoeducation	Unstructured support groups	120	1
Miklowitz et al. 2003 ⁸	University of Colorado, Boulder	FFT	Brief crisis management	101	3
Fristad et al. 2003 ¹⁸	Ohio State University, Columbus	Multi-family groups	TAU	92	1
Rea et al. 2003 ¹⁹	University of California, Los Angeles	FFT	Individual psychoeducation	53	2
Miller et al. 2004 ²⁰	Brown University Medical Center, Providence, RI	Single family therapy, Multifamily groups	TAU	92	5
Frank et al. 2005 ⁷	University of Pittsburgh School of Medicine, PA	IPSRT	Active clinical management (individual psychoeducation)	175	4
Lam et al. 2005 ⁶	Institute of Psychiatry, London, UK	CBT	TAU	103	2
Bauer et al. 2006 ^{12,13}	Multiple U.S. sites	Collaborative care with structured group psychoeducation	TAU	306	2
Scott et al. 2006 ²¹	Multiple sites in UK	CBT	TAU	253	2
Simon et al. 2006 ¹¹	Health maintenance organization, Seattle, WA	Multicomponent care management with group psychoeducation	TAU	441	2
Miklowitz et al. 2007 ⁵	Multiple U.S. sites	FFT, IPSRT, CBT	Brief individual psychoeducation	293	4
Weiss et al. 2007 ¹⁰	Massachusetts General Hospital, Boston	Integrative group therapy/CBT	Standard drug treatment groups	62	2
Zaretsky et al. 2007 ⁴	University of Toronto, Canada	Individual CBT	Group psychoeducation	204	1

FFT = family-focused treatment, CBT = cognitive-behavioral therapy, IPSRT = interpersonal and social rhythm therapy, TAU = treatment as usual.

* One of the clinician raters contributed ratings for two different trials.

Table 2
Means and group contrasts for six categories of psychosocial intervention

Variable	IP (n = 7)	CBT (n = 8)	IPSRT (n = 5)	FAM (n = 15)	SG (n = 8)	TAU (n = 20)	F	DF	p
Psychoeducational focus	2.43	2.88	2.70	2.87	2.88	2.15	3.31	5,57	0.011
Specific education about medications and side effects	2.87	2.61	2.19	2.19	2.77	2.06	2.33	5,53.6	0.055
Interventions to advance medication adherence	2.69	2.91 ^a	2.36	2.35	3.00 ^a	2.10 ^b	3.62	5,51.9	0.007
Cognitive restructuring	1.0 ^c	3.0 ^a	1.00 ^c	1.53 ^{b,c}	1.87 ^b	1.25 ^c	16.08	5,50.6	0.0001
Behavioral activation	1.29 ^d	3.0 ^a	1.40 ^{b,c}	2.13 ^b	2.13 ^{b,c}	1.40 ^d	12.44	5,57	0.0001
Relapse prevention	2.22	2.88 ^a	2.44	2.65 ^a	2.98 ^a	2.10 ^b	4.05	5,51.9	0.004
Sleep/wake cycles	1.42 ^b	2.69 ^a	2.93 ^a	1.73 ^b	2.14	1.67 ^b	10.60	5,42.9	0.0001
Regulating daily routines	1.23 ^d	2.55 ^{a,b}	2.97 ^a	1.91 ^{b,c,d}	2.27 ^{a,b,c}	1.68 ^c	7.14	5,49.9	0.0001
Use of a mood chart	1.81 ^{b,c}	2.87 ^a	2.83 ^a	1.55 ^{b,c}	2.47 ^a	1.54 ^{b,c}	8.40	5,48.3	0.0001
Communication training	1.28 ^c	2.12 ^b	2.00 ^{b,c}	2.87 ^a	1.62 ^{b,c}	1.30 ^c	16.08	5,52.2	0.0001
Problem solving	1.43 ^b	2.89 ^a	2.63 ^a	2.81 ^a	2.34 ^a	1.66 ^b	11.10	5,52.7	0.0001
Enhancing ability to cope with stigma of mental illness	1.63	2.36 ^a	2.39 ^a	2.17 ^a	2.37 ^a	1.25 ^b	7.96	5,52.3	0.0001
Community advocacy for the patient	1.30	2.38	1.81	2.27	1.88	1.60	2.88	5,52.8	0.023
Emphasis on comorbidity	1.28 ^b	2.59 ^a	1.62 ^{b,c}	2.14 ^{a,c}	2.25 ^{a,c}	1.36 ^b	8.63	5,49.1	0.0001
Use of written materials	1.72 ^{c,d}	2.99 ^a	1.19 ^d	2.29 ^{b,c}	2.76 ^{a,b}	1.85 ^c	5.74	5,54.6	0.0003
Intra-individual focus	1.71 ^{b,d}	3.0 ^a	1.80 ^{c,d}	2.27	2.75 ^a	1.95 ^{b,d}	4.74	5,57	0.002
Interpersonal focus	1.30 ^d	2.66 ^{a,c}	3.00 ^a	2.90 ^a	2.13 ^{b,c}	1.81 ^b	15.69	5,52.4	0.0001

IP = individual psychoeducation, CBT = cognitive-behavioral therapy, IPSRT = interpersonal and social rhythm therapy, FAM = family treatment, SG = structured group psychoeducation, TAU = treatment as usual. Sample sizes refer to the number of clinician ratings (completed questionnaires) regarding each type of treatment. The F-values refer to omnibus comparisons of the 5 active treatments and the TAU condition. When these values were significant at the 0.01 level, pairwise comparisons of groups were conducted. Group means marked with superscripts (e.g., a, b) are significantly different at the 0.01 level if they have no superscripts in common (e.g., c, d). Group means marked with a superscript do not differ significantly from group means without a superscript.

Table 3

Distinguishing features of psychosocial interventions: Results of stepwise logistic regression analyses

<i>Treatment</i>	<i>Distinguishing features</i>
CBT	Cognitive restructuring (+) Self-rated mood charts (+)
Family	Communication training (+) Self-rated mood charts (-)
Interpersonal	Tracking and regularization of sleep/wake cycles (+) Use of written psychoeducational materials (-)
Group psychoeducation	Relapse prevention (+)
Individual psychoeducation	Encouraging medication adherence (+) Regulating daily routines (-) Interpersonal focus (-)

A plus sign (+) indicates that greater use of the ingredient characterized the modality, while a minus sign (-) indicates that lower use of that ingredient characterized the modality.