

# A Family-Based Approach to the Prevention of Depressive Symptoms in Children at Risk: Evidence of Parental and Child Change

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**ABSTRACT.** *Objective.* Depression in parents is a prevalent and impairing illness that is encountered frequently in medical practice. Children of depressed parents are at risk for psychopathology and other difficulties. A series of recent national reports have recommended the development of prevention efforts targeting children of depressed parents. Yet, to date, few controlled prevention studies of depression in children and adolescents have been conducted. In this study, we report the evaluation of 2 preventive intervention strategies that target children living in homes with depressed parents. Both are public health approaches that were designed to be used by a wide range of practitioners from a variety of disciplines, including pediatricians, internists, school counselors, nurses, and mental health practitioners. We adopted a developmental perspective and intervened with families when children were entering the age of highest risk for depression onset (ie, adolescence). We chose a family-based approach to prevention and sought to reduce risk factors and enhance protective factors for early adolescents by increasing positive interactions between parents and children, and by increasing understanding of the illness for everyone in the family. Our prevention approaches were designed to provide information about mood disorders to parents, to equip parents with the skills they need to communicate information to their children, and to open a dialogue with their children about the effects of parental depression. We hypothesized that participation in these prevention programs would result in parental change in child-related behaviors and attitudes about depression and its impact on the family. In addition, we hypothesized that this parental change would produce change in children's self-understanding, and in children's depressive symptomatology.

*Methods.* We conducted a large-scale efficacy trial of 2 manual-based preventive intervention programs that were designed to be used widely in public health settings. These interventions target the relatively healthy children (ages 8–15) of parents with mood disorder. Ninety-three families (88.5% of our initial sample), including 121 children, participated in this study through the fourth assessment point. These families were assigned randomly to either a lecture or a clinician-facilitated intervention. Both interventions were specified in manuals. The lecture condition consisted of 2 separate meetings delivered in a group format without children present. The clinician-facilitated condition consisted of 6

to 11 sessions, including separate meetings with parents and children, and a family meeting in which the parents led a discussion of the illness and of positive steps that can be taken to promote healthy functioning in the children. In addition, telephone contacts or refresher meetings were conducted at 6- to 9-month intervals. In both conditions, psychoeducational material about mood disorders, risk, and resilience was presented and efforts were made to decrease feelings of guilt and blame in children. Parents were helped to build resilience in their children through encouraging their friendships, their success outside of the home, and their understanding of parental illness and of themselves. In addition, in the clinician-facilitated condition, efforts were made to link the psychoeducational material presented to the family's own unique illness experience. To address directly how their lives had changed, all family members in both conditions were assessed for psychopathology and for overall functioning at intake, and for psychopathology, functioning, and response to intervention immediately postintervention, ~1 year postintervention, and again ~2.5 years postintervention.

*Results.* We examined the outcomes of child understanding and internalizing symptomatology, and a number of predictor variables, using repeated measures analyses with generalized estimating equations. We found that parents in both conditions reported significant change in child-related behaviors and attitudes, and that the amount of change reported increased over time from time 3 to time 4 ( $\chi^2_1 = 18.1$ ). Moreover, relative to parents in the lecture program (mean number of changes = 6.3), parents in the clinician-facilitated program reported more change in child-related behaviors and attitudes (mean number of changes = 9.8). Children in both conditions reported increased understanding of parental illness attributable to participation in our intervention programs. There was a positive association between the amount of change children reported in their understanding of parental illness and the number of changes couples reported in child-related behaviors/attitudes ( $\chi^2_1 = 37.3$ ; ie, parents who had changed the most in response to intervention had children who also changed the most). Finally, internalizing scores for all children decreased with increased time since intervention ( $\chi^2_1 = 7.3$ ). In addition, females had higher internalizing scores than males ( $\chi^2_1 = 5.3$ ). There was no significant effect of group on children's change in internalizing symptomatology ( $\chi^2_1 = 0.2$ ).

*Conclusions.* We enrolled families with relatively healthy children, administered carefully designed preventive interventions that are manual-based and relatively brief, and found that these programs do have long-standing positive effects in how families problem solve around parental illness. Our results show significant benefits from both interventions. Moreover, changes in

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parents' perceptions translated directly into changes in children's own understanding of parental illness. Parental behavior and attitude changes and their connection to child changes in understanding identify an important mediating variable: family change. By increasing children's understanding of parental mood disorder, our interventions were found to promote resilience-related qualities in these children at risk. This presentation represents the first and only longitudinal primary prevention study of relatively healthy children at risk for psychopathology attributable to parental mood disorder and demonstrates a significant reduction in risk factors and increase in protective factors in these families over a long time interval—2½ years. Our results provide support for a family-based approach to preventive intervention. *Pediatrics* 2003;112:e119–e131. URL: <http://www.pediatrics.org/cgi/content/full/112/2/e119>; primary prevention, intervention studies, depression, child of impaired parents.

ABBREVIATIONS. GAS, Global Assessment Scale; SES, socioeconomic status; IP, identified patient; SADS-L, Schedule for Affective Disorders and Schizophrenia-Lifetime Version; Kiddie-SADS-E-R, Schedule for Affective Disorders and Schizophrenia for School-Age Children, Epidemiologic Version Revised; YSR, Youth Self-Report; SII, Semistructured Interview about the Intervention; SD, standard deviation; NIP, nonidentified parent.

Although the treatment of depression has been investigated widely in both adult<sup>1</sup> and in youth samples,<sup>2</sup> there have been few controlled prevention studies of depression in children and adolescents.<sup>3</sup> Those few studies used an indicated prevention approach<sup>4,5</sup> whereby the investigators enrolled children and adolescents already manifesting depressive symptoms.<sup>6,7</sup> As such, these programs constitute a form of treatment for an existing disorder, rather than primary prevention.<sup>8</sup> However, evidence from the past 2 decades suggests that primary prevention programs actually reduce the incidence of mental health problems.<sup>4,9,10</sup> Major depressive disorder is a significant, impairing disturbance of childhood and adolescence.<sup>11,12</sup> Twenty-eight percent of children experience an episode of major depressive disorder by age 19.<sup>11</sup> Hence, a primary prevention approach to youth depression requires more attention.

A number of recent reports have emphasized the need to consider prevention for children of depressed parents.<sup>4,13,14</sup> Numerous studies have reported increased rates of psychiatric disorders in children from homes with affectively ill parents, relative to children with non-ill parents.<sup>15–17</sup> Meta-analytic findings indicate that ~61% of the offspring of parents with major depressive disorder will develop a psychiatric disorder during childhood or adolescence, and these children are 4 times more likely to develop an affective disorder than children with non-ill parents.<sup>18</sup> In addition, children of affectively ill parents are at increased risk for a number of other internalizing<sup>19</sup> and externalizing<sup>20</sup> problems, relative to children whose parents are not ill. Yet, these children are rarely seen or treated by therapists.<sup>21</sup>

Given that ~1 in 5 Americans will experience a depression sometime in their lives,<sup>22</sup> there is a large number of children in homes with depressed par-

ents. We chose to develop preventive intervention strategies that target these children and that are compatible with a wide range of the customs of practitioners (eg, pediatricians, internists, school counselors, nurse practitioners). In developing these interventions, we followed the sequence outlined in the Institute of Medicine report. First, we investigated risk factors<sup>15,23</sup> and identified factors associated with resilience.<sup>24</sup> Based on these findings, we developed prevention approaches. We also followed the Institute of Medicine report's recommendation in experimental design using rigorous empirical methods, including well-specified and theoretically driven hypotheses; reliable, clearly identified variables; randomization to manual-based, specific, replicable intervention strategies; and blind assessment and follow-up over a period of several years. Then, we conducted pilot studies,<sup>25</sup> and we are presently conducting a large scale efficacy trial. In contrast to indicated prevention approaches targeting symptomatic children of depressed parents,<sup>6</sup> we adopted a public health model and included all nondepressed children of depressed parents (eg, resilient children, children with attentional problems, children with physical illness). This investigation represents the first family-centered primary prevention study of children who are at risk for depression and other psychopathology because of parental mood disorder.

To date, most preventive interventions for child mental health focus on externalizing disorders, and most intervention programs target the child at risk, or include separate parent groups, rather than adopting a family-based approach to prevention.<sup>3</sup> Consistent with prevention programs targeting children in divorcing and bereaved families,<sup>26,27</sup> our program targeted the family as a unit<sup>28</sup> and aimed to reduce risk factors and enhance protective factors for the children by bringing about parental change.<sup>29,30</sup> We took a developmental perspective whereby we intervened with families when children were just entering the age of highest risk for depression onset (ie, ages 8–15), and we tailored our intervention approach to the developmental level of the child.<sup>31</sup>

Initial studies of our intervention programs revealed that they were safe and feasible, and that families believed them to be helpful.<sup>32</sup> In an initial random assignment study of the first 20 families enrolled, promising effects were observed 6 months after intervention,<sup>33</sup> and a further follow-up study showed sustained effects over 3 years, by parent report.<sup>25</sup> In addition, pilot studies revealed that greater benefits were associated with the clinician-facilitated intervention, relative to the lecture condition.<sup>33</sup> More recent reports on a portion of the sample at the third assessment point indicated that both conditions resulted in family improvements, and that parents in the clinician-facilitated condition reported significantly greater levels of assessor-rated and self-reported change in family understanding and problem-solving strategies than did participants in the lecture condition.<sup>34–36</sup>

This is our first presentation of findings from follow-up interviews conducted with our entire sample of families at our fourth data point, nearly 2.5 years

after intervention. We chose this interval because it is long enough to begin to see substantial, sustained changes in several main domains hypothesized to be affected by participation in our intervention programs. In this presentation, we focused first on affecting change in a mediating variable (ie, a variable that is hypothesized to impact the connection between intervention participation and child outcome), parental child-related behavior and attitude change. As noted above, research on family approaches to prevention suggest that parental change leads to child change.<sup>29,30</sup> However, this has rarely been examined empirically.

Our prevention approaches were designed to provide information about mood disorder to parents, to equip parents with the skills they need to communicate information to their children, and to open a dialogue with their children about the effects of parental depression. We measured parental change by scoring interviews with parents based on the presence/absence of child-related changes they attributed to participation in our intervention programs.

Child-related parental behavior and attitude change, in turn, is expected to produce change in 2 proximal outcomes: 1) children's self-understanding; and 2) children's internalizing symptomatology. Based on research on resilience<sup>24</sup> and on the relation between internalizing symptomatology and depressive illness,<sup>11</sup> our hypothesis is that enhancing children's self-understanding and decreasing children's internalizing symptoms ultimately will reduce the onset of mood disorder in children of parents with mood disorder. We will need to test this goal in future presentations of our data at later time points.

For this paper, we tested these hypotheses: 1) the amount of parental change in child-related behaviors and attitudes will be similar to the amount of change exhibited at previous time points, and will vary by group; and 2) there will be a connection between parental attitudinal and behavioral change with regard to children and child change in understanding and internalizing symptoms (ie, more parent change will be associated with more child change).

## METHODS

### Procedure

The research discussed in this paper is based on the Preventive Intervention Project at the Judge Baker Children's Center, Boston. The majority of families were recruited from a large prepaid health maintenance organization in the Boston area, and also on referral from mental health practitioners treating adults with depression. Dual- and single-parent families were invited to participate if 1) they had at least 1 child between the ages of 8 and 15 years who, by parent report, had never been treated for an episode of mood disorder; and 2) at least 1 parent had experienced an episode of mood disorder in the 18 months before contact. At the time of recruitment, exclusion criteria included serious current parental substance abuse or dependence, current parental schizophrenia, current severe marital crisis, or other life crises (eg, hospitalization) that would prevent the family from focusing on the future. Individual treatment of either or both parents was not an exclusion criterion, as we believed it was important for adults to have treatment for managing their mood disorder. However, families currently in marital or family therapy more often than twice per month were excluded, as our family-based prevention approach was best evaluated in the absence of major ongoing family treatment. Youngsters were excluded if their parents reported that

they had ever been diagnosed with a mood disorder or were in regular psychotherapy for a mood disorder, but they were not excluded if they had, or were being treated for, other diagnoses (eg, learning disabilities, attentional problems). Written informed consent was obtained from both parents and children after the assessment and intervention procedures had been explained fully.

Our full sample initially included 116 families. In our initial sample, 32 families were enrolled, and only parents participated in assessments. Thus, for these families, baseline diagnostic information about children was gathered from parents rather than from children directly (see measures section below). These initial families were assigned randomly to intervention groups based on a 2/3 (clinician-facilitated) to 1/3 (lecture) equation. After completion of the intervention programs and a postintervention interview, 21 families agreed to have their children participate directly at future assessment points. Thus, we included these 21 families in analyses for this presentation. There were no significant differences between participants in our initial sample who chose to have their children assessed and those who did not on group (Fisher exact test,  $P = .70$ ,  $n = 32$ ), parental global functioning as measured by the Global Assessment Scale (GAS)<sup>37</sup> ( $t_{30} = -1.82$ ,  $P = .08$ ), or socioeconomic status (SES) as measured by the Hollingshead-Redlich<sup>38</sup> classification system (Fisher exact test,  $P = .15$ ,  $n = 32$ ).

For the remaining 84 families, a balanced block randomization procedure with blocks of 4, separated by family type (single- or dual-parent), was used. Equal numbers were assigned randomly to each intervention group, and children were interviewed at baseline and at each assessment point. There were no significant differences between the 21 families from our initial group, and the 84 families from our latter group on parental global functioning ( $t_{103} = -0.3$ ,  $P = .77$ ) or SES (Fisher exact test,  $P = .74$ ,  $n = 105$ ).

### Participants

This article reports on data gathered from families who completed the initial assessment battery (time 1), participated in the intervention, were assessed immediately after the intervention (time 2), were assessed ~1 year after completion of the time 2 assessment (time 3), and were assessed ~1 year after completion of the time 3 assessment (time 4; see Fig 1).

Table 1 presents sample characteristics at enrollment. Seventy-seven dual parent families and 16 single parent families completed assessments and are included in the analyses. Fifty-three families (including 9 single-parent families) were randomly assigned to the clinician-facilitated intervention, and 40 families (including 7 single-parent families) were randomly assigned to the lecture condition. In all of the single-parent families, the mother was the head of the household. At enrollment (time 1), in 77.4% of the families the mother was the identified patient (IP; reported a diagnosable mood disorder in the 18 months before enrollment). Sixty-four percent of the families included in this study fell within the top 2 socioeconomic levels on the Hollingshead-Redlich classification.<sup>38</sup> Seventy-seven percent of our sample reported an annual family income >\$40 000.

### Intervention Design

Table 2 outlines our intervention approaches. Given that most people receiving treatment for depression are seen only by their primary care physicians,<sup>39</sup> our psychoeducational preventive interventions were designed to be used widely in public health settings and hence to be compatible with the customs of pediatricians and family practitioners.<sup>40</sup> Both were clearly specified in manuals. In both interventions, parents were assured that they were not to blame for their depression, that they and their children are separate individuals, and that many children of depressed parents are resilient and do quite well. They were also told that talking helps children to cope with parental depression.<sup>40,41</sup> Both interventions focused on the reduction of individual and familial risk factors over time, as well as on the development of protective factors in adolescents through change in parental attitudes and behaviors. Both interventions were designed to increase parental knowledge about the causes and symptoms of childhood and adult depression. Parental mood disorder was presented as a disorder that affects all family members. Parents and families were encouraged to share their experiences of the illness with each other. Both interventions focused on removing misunderstanding, guilt, and blaming by providing information that enabled parents

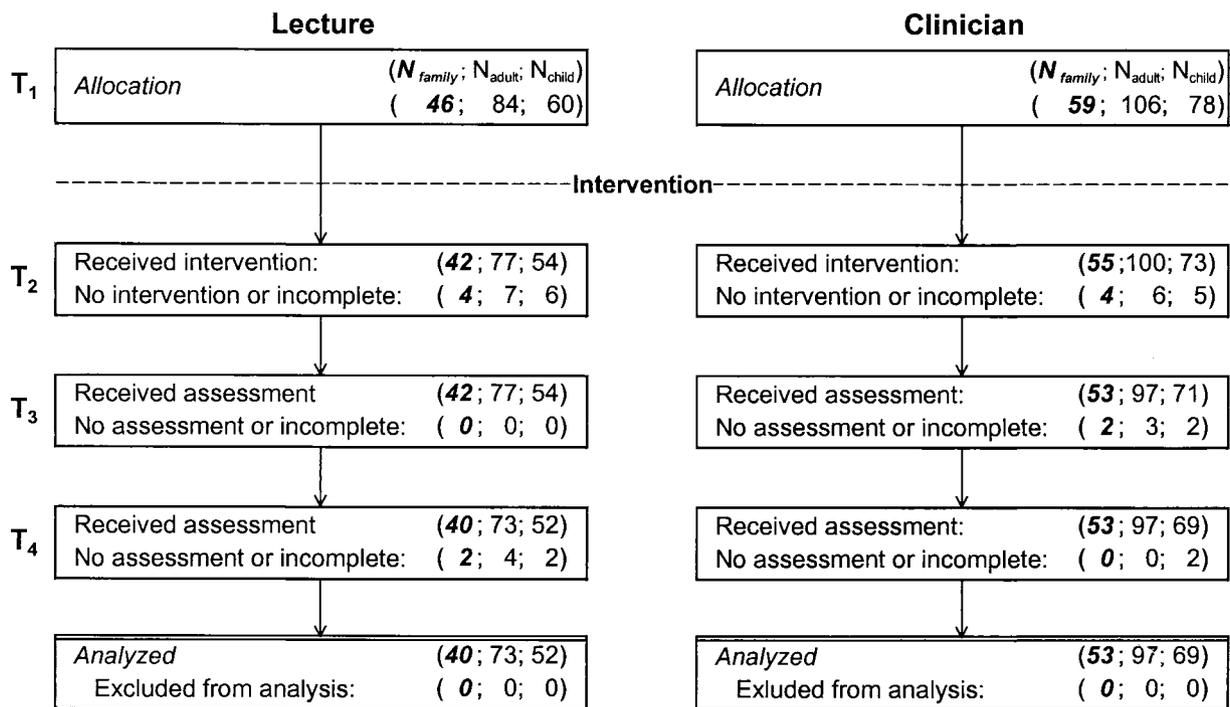


Fig 1. Sample retention by group.

TABLE 1. Sample Characteristics at Enrollment

Mean age of parents	43.1 y
Race	93.6% White
Family income	
\$90 000+	16.1%
\$65 000–\$90 000	35.5%
\$40 000–\$65 000	25.8%
\$15 000–\$40 000	19.4%
Less than \$15 000	3.2%
Education level	
Graduate/professional degree	42.2%
College	30.4%
Partial college	17.0%
High school	8.9%
Partial high school	1.5%
Number of children	121 (57.3% male)
Mean age of children	11.6 y

There were no significant group differences in any of these categories.

to respond proactively to the effects of the mood disorder on their children and on the family. Information regarding the signs and symptoms of distress in children also was presented to the parents in both conditions. Also, specific approaches to enhancing resilience in children (eg, developing children's relationships, supporting the accomplishment of age-appropriate developmental tasks, and enhancing their understanding<sup>24</sup>) were explored. The interventions targeted risk factors that are modifiable (eg, marital communication, parenting practices) and attempted to address the psychosocial domains that have been linked to the transmission of disorder from parent to child (eg, parental discord). We believe that providing this information will result in decreasing such risk factors as diminished communication within the family and decreased parental attention to children. Moreover, we designed the interventions so that changes in parental behavior would foster resilient behaviors in children.<sup>42</sup>

#### Clinician-Facilitated Intervention

The clinician-facilitated intervention consisted of 6 to 11 sessions and included separate meetings with parents and children, family meetings, and telephone contacts or refresher meetings at 6- to 9-month intervals.<sup>43</sup> Sessions were conducted by psycholo-

gists, social workers and nurses§ who were trained through a simulation technique using a group of actors. They attended weekly meetings for supervision and case review, and audiotapes of random sessions were reviewed. Clinicians were available throughout the intervention and thereafter by telephone.

The core elements of the clinician-facilitated intervention were: 1) assessing all family members; 2) presenting psychoeducational material about mood disorders and about risks and resilience in children; 3) linking the psychoeducational material to the family's life experience; 4) decreasing feelings of guilt and blame in children; and 5) helping the children to develop relationships both within and outside of the family to facilitate their independent functioning in school and in activities outside of the home. Thus, in a family meeting, a clinician defined for family members the basic signs and symptoms associated with mood disorder and explored with parents and children family experiences that reflect parental mood disorder. In addition, the clinician encouraged parents to assure children that they were not to blame for parental illness, and that they were not able to influence the chronicity or severity of episodes. Finally, the clinician worked with parents to encourage children to pursue interests, relationships, and activities outside of the home. Designed to help parents come to a shared understanding of the illness that was then presented to the children in a family meeting, an explicit goal of the clinician-facilitated intervention was to foster the families' self-understanding of the illness experience.

To ensure fidelity to the clinician-facilitated protocol, a detailed rating of key sessions (ie, the meeting with the child[ren], planning for the family meeting, the family meeting) was conducted. Before rating any transcripts, we set an adherence standard of 80%. The fidelity evaluation focused on 37 randomly selected sessions across 4 clinicians, representing sessions from 10 separate families. The 2 raters were not clinicians on the project. One was a doctoral trainee with no connection to the project, and one was a new staff member on the assessment team. We also examined inter-rater reliability between these 2 individuals by comparing their separate ratings on 6 of the 10 families.

We found strong reliability among raters (child meeting .99; planning meeting .96; family meeting .97). The overall adherence to the intervention protocol was 91.7% for the child meeting, 93.6%

§Subsequently, a number of other health care professionals, including school counselors, also have been successfully trained to conduct the clinician-facilitated intervention program.

**TABLE 2.** Intervention Comparison

	Clinician-Facilitated Intervention	Lecture Intervention
Differences	Intervenors meet with each individual family Psychoeducational material is linked to family's own experience Parent and child meetings 6 to 11 sessions Telephone or refresher meetings every 6 to 9 mo  Delivered by one of several extensively trained intervenors	Presented in group format to several families at once No attempt to link material to families' individual experiences Parents only 2 sessions Follow-up contact with lecturer offered; no regularly scheduled meetings are prearranged Delivered by primary investigator
Points of similarity	Manual-specified Designed to increase parental knowledge about the cause and symptoms of depression Encourages family members to share experiences with one another Targets modifiable risk-factors for children	

for the planning meeting, and 86.4% for the family meeting. Differences in percent adherence among the 4 clinicians were non-significant.<sup>42</sup>

### Lecture Intervention

The lecture condition consisted of 2 separate meetings delivered in a group format without children present. We hypothesized that children in this intervention program would benefit indirectly from changes made by parents as a result of participation. The lecture intervention program also used a manual-based lecture script, and adherence to the lecture protocol was >95%.<sup>42</sup> Although family discussion was encouraged and the psychoeducational material presented mirrored that presented in the clinician-facilitated condition, there was no attempt in the lecture condition to link the cognitive material presented to specific families' individual illness experiences. As in the clinician-facilitated condition, mood disorders were presented in the context of family experience, and parents were encouraged to talk to their children about parental illness. However, in the lecture condition, parents had to decide whether or not to initiate such conversations with their children.

A standardized scale based on content information from the lecture script was used to measure adherence to the lecture script. Ten key items from the first lecture and 27 items from the second script were evaluated for presence or absence in the videotapes of the lectures. A rater, blind to the family's response to the lecture, rated 5 videotapes from the first lecture and 5 videotapes from the second lecture, randomly selected. For each lecture, the mean percent agreement with the predefined script was >95%.

### Comparison of Approaches

Although there are several similarities in the 2 intervention approaches, there are significant differences as well. The clinician-facilitated intervention was designed to help parents come to a shared understanding of the illness that was then presented to the children in a family meeting. The key element of the clinician-facilitated condition was the direct linking of cognitive information to individual life and family experiences. Similar cognitive information was presented in the 2 lecture intervention sessions, but this information was presented in a group format with an opportunity for discussion. In the lecture condition, children were not seen directly, but parents were encouraged to talk with their children about their illness. Follow-up contact with the lecturer was offered to the parents, but regularly scheduled meetings were not prearranged.

### Measures

Table 3 outlines the measures used in this study. All measures have been described previously, including information about their psychometric properties.<sup>25,35</sup> All measures were administered at

time 1 (enrollment)<sup>¶</sup> and again at time 3 (~1 year after intervention) and time 4 (~1 year after time 3), unless otherwise noted.

### Demographic Information

Family composition, SES, and other demographic data were obtained from the fathers at the initial assessment, using a measure developed by Larkin and Hirshfeld.<sup>44</sup> In single-parent families, mothers provided this information. After time 1, mothers and fathers updated demographic information.

### Psychopathology

#### Parental Psychopathology

At time 1, the *Schedule for Affective Disorders and Schizophrenia-Lifetime Version (SADS-L)*,<sup>45</sup> a semistructured interview for diagnosing mood disorders and other psychopathology on the basis of the Research Diagnostic Criteria,<sup>46</sup> was administered to both parents by separate assessors. The *SADS-L* was modified so that rather than obtaining information on all lifetime diagnoses, data on the first episode of disorder was gathered, as was data on all episodes in the past 5 years. Data were gathered on mood disorders, anxiety disorders, schizophrenia, unspecified functional psychosis and alcoholism, and we added to the *SADS-L* questions about drug abuse. The validity of the *SADS-L* has been established by its wide use in many studies of adult affective disorder<sup>47</sup> and treatment.<sup>48</sup> Assessment of episodes in the interval between time 1 and time 3, and between time 3 and time 4, was accomplished with the use of the Streamlined Longitudinal Interval Continuation Evaluation, a modified version of the Longitudinal Interval Follow-up Evaluation.<sup>47</sup> This measure has been used widely and has been found to have strong inter-rater reliability.<sup>45</sup>

#### Child Psychopathology

In each family, both the mother and the children were interviewed by a child assessor using the *Schedule for Affective Disorders and Schizophrenia for School-Age Children, Epidemiologic Version Revised (Kiddie-SADS-E-R)*, the child and adolescent adaptation of the *SADS-L* developed by Puig-Antich and colleagues.<sup>49</sup> This version was designed to obtain a lifetime history of past and current episodes of psychiatric disorders and allowed assessors to diagnose using *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised*<sup>50</sup> and Research Diagnostic Criteria systems. This modification facilitated the comparison of information from the child interview with the parent diagnostic interview. Informa-

<sup>¶</sup>For the first 21 families enrolled, measures of child psychopathology were not administered directly to the children at time 1, although parental reports of child functioning were obtained. These children did complete measures of psychopathology at subsequent time points, and time 1 values were entered based on the history obtained. For the remaining 84 families enrolled, all measures were administered to all family members at time 1 and at subsequent time points.

**TABLE 3.** Assessment Instruments

Instrument	Abbreviation	T <sub>1</sub>	T <sub>2</sub> *	T <sub>3</sub>	T <sub>4</sub>	Brief Description
Demographics	—	f	—	f,m	f,m	Family composition and SES
Schedule for Affective Disorders and Schizophrenia-Lifetime Version	SADS-L	f,m	—	—	—	Semi-structured interview for diagnosing mood disorders and other psychopathology (adult)
Streamlined Longitudinal Interval Continuation Evaluation	SLICE	—	—	f,m	f,m	Modified version of the Longitudinal Follow-up Evaluation (LIFE), diagnosing psychopathology at follow-up (adult)
Schedule for Affective Disorders and Schizophrenia for School-Age Children, Epidemiologic Version Revised	Kiddie-SADS-E-R	c	—	—	—	Semi-structured interview for diagnosing mood disorders and other psychopathology (child)
Kiddie-Streamlined Longitudinal Interval Continuation Evaluation	K-SLICE	—	—	c	c	Modified version of the Longitudinal Follow-Up Evaluation (LIFE); diagnosing psychopathology at follow-up (child)
Global Assessment Scale	GAS	m,f	—	m,f	m,f	Global functioning (symptoms, impairment, and social functioning)
Youth Self-Report	YSR	c	—	c	c	Self-rated adaptive and maladaptive behaviors and psychopathology
Semistructured Interview about the Intervention	SII	m,f	m,f	m,f	m,f	Coded into changes in child-related behavior and attitudes to determine impact of the disorder and the intervention on parents
Semi-structured Child Interview	SCI	c	c	c	c	Assessed child's understanding of parental mood disorders

m indicates mother; f, father; c, children.

\* Administered immediately after intervention.

tion from both interviews was combined using the standard procedure described by Puig-Antich et al<sup>51</sup> to obtain one set of diagnoses for each child. The *Kiddie-SADS-E-R* has acceptable reliability in diagnosing childhood depression.<sup>51</sup> At times 3 and 4, a shortened version (ie, *Kiddie-Longitudinal Interval Followup Evaluation*)<sup>52</sup> covering the interval was used.

## Functioning

### Parental Global Functioning

The GAS<sup>37</sup> is a measure of an individual's level of functioning during a specified period. The measure not only takes into consideration the person's symptomatology, but also his/her impairment and social functioning. Intraclass correlation coefficients of reliability ranged from 0.69 to 0.91 over 5 studies, and the measure has been shown to be sensitive to change as a result of treatment.<sup>37</sup>

### Child Problem Behaviors

Children rated their own adaptive and maladaptive behaviors and psychopathology on the Youth Self-Report (YSR),<sup>53</sup> which consists of 112 items and covers various adaptive and maladaptive behaviors and psychopathology during the past 6 months. The YSR produces behavior problems and social competence scales, along with measures of internalizing and externalizing behaviors. The YSR was developed for children aged 11 to 18, but assessors read the measure aloud to those children under the age of 11. The YSR has a median test-retest (1 week) reliability of .81, and there is evidence of criterion-related and discriminant validity.<sup>53</sup>

## Impact of Disorder

### Impact of the Disorder and the Intervention—Parents

The Semistructured Interview about the Intervention (SII) was administered to each parent before and after the intervention. The SII, developed by this project, contains a series of open-ended questions and rating scales that can be coded into changes in child-related behaviors and attitudes. Interviewers used information from both pre- and postintervention administrations of the semistructured interview to identify specific changes in categories that most frequently reflect child-related behavior and attitude changes. Eight total behavior changes were rated, including, for example, increased talking with children about depression; 9 total attitude changes were rated, including, for example, increased information about risk and resiliency in children. To score positively, it was necessary that the parent report change and attribute this change to the intervention. All scoring was done by trained raters who had to reach 80% agreement or above with a master

rater before scoring their own protocols. In addition, many ratings were reviewed by a master rater. The development of these scales and the reliability of the measure have been reported previously.<sup>34</sup>

### Impact of the Disorder and the Intervention—Children

The semistructured child interview, similar to the adult SII, combines qualitative questions with Likert-type rating scales. It elicited information about the children's current functioning, their knowledge, feelings and experience of their parents' mood disorder, their coping style, and their perceptions of any changes that might have taken place as a result of the intervention. At each time point, information about the children's general understanding about mood disorders, as well as the accuracy of their perception about the parents' mood disorders, were assessed and combined to provide a global scale of their understanding about mood disorders.

From the data about the children's perceptions of differences in the family occurring as a result of being in the project, raters assessed increased understanding of parental illness. Improved understanding was rated on a 5-point Likert scale ranging from no awareness of the illness (0) to 2 or more specific changes (4). Reliability of this rater-generated score was determined by 2 independent raters who rated 20 transcribed interviews. Intraclass correlations were excellent (0.92).

For this presentation, an understanding score was generated for each child. This score consists of the mean of the child's Likert rating of understanding and the rater score of improved understanding, which had first been converted to the same scale.

## Data Analysis

In this presentation, we examined parental response to intervention based on a parental unit, or "couple." Specifically, for dual-parent families, when one or both members of the couple endorsed a particular item, we scored that item as being present in the couple. In single-parent families, we likewise scored an item as present if the single member of the parental unit endorsed it. Thus, couple scores reflect the presence of a factor within the parental unit, regardless of the number of adults comprising that unit.

SAS version 8.02 (SAS Institute, Inc, Cary, NC) was used for data processing and analysis to test the specific hypotheses outlined. We examined a group of variables that were related directly to intervention (eg, change in response to intervention) and that had been shown to have effects on families with depression (eg, level of dysfunction, SES). Specifically, we explored the effect of intervention group (ie, lecture or clinician), change in the amount of the couple's child-related behaviors and attitudes, level of pa-

rental dysfunction (couple's worst GAS in the interval), SES, child's gender, child's developmental stage (14 and younger, older than 14), and time since intervention on change in child understanding of the parent's illness and child internalizing symptoms at time 3 and time 4 using repeated measures analyses with generalized estimating equations.<sup>54</sup> This strategy permitted us to control for correlations between children in the same family, correlation of observations of the same child over time, potential differences between groups at baseline, and temporal trends in the outcomes. In examining the effect of parent behavior and attitude change on child change in understanding and internalizing symptomatology, we included in the analyses a variable equal to couples' child-related behavior and attitude change at the previous (time 3) time point (ie, lag effects). This allowed us to simultaneously examine the importance of concurrent changes relative to previous changes in determining the child's outcome at a given time point.

All analyses were performed by using the Proc Genmod procedure in SAS with significance tests based on type III Wald statistics, which are  $\chi^2$  distributed, with an  $\alpha$  level of 0.05. As such, the tests performed are based on the  $\chi^2$  statistic and take into account the other variables in the model. We assume a normal error distribution and an exchangeable correlation structure throughout.

## RESULTS

### Sample Description

At time 3, we maintained 90.5% of the families originally enrolled in our sample. At time 4, our sample retention was 88.5% (Fig 1). The majority of our sample loss occurred between enrollment and intervention delivery. Our sample at time 4 did not differ from participants who dropped out immediately postintervention (after time 2) on IP's worst GAS ( $t_{95} = -0.6$ ,  $P = .55$ ), age of IP at time 1 ( $t_{95} = -0.7$ ,  $P = .54$ ), or SES (Fisher exact test,  $P = .46$ ,  $n = 97$ ). Moreover, after intervention, we maintained nearly 96% of our sample through time 4.

### Baseline

At enrollment (time 1), our analyzed sample included 170 adults and 121 children (57.8% male). Participating adults had a mean age of 43.1 years (standard deviation [SD] = 4.8). The mean age of participating children was 11.6 years (SD = 1.9). A series of  $t$  tests performed on baseline values indicated that, overall, the families in the clinician-facilitated intervention did not differ from the families in the lecture intervention on a range of variables, including age, gender, social class, and number of episodes of parental mood disorder in the past 5 years.<sup>34-36</sup>

The originally defined mood-disordered parents (IPs) suffered significant lifetime mood disorder as indicated by the mean duration of all forms of mood disorder on the *SADS-L*, which was 22.5 years (SD = 10.0). The shortest illness duration reported was 1 year. The lifetime diagnoses of the IPs included major depressive disorder ( $n = 86$ ), minor depressive disorder ( $n = 32$ ), intermittent depressive disorder ( $n = 9$ ), mania ( $n = 15$ ), and hypomania ( $n = 15$ ). In addition, IPs had experienced a range of other diagnoses in their lifetime, including phobic disorder ( $n = 20$ ), generalized anxiety disorder ( $n = 22$ ), alcoholism ( $n = 9$ ), drug abuse/dependency ( $n = 13$ ), obsessive compulsive disorder ( $n = 3$ ), panic disorder ( $n = 16$ ), and other psychiatric disorders ( $n = 22$ ).

Note that some of the IPs met criteria for more than one diagnosis concurrently.

As expected, many of the families ( $n = 32$ , 34.4%) had a high incidence of lifetime mood disorder in the initially nonidentified parent (NIP) as well. Families in which the initially NIP met criteria for a mood disorder in the past 5 years were termed "dual-depressed families." The secondary IPs in these families had a mean illness duration of mood disorders of 16.1 years (SD = 12.5), and the shortest illness duration reported was 1 year. Mood-related diagnoses reported by the secondary IP parents included major depressive disorder ( $n = 17$ ), minor depressive disorder ( $n = 17$ ), and intermittent depressive disorder ( $n = 4$ ). Additional lifetime diagnoses included phobic disorder ( $n = 3$ ), generalized anxiety disorder ( $n = 7$ ), panic disorder ( $n = 2$ ), obsessive compulsive disorder ( $n = 1$ ), alcoholism ( $n = 5$ ), drug abuse/dependency ( $n = 5$ ), and other psychiatric disorder ( $n = 3$ ). Eighty-one percent of these secondary IP parents reported experiencing an episode of mood disorder in the 18 months before enrollment. Again, note that some of the secondary IP parents met criteria for more than one diagnosis concurrently.

Even among families who did not have secondary IP parents, the *SADS-L* interview revealed that, for those NIPs with a history of mood disorder, there was a mean illness duration of 18.9 years (SD = 8.2). Mood-related diagnoses reported by the NIPs included major depressive disorder ( $n = 3$ ), minor depressive disorder ( $n = 9$ ), and mania ( $n = 1$ ). Additional diagnoses included phobic disorder ( $n = 7$ ), panic disorder ( $n = 1$ ), obsessive compulsive disorder ( $n = 1$ ), generalized anxiety disorder ( $n = 9$ ), alcoholism ( $n = 1$ ), drug abuse/dependency ( $n = 2$ ), and other psychiatric disorder ( $n = 1$ ). None of the NIPs reported experiencing an episode of mood disorder in the 18 months before enrollment. Some of these NIPs met criteria for more than one diagnosis concurrently.

Although children with mood disorder *by parent report* were ineligible to participate in the study, *Kiddie-SADS-E-R* interviews with the children at baseline revealed that 14 children (11.6%) reported a history of major depressive disorder in their lifetime, and 3 children (2.5%) reported current major depressive disorder. Six children with major depressive disorder and 7 children with minor depression were assigned to the lecture condition; 6 children with major depressive disorder and 7 children with minor depression were assigned to the clinician-facilitated condition. Other diagnoses in the children at baseline included a lifetime history of attention deficit-hyperactivity disorder ( $n = 17$ , 14.1%) and learning disability ( $n = 9$ , 7.4%). However, there were no group differences in these disorders at baseline, and these children were included in analyses.

### Postintervention

For couples, time 3 assessments occurred, on average, 12.1 (SD = 2.9) months postintervention, and time 4 assessments occurred, on average, 12.4 (SD = 5.4) months after time 3. For children, time 3 assessments occurred, on average, 13.0 (SD = 3.4) months

postintervention; time 4 assessments occurred, on average, 11.9 (SD = 4.7) months after time 3. The interval between postintervention and time 3, and between time 3 and time 4, did not differ by group for either children or adults. At time 4, our sample included 168 adults and 121 children. The mean age for adults at time 4 was 45.5 years (SD = 4.8), and the mean age for children was 14.0 years (SD = 2.1).

There was a large amount of psychopathology in our adult sample in the period postintervention. In the interval from time 1 to time 3, 84 couples (90.3%) experienced mood disorders with a mean duration of 11.4 months. Thirty-nine couples (41.9%) experienced non-mood-related illnesses during this interval with a mean duration of 12.0 months. In the interval from time 3 to time 4, 75 couples (80.7%) experienced mood disorders with a mean duration of 7.5 months. In 32 couples (34.4%), non-mood-related illnesses were reported with a mean duration of 10.1 months.

Although the children in our study generally were not depressed at baseline, a total of 18 children were diagnosed with major depression during the course of the study. Ten children (8.3%) reported major depression in the interval from time 1 to time 3, and 12 children (9.9%) reported major depression during the time 3 to time 4 interval. Note that of the 18 children with major depression during this study, only 7 children reported major depression before baseline. Likewise, 17 children (14.1%) met criteria for attention-deficit/hyperactivity disorder in the time 1 to time 3 interval, and 18 children (14.9%) reported attention-deficit/hyperactivity disorder during the time 3 to time 4 interval.

### Mediating Effect

#### *Parents' Change in Child-Related Behaviors and Attitudes*

We obtained ratings of parental behavior and attitude changes for all 93 families at time 3, and for 92 families at time 4. At time 4, couples reported on the SII a mean of 8.3 (SD = 4.4) total categories of child-related changes that they attributed to intervention participation. At time 4, the mean total change in child-related behavior and attitude for parents in the clinician-facilitated group was 9.8 (SD = 3.2), and the mean total change for lecture parents was 6.3 (SD = 2.6). At time 3 and time 4, parents in the clinician-facilitated group reported more categories of change than did parents in the lecture group ( $\chi^2_1 = 40.1, P < .001$ ), and parents at time 4 reported more change than did parents at time 3 ( $\chi^2_1 = 18.1, P < .001$ ).

### Proximal Outcomes

#### *Children's Change in Understanding of Parental Illness*

Of the 121 children in this study, we had missing data on understanding of parental illness for 16 children at time 3 and for 14 children at time 4. Thus, a total of 212 observations (across time points) were included in this analysis. Using the general estimating equation strategy, type of intervention was a highly significant predictor of children's understanding of parental illness, with children in the clinician-facilitated group reporting more change in under-

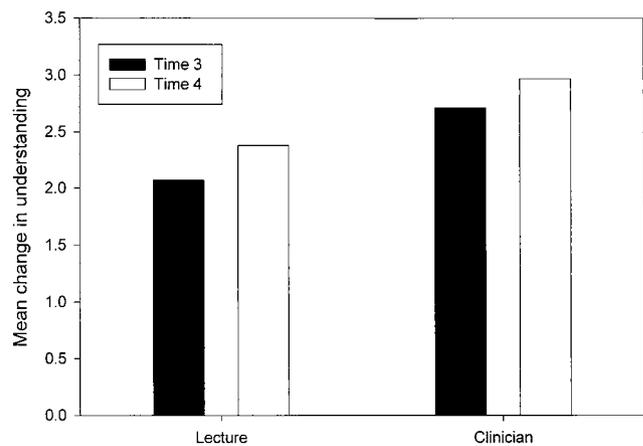


Fig 2. Children's change in understanding of depression by group.

standing than children in the lecture group ( $\chi^2_1 = 8.2, P = .004$ ; Fig 2), when couple's behavior and attitude change was not included in the model but all the other previously identified variables were included in the model (eg, level of parental dysfunction, SES, child age, child gender, time since intervention). When we added change in couple's child-related behavior and attitude to the model, however, group was not a significant predictor of change in child understanding ( $\chi^2_1 = 0.2, P = .67$ ). That is, we found that total behavior and attitude change was a more sensitive indicator of child understanding than group membership.

There was a positive association between the amount of change children reported on the semi-structured child interview in their understanding of parental illness and the number of changes couples reported in child-related behaviors/attitudes ( $\chi^2_1 = 37.3, P < .0001$ ). The effect of couples' child-related behavior and attitude changes on child understanding differed between time periods ( $\chi^2_1 = 3.9, P = .049$ ), such that the relation between concurrent parental change and child understanding was stronger at time 4 than was the relation between concurrent parental change and child understanding at time 3. However, without time 4 behavior and attitude change in the model, there was a predictive relation between time 3 behavior and attitude change and time 4 child understanding ( $\chi^2_1 = 11.8, P = .0006$ ). Child's age and gender influenced change in understanding ( $\chi^2_2 = 13.7, P = .0011$ ), with younger males reporting less change in understanding than older males, younger females, and older females, who were not different from one another. However, there was a significant gender-time interaction ( $\chi^2_1 = 10.7, P = .001$ ), with females' change in understanding decreased at time 4 relative to time 3 (Fig 3). Finally, SES was significant ( $\chi^2_4 = 13.1, P = .011$ ), with children from upper class families reporting increased change in understanding, relative to children from other social classes, who did not differ from one another. Length of time since intervention was not significantly related to changes in child understanding ( $\chi^2_1 = 0.2, P = .70$ ). Couples' worst GAS also was not related to changes in child understanding ( $\chi^2_1 =$

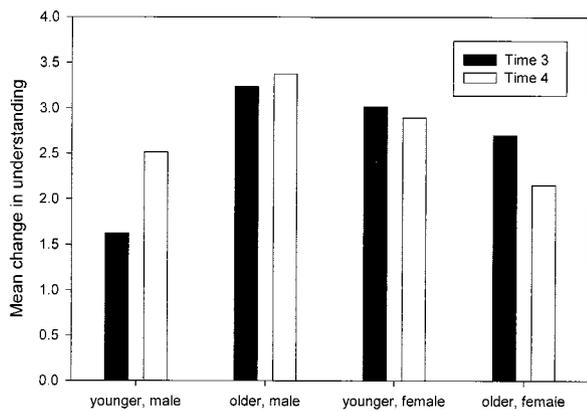


Fig 3. Children's change in understanding of depression by age and gender.

0.3,  $P = .61$ ). Changes in child understanding at time 3 were highly correlated with changes in child understanding at time 4 ( $r = 0.6$ ,  $P < .0001$ ).

#### Children's Change in Internalizing Symptomatology

Of the 121 children in this study, we had missing data on internalizing symptomatology from the YSR for 11 children at time 1, for 19 children at time 3, and for 16 children at time 4. Thus, a total of 317 observations (across time points) were included in this analysis. Internalizing scores for all children decreased with increased time since intervention ( $\chi^2_1 = 7.3$ ,  $P = .007$ ). In addition, females had higher internalizing scores than males ( $\chi^2_1 = 5.3$ ,  $P = .02$ ). There was no significant effect of group on children's change in internalizing symptomatology ( $\chi^2_1 = 0.2$ ,  $P = .69$ ). With time since intervention and gender in the model, no other variables were significant. In particular, there was no effect of change in couples' behaviors and attitudes ( $\chi^2_1 = 0.1$ ,  $P = .76$ ). In addition, the effect of time since intervention differed by gender only marginally ( $\chi^2_1 = 3.5$ ,  $P = .06$ ), with females showing less improvement as a function of time (Fig 4).

## DISCUSSION

This investigation yields several important findings about the primary prevention of depression and

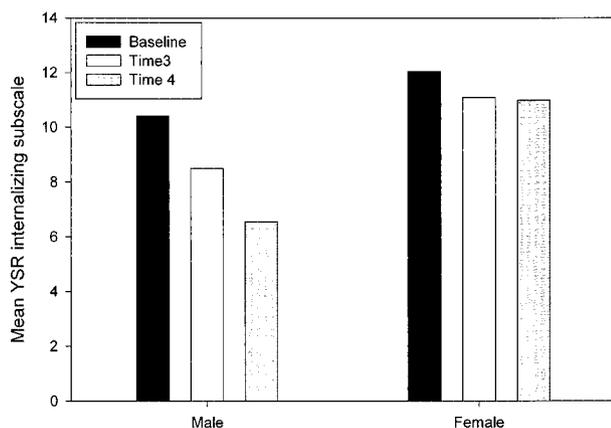


Fig 4. Children's internalizing symptomatology by time and gender.

other forms of psychopathology in children at risk for dysfunction because of parental mood disorder. We enrolled families with children who generally did not have significant depressive diagnoses at the time of assessment, administered carefully designed preventive interventions that are manual-based and relatively brief, and found that these programs do have long-standing effects in how families problem solve around parental illness (ie, behavior and attitude change). There was evidence that the clinician-facilitated program was more beneficial than the lecture program, and that the amount of change in parents' child-related behaviors and attitudes increased over time. We found that children reported increased understanding because of intervention, and that there was a significant relation between the amount of child-related behavior and attitude change manifested by parents and the amount of change in understanding manifested by children, although change was rated entirely separately by assessors blind to knowledge of the other subjects' reports. Finally, we found that children who participated in our intervention programs reported decreased internalizing symptomatology over time.

#### Group and Time Differences

Consistent with earlier reports on shorter time intervals,<sup>34-36</sup> we found that ~2½ years after participation in 1 of 2 preventive intervention programs, parents in the clinician-facilitated group reported more total change in child-related behaviors and attitudes than did parents in the lecture group. Likewise, when parental behavior and attitude change was *not* entered into the model, children of depressed parents who were assigned to the clinician group were more likely to report positive change in understanding of parental illness than were children whose parents were assigned to the lecture group. After participating in the family meeting, children in the clinician-facilitated condition reported they had "gotten a better sense of why she [mom] had done certain things, like stay in her room" or reported that participation helped them find "a way to get at this depression thing. It's good to know that part of it is physical. It helps me grasp that she is ill."<sup>55</sup> We believe that there are several potential explanations for the superiority of the clinician-facilitated program, relative to the lecture program. In particular, it may be that clinicians' linking the cognitive information presented to the family's illness experience may explain the superiority of the clinician-facilitated condition.<sup>56,57</sup> Also, the greater family focus of the clinician-facilitated program may explain its advantage, relative to the lecture program. Finally, more time was spent with families in the clinician-facilitated condition, relative to the lecture condition, and this may explain why children in the clinician-facilitated program reported more change than did lecture group children.

Our results show significant benefits from both interventions. We found that parental behavior and attitude change is a more parsimonious predictor of child change in understanding than is group membership. This may be explained by the fact that some

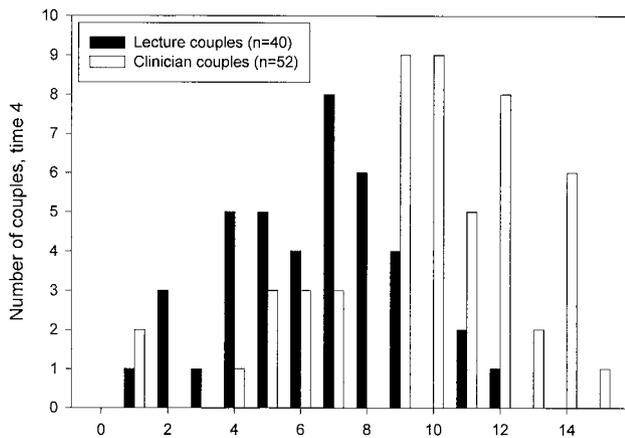


Fig 5. Parental child-related behavior and attitude changes by group.

parents in both intervention groups benefited quite significantly from intervention, and that the distributions of change in both groups overlap (Fig 5). As such, some lecture group parents changed as significantly as some clinician-group parents. Of course, group differences may also be obscured by the benefits of our very intensive, long-term assessment approach. That is, all family members in both intervention approaches participated in extensive, regular assessment interviews. It is possible that program outcome may reflect the benefits of the assessments as much as the intervention protocols themselves. In the future, within group analysis will be required to determine the characteristics of families who benefit most from each intervention approach.

As noted above, we found that, relative to time 3, parents at time 4 reported more total change in child-related behaviors and attitudes. Although we did not predict an increase in changes attributed to intervention over time, this finding is consistent with treatment studies that report an increase in effects at later time points.<sup>58,59</sup> The most likely explanation is that the effects of some treatment and prevention programs take time to develop, as participants are better able to consolidate new cognitive and social skills over time.<sup>59</sup>

#### Child Understanding of Parental Depression: Toward Resilience

Importantly, children whose parents reported more change in their child-related behaviors and attitudes were more likely to report a greater change in their understanding of parental illness. In fact, although children played only a small role in the clinician-facilitated intervention program and were not involved directly at all in the lecture program, changes in parents' perceptions translated directly into changes in children's own understanding of parental illness. Parental behavior and attitude changes and their connection to child changes in understanding identify an important mediating variable: family change.

Enhanced understanding of parental mood disorder may promote resilience in children. In fact, many youngsters who grow up with ill parents actually do

well. These "resilient" individuals possess the quality of self-understanding,<sup>60</sup> or the ability to view parental mood disorder realistically, to see oneself as separate from parental illness, and to build resources necessary to survive despite parental dysfunction.<sup>61</sup> Clearly, an accurate understanding of parental illness is intertwined with self-understanding, a key ingredient of resilience in children of depressed parents. By increasing children's understanding of parental mood disorder, our interventions were found to promote resilience-related qualities in these children at risk.

We did find that younger males reported less change in understanding of parental illness than did older males or females. This finding may reflect gender differences in the development of cognition.<sup>62</sup> That is, it may be that the younger boys in our study did not have the capacity to benefit from our interventions as much as older boys or girls in both age groups. Our finding that children from upper class families report more change in understanding than do children from other social classes is consistent with research indicating that higher SES families participate more in family components of intervention studies, and that a higher level of parental education is associated with more active participation in intervention programs.<sup>63,64</sup>

#### Child Depressive Symptoms

Overall, children in our study reported a decrease in internalizing symptoms on the YSR over time. Research on the YSR internalizing problem score suggests that, in general, internalizing symptoms are rather stable over intervals of 7 months<sup>65</sup> and 4 years<sup>66</sup>; in females, internalizing scores have been found to increase over time.<sup>66</sup> Moreover, research on adolescent depression suggests that rates of depressive symptoms increase during adolescence,<sup>11</sup> and that adolescents with elevated scores on measures of depressive symptoms have an increased risk of future depressive disorder.<sup>67</sup> Finally, self-reported internalizing problems have been found to be influential in the development of future depression.<sup>11</sup> Thus, our finding of decreased internalizing symptoms in the children in our study may serve as a proximal marker of prevention outcome.<sup>31</sup> That is, we expect that decreases in internalizing symptomatology may translate into more significant preventive effects at future assessment points (ie, decreased onset of depressive disorder during early adulthood). The finding that the girls displayed more internalizing symptomatology than the boys in our sample is consistent with research on sex differences in depressive symptomatology that emerge during adolescence, when girls are twice as likely as boys to report depressive symptoms.<sup>68,69</sup>

There are several possible explanations for why children in both groups reported significantly lower YSR scores over time. Both intervention approaches were associated with positive change in children. It is important to note that, even in the clinician-facilitated intervention group, children were minimally exposed to direct intervention; in both intervention groups, children were in repeated contact with a

supportive adult assessor and had the opportunity to discuss in detail their experiences growing up with a depressed parent. We believe that our assessment package, equivalent across groups, may well account for a large portion of the effects we see in YSR scores. In addition, both intervention programs led to significant change in parents' child-related behaviors/attitudes. Although the amount of behavior/attitude change in clinician-facilitated parents exceeds the level of change in lecture group parents, we expect that a threshold for change was likely reached in both intervention groups, and that threshold may well account for the decrease in YSR scores across groups.

That 12 children were diagnosed with major depressive disorder at time 4 does not indicate a failure of our intervention programs. We believe that the increase of depression diagnoses at time 4 reflects the degree to which our sample was ill at enrollment (when 3 children met criteria for current major depressive disorder, and 14 children reported a history of major depressive disorder). Moreover, given that there was nearly a fourfold increase in the number of children over age 14 at time 4, relative to time 1, it is also possible that this increase in depression diagnoses reflects the fact that, by time 4, a larger portion of our high risk sample had entered and/or passed through the age of highest risk for depression onset. Another possible explanation for this increase in depression diagnoses is that, within our high risk population, there is a subgroup of children with a strong genetic predisposition for depression that is not altered by our intervention targeting cognitive and family relationship factors. Clearly, if such a subgroup exists, this high risk group may benefit from frequent screening for depression so that symptoms can be addressed immediately. Perhaps most importantly, although research indicates that only 39% of adolescents with major depressive disorder are recognized and treated,<sup>70</sup> 50% of the children in our study who presented with major depressive disorder received treatment.

### Limitations

Our sample is predominantly white and middle class. In public health terms, this is a large scale efficacy trial. Further empirical evaluation in effectiveness trials is needed to support the broad use of these intervention programs. As a first step toward effectiveness evaluation, in a separate study we administered an adapted form of our clinician-facilitated intervention to an urban, predominantly low SES sample and demonstrated similar outcomes to those described in this paper for both intervention strategies.<sup>71</sup> Further research is needed to replicate findings with samples that are more diverse in ethnicity and social class. In addition, as noted above, for both interventions the assessment process may have contributed to intervention effects. Research on the treatment of depression indicates that the non-specific effects of treatment, that is therapist contact, are associated with positive therapeutic change regardless of the content of the treatment program.<sup>7</sup> To some extent, assessor contact may have contributed

to the overall positive findings for both groups. The benefits of our intervention programs should be examined with a less rigorous assessment schedule as the next phase of investigation. Furthermore, evaluation of families that benefit most from these approaches, and families that need more intensive intervention, is indicated.

### Clinical and Research Implications

Despite these limitations, this investigation suggests that, even when parents have a disorder that distorts cognition, carefully delivered cognitively based interventions can have long-term effects. It is striking that blindly assessed, separately rated interviews with parents and children show that changes persist over time and that more parental change leads to greater child change. These are important findings that confirm the public health and pediatric strategy of giving advice to parents and guiding them about their interactions with their youngsters. Also, our finding that so many parents were ill in the intervals (eg, 80.7% of the couples experienced mood disorder in the interval from time 3 to time 4) shows unequivocally that when we conceptualize risk in children with depressed parents, we need to understand that this risk is ongoing, and that children are affected by parental mood disorder continuously. The effect of continuous exposure to parental illness warrants more attention in both research and clinical settings.

This presentation represents the first and only longitudinal primary prevention study of relatively healthy children at risk for psychopathology because of parental mood disorder. Gillham et al<sup>8</sup> outline limitations to the existing prevention research on psychological problems in children; they note that most prevention programs focus on depressive symptoms rather than diagnoses and attempt to reduce symptom levels rather than focusing on primary prevention. Yet our sample of adults suffered from significant, diagnosable mental illness. Despite research indicating the difficulties associated with keeping subjects in preventive intervention programs,<sup>64</sup> we engaged families in both of our prevention programs, we maintained 88% of families enrolled over 2.5 years, and we maintained 96% of families who actually received intervention.

Our results provide support for a family-based approach to preventive intervention. In fact, research on preventive interventions for children of divorce suggests that intervening with parents may be more effective than intervening with children.<sup>30</sup> It is also noteworthy that, to date, little research exists on the relation between parental change and child change. We believe in the principles of engaging with parents, providing psychoeducational information, providing strategies for enhancing resilience in children, linking information to the families' unique experiences, and then providing long-term follow-up and support for the implementation of prevention strategies for a wide range of conditions (eg, divorce, alcoholism), not just parental depression. Much more work also is indicated to define what level of psychoeducational intervention in families is needed

and how closely that intervention strategy must be linked to the families' individual concerns and experiences to bring about family change.

This investigation has implications for theory, practice, and policy, and highlights the importance of adopting a primary prevention approach to depression in high-risk populations. In fact, primary prevention is essential if we are to reduce the incidence of mental and emotional disorders in children.<sup>72</sup> These interventions were designed to be widely used in practice settings, including pediatric offices. Greater attention to including the family as a whole in health education efforts is needed.

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