

Impact of Multifamily Psychoeducational Psychotherapy in Treating Children Aged 8 to 12 Years With Mood Disorders

Mary A. Fristad, PhD; Joseph S. Verducci, PhD; Kimberly Walters, PhD; Matthew E. Young, MA

Context: Childhood mood disorders lack sufficient evidence-based treatments. While psychosocial treatments are recommended for both childhood depression and bipolar disorder, empirical support is scarce.

Objective: To determine whether adjunctive multifamily psychoeducational psychotherapy would improve outcome for children aged 8 to 12 years with depression or bipolar disorder.

Design: One hundred sixty-five children were studied in a randomized controlled trial of multifamily psychoeducational psychotherapy plus treatment as usual (n=78) compared with a wait-list control (WLC) condition plus treatment as usual (n=87). Assessments occurred at baseline and at 6, 12, and 18 months. Intervention occurred between baseline and 6 months for the immediate treatment group and between 12 and 18 months for the WLC group.

Setting: University medical center.

Participants: Children were recruited from mental health and physical health care providers, media contacts, and word of mouth. All had a major mood disorder (major depressive disorder or dysthymic disorder, 30%; bipolar disorder type I, type II, or not otherwise specified, 70%).

Intervention: Children and 1 or more parents participated in eight 90-minute multifamily psychoeducational psychotherapy sessions. Parent and child groups met separately but began and ended sessions together.

Main Outcome Measures: The Mood Severity Index (MSI) combines Mania Rating Scale and Children's Depression Rating Scale–Revised scores.

Results: Multifamily psychoeducational psychotherapy plus treatment as usual was associated with lower MSI scores at follow-up in intent-to-treat analyses compared with WLC plus treatment as usual (MSI: $\chi^2=4.55$; $P=.03$). The WLC group showed a similar decrease in MSI scores 1 year later, when also following their treatment (MSI decrease=3.24 units per 6 months in the immediate treatment group and 3.50 units per 6 months in the WLC group).

Conclusion: Brief, adjunctive psychoeducational group psychotherapy is associated with improved outcome for children aged 8 to 12 years with major mood disorders.

Trial Registration: clinicaltrials.gov Identifier: NCT00050557

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Author Affiliations: Division of Child and Adolescent Psychiatry, Department of Psychiatry (Dr Fristad), Departments of Psychology (Dr Fristad and Mr Young) and Statistics (Drs Verducci and Walters), and Mathematical Biosciences Institute (Dr Verducci), The Ohio State University, Columbus.

MOOD DISORDERS AND suicide in youth represent major health concerns. Clinicians working with these youth need effective intervention strategies. While recent efforts have been made regarding treating depression¹⁻⁶ and bipolar disorder⁷⁻¹¹ in adolescence, fewer studies have focused on children aged 12 years and younger.

A recent review of evidence regarding psychosocial interventions for childhood depression¹² concluded that cognitive behavioral group therapy, with or without a parental component, is the lone well-established treatment. However, most stud-

ies have included children screened for elevated symptoms of depression who may or may not meet diagnostic criteria for major depressive disorder. Behavior therapy is considered probably efficacious for childhood depression, and a number of other experimental interventions show promise but require further evaluation.¹² Currently, only 2 research groups have focused on psychosocial interventions for childhood bipolar disorder.¹³⁻¹⁵ Hence, increased attention to creation and testing of treatments specifically targeting depression and bipolar disorder in children is needed.¹⁶ In particular, studies should focus on children's developmental needs, address comorbidity, involve family members in treatment,

Table 1. Schedule of Multifamily Psychoeducational Psychotherapy Treatment and Assessments

Treatment	Month 0	Month 6	Month 12	Month 18
MF-PEP plus TAU	Before MF-PEP	After MF-PEP	Follow-up	Follow-up
WLC plus TAU	Baseline	Follow-up	Before MF-PEP	After MF-PEP

Abbreviations: MF-PEP, multifamily psychoeducational psychotherapy; TAU, treatment as usual; WLC, wait-list control.

demonstrate treatment gains as rated by parents and clinicians rather than children themselves, and compare experimental interventions with standard care or treatment as usual (TAU) rather than no-treatment or attention control groups.^{12,17,18} In addition, parental psychopathology may affect treatment adherence and response. For example, Brent et al¹⁹ reported that in the absence of maternal depression, cognitive behavioral therapy was more effective for adolescents with major depression than either systematic behavioral family therapy or nondirective supportive therapy; the efficacy of cognitive behavioral therapy was mitigated by the presence of maternal depressive symptoms (ie, mothers with Beck Depression Inventory scores >9 vs ≤9).

Our research group has developed, tested, and refined a multifamily psychoeducational psychotherapy (MF-PEP). Initially an intervention of six 75-minute sessions,²⁰ it was expanded to eight 90-minute sessions prior to this study. Multifamily psychoeducational psychotherapy combines psychoeducation, family systems, and cognitive behavioral psychotherapy techniques (eg, problem-solving skills, pleasant life-event scheduling) to target mood disorder symptoms and the impairment they cause. It aims to help parents and children do the following: learn about mood disorders and their treatment; gain support from other families with similar difficulties and from professionals who understand the disorders; and build skills in 4 areas including mood symptom management, affect regulation, problem solving, and communication. Information regarding the theoretical foundations of MF-PEP has been published previously.²¹ Pilot studies indicate that MF-PEP is associated with the following: increased knowledge of mood disorders; increased positive family interactions; increased efficacy in seeking treatment; improved coping skills; improved parental attitude toward the child and the treatment; increased social support from parents; and a trend toward increased social support from peers in children.^{22,23} To assess the impact of MF-PEP on children's mood symptoms, this full-scale randomized trial was conducted.

Two main hypotheses were tested. First, children receiving MF-PEP will show greater improvement in mood symptoms over 1 year compared with children in a wait-list control (WLC) condition. Second, WLC children will show a similar reduction in mood symptoms when they receive MF-PEP 1 year after study entry. In addition, 2 secondary hypotheses were investigated. First, participants who complete treatment (ie, attend ≥6 of 8 treatment sessions) will show greater improvement in mood symptoms than participants who do not complete treatment. Second, parental psychopathology will be correlated with treatment dropout and response.

METHODS

OVERVIEW

Eleven sets of 15 families were recruited, 1 set every 3 months. Within each set, 7 families were assigned to immediate treatment (IMM) and 8 families to a 1-year WLC group. All families were encouraged to continue TAU (ie, any other psychosocial, psychopharmacological, and educational interventions the family desired) on their own during the study, and TAU was systematically assessed throughout the study. The IMM and WLC groups did not differ significantly on TAU at study entry. The impact of MF-PEP on service use (ie, families becoming better consumers of care) is reported elsewhere.^{24,25} Four assessments were conducted over an 18-month period (**Table 1**). After the 12-month assessment, WLC families participated in MF-PEP.

PARTICIPANTS

Families were required to meet 4 inclusion criteria to participate: (1) the child was aged 8 to 11 years at baseline; (2) the child received a study diagnosis of major depressive disorder, dysthymic disorder, or bipolar disorder type I, type II, or not otherwise specified; (3) the child had a full-scale IQ score of 70 or higher; and (4) 1 or 2 parents or caregivers (hereafter referred to as parents) completed the baseline assessment and were willing to participate.

Sample size was determined a priori based on a power calculation,²⁶ which indicated that 165 participants would provide 70% power to detect a medium effect size, including an adjustment for multiple comparisons. Of 172 children initially screened, 166 (97%) were eligible to enroll (**Figure 1**). One participant's diagnosis progressed from bipolar disorder with psychotic features to schizoaffective disorder. He completed the study, but results are given separately²⁷ as his clinical presentation over time was markedly different from that of other participants. One child was erroneously assigned to the IMM group rather than the WLC group, resulting in 78 participants in the IMM group and 87 participants in the WLC group. Demographic and clinical characteristics did not differ between groups (**Table 2**). Participants had high rates of comorbidity, comparable to other research with children with mood disorders, especially bipolar disorder.^{28,29}

Recruitment

Children were recruited from mental and physical health care providers (62%), media coverage (local news stories, not paid advertisements) (19%), and word of mouth or fliers (19%). A notable minority (22%) came from rural and/or geographically remote (ie, distance ≥50 miles) settings. The mean (SD) round trip was 56 (64) miles (range, 2-344 miles).

Prescreening

Parents first completed telephone prescreening to address the following: Does the child likely meet diagnostic criteria for a

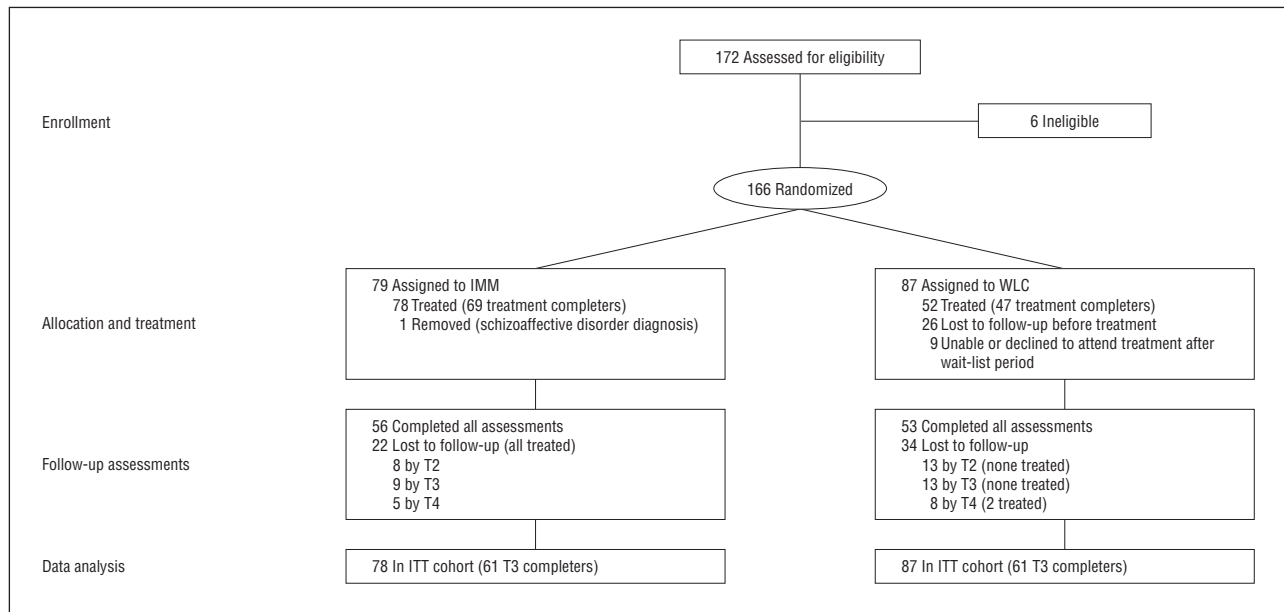


Figure 1. Randomized trial flow diagram. IMM indicates immediate treatment; WLC, wait-list control; ITT, intend-to-treat; T2, month 6; T3, month 12; and T4, month 18.

DSM-IV mood disorder? Does the child live with 1 or more parents? Is it likely the child and 1 or more parents will wish to participate (after hearing a brief description)? If this screening interview indicated possible interest in the study and eligibility to participate, the family was scheduled for a baseline assessment. Ineligible families were given referrals to seek other mental health services as appropriate, and their referring source was notified.

Randomization

Children and parents provided written informed assent and consent, respectively, as well as Health Insurance Portability and Accountability Act authorizations (if enrolled after Health Insurance Portability and Accountability Act procedures were initiated), as approved by the Ohio State University Medical Center Institutional Review Board. They then completed their baseline assessment. Stratified randomization was used after each set of 15 families completed baseline assessments to ensure that no treatment group had only 1 member with a bipolar or depressive spectrum disorder and that the IMM and WLC groups had approximately equal distributions of the following: (1) primary diagnosis (ie, bipolar and depressive spectrum disorders); (2) comorbid conditions (ie, behavior, anxiety, and other disorders); and (3) demographic variables (ie, sex, race, and socioeconomic status). The project coordinator (Barbara Mackinaw-Koons, PhD, Jarrod Lefler, PhD, and Colleen Quinn, MA) summarized these variables; randomization was completed by the principal investigator (M.A.F), who was masked to all other information.

ASSESSMENT

Interviewers

Interviewers were postdoctoral study coordinators and graduate research associates in clinical child psychology. Personnel completed a detailed training program prior to conducting interviews. This included didactics followed by rating mock, videotaped, and live interviews. After establishing reliability ($\kappa \geq 0.70$) at each step, interviewers were videotaped performing live interviews, which were coded by the postdoctoral project coordinator. After reliability ($\kappa \geq 0.70$) was reached, interviewers con-

ducted independent interviews. Additionally, the principal investigator staffed each baseline assessment in a face-to-face meeting with interviewers, at which time each mood symptom was individually discussed. Reports were prepared for all interviews; they included descriptions of each mood symptom and its severity score. This provided ongoing alignment of assessment techniques across interviewers. Additionally, the project coordinator rated videotapes of 10% of interviews; if interviewer “drift” was detected, interviewers repeated training procedures until reliability was re-established. Follow-up interviews were conducted by graduate research associates masked to treatment status.

Informants

Families self-identified a primary parental informant. This parent and the child both provided information throughout the study. A secondary parental informant, if available, also provided information.

Assessment Protocol

Extensive multi-informant, multimodal data collection was used to determine diagnoses, consistent with recommendations from the child assessment literature.³⁰ Participants were compensated for each assessment. Instruments used in this report are described.

INSTRUMENTS

Demographics Form

The primary parent was interviewed to determine family structure (eg, married, biological parents, single parent, adoptive parents); degree of contact the primary and secondary informants had with the child (eg, daily, episodic); relationship to the child (eg, biological parent, stepparent); number of children in the home; race (categorical options, including other, were provided to the parent; this was done to meet federal reporting guidelines and, if sufficient variability was reported, to investigate race as a moderator variable in secondary analyses); educational level and occupation of parental informants; and income level.

Table 2. Baseline Characteristics of the Intent-to-Treat Cohort^a

Variable	Immediate Treatment (n=78)	Wait-List Control (n=87)
Age, mean (SD), y	10.0 (1.3)	9.8 (11.2)
Male, %	76	71
White, %	94	89
2-Parent family structure, %	68	70
Annual income, median (range), \$	40 000-59 000 (>20 000 to <100 000)	40 000-59 000 (>20 000 to <100 000)
Family history of mania or depression, %	85	84
Current MSI score, mean (SD)	32.5 (13.3)	31.4 (16.1)
Bipolar spectrum disorders, %	70.5	69.0
Global functioning, current CGAS score, mean (SD)	43.0 (8.0)	44.4 (8.8)
Caregiver mental health, PDI score, median (mean [SD]) ^b	1 (1.5 [1.6])	2 (1.8 [1.5])
Comorbidity, %		
Anxiety	67	70
Conduct disorder or oppositional defiant disorder	97	97
ADHD	86	93

Abbreviations: ADHD, attention-deficit/hyperactivity disorder; CGAS, Children's Global Assessment Scale; MSI, Mood Severity Index; PDI, Psychiatric Diagnostic Interview.

^aAll group differences are nonsignificant.

^bThe score is the number of lifetime diagnoses.

Mood Disorders Timeline

A semistructured timeline of mood symptoms was completed with the primary parents. This allowed for careful evaluation of mood episodes and diagnoses as well as comorbid conditions by embedding information in the context of developmental history, physical and mental health treatment history and response, psychosocial events, and other collateral information that might influence diagnosis. This timeline allowed the interviewer to identify "worst" episodes to rate with structured and semistructured symptom severity measures. Guidelines for constructing this timeline are published elsewhere.³¹

Children's Interview for Psychiatric Syndromes Child and Parent Forms

The Children's Interview for Psychiatric Syndromes³² and the Children's Interview for Psychiatric Syndromes—Parent Version³³ are structured psychiatric interviews designed to assess psychopathology according to *DSM-IV* criteria in clinical and epidemiological research with youth aged 6 to 18 years.³⁴⁻³⁸ The Children's Interview for Psychiatric Syndromes and the Children's Interview for Psychiatric Syndromes—Parent Version assess 20 behavioral, anxiety, mood, and other syndromes as well as psychosocial stressors. Reliability and validity in inpatient and outpatient populations have been demonstrated, with high test-retest reliability and moderate to high correlations with discharge diagnoses.³⁴⁻³⁸ The Children's Interview for Psychiatric Syndromes was used because its psychometric properties mimic those of other structured interviews while offering pragmatic advantages, including shorter administration time, a detailed training manual, ease of administration, and a concise response booklet.³⁹ These instruments were administered at baseline to document lifetime and current presence or absence of psychiatric symptoms and diagnoses. Interrater reliabilities for Children's Interview for Psychiatric Syndromes and Children's Interview for Psychiatric Syndromes—Parent Version diagnoses in this study were substantial ($\kappa=0.82$ and 0.78 , respectively) based on commonly used methods for categorizing interrater agreement.⁴⁰

Children's Depression Rating Scale—Revised

The Children's Depression Rating Scale—Revised (CDRS-R) is a 17-item, clinician-rated severity scale for depression in children

aged 6 to 17 years.⁴¹ The CDRS-R correlates significantly with clinical global ratings of depression and differentiates clinically defined groups of children who differ in depression severity. Interrater reliability in previous studies is high ($r=0.86$), as is 4-week test-retest reliability ($r=0.81$).⁴¹ The CDRS-R was administered to the primary informant parent and the child at every assessment to monitor the severity of depressive symptoms in the previous 2 weeks. Interrater reliability in this sample was substantial ($\kappa=0.68$).

Mania Rating Scale

The Mania Rating Scale (MRS) is an 11-item clinical rating scale for manic symptoms.⁴² The MRS was developed for use with adults but has been adapted for use with children. Previous studies suggest that its reliability and validity are acceptable for children.^{43,44} The MRS was administered to the primary informant parent and the child at every assessment to monitor the severity of manic symptoms in the previous 2 weeks. Interrater reliability was substantial ($\kappa=0.71$).

Mood Severity Index

The Mood Severity Index (MSI) is an index of the child's total severity of manic and depressive symptoms. The MSI was created to provide a single primary outcome variable when studying children with major mood disorders. It is calculated from CDRS-R and MRS scores as follows: $[(CDRS-R \text{ score} - 17) \times 11/17] + \text{MRS score}$. This accounts for the CDRS-R having a minimum score of 17 (vs 0 for the MRS) and for the greater number of CDRS-R items. Also, as both scales have irritability items, they are downweighted by half on each scale to avoid double counting. The MSI has a possible score range of 0 to 116. Four categories of mood severity were operationally defined: MSI scores less than 10 represent minimal symptoms, scores of 11 to 20 reflect mild symptoms, scores of 21 to 35 equate moderate symptoms, and scores higher than 35 indicate severe symptoms. The MSI scores were calculated from the CDRS-R and MRS ratings at each assessment.

Kaufman Brief Intelligence Test

The Kaufman Brief Intelligence Test is a brief, standardized test used to estimate verbal and nonverbal abilities. Norms are based on a nationally standardized sample. Reliability and validity are well established.⁴⁵ The Kaufman Brief Intelligence Test was ad-

Table 3. Multifamily Psychoeducational Psychotherapy Session Content

Session No.	Parent Group	Child Group
1	Childhood mood disorders and their symptoms	Childhood mood disorders and their symptoms
2	Medications: names and classes of medications; monitoring effectiveness and adverse effects	Medications: symptoms and the medications that target them; "naming the enemy"
3	"Systems of care": mental health and educational services	"Tool kit" to manage symptoms and emotions
4	Negative family cycle; review first half of the program	Connection between thoughts, feelings, and actions; thinking-feeling-doing exercise
5	Develop problem-solving and coping skills	Develop problem-solving skills; stop-think-plan-do-check exercise
6	Improve verbal and nonverbal communication skills	Improve nonverbal communication skills
7	Symptom management	Improve verbal communication skills
8	Review second half of the program; graduate	Review and graduate

ministered at baseline to provide an estimate of the child's intelligence.

Psychiatric Diagnostic Interview

The Psychiatric Diagnostic Interview (PDI) is a structured diagnostic interview to assess 17 psychiatric diagnoses in adults. Reliability and validity have been shown to be acceptable.⁴⁶ The PDI was administered to primary and secondary parental informants to ascertain the presence or absence of psychiatric diagnoses. Interrater reliability was substantial ($\kappa=0.64$). Because many participants had only 1 parent provide PDI data, only the primary parental informant's PDI score (ie, number of lifetime psychiatric diagnoses) was used in this study.

ELIGIBILITY AND CONSENSUS CONFERENCE

The assessment team (principal investigator, postdoctoral coordinator, and interviewers) met within 48 hours of an assessment to determine study eligibility and diagnostic category (ie, depressive spectrum or bipolar spectrum). Once study eligibility was confirmed, the principal investigator and a coinvestigator (Jill Goldberg Arnold, PhD), both clinical child psychologists with extensive experience in childhood mood disorders, reviewed all assessment data separately to assign a specific mood disorder diagnosis. This was done masked to participants' treatment conditions. After completing independent ratings, they completed a consensus conference to compare ratings and agree on the final diagnosis. Agreement on diagnostic category (ie, bipolar disorder vs depression) was high ($\kappa=0.80$). This consensus conference procedure was repeated after each assessment; raters remained masked to treatment status.

INTERVENTION

Group Facilitators

Parental groups were facilitated by experienced doctoral-level therapists (2 psychologists [Jill Goldberg Arnold, PhD, and Catherine Malkin, PhD] and 1 social worker [Kitty W. Soldano, PhD, LISW]). Children's groups had a lead therapist (2 postdoctoral clinical child psychology study coordinators [Barbara Mackinaw-Koons, PhD, and Jarrod Leffler, PhD] and 1 advanced doctoral student in clinical child psychology [Colleen Quinn, MA]) and a cotherapist (12 graduate students in clinical child psychology). Group facilitators received training and weekly group supervision from the principal investigator. Twenty-two 8-session groups were conducted.

Program Content

Each session began and ended with parents and children together. During the middle portion of each group session, par-

ents and children met separately. Children's and parents' session content was thematically connected (**Table 3**).

Group leaders used a treatment manual that specified session content. Parents and children were supplied with workbooks to follow along with the leaders' presentations. These workbooks provided room to make notes about material presented and included homework handouts that were explained during each session. Group leaders encouraged participants to ask questions, request clarification, or otherwise seek additional information. Sessions were offered in the late afternoon on weekdays to accommodate families' school, work, and other activity schedules. Light refreshments were provided given the time of day and the desire to facilitate a congenial atmosphere. Child care was offered for siblings not participating in the study, and parking vouchers were provided to families. There were 3 main goals for the group: social support, information, and skill building.

While no standardized ratings of therapist fidelity were made, each therapy session was reviewed in hour-for-hour supervision with the primary investigator, usually within 24 hours of the session, to ensure that session content was covered and to monitor for any clinical concerns.

STATISTICAL ANALYSIS

Data were managed using SAS version 8 statistical software (SAS Institute, Inc, Cary, North Carolina). Test statistics for the linear mixed effects (LME) model were calculated using S-PLUS version 7.0 statistical software (Insightful Corp, Seattle, Washington). Basic statistical tests (eg, *t* and χ^2 tests) were conducted at the $\alpha=.05$ individual level of significance. Confidence intervals were reported at the 95% level.

The LME models of the MSI used the full intent-to-treat (ITT) sample over all available assessments to help separate effects of spontaneous recovery from those of treatment. The LME model^{47,48} compared the MSI scores between the IMM and WLC groups. Modeling intercepts as random effects accounted for correlations among observations at different times from the same participant. Basic fixed effects in the LME model included treatment group, time since entry, and group \times time interaction. This last effect was the parameter of interest, measuring possible group (IMM or WLC) difference in the rate of change in the MSI score. Additional parameters were added to account for a natural slowing in the rate of improvement of the IMM group (fixed 18-month effect) after 12 months as well as the increased rate of improvement of the WLC group after they received treatment (group \times 18-month effect interaction). The net effect of these 2 parameters was to fit the mean 18-month MSI scores exactly for each group, thereby allowing the key group \times time interaction parameter to reflect rate differences over the first year only.

Parental psychopathology was observed to be related to dropout in the WLC condition, as a number of participants with low PDI and MSI scores dropped out within the first year. This attrition had the potential to inflate the apparent treatment effect

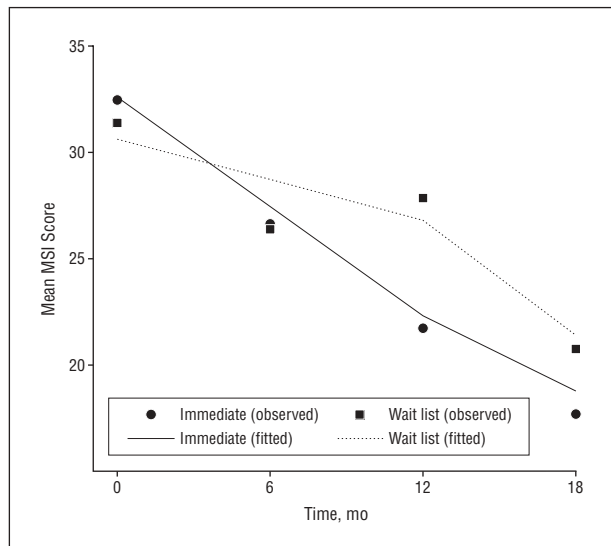


Figure 2. Mean Mood Severity Index (MSI) score by group in the intent-to-treat sample. Solid lines represent the linear mixed effects model; data points, the observed values. The immediate treatment group attended multifamily psychoeducational psychotherapy after the initial assessment, and the wait-list control group attended multifamily psychoeducational psychotherapy after the 12-month assessment.

at 12 months by comparing the IMM group with only those in the WLC group who retained significant symptoms. Therefore, the PDI score was included in the LME model to reduce the bias of differential attrition on the estimated treatment effect.

A likelihood ratio test was derived from the ratio between likelihoods for models⁴⁹ with and without the group \times time interaction term. This was used to test the main hypothesis that mood severity decreases more rapidly over a 1-year period when MF-PEP is provided.

An ITT analysis was conducted as the most conservative and appropriate test of treatment effects. However, to determine the effects of MF-PEP on those who participated in a substantial proportion of the intervention, a secondary analysis was completed by testing the same LME model described earlier with treatment completers, defined as those participants who attended 6 or more MF-PEP sessions.

RESULTS

STUDY SAMPLE

The ITT cohort included 165 participants. Of these, 35 were lost to follow-up before they attended MF-PEP, leaving 130 participants who attended at least 1 treatment session (Figure 1). All participants were contacted for follow-up assessments and included in ITT analyses.

All 78 IMM participants were treated (ie, attended ≥ 1 MF-PEP session); 69 (88%) completed treatment (ie, attended ≥ 6 of 8 group sessions). Of 87 WLC participants, 52 (60%) were treated and 47 (54%) completed treatment. No adverse treatment events were noted throughout the 18-month study.

MAIN OUTCOMES

ITT Sample

The estimated difference in slopes in the LME model (group \times time interaction) was 6.48 MSI points over the

initial 12 months (SE=3.04; 95% confidence interval, 0.48-12.48). This means that IMM participants over the first year experienced a decrease in their mean MSI score of 6.48 more than the WLC group (effect size=0.53). After the WLC group participated in MF-PEP, they experienced a decrease in their mean MSI score of 3.50 points over the final 6 months of follow-up. While this improvement was not statistically significant owing to the short time for observing the WLC group after its treatment, the estimated rate of improvement of 7.00 (2×3.50) MSI points per year for the WLC group was quite similar to the 6.48 points per year observed for the IMM group.

The likelihood ratio test compared the goodness of fit of 2 models to the present data set: the full model and a model excluding the group \times time interaction. This test was significant ($\chi^2=4.55$; $P=.03$), indicating that the full model was more likely.

The other statistically significant parameters in the model were time, with both groups displaying an improvement rate of 3.82 MSI points per year (SE=0.82), and PDI score, with an associated increase of 2.00 MSI points per each parental diagnosis reported (SD=0.61). Group (IMM vs WLC) and 18-month time parameters were not significant. As per the model, these effects were additive; for example, a treated participant with 1 more parental diagnosis than a matched (for initial MSI score) untreated participant would be predicted to have an MSI score that was 1.82 MSI points (1-year treatment effect + PDI effect = $3.82 - 2 = 1.82$) lower than that of the untreated patient after 1 year. **Figure 2** illustrates the observed mean responses and LME model fits for the IMM and WLC groups using the ITT sample.

Treatment Completer Sample

Analyses of the treatment completer sample produced overall results quite similar to those found for the ITT sample except that the effect of treatment was apparently larger. Again there was a significant difference in slopes ($\chi^2=5.99$; $P=.01$), now estimated as 8.17 MSI points over the initial 12-month period (SE=3.35; 95% confidence interval, 1.58-14.75). That is, over the first year, IMM treatment completers experienced a decrease in their mean MSI score that was 8.17 points more than that of the WLC group (SE=0.68). This is a larger effect than observed in the ITT sample, owing mainly to the fact that the WLC group in the treatment completer sample did not appear to improve as much over the first year as did the WLC group in the ITT sample. The change in the IMM group was almost identical in both samples. **Figure 3** illustrates the observed mean responses and model fits for the IMM and WLC groups using the treatment completer sample.

COMMENT

This study evaluated the efficacy of MF-PEP for children with depressive and bipolar spectrum disorders. Results indicated that MF-PEP was associated with improvement in mood symptom severity compared with the WLC over a 1-year follow-up. In addition, IMM partici-

participants maintained their slope of mood symptom improvement through the 18-month assessment. When WLC participants received treatment after 12 months, they showed a similar pattern of improved mood symptoms. This trend approached but did not reach statistical significance. This may be owing to the limited follow-up period (6 months) for the WLC after starting treatment. Therefore, MF-PEP treatment effects may be cumulative, taking longer than 6 months to reach statistical and clinical significance as observed in the IMM group. To our knowledge, this is the first controlled trial of a psychosocial intervention for clinically identified mood diagnoses in children to demonstrate significant effects on mood symptoms over an 18-month follow-up. The improvement observed in the IMM group relative to WLC is likely to be clinically meaningful as a difference of 6.48 points on the MSI may represent a moderate reduction of several mood symptoms or a major reduction in a smaller number of symptoms.

Families were encouraged to continue receiving other psychosocial and pharmacological treatments throughout study participation. Families came from disparate regions and received varying degrees of care at study entry, although there were no significant group differences in overall treatment at baseline. In a separate examination of the data, we demonstrated that participating in MF-PEP significantly improved the quality of services used, mediated by parents' beliefs about treatment.²⁵ Participating in MF-PEP also significantly improved the severity of children's mood symptoms, mediated by quality of services used.²⁵ Thus, as it was originally designed to do, MF-PEP helps parents become better mental health consumers, and access to higher-quality services results in children's decreased symptom severity. This is particularly important to note given that this study did not control for medication management as other studies of psychoeducationally oriented interventions to date have done.^{7-10,13,14}

Treatment with MF-PEP is relatively brief, consisting of 8 consecutive weekly sessions. This brevity increases acceptability to families—89% of ITT families were classified as treatment completers (ie, attended ≥ 6 of 8 sessions). Although many treatment studies do not report treatment attendance figures, these results compare favorably with those of the Treatment for Adolescents With Depression Study, a well-known, highly controlled investigation in which approximately 82% of participants remained in their assigned treatment arm through 12 weeks of acute treatment.⁵⁰ There is potential for MF-PEP to be cost-effective since clinician time is maximized by having multiple participants in each session. As children with depression and bipolar disorder can attend MF-PEP, clinicians in moderate to large clinics should be able to find sufficient participants for a group.

The study sample consisted primarily of white boys and their families. While consistent with other studies of children with mood disorders in this age range,^{12-14,28,29} it is inconclusive whether these results generalize to girls and individuals from other ethnic and racial backgrounds. Most participants were referred from mental health treatment providers, but a substantial minority (38%) were self-referred through word of mouth and me-

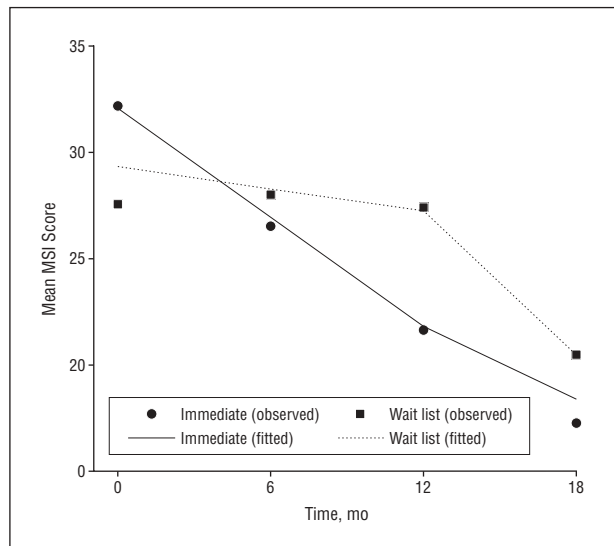


Figure 3. Mean Mood Severity Index (MSI) score by group in the treatment completers sample. Solid lines represent the linear mixed effects model; data points, the observed values. The immediate treatment group attended multifamily psychoeducational psychotherapy after the initial assessment, and the wait-list control group attended multifamily psychoeducational psychotherapy after the 12-month assessment.

dia coverage of the study. It is not known whether results would have been different with a sample of only clinically referred children. Relatively few exclusionary criteria were used to obtain a representative sample. Participants had multiple comorbidities and came from diverse family structures and incomes. Further research is necessary to determine whether MF-PEP will be effective in general outpatient clinical settings, but many characteristics of this sample (with the exception of race) reflect the heterogeneity of children with mood disorders who present for treatment.

Finally, this study used a WLC condition instead of a placebo control group. All participants continued to receive TAU throughout the study, allowing comparison of MF-PEP plus TAU vs TAU alone. However, this study cannot rule out the possibility that observed effects were exclusively due to attending a group with families experiencing similar problems rather than other specific treatment components. An active control group such as nonspecific or usual care as used by Goodyer et al³¹ would have addressed this limitation and may have produced different results. Future studies should investigate possible mediators of MF-PEP for children with mood disorders. Recent evidence suggests that family conflict and problem-solving style may moderate medication response in children with bipolar disorder⁵²; therefore, MF-PEP may lead to improvement by modifying ineffective family interactions. Secondary analyses of the current data set will allow investigation of specific effects of MF-PEP on children with depression and children with bipolar disorder.

Participants who dropped out of the study prior to completing MF-PEP had a different mood profile prior to dropout. Numerous WLC participants who dropped out before receiving MF-PEP experienced a significant decrease in mood symptoms in the 6 months following study entry. Because treatment referrals were provided to fami-

lies on request, it is possible that these families sought other treatment and did not desire MF-PEP 1 year later, so they discontinued participation. Parental psychopathology, which was associated with worse outcome in both the IMM and WLC groups, was negatively correlated with dropout in the WLC group. This suggests that children with higher-functioning parents had a higher probability of spontaneous recovery while on the MF-PEP wait list. These parents may have been more capable of seeking out effective treatment for their children during this period, then saw little need for adjunctive MF-PEP 1 year later. Parental psychopathology and the children's treatment history are important considerations when treating children with mood disorders and may moderate MF-PEP outcome. Further careful examination of parameters linked to early dropout will likely inform the investigation of moderators and mediators of MF-PEP treatment.

Treatment with MF-PEP is a promising intervention for children with mood disorders. Compared with children receiving TAU, children who received immediate MF-PEP showed reductions in mood disorder symptoms. The WLC group showed a nonsignificant trend in mood symptom reduction in the 6 months after receiving treatment. Clinicians who treat children can incorporate cognitive behavior and family systems components of MF-PEP into their practice. Researchers who investigate psychosocial interventions for mood disorders may consider comparing the relative efficacy of MF-PEP with that of other psychosocial interventions for children with depression and bipolar disorder as well as possible moderators and mediators of treatment.

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Correspondence: Mary A. Fristad, PhD, Division of Child and Adolescent Psychiatry, Department of Psychiatry, The Ohio State University, 1670 Upham Dr, Ste 460G, Columbus, OH 43210-1250 (mary.fristad@osumc.edu).

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