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## Randomized Controlled Trial of a Family Cognitive-Behavioral Preventive Intervention for Children of Depressed Parents

Bruce E. Compas<sup>1</sup>, Rex Forehand<sup>2</sup>, Gary Keller<sup>2</sup>, Jennifer E. Champion<sup>1</sup>, Aaron Rakow<sup>2</sup>, Kristen L. Reeslund<sup>1</sup>, Laura McKee<sup>2</sup>, Jessica M. Fear<sup>1</sup>, Christina J. M. Colletti<sup>2</sup>, Emily Hardcastle<sup>1</sup>, Mary Jane Merchant<sup>2</sup>, Lori Roberts<sup>2</sup>, Jennifer Potts<sup>1</sup>, Emily Garai<sup>2</sup>, Nicole Coffelt<sup>2</sup>, Erin Roland<sup>2</sup>, Sonya K. Sterba<sup>3</sup>, and David A. Cole<sup>1</sup>

<sup>1</sup> Department of Psychology and Human Development, Vanderbilt University

<sup>2</sup> Department of Psychology, University of Vermont

<sup>3</sup> Department of Psychology, University of North Carolina at Chapel Hill

### Abstract

A family cognitive-behavioral preventive intervention for parents with a history of depression and their 9–15-year-old children was compared with a self-study written information condition in a randomized clinical trial ( $n = 111$  families). Outcomes were assessed at postintervention (2 months), after completion of 4 monthly booster sessions (6 months), and at 12-month follow-up. Children were assessed by child reports on depressive symptoms, internalizing problems, and externalizing problems; by parent reports on internalizing and externalizing problems; and by child and parent reports on a standardized diagnostic interview. Parent depressive symptoms and parent episodes of major depression also were assessed. Evidence emerged for significant differences favoring the family group intervention on both child and parent outcomes; strongest effects for child outcomes were found at the 12-month assessment with medium effect sizes on most measures. Implications for the prevention of adverse outcomes in children of depressed parents are highlighted.

### Keywords

parental depression; children; prevention; family; cognitive-behavioral

Parental depression is a major risk factor for depression and other forms of psychopathology in children. School-age children and adolescents of parents who have experienced one or more episodes of major depressive disorder (MDD) have problems in multiple areas of functioning, including higher levels of internalizing and externalizing emotional/behavioral symptoms and higher rates of affective and nonaffective psychiatric diagnoses (e.g., Cummings & Davies, 1994; Goodman, 2007; Goodman & Tully, 2006). Offspring of parents with affective disorders are approximately 4 times more likely to develop a depressive disorder than are children of nondepressed parents (Weissman, Warner, Wickramaratne, Moreau, & Olfson, 1997). The increased risk in children of depressed parents makes interventions to prevent adverse outcomes in this population a significant public health priority.

A small but growing body of research suggests that the adverse effects of parents' depression can be reduced or prevented through psychosocial intervention (Beardslee & Gladstone, 2001; Collins & Dozois, 2008; Horowitz & Garber, 2006). Preventive interventions for

children of depressed parents vary on three dimensions. First, on the basis of criteria outlined by the Institute of Medicine (Mrazek & Haggerty, 1994), a number of programs are classified as *selective* interventions, as they focus on a group of children exposed to an identified risk factor (parents' depression). However, some preventive interventions with this population also meet criteria for *indicated* interventions, as they have targeted children and adolescents of depressed parents who show subsyndromal signs of disorder, such as elevated symptoms of depression (e.g., Clarke et al., 2001). Second, some interventions have involved families (depressed parents and their children; Beardslee et al., 1992), whereas other interventions have involved only children/adolescents who are at risk (Clarke et al., 2001). Third, some prevention programs with children of depressed parents have emphasized cognitive-behavioral methods (Clarke et al., 2001), whereas others have emphasized a family education approach (Beardslee et al., 1992).

In the first programmatic effort to intervene with depressed parents and their children, Beardslee et al. (1992) examined the effects of two selective family education preventive interventions. A clinician-based psychoeducational intervention was designed to educate parents and children about affective disorders and risk and resilience in children, relate this education to the family's experience, decrease children's self-blame about their parents' depression, and help children foster relationships and develop independent activities (Beardslee et al., 1992). This family intervention was compared with an information-focused intervention consisting of two lectures delivered to parents that addressed the same constructs as in the family intervention but without linking the educational material to individual families' experiences. These interventions were compared in a randomized trial with a sample of 105 families (132 children 8–15 years of age) of parents with current or past MDD at 2.5-year (Beardslee, Gladstone, Wright, & Cooper, 2003) and 4.5-year (Beardslee, Wright, Gladstone, & Forbes, 2007) follow-ups. The clinician-based intervention led to significantly greater increases in parent and child knowledge about depression, greater increases in communication within the family, and both parent and child reports of enhanced family functioning (Beardslee et al., 2003, 2007). Relative to baseline, children in both conditions reported significantly fewer internalizing symptoms (Cohen's  $d = 0.3$ ) on the Youth Self-Report (YSR; Achenbach & Rescorla, 2001) at 4.5 years (Beardslee et al., 2007), but internalizing symptoms did not differ between the two conditions. Comparisons between the two conditions were not reported on parents' reports of their children's internalizing or externalizing symptoms, children's self-reports of externalizing symptoms, parents' depressive symptoms, or parent or child diagnoses of mood disorders.

In a second approach to prevention with offspring of depressed parents, Clarke et al. (2001) tested a 16-session group cognitive-behavioral selective and indicated intervention that focused on cognitive restructuring, interpersonal problem-solving skills, and communication. This intervention was compared with a usual care condition in a randomized trial with adolescents ( $n = 94$ ; 13–18 years of age) whose parents were being treated for depression in a health maintenance organization and who had elevated but sub-threshold symptoms of MDD and a score of 24 or greater on the Center for Epidemiologic Studies–Depression Scale (CES-D; Radloff, 1977). Adolescents in the intervention reported significantly fewer symptoms of depression on the CES-D at postintervention ( $d = 0.41$ ) and 12-month follow-up ( $d = 0.47$ ). Further, adolescents in the cognitive-behavioral intervention had a significantly lower rate of MDD at the 12-month follow-up (9.3%) compared with the control group (28.8%); no differences were found for nonaffective diagnoses. Significant differences were not found between the intervention and control groups on parents' reports of adolescents' internalizing or externalizing symptoms on the Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001).

The interventions of Beardslee et al. (2007) and Clarke et al. (2001) differ in their emphasis on intervening with families versus children and on the provision of information/education versus teaching cognitive and behavioral skills. As a next step in building on these two approaches, in the current study we examined a family-based intervention that provides information/education and teaches cognitive-behavioral skills to both depressed parents and their children in a small family-group format. The intervention is based on evidence regarding two factors related to the effects of parents' depression on their children: stressful parent-child interactions that are the result of the symptoms of parents' depression, and the ways that children respond to and cope with these stressful interactions. These processes were selected because research has demonstrated that they are important influences on emotional and behavioral problems in children of depressed parents and are potentially malleable through psychological intervention (Compas, Keller, & Forehand, in press).

Depression leads to disruptions in parenting as a result of parental withdrawal (e.g., social withdrawal, avoidance, unresponsiveness to their children's needs) and parental intrusiveness (e.g., irritability toward their children, over involvement in their children's lives); exposure to these types of parental behaviors contributes to a chronically stressful environment for children (e.g., Adrian & Hammen, 1993; Cummings, DeArth-Pendley, Du-Rocher-Schudlich, & Smith, 2001; Lovejoy, Graczyk, O'Hare, & Neuman, 2000). Parental withdrawal and intrusiveness are significant mediators of the association between parental depressive symptoms and adolescents' internalizing and externalizing symptoms (e.g., Jaser et al., 2005, 2007, 2008). Further, negative parenting persists even after controlling for parents' current depressive status, suggesting that depressed parents continue to demonstrate intrusive and withdrawn behavior even when out of episode (Seifer, Dickstein, Sameroff, Magee, & Hayden, 2001). Negative parenting may also occur in response to children's behavioral problems, resulting in a vicious cycle. On the basis of a meta-analysis of this literature, Lovejoy et al. (2000) argued that the "findings support the need for intervention with depressed mothers, as their parenting behaviors are a component of the risk associated with living with a depressed mother" (p. 588). More recently, both Horowitz and Garber (2006) and Collins and Dozois (2008) have raised a similar argument for parental involvement in programs designed to prevent depression in children and adolescents.

The way that children cope with stress associated with parental withdrawal and intrusiveness is also a significant predictor of children's symptoms of anxiety/depression and aggressive behavior (Jaser et al., 2005, 2007, 2008; Langrock, Compas, Keller, Merchant, & Copeland, 2002). Specifically, children's use of secondary control coping (i.e., cognitive restructuring, positive thinking, acceptance, distraction) correlates with lower symptoms of anxiety/depression and aggressive behavior problems and also partially accounts for the relation between parent-child interaction stress (parental withdrawal and intrusiveness) and children's anxiety/depression (e.g., Jaser et al., 2005). Secondary control coping strategies are most adaptive in response to uncontrollable stress (Compas, 2009), making these strategies an effective way for children to cope with the stress associated with parental depression.

Building on this evidence, we developed and piloted a family cognitive-behavioral intervention for parents with either a history of or current depression and their children. The intervention is delivered to small groups of families (four families per group) and includes components to enhance effective parenting in mothers and fathers with depression and to improve the coping skills of children and adolescents (Compas et al., in press; Compas, Langrock, Keller, Merchant, & Copeland, 2002). The parenting arm of the intervention teaches parents to provide warmth (e.g., spending positive time with children, giving praise) and structure (e.g., clear rules and consequences for positive and negative behavior) in their interactions with their children. Enhancing parenting skills may not only reduce risk for children of depressed parents but may also exert beneficial effects for parents' mental health (e.g., as a form of behavioral

activation). The second arm of the intervention teaches children and adolescents how to use secondary control coping skills to manage the stress associated with their parents' depression. An open trial with 34 families found significant reductions from pre- to postintervention for parents' reports of adolescents' internalizing and externalizing symptoms on the CBCL and a significant decrease in parents' depressive symptoms (Compas et al., in press).

The present study involved a randomized controlled trial to test the efficacy of this family group cognitive-behavioral preventive intervention as compared with the provision of written information for self-study to parents and children about depression and its effects on families.<sup>1</sup> Both mothers and fathers with a history of depression were included, as similar negative outcomes on offspring have been documented, suggesting that the impact of depression in both mothers and fathers on children's mental health is important to consider (Connell & Goodman, 2002; Kane & Garber, 2004). Data were collected at baseline, 2 months (after the completion of the eight-session intervention), 6 months (after completion of four booster sessions), and 12 months after entry into the study. We included measures of 9–15-year-old children's symptoms (CES-D, YSR, and CBCL) and diagnoses that were used by Beardslee et al. (2003, 2007) or Clarke et al. (2001) to allow for direct comparison with these studies. We examined outcomes from both child and parent perspectives focused on internalizing problems of children at three levels: depressive symptoms and depression diagnoses, mixed anxiety/depressive symptoms and anxiety diagnoses, and broadband internalizing problems. We also examined broadband externalizing problems and diagnoses of disruptive behavior disorders. Finally, we examined parents' depressive symptoms and depression diagnoses. We hypothesized that compared with the written information comparison condition, the family group intervention would lead to significantly (a) lower child depressive symptoms and depression diagnoses, (b) lower child anxiety/depression symptoms and diagnoses, (c) lower child internalizing symptoms and externalizing symptoms and diagnoses, as well as (d) lower parent depressive symptoms and reduced likelihood of MDD recurrence. We expected differences between groups to emerge primarily at 6 and 12 months after baseline because of the additional opportunities for parenting skills and children's coping skills to develop during the booster sessions and to be used subsequently.

## Method

### Participants

Participants included 111 parents with current or past MDD during the lifetime of their child (ren) and 155 children of these parents from the areas in and surrounding Nashville, Tennessee, and Burlington, Vermont. Target parents with a positive history of depression included 95 mothers (mean age = 41.2, *SD* = 6.8) and 16 fathers (mean age = 48.3, *SD* = 8.2). Parents' level of education included less than high school (7.2%), completion of high school (8.1%), some college (31.5%), college degree (27%), and graduate education (26.1%). Of the target parents, 86% were Euro American, 5.8% were African American, 2.7% were Hispanic American, 1% were Asian American, 1% were Native American, and 3.9% were mixed ethnicity. The racial and ethnic compositions of the samples were representative of the regions in Tennessee and Vermont from which they were drawn on the basis of U.S. Census Bureau (2000) data. Annual family income ranged from less than \$5,000 to more than \$180,000, with a median annual income of \$40,000. Of the parents, 64% were married, 21.6% were divorced, 3.6% were separated, 9.0% had never married, and 1.6% were widowed. Families randomized to the cognitive-behavioral and written information conditions did not differ significantly on any of these demographic variables (see Table 1).

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<sup>1</sup> None of the families enrolled in the current randomized trial participated in the previous open trial.

Children enrolled in the study ranged from 9 to 15 years of age and included 70 girls (mean age = 11.5,  $SD = 2.0$ ) and 85 boys (mean age = 11.3,  $SD = 2.0$ ). Of the children, 79% were Euro American, 7.7% were African American, 3.2% were Asian American, 1.3% were Hispanic American, and 7.7% were mixed ethnicity. We targeted the age range of 9–15 years to intervene with children/adolescents before the documented increase in rates of depression that occurs in early-to-mid adolescence (e.g., Hankin et al., 1998) and to include children who were old enough to learn the relatively complex cognitive coping skills taught in the intervention. Seventy-one families had only one child in the age range, 37 families had two participating children, two families had three participating children, and one family had four participating children. Multiple children from families were included because a portion of the intervention focused on parent–child and family interactions and relationships, and it would have been problematic to exclude some children from a family who were within our target age range while including others.

### Setting and Personnel

All study procedures were approved by the Institutional Review Boards at Vanderbilt University and the University of Vermont. All assessments and group intervention sessions were conducted in the Department of Psychology and Human Development at Vanderbilt University and at the Psychology Department at the University of Vermont. Doctoral candidates in clinical psychology, who were blind to condition, conducted the structured diagnostic interviews after receiving extensive training. Each group intervention was cofacilitated by one of three clinical social workers and one of nine doctoral-level students in clinical psychology. Facilitators were trained by reading the intervention manual, listening to audiotapes of a pilot intervention, and discussing and role-playing each session with an experienced facilitator. Ongoing supervision was conducted by two doctoral-level clinical psychologists.

### Measures

**Children's depressive symptoms**—Depressive symptoms were assessed with the CES-D (Radloff, 1977), a self-report measure of the frequency of 20 depressive symptoms over the past week that uses a 4-point Likert scale. The CES-D is short and easy to read, has been successfully administered in several large school samples (e.g., Fendrich, Weissman, Warner, & Mufson, 1990; Lewinsohn, Rohde, Seeley, & Hops, 1991), and has good psychometrics ( $\alpha = .89$ ; test–retest reliability = .61; sensitivity of 83.7 and specificity of 75.2 predicting current MDD) with youths (R. E. Roberts, Lewinsohn, & Seeley, 1991). Internal consistency in the current sample was  $\alpha = .90$ . The CES-D was used by Clarke et al. (2001) as a primary outcome in their prevention trial, and its use in the current study allows for direct comparison of findings from this earlier study.

**Children's internalizing and externalizing symptoms**—The CBCL (Achenbach & Rescorla, 2001) was used to assess symptoms of anxiety/depression (as a measure of general emotional distress) and total internalizing and externalizing problems in children and adolescents. These scales were selected to represent the range of problems that have been identified in children of depressed parents and to match the scales reported by Clarke et al. (2001) or Beardslee et al. (2007). The CBCL includes a 118-item checklist of problem behaviors that parents rate as *not true* (0), *somewhat or sometimes true* (1), or *very true or often true* (2) of their child in the past 6 months. Adolescents completed the YSR (Achenbach & Rescorla, 2001), the self-report version of the CBCL for adolescents 11–18 years of age. Reliability and validity of the CBCL and YSR are well established (Achenbach & Rescorla, 2001). Internal consistency for the scales used in this study ranged from  $\alpha = .84$  to  $\alpha = .94$  for the CBCL and from  $\alpha = .84$  to  $\alpha = .90$  for the YSR. Test–retest reliability ranged from  $r = .82$  to  $r = .91$  for the CBCL and from  $r = .74$  to  $r = .89$  for the YSR. Internal consistency in the

current sample ranged from  $\alpha = .78$  to  $\alpha = .91$  for the scales used in this study. Children who were 9 or 10 years of age completed the YSR to allow for complete data on all measures. The internal consistency for the YSR scales was adequate with this younger age group in the current sample (all  $\alpha$ s  $\geq .80$ ). Raw scores on the CBCL and YSR scores were used in all analyses to maximize variance (i.e., some variability is lost when the raw scores are converted to *T* scores).

**Child diagnostic interview**—The Schedule for Affective Disorders and Schizophrenia for School-Age Children- Present and Lifetime Version (K-SADS-PL; Kaufman et al., 1997) is a reliable and valid semistructured interview that generates *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) Axis I child psychiatric diagnoses. Separate interviews were conducted with parents and children and were combined to yield both current and lifetime psychiatric diagnoses. Diagnoses that were assessed included MDD, dysthymia, bipolar I disorder, bipolar II disorder, panic disorder, separation anxiety disorder, social phobia, agoraphobia, generalized anxiety disorder, oppositional defiant disorder, conduct disorder, alcohol abuse, alcohol dependence, substance abuse, and substance dependence. Interrater reliability for diagnoses of MDD, calculated on a randomly selected subset of these interviews, indicated 96% agreement ( $\kappa = .76$ ).

**Parental depressive symptoms**—Parents' current depressive symptoms were assessed with the Beck Depression Inventory–II (BDI-II), a standardized and widely used self-report checklist of depressive symptoms with adequate internal consistency ( $\alpha = .91$ ) and validity in distinguishing severity of MDD (Beck, Steer, Ball, & Ranieri, 1996; Steer, Brown, Beck, & Sanderson, 2001). Internal consistency in the current sample was  $\alpha = .93$ .

**Parental diagnostic interview**—Parents' past and current history of MDD was assessed and other Axis I disorders were screened with the Structured Clinical Interview for *DSM* (SCID; First, Spitzer, Gibbon, & Williams, 2001), a semistructured diagnostic interview used to assess current and previous episodes of psychopathology according to *DSM-IV* criteria (American Psychiatric Association, 1994). Interrater reliability, calculated on a randomly selected subset of these interviews, indicated 93% agreement ( $\kappa = .71$ ) for diagnoses of MDD.

## Procedures

Figure 1 depicts the screening and enrollment process. To enroll a broadly representative sample of parents with past or current depression regardless of their history of seeking or receiving treatment, we recruited the sample from several sources, including mental health clinics/practices, family and general medical practices, and media outlets. A total of 574 parents contacted the research teams. These individuals learned of the study from the following sources: 31% ( $n = 177$ ) from mental health care settings (e.g., community mental health centers, outpatient psychiatry clinics), 9% ( $n = 54$ ) from general medical practices, and 53% ( $n = 302$ ) from media and public settings (e.g., newspapers, magazines, employee e-mails); 7% ( $n = 41$ ) of contacts could not recall how they learned about the study.

As shown in Figure 1, 309 of the 574 parents who contacted the research team were eligible and available to be screened (i.e., 46% of families who made initial contact with the research team were either unable to be contacted, declined to be screened, or did not meet basic eligibility criteria). The 309 parents were initially screened by telephone and moved to the next stage if the parent met criteria for major depression either currently or during the lifetime of her/his child(ren) and if the following criteria were met: (a) parent had no history of bipolar I, schizophrenia, or schizoaffective disorders; (b) children had no history of autism spectrum disorders, mental retardation, bipolar I disorder, or schizophrenia disorder; and (c) children did not currently meet criteria for conduct disorder or substance/alcohol abuse or dependence. Forty-one families (14.7%) of those who were screened did not have a parent with a history of

depression, and 23 parents (7.5%) had a history of bipolar I disorder. Finally, 34 families (13% of those screened) had a child with a disorder that could not be accommodated in the family group intervention format. Therefore, the eligible families may underrepresent families of depressed parents whose children have developmental disorders or conduct disorder and families with parents with bipolar I disorder.

In addition, eligible families were deferred for later reassessment if a parent was currently suicidal with a Global Assessment of Functioning score  $\leq 50$  on the SCID, if a parent had current alcohol/substance abuse or dependence with a Global Assessment of Functioning  $\leq 50$ , or if one of the target children had current MDD ( $n = 24$ ). Such families were deemed unsuitable for the intervention at the current time and were assisted in obtaining appropriate mental health services in the community. Deferred families were re-screened every 2 months (if deferred for suicidality or child depression) or every 6 months (if deferred for alcohol or drug problems) until they screened eligible and could be invited to the next stage of recruitment.

The 182 parents who screened eligible were invited to participate with their child(ren) in an in-person baseline interview to confirm their eligibility. Despite repeated contacts, 48 families never completed the baseline interview. Of those completing the interview, 111 met criteria for the study and were randomized in blocks of eight families to the family cognitive-behavioral intervention (56 families with 80 children) or to the written information condition (55 families with 75 children). The order of randomization was determined by a random number generator, and the assignment order was kept in a series of sealed envelopes that were opened by research assistants who were blind to assignment until the envelopes were opened for each family. Of the 111 families who were randomized, 64% ( $n = 71$ ) learned about the study from media and public settings, 27% ( $n = 30$ ) learned about the study from mental health settings, 5% ( $n = 6$ ) learned about the study from general medical practices, and 4% ( $n = 4$ ) could not recall how they learned of the study.

**Retention rates**—As shown in Figure 1, 85.6% of the families were retained in the study through the 12-month follow-up (82% of families assigned to the intervention and 89% of the comparison group), as defined by the provision of data for at least one follow-up data collection.

## Intervention and Control Conditions

**Family group intervention**—The family cognitive-behavioral intervention is a manualized 12-session program (eight weekly and four monthly sessions) for up to four families in each group (Compas et al., in press). The program is designed for participation by both parents and children. Goals are to educate families about depressive disorders, increase family awareness of the impact of stress and depression on functioning, help families recognize and monitor stress, facilitate the development of adaptive coping responses to stress, and improve parenting skills.

During Sessions 1–3, parents and children meet together with the two facilitators to learn about depression in families and to receive an overview of skills for coping with depression. During Sessions 4–8, parents and children meet together with the two facilitators briefly at the beginning and end of each session to discuss homework and practice skills. Parents and children meet separately for the majority of the time during each of these sessions, with parents learning parenting skills (i.e., praise, positive time with children, encouragement of child use of coping skills, structure, and consequences for positive and problematic child behavior) from one facilitator, and with children learning skills for coping with their parent's depression from the other facilitator. The core coping skills are summarized by the acronym ADAPT: Acceptance, Distraction, Activities, and Positive Thinking. During Sessions 1–8, skills are taught through didactic instruction, viewing a videotape, modeling, role-playing, and homework assignments.

The skills and teaching procedures are based on previous research on effective parenting skills and coping skills (e.g., Jaser et al., 2005; McMahon & Forehand, 2003).

Booster Sessions 9–12 (which are monthly) are designed to problem solve difficulties with implementation of parenting and child coping skills at home, provide additional practice of skills, support positive changes that have occurred, and assign new homework to reinforce the use of these skills. Parents and children meet together part of the time and separately part of the time during these sessions.

**Treatment integrity**—A detailed list of the content of each group intervention session was developed from the manual. Five individuals not involved in delivery of the intervention were trained to code for presence versus absence of each content area or strategy of the intervention for each session. Intervention sessions were audio-recorded, and 23% were randomly selected for fidelity coding. The ratio of number of checklist items covered during the sessions relative to the number of items that should have been covered was 92%. Reliability across coders was calculated for 31% of the sessions that were coded and yielded 93% agreement.

**Written information self-study condition**—The comparison condition was modeled after a self-study program used successfully by Wolchik et al. (2000) in their preventive intervention trial for families coping with parental divorce and the lecture information condition used by Beardslee et al. (2007). Families were mailed written materials to provide education about the nature of depression, the effects of parental depression on families, and the signs of depression in children. Separate materials were developed for parents and children. Materials for children were based on age, with children 9–11 years of age receiving materials written at a lower reading level than for adolescents 12–15 years of age. Following the method used by Wolchik et al., materials were sent in three sets over an 8-week interval to correspond with the first eight sessions in the group intervention. Families were provided with a schedule for reading these materials. Research assistants checked with the families to ensure that they received the materials through the mail.

## Data Analytic Approach

**Analyses of symptom measures: Multivariate mixed-effects model**—Most statistical approaches assume that subjects are independent of one another. In the study of interventions delivered in a group format, however, participants assigned to the intervention condition are nested within group. Participants in the same intervention group communicate with each other and may be treated more similarly to each other compared with participants in different treatment groups. Such inevitable processes jeopardize the assumption of statistical independence. Baldwin, Murray, and Shadish (2005) highlighted the need to account for the within group dependency that likely exists in studies of group administered interventions, noting that failure to do so can substantially affect Type I error rates. Typical approaches involve participants nested within group in both the intervention condition and the comparison condition. The current design is more complicated, however, in that participants are nested within group only within the intervention condition; there is no such nesting in the comparison condition.

Recently, mixed-effects models have been developed for the analysis of treatment effects in the context of *partially nested* designs (Bauer, Sterba, & Halfors, 2008; see also Lee & Thompson, 2005; C. Roberts & Roberts, 2005). We followed Bauer al.'s (2008) recommendations, as they provide methods for obtaining unbiased standard errors and appropriate degrees of freedom (*dfs*). Specifically, for each of our outcome variables, we implemented a *multivariate, mixed-effects model* to test the effect of condition (intervention vs. comparison) at Time 2, Time 3, and Time 4. We treated our Time 1 (baseline) measure of

the outcome as a global covariate. Within the intervention arm of the study, each set of participants was nested within one of 14 intervention groups. Within the comparison arm, there was no such nesting.

More specifically, we used SAS PROC MIXED. In this approach, fixed effects included our Time Points 1–4 intercepts and our baseline covariate at Time Points 2–4. Condition was a random effect at Time Points 1–4, which allowed intervention means at each time point to vary across intervention group. This amounted to estimating a (between-groups) random effect variance for intervention at each of the four time points and estimating one (within-group) residual variance. Within the PROC MIXED procedure, we used restricted maximum likelihood estimation (i.e. method = REML), as it typically provides less biased estimates of the variance components when the number of groups is small. We also stipulated  $ddfm = kr$ , which requests the computation of standard errors using Kacker and Harville's (1984) approximation and the computation of  $dfs$  using Kenward and Rogers's (1997) method, as recommended by Bauer et al. (2008) because of the complex covariance structure.

We began by comparing the variances of the residuals using model comparison approach. In Model 1, the between-groups variance was allowed to be heterogeneous over time and condition for the intervention arm; however, the within-group or residual variance was constrained to be homogeneous across time and condition. In Model 2, the across-time constraint was relaxed on the within-group variances, such that they were allowed to be heterogeneous across time but remained homogeneous across condition. In Model 3, the across-condition constraint on the within group variances was also relaxed, such that the within-group variances were allowed to be heterogeneous across both time and condition. Each model generated a fit index ( $-2 \times \log$  likelihood). For nested models, the ratio of these indices is distributed as a chi-square with  $dfs$  equal to the difference in  $df$  for the two models being compared. For every outcome variable, the Model 1 versus Model 2 comparison ( $df = 3$ ) was significant  $p < .01$ , indicating residual variance heterogeneity across time for all variables. For six of the eight outcomes, the Model 2 versus Model 3 comparison with  $df = 4$  was significant ( $p < .01$ ), indicating residual variance heterogeneity across conditions for all variables except the CBCL internalizing and CES-D scales. Intervention and comparison residual variance estimates were comparable at baseline. Over time the residual variances tended to decrease in both groups—more rapidly in the intervention condition than in the comparison condition. Given this overall general pattern of heteroscedasticity, we elected to take the more conservative approach and to use Model 3 to test the effects of condition on each of the outcome variable at Times 2, 3, and 4, controlling for Time 1.

**Analyses of diagnostic measures**—We analyzed categorical outcomes (*DSM-IV* diagnoses on the K-SADS-PL and SCID) using chi-square, odds ratio (odds of a diagnosis in the comparison group relative to the odds of a diagnosis in the intervention group), and incidence rate ratio analyses (the incidence rate of diagnoses in the intervention group relative to the rate in comparison group; Cuijpers, van Straten, Smit, Mihalopoulos, & Beekman, 2008).

## Results

### Preliminary Analyses

Several preliminary analyses were conducted prior to mixed-effects models analyses to test the primary hypotheses. First, for those families randomized to the family group intervention, the number of group sessions attended or made up after an absence by at least one family member ranged from 0 to 12, with a mean of 7.9 sessions. For those who attended at least one session, the mean number of sessions attended or made up after an absence was 10.5 sessions.

Second, we compared families assigned to the intervention condition and to the comparison condition on several variables at baseline. The percentage of parents currently in an episode of MDD was comparable for the two conditions (20% of parents in the intervention and 29% of parents in the comparison condition; chi-square nonsignificant). The percentage of children exceeding the clinical cutoff of 16 on the CES-D was also comparable for the two conditions (30% of those assigned to the intervention and 24% of those assigned to the comparison condition; chi-square nonsignificant). The percentage of children without a prior history of MDD was also comparable (87% of those in the intervention and 77% of those in the comparison condition; chi-square nonsignificant).

Third, intraclass correlations (ICCs) were calculated to test the independence versus nonindependence of children from the same families. ICCs were calculated to ensure that there were no significant differences as a function of parents completing a set of questionnaires on multiple children (a possible violation of independence of informant) and for children from the same family completing the YSR and the CES-D. We conducted seven two-way mixed effect models on each of our critical variables assessed with the CBCL and YSR (internalizing symptoms, externalizing symptoms, and symptoms of anxiety/depression) and the CES-D to test the average ICCs (Shrout & Fleiss, 1979). A significant *F* statistic would indicate that the magnitude of associations between scores within a family was significantly different from the magnitude of associations across different families, suggesting that the source of the information was not independent. The ICCs were nonsignificant and very small in magnitude for the YSR anxiety/depression, internalizing, and externalizing scales; the CES-D; and the CBCL anxiety/depression and internalizing scales (correlations ranged from  $r = .04$  to  $r = .09$ , all  $ps > .10$ ). The only significant correlation was found for the CBCL externalizing scale ( $r = .42$ ,  $p < .01$ ). Given the independence of the data on multiple indices (i.e., there were no differences on six of the seven variables), multiple children within a family were treated as individual units for analyses to ensure sufficient power to detect moderate size effects. However, because the ICC was significant for the CBCL externalizing scale, we reanalyzed the effects of the intervention on this variable using a sample of children that included only one child randomly selected from those families with multiple children.

Fourth, because not all parents and children provided complete data at all four time points, a variable reflecting pattern of missing data was derived, and participants assigned to the family group intervention and the written information comparison condition were compared on this variable. To determine whether missing data occurred at random, we classified participants on the basis of patterns of missing data (i.e., participants were classified as missing data at either none, one, two, or three of the follow-up assessments), and we compared participants in analyses of variance on baseline demographic and clinical measures. Patterns of missing data did not differ between families assigned to the family group intervention condition versus the written information condition.

Fifth, *T* scores on the YSR and CBCL scales at baseline were examined to provide a normative reference point for our sample (Achenbach & Rescorla, 2001). Mean *T* scores on the YSR and CBCL were, respectively, 55.9 and 59.2 for anxiety/depression, 54.0 and 58.4 for internalizing, and 49.1 and 53.6 for externalizing. The percentage of children in the clinical range on anxiety/depression (i.e., *T* score  $> 70$ ) was 6.8% on the YSR and 13.4% on the CBCL (on the basis of normative data, 2% would be expected to exceed this cutoff). The percentage in the clinical range on the internalizing scale was 22.3% on the YSR and 39.6% on the CBCL; for the externalizing scale, 10.4% on the YSR and 19.5% on the CBCL (10% would be expected to exceed this cutoff on the basis of normative data). These data indicate that, as expected, this is a high-risk sample as reflected by moderately elevated mean *T* scores and the portion of the sample in the clinical range for various indicators of internalizing problems (2–4 times greater than would be expected on the basis of the norms for most scales).

## Analyses of Intervention Effects: Child Outcomes

Table 2 presents the Type III fixed effects of intercept, condition, and the Time 1 covariate on each outcome variable at 2, 6, and 12 months. As expected, the effect of condition at baseline was nonsignificant for every dependent variable, reflecting the success of our randomization. Also as expected, the baseline covariate was a significant predictor of the outcome at 2, 6, and 12 months in every analysis. The tests of primary interest were the main effects of condition on each 2-, 6-, and 12-month outcome variable, controlling for the baseline measure of the same outcome. The findings, delineated in detail below, indicate that by the 12-month follow-up after entry into the study, the family group intervention was more effective than the written information condition on the basis of all measures of child reported internalizing problems, and marginal effects were found on the measure of parent reported externalizing problems at 6 months and child reported externalizing problems at 12 months. Although we hypothesized that effects would reflect lower symptom scores in the intervention condition than in the comparison condition, to be conservative in our determination of statistical significance, all tests reported in Tables 2 and 3 are two-tailed.

Table 3 provides means for all of the continuous child outcome variables at baseline and each of the three follow-up assessments, the significance of the effect of the intervention on the dependent variable at each time point, and the effect size (Cohen's *d*). The intervention group and comparison group means for all outcome measures are depicted graphically in the various panels of Figure 2.

**Child depressive and internalizing symptoms**—We assessed three levels of internalizing problems: child reported depressive symptoms (CES-D), child and parent reported anxiety/depression symptoms (YSR and CBCL syndrome scale), and child and parent reported internalizing problems (YSR and CBCL broadband scale; see Tables 2 and 3 and Figure 2). For the CES-D, the main effect of condition was nonsignificant at 2 and 6 months but emerged as significant at 12 months. For anxiety/depression symptoms, the main effect of condition was significant for the YSR at 2, 6, and 12 months. In contrast, there were no significant effects for condition at any time point on the CBCL anxiety/depression scale. In analyses of the YSR internalizing scale, there was a marginal effect for condition at 2 and 6 months and a significant effect at 12 months. No significant effects were found on the CBCL internalizing scale.

The statistically significant effects of the intervention on child reports at all three levels of assessment of depressive and internalizing symptoms yielded effect sizes that were small to medium in magnitude (CES-D,  $d = 0.42$  at 12 months; YSR anxiety/depression,  $d = 0.37$  at 2 months,  $d = 0.49$  at 6 months, and  $d = 0.50$  at 12 months; YSR internalizing,  $d = 0.57$  at 12 months; see Table 3).

**Child externalizing problems**—Externalizing problem behaviors were assessed by parent and child reports at a broadband level (YSR and CBCL externalizing problems; see Tables 2 and 3 and Figure 2). For externalizing problems on the YSR, there were no significant effects for condition; however, the effect at 12 months approached significance ( $p = .067$ ,  $d = 0.31$ ). On the CBCL, there were no significant condition effects on externalizing problems; however, the effect approached significance at 6 months ( $p = .094$ ,  $d = 0.37$ ). It is noteworthy that on the basis of one-tailed tests that reflect the hypothesized direction of effects (i.e., that the intervention condition would result in lower scores than the comparison condition), the effects for condition on externalizing problems would be significant ( $p < .05$ ) at 12 months on the YSR and at 6 months on the CBCL. As noted above, because the ICC was significant for the CBCL externalizing scale, we reanalyzed the effects of the intervention on this variable using a sample of children ( $n = 111$ ) that included one child randomly selected from those families

with multiple children. The effect at 6 months retained the same effect size ( $d = 0.37$ ) as with the full sample.

**Child DSM-IV diagnoses**—Table 4 presents the results of dichotomous child outcomes (first two columns): depression diagnosis and occurrence of any *DSM-IV* disorder. Odds ratios, chi-square analyses, and relative incidence rate ratios (number of cases of disorder divided by number of person-years during follow-up period for the intervention group relative to the written information group; Cuijpers et al., 2008) were utilized to analyze each of these outcomes. Cuijpers et al. (2008) define person-years as the number of persons (participants) in the sample multiplied by the number of years included in the follow-up period (in this case, 1 year).

Child diagnoses of depression and presence of any diagnosis were assessed on the K-SADS-PL at baseline, 6 months, and 12 months (see Table 4). Child and parent completion of the K-SADS-PL at the latter two time points were combined to determine the number of children who met criteria for an episode of depression and for any *DSM-IV* disorder during the baseline to 12-month follow-up period. On the basis of parent and child interviews, the percentage of children in the written information group (20.8%) and the family intervention group (8.9%) experiencing an episode of depression since baseline resulted in an odds ratio of 2.68, 95% CI [0.86, 8.29], and the chi-square approached significance,  $\chi^2(3) = 3.04$ ,  $p = .070$ . Similarly, a higher percentage of children in the written information condition met criteria for any *DSM-IV* disorder (41.5%) than children in the family group intervention (25%) since baseline, with an odds ratio of 2.13, 95% CI [0.94, 4.22], and  $\chi^2(3) = 3.35$ ,  $p = .052$ . The incidence rate ratios were .43 for MDD and .60 for any disorder.

### Analyses of Intervention Effects: Parent Outcomes

**Parent depressive symptoms**—The last outcome measure included in Tables 2 and 3 and Figure 2 reports data on parent depressive symptoms according to self-report on the BDI-II. The effect for condition was significant at all three time points, with small-to-medium effects favoring the intervention condition over the comparison condition (2 months,  $p = .005$ ,  $d = 0.49$ ; 6 months,  $p = .043$ ,  $d = 0.32$ ; 12 months,  $p = .016$ ,  $d = 0.26$ ).

**Parent DSM-IV MDD diagnoses**—The last column in Table 4 presents the outcome data for parent diagnosis of MDD on the SCID from baseline to 12 months. The percentage of parents in the written information comparison group (56.3%) and in the family intervention group (40%) experiencing an episode of depression since baseline did not differ significantly,  $\chi^2(3) = 1.75$ ,  $p = .23$ , with an odds ratio of 1.94, 95% CI [0.73, 5.09]. The relative incidence rate ratio was .71.

### Discussion

This study provides the first test of the efficacy of a family group cognitive-behavioral preventive intervention for children of depressed parents. Our findings indicate that relative to the provision of written information about depression to parents and children, the family group intervention produced significant benefits in children's depressive symptoms, anxiety/depressive symptoms, and internalizing symptoms, and marginally significant effects on externalizing symptoms, particularly at 12 months after the initiation of the intervention. The findings for children's diagnoses, either depression or any *DSM-IV* disorder, suggest a similar trend at 12 months. In addition to child outcomes, parent depressive symptoms differed between the two conditions at the 2-, 6-, and 12-month assessments. These findings support recent calls for the involvement of parents in interventions for children of depressed parents (Collins & Dozois, 2008; Compas et al., 2002; Horowitz & Garber, 2006).

The family group intervention tested in the current study builds on the seminal work of Beardslee et al. (2003, 2007) and Clarke et al. (2001), who provided the first evidence for the efficacy of preventive interventions for children of depressed parents. The current study compares favorably with these two previous studies in sample characteristics, the breadth of measures or indicators of outcomes, and the magnitude of effects. Specifically, we found significant or marginally significant effects favoring the family intervention on all of the symptom measures used by Beardslee et al. or Clarke et al. (i.e., the CES-D, YSR, and CBCL), and the significant effect sizes in the current study (*ds* ranged from 0.37 to 0.57) were comparable with or greater than those found in these previous studies. Prior studies did not identify significant effects on parent reports on the CBCL. The current findings approached significance using two-tailed tests (and reached significance on the basis of one-tailed tests) for parents' reports of children's externalizing but not for internalizing problems; in contrast, findings for children's self-reports were generally stronger for internalizing than externalizing problems. This pattern is consistent with research showing that parents may be more sensitive reporters of externalizing problems and children more sensitive reporters of internalizing problems (e.g., Comer & Kendall, 2004). By contrast, the current intervention was associated with a marginally significant intervention effect on the CBCL externalizing scale at 6 months.

Analyses of rates of *DSM-IV* diagnoses from baseline to 12 months also provided some evidence in support of the efficacy of the family cognitive-behavioral intervention. The odds ratios for the comparison of rates of any *DSM-IV* diagnosis for children during the 12-month study indicated that the odds of a diagnosis for children in the written information condition were more than twice the odds for those in the intervention. Further, the incidence rate ratio for diagnoses in the family group intervention relative to the rate of diagnoses in the written information group (.43 for MDD and .60 for any diagnosis) were lower than the relative rates for depression prevention programs (.76) reviewed by Cuijpers et al. (2008). Finally, previous studies have not examined the effects of preventive interventions for children or families on parents' depressive symptoms or disorders as a result of preventive interventions with families of depressed parents.

The largest effects for the family group intervention were found at 12 months as evidenced by larger effect sizes (mean *d* = 0.36) on measures of children's internalizing and externalizing symptoms at this time point as compared with mean *ds* of 0.31 at 6 months and 0.21 at 2 months. This suggests that the effects of the intervention are not limited to those experienced immediately upon termination of the group sessions, and some effects appear to strengthen over time. One possible reason for the relatively strong effects at the 12-month follow-up is that sufficient time has elapsed for parents and children in the family intervention to practice and utilize the skills that are taught in the sessions. Subsequent analyses will examine possible changes in parenting skills and children's coping as mediators of the effects of the family intervention on the course of children's symptoms and disorders.

It is noteworthy that the pattern of findings on the symptom measures generally suggests a treatment rather than a true prevention effect. That is, symptoms decreased over time for the family group intervention participants but remained relatively stable (or declined slightly) for those in the written information condition. By contrast, a prevention effect would be reflected in stable or declining scores for the intervention group and increasing symptoms for the comparison condition. The current findings are consistent with findings from a review of over 30 studies of preventive interventions for child/adolescent depression and depressive symptoms in which evidence of prevention effects was found in only four studies (Horowitz & Garber, 2006). In the current study, this may be due in part to the provision of information about depression and its effects for families assigned to the comparison condition. Similar to the findings reported by Beardslee et al. (2003, 2007) for the provision of information in a lecture format, the information condition in the current study may have conveyed some benefit

beyond usual care. Thus, the family intervention in the current study appears to show benefits above and beyond the provision of information. Although the symptom measures in the current study reflect a treatment effect, the significant difference in the rate of *DSM-IV* disorders over the 12-month follow-up period suggests that the intervention may have prevented the occurrence of disorders during this time.

In addition to positive effects for children, we found evidence for beneficial effects of the family group intervention on parents' depressive symptoms, as reflected in the significant difference between parents in the intervention and comparison groups immediately after completion of the acute (8-week) phase of the intervention, at the 6-month follow-up assessment (after completion of the four monthly booster sessions), and at the 12-month follow-up assessment. This suggests that involving parents with current or past depression may have beneficial effects in reducing symptoms. It is possible that this effect is due to behavioral activation, similar to the effects obtained in cognitive-behavioral therapy for depression (e.g., Dimidjian et al., 2006), as a result of assigning homework to parents that involved activities with their children. The smaller magnitude of effect at 12 months ( $d = 0.26$ ) as compared with immediately after the acute phase of the intervention ( $d = 0.49$ ) may reflect that the brief duration of the intervention did not provide a sufficient dose of behavioral activation to produce enduring effects. Although the chi-square and odds ratios for recurrence of an MDD diagnosis were nonsignificant, the relative incidence rate ratio (.71) was similar to the rate reported for other depression prevention programs (.76; Cuijpers et al., 2008), suggesting that the effects of the family group intervention were at least comparable with other prevention programs aimed at adult depression.

In spite of the overall promising findings, the current study has several limitations. First, although the current sample included a larger proportion of ethnic minority families than in either Beardslee et al.'s (2003 (2007) or Clarke et al.'s (2001) studies, the majority of the current sample was Euro American, and thus the findings may have somewhat limited generalizability. Second, follow-up data are reported at 12 months; as such, the longer term effects of the intervention have not been evaluated. Third, although the intervention had beneficial effects on parents' depressive symptoms, the effect of the intervention on the occurrence of episodes of depression in parents was nonsignificant, suggesting that additional intervention may be needed to reduce reoccurrence of this disorder in parents. Fourth, effects of the intervention are stronger on children's self-reports than parents' reports of children's symptoms and stronger for internalizing than for externalizing symptoms. The disparity between child and parent reports and the differential effects on internalizing versus externalizing problems warrant further attention.

Future research needs to address at least two issues. First, as noted, outcomes at longer term follow-up assessments are needed. Several prevention studies have reported effects at early assessment points only to see these effects dissipate over time (e.g., Clarke et al., 2001). It will be important to examine the effects of the current intervention beyond 12 months to determine whether these effects are enduring. Second, it will be important to examine possible mediators of the effects of the intervention. Because the intervention addressed both parenting skills and children's coping skills, it will be important to determine whether changes in one or both of these targets account for the observed changes in children's and parents' symptoms. Analyses of possible mediators will identify the active ingredients in the family intervention.

In summary, this study provides the first evidence of the efficacy of a family group intervention in reducing internalizing and externalizing symptoms and psychopathology in children of depressed parents. This work builds on previous studies of interventions with this high-risk group of children and provides further evidence of the promise for the reduction of symptoms and disorders in families of parents who suffer from depression.

## Acknowledgments

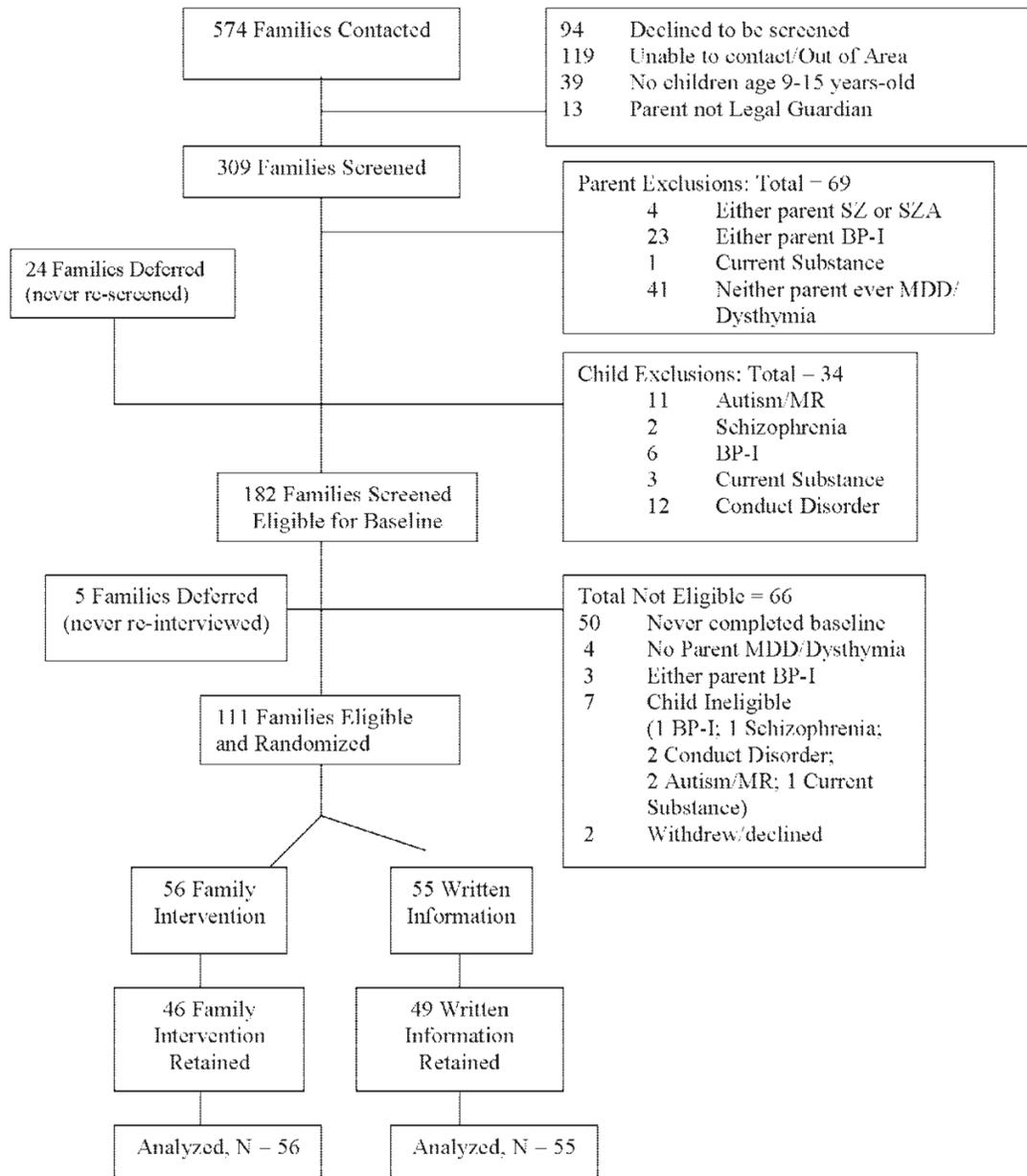
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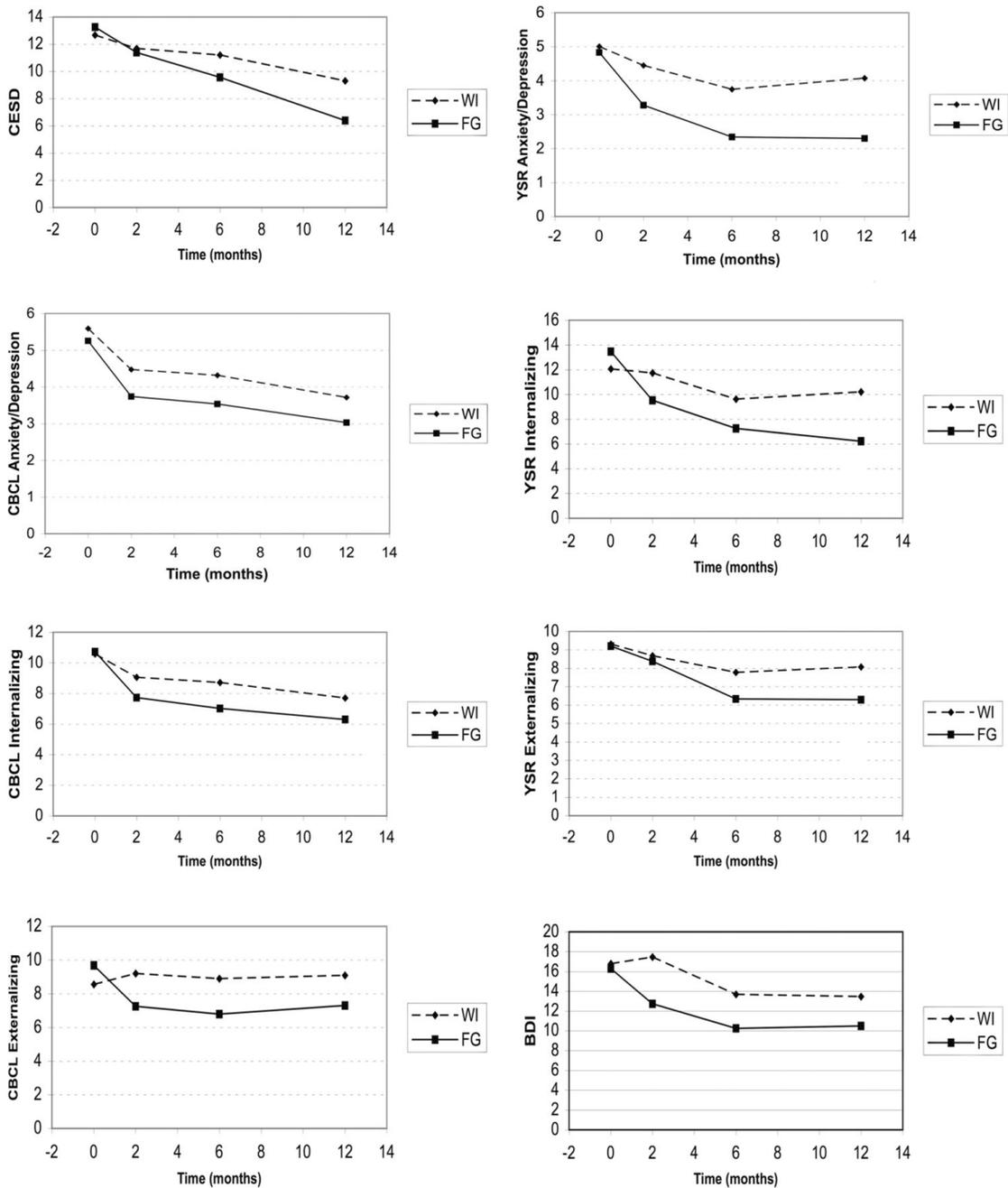
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**Figure 1.** Participant screening and randomization. SZ = schizophrenia; SZA = schizoaffective; BP-I = bipolar I; MDD = major depressive disorder; MR = mental retardation.



**Figure 2.** Mean for each outcome measure at each of the four assessments for the family group cognitive-behavioral intervention condition (FG) and the written information comparison condition (WI). CESD = Center for Epidemiologic Studies–Depression scale; YSR = Youth Self-Report; CBCL = Child Behavior Checklist; BDI = Beck Depression Inventory–II.

Table 1

## Parent and Child Demographic Characteristics at Baseline

Variable	Family cognitive- behavioral intervention			Written information		
	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%
Parent age	43.20	7.26		42.38	7.50	
Child age	11.61	2.06		11.23	1.90	
Parent marital status						
Married			57.1			70.9
Widowed			1.8			1.8
Divorced			28.6			14.5
Separated			1.8			5.5
Never married			10.7			7.3
Parent education						
Less than high school			3.6			10.9
High school			5.4			10.9
Some college			28.6			34.5
College degree			37.5			16.4
Graduate education			25.0			27.3
Family income						
Less than \$25,000			17.0			27.4
\$25,000–\$59,999			47.2			27.4
\$60,000–\$89,999			17.0			25.5
Greater than \$90,000			18.9			19.6
Parent race/ethnicity						
Euro American			85.7			87.3
African American			3.6			7.3
Asian American			1.8			0.0
Hispanic American			3.6			1.8
Mixed ethnicity			5.4			3.6
Child race/ethnicity						
Euro American			78.5			79.7

Variable	Family cognitive- behavioral intervention			Written information		
	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%
African American			7.6			8.1
Asian American			2.5			4.1
Hispanic American			2.5			0.0
Mixed ethnicity			8.9			8.2

**Table 2**  
Type 3 Fixed Effects of Intercept, Condition, and the Time 1 Covariate on Each Outcome Variable

Effect	Baseline			2 months			6 months			12 months		
	<i>dfs</i>	<i>F</i>	<i>p</i> <									
Intercept												
Baseline (covariate)												
Condition	1, 138	0.17	.681	1, 90.4	0.05	.826	1, 94.2	0.67	.417	1, 69	4.99	.029
DV = CES-D												
Intercept												
Baseline (covariate)												
Condition	1, 147	0.10	0.753	1, 101	5.39	0.023	1, 78.7	7.26	0.009	1, 70.0	8.34	0.006
DV = YSR anxiety/depression												
Intercept												
Baseline (covariate)												
Condition	1, 147	0.10	0.753	1, 101	5.39	0.023	1, 78.7	7.26	0.009	1, 70.0	8.34	0.006
DV = CBCL anxiety/depression												
Intercept												
Baseline (covariate)												
Condition	1, 88.4	0.21	.651	1, 78.9	0.60	.442	1, 65.2	0.75	.391	1, 62.4	1.19	.281
DV = YSR internalizing												
Intercept												
Baseline (covariate)												
Condition	1, 141	0.82	0.367	1, 102	3.02	.085	1, 76.3	2.90	.093	1, 66.4	9.61	.003
DV = CBCL internalizing												
Intercept												
Baseline (covariate)												
Condition	1, 89.1	0.01	.911	1, 79.4	0.26	.601	1, 65	1.14	.290	1, 68.2	1.39	.243
DV = YSR externalizing												
Intercept												
Baseline (covariate)												
Condition	1, 89.1	0.01	.911	1, 79.4	0.26	.601	1, 65	1.14	.290	1, 68.2	1.39	.243

Effect	Baseline			2 months			6 months			12 months		
	<i>dfs</i>	<i>F</i>	<i>p</i> <									
Baseline (covariate)	1, 139	.02	.894	1, 109	93.83	.001	1, 91.5	42.18	.001	1, 93.3	39.66	.001
Condition				1, 98.4	0.07	.787	1, 78.5	2.03	.159	1, 84	3.48	.067
DV = CBCL externalizing												
Intercept				1, 57.5	0.83	.366	1, 40.4	0.31	.584	1, 54.5	0.18	.676
Baseline (covariate)				1, 101	85.51	.001	1, 92.6	99.65	.001	1, 96.7	109.45	.001
Condition				1, 101	1.24	.270	1, 57.2	2.90	.094	1, 67	2.70	.106
DV = BDI-II (parent)												
Intercept				1, 46.6	2.64	.111	1, 60	3.26	.077	1, 54.1	0.24	.623
Baseline (covariate)				1, 102	65.25	.001	1, 86.7	21.98	.001	1, 95.2	72.46	.001
Condition				1, 93	8.44	.005	1, 73.5	4.27	.043	1, 69.7	6.15	.016

Note. DV = dependent variable; CES-D = Center for Epidemiologic Studies-Depression scale; YSR = Youth Self-Report; CBCL = Child Behavior Checklist; BDI-II = Beck Depression Inventory-II.

**Table 3**

Means and Effect Sizes for Each Outcome Variable at Each Time Point

Time	Interv.	Comp.	Cohen's <i>d</i>
	<i>M</i>	<i>M</i>	
CES-D			
1	13.25	12.67	-0.06
2	11.40	11.69	0.04
3	9.57	11.21	0.18
4	6.39	9.32	0.42**
YSR anxiety/depression			
1	4.83	5.01	0.04
2	3.28	4.45	0.37**
3	2.34	3.75	0.49***
4	2.30	4.07	0.50***
CBCL anxiety/depression			
1	5.26	5.59	0.09
2	3.74	4.47	0.20
3	3.54	4.32	0.24
4	3.03	3.71	0.21
YSR internalizing			
1	13.46	12.06	-0.15
2	9.53	11.74	0.31*
3	7.25	9.62	0.37*
4	6.23	10.21	0.57***
CBCL internalizing			
1	10.73	10.58	-0.02
2	7.72	9.05	0.19
3	7.02	8.72	0.28
4	6.30	7.71	0.23
YSR externalizing			
1	9.21	9.32	0.02
2	8.38	8.69	0.05
3	6.34	7.78	0.27
4	6.29	8.08	0.31*
CBCL externalizing			

Time	Interv.	Comp.	Cohen's <i>d</i>
	<i>M</i>	<i>M</i>	
1	9.68	8.56	-0.14
2	7.25	9.21	0.31
3	6.79	8.90	0.37*
4	7.30	9.09	0.29
BDI-II			
1	16.30	16.79	0.04
2	12.73	17.46	0.49***
3	10.25	13.69	0.32**
4	10.50	13.47	0.26**

*Note.* Time 1 means are raw scores. Means for Times 2, 3, and 4 are adjusted for the Time 1 means. Interv. = family cognitive-behavioral intervention condition; Comp. = written information comparison condition; CES-D = Center for Epidemiologic Studies–Depression scale; YSR = Youth Self-Report; CBCL = Child Behavior Checklist; BDI-II = Beck Depression Inventory–II.

\*  $p < .10$ .

\*\*  $p < .05$ .

\*\*\*  $p < .01$ .

**Table 4**

## Child and Parent DSM–IV Diagnoses From Baseline Through 12 Months

Variable	Children with MDE	Children with any DSM disorder	Parents with MDE
Family cognitive-behavioral intervention, <i>n</i> (%)	5/56 (8.9)	14/56 (25)	14/35 (40)
Written information group, <i>n</i> (%)	11/53 (20.8)	22/53 (41.5)	18/32 (56.3)
Odds ratio	2.68	2.13	1.94
Odds ratio 95% CI	0.86–8.29	0.94–4.22	0.73–5.09
$\chi^2$ ( <i>p</i> value)	3.04 (.070)	3.35 (.052)	1.75 (.23)
Incidence rate ratio	0.43	0.60	0.71

Note. DSM = Diagnostic and Statistical Manual of Mental Disorders; MDE = major depressive disorder; CI = confidence interval.