The Impact of Parent Behavior-Management Training on Child Depressive Symptoms

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The present study tested the impact of a parent behavior-management intervention on child depressive and internalizing symptoms. One hundred eighty-one children were randomly assigned to receive a videotape modeling parenting intervention, the Incredible Years, or to a wait-list control group. Children who received the intervention were more likely to have lower mother-rated mood and internalizing symptoms at post-treatment, compared with children in a wait-list control group. The effect sizes observed in the present intervention fell in the small-to-medium range for the sample as a whole, and some evidence supported the authors' hypothesis that effects would be strongest for children with baseline internalizing symptoms in the clinical range. Subsequent analyses also revealed that perceived changes in parenting effectiveness mediated the effect of treatment on children's post-treatment internalizing symptoms. The finding was consistent with study hypotheses and social learning explanations of child internalizing symptoms that guided selection of putative mechanisms. Implications for counseling psychologists and for designing interventions and prevention strategies for children with internalizing symptoms are discussed.

Keywords: Incredible Years, parent behavior management, children, internalizing symptoms

Despite the optimism created by the success of several research trials to prevent or treat youth depression, effects are modest and inconsistent (Horowitz & Garber, 2006; Muñoz, Le, Clarke, & Jaycox, 2002; Weisz, McCarty, & Valeri, 2006). Recent meta-analyses of the psychosocial prevention and treatment literature for youth depression placed the overall mean prevention (.30) and treatment (.34) effect size in the small range (Horowitz & Garber, 2006; Weisz et al., 2006). Equally concerning, most depression prevention and treatment programs to date have targeted adolescents to the neglect of children (Horowitz & Garber, 2006; Weisz et al., 2006). In fact, no intervention for depressed preschool or early school-age children currently meets accepted standards for designation as an empirically supported treatment (Murray & Cartwright-Hatton, 2006).

Need for Developmentally Sensitive Interventions

The lack of research on depression interventions for preschoolers can be attributed to several factors. First, prevailing wisdom prior to the mid 1980s suggested that young children did not experience depression (Hammen & Compas, 1994). We now know that they do and that childhood depressive symptoms and disorders can have long-term deleterious effects, including future risk for depressive disorders (Dunn & Goodyer, 2006; Ialongo, Edelsohn, & Kellam, 2001; Roza, Hofstra, van der Ende, & Verhulst, 2003; Sourander et al., 2005), suicide attempts (Dunn & Goodyer, 2006; Weissman et al., 1999), bipolar disorder (Weissman et al., 1999), conduct disorder (Weissman et al., 1999), antisocial personality disorder (Sourander et al., 2005), and substance abuse and dependence (Fombonne, Wostear, Cooper, Harrington, & Rutter, 2001; Weissman et al., 1999).

Second, depression in young children can be difficult to identify and diagnose, given the variability in children's behavioral presentation of symptoms and their lack of emotion language skills (Lous, De Wit, De Bruyn, Riksen-Walraven, & Rost, 2000). Rather than using words to describe their feelings and concerns, preschoolers may express their distress through disruptive behaviors that can mask their depressive symptoms (Garber & Horowitz, 2002). Similarly, children with only internalizing symptoms may go largely unnoticed because their symptoms do not draw attention to them.

Third, the most studied psychosocial approach for adult depression, cognitive behavior therapy, may be less efficacious and perhaps developmentally inappropriate for very young children (Grave & Blisset, 2004). Existing interventions generally lack a developmental perspective and represent a downward extension of treatments originally developed for adolescents or adults (Kaslow, McClure, & Connell, 2002; Weisz, Rudolph, Granger, & Sweeney,

1992). Young children, who vacillate in their thinking between fantasy and reality, lack the cognitive capacity necessary to self-reflect, emotionally self-regulate, or grasp some of the abstract concepts associated with cognitive therapies (Dodge, 1993; Myer, 2004). In other words, the methods for treating young children are quite different than those for treating adolescents or adults.

Even recent efforts to create developmentally sensitive interventions (Kovacs et al., 2006) have a decidedly within-child focus and have largely ignored sociocontextual aspects of depression. These approaches overlook systemic factors, such as the way parents inadvertently reinforce their children's internalizing problems, which may need to be targeted in hopes of producing durable changes in child internalizing symptoms. Parents are rarely the centerpiece of treatments for depressed youth. When incorporated, they are usually in supportive roles (e.g., to help the youth master coping skills that are being taught directly to them) or used as an auxiliary treatment component (Horowitz & Garber, 2006), rather than as "agents of change" (Sander & McCarty, 2005, p. 211).

Social Learning Model of Depression

The secondary role of parents in treatments for child depression is especially surprising, given the fairly robust theoretical and research literature showing that parenting behaviors play a pivotal role in the development of childhood cognitive styles and, concomitantly, in the development of depression and anxiety (Ostrander & Herman, 2006). Social learning theory posits that early childhood internalizing symptoms have roots in dysfunctional parenting behaviors and family environments. Self-beliefs associated with depression emerge from negative encounters with the social environment (Bandura, 1986). Children learn depressive behaviors through direct and vicarious experiences. For instance, not only are depressive behaviors selectively reinforced by parents but they are also modeled by them. Children observe the contingencies between consequences that follow their behavior, as well as the behavior of models (Hawkins, Clarke, & Seeley, 1993). These experiences contribute to children's beliefs about their own control over relevant contingencies and outcomes in their lives.

Empirical studies have supported the social learning perspective on childhood depression. Researchers have documented disrupted parent–child relationships in children who are depressed (George, Herman, & Ostrander, 2006; Gerlsma, Emmelkamp, & Arrindell, 1990; Rapee, 1997; Stark, Humphrey, Crook, & Lewis, 1990; Walker, Garber, & Greene, 1993) and anxious (see Chorpita, Brown, & Barlow, 1998). Parenting behaviors associated with child internalizing symptoms and negative self-beliefs include low levels of parenting competence (e.g., critical, hostile, unpredictable, inconsistent, noncontingent, and nonnurturing parenting behaviors; Bruce et al., 2006; Carton & Nowicki, 1994; Chorpita et al., 1998; Ostrander & Herman, 2006; Rudolph, Kurlakowsky, & Conley, 2001; Schneewind & Pfeiffer, 1978; Skinner, Zimmer-Gembeck, & Connell, 1998) and lack of attachment or bonding with the child (e.g., unresponsive, aloof, emotionally unavailable; Chorpita et al. 1998). Moreover, family stress has been shown to disrupt parenting practices and undermine parenting competence (for review, see Webster-Stratton, 1990a). Restricted opportunities for social reinforcement, support, and attachments can be viewed as general family stressors that can lead to internalizing distress in all children (see Ostrander, Weinfurt, & Nay, 1998). Perceived role restriction is a particular type of parenting stress that includes a parent's sense of being frustrated and trapped by their parenting responsibilities (Abidin, 1990). Parents who feel role restricted are less apt to provide the nurturing, supportive, structured environments described above that are linked to the development of children's healthy cognitions and emotions.

Parenting Interventions for Child Conduct Problems and Depression

The connections between parenting behaviors and depression are highly reminiscent of the literature regarding the development of conduct problems. In fact, child conduct problems and depression share a host of common risk factors and presumed mechanisms (George et al., 2006). In addition, it could be argued that fine distinctions between conduct problems and depression in childhood are somewhat arbitrary, given that diagnostic comorbidity is the rule for most childhood disorders, including depression (Hammen & Compas, 1994). Youth with depressive disorders tend to score high on measures of both internalizing and externalizing symptoms (Edelbrock & Costello, 1988), with disruptive behavior symptoms and disorders among the most common types of co-occurrence (Angold, Costello, & Erkanli, 1999).

Unlike treatments for child depression, family and parenting interventions are the focus of most treatments for youth conduct problems. One well-researched, evidence-based parent intervention, known as the Incredible Years (IY) treatment programs (other IY programs include child social-skills training and a teacher-delivered curriculum), was designed to treat young children (ages 3–8 years) with a wide range of behavior problems. IY is a manualized 10- to 12-session group parenting intervention based on social learning principles. The four primary focus areas of IY include play and attends, praise and rewards, limit setting, and managing misbehavior. Skills are introduced and practiced via a videotape modeling format in which brief vignettes of actual parent–child interactions are viewed and discussed. Parents are then given ample opportunity to role-play similar scenarios and to give and receive feedback about effective parenting practices. Group leaders guide discussions through collaborative facilitation strategies and Socratic questioning.

IY is arguably the most studied intervention for child conduct problems; over a dozen rigorous randomized trials support its efficacy with a wide range of children and families (Webster-Stratton & Reid, 2003). Because of its extensive research base, IY was selected by the U.S. Office of Juvenile Justice and Delinquency Prevention as an exemplary best-practice program and as a Blueprints Model Program for violence prevention (Center for the Study and Prevention of Violence, 2007).

Although its effects on internalizing symptoms have not been investigated to date, IY targets many of the proposed mechanisms and risk factors for internalizing distress in early childhood: unpredictable, unstructured, nonnurturing, and harsh or critical parenting behaviors. Available data suggest that interventions originally targeting children with a broad spectrum of behavior problems may also reduce child internalizing symptoms (Brotman, 2006; Kellam, Rebok, Mayer, Ialongo, & Kalodner, 1994). For instance, a recent study indicated that a parenting intervention (based on IY) targeting conduct problems significantly reduced child depressive symptoms (Brotman, 2006).

The present study investigated the impact of the IY on child internalizing symptoms in a trial originally designed to test the effects of the IY on conduct problems. We hypothesized that children in the treatment condition would have significantly lower post-treatment internalizing scores relative to a wait-list control group. Further, we expected that effects would be especially pronounced for children with elevated levels of internalizing symptoms at baseline. We also examined potential mediators of any observed treatment effects. We predicted that changes in perceived parenting competence, attachment, and stress would mediate the effects of the intervention on child internalizing symptoms.

Method

Participants

The sample included 181 families who participated in a parenting treatment outcome research study on young children with oppositional defiant disorder (ODD) and/or conduct disorder (CD). Entry criteria included the following: (a) The child was between 3 and 8 years of age; (b) the child had no debilitating physical impairment, intellectual impairment, or history of psychosis and was not already receiving psychological treatment; (c) the primary referral reason was for conduct problems, such as noncompliance, aggression, and oppositional behavior, that continued for more than 6 months; (d) parent-report symptoms were clinically significant (i.e., more than two standard deviations above the normed mean) on the Eyberg Child Behavior Inventory (ECBI; Robinson, Eyberg, & Ross, 1980); and (e) the child met criteria for ODD and/or CD according to either the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev.; *DSM–III–R*; American Psychiatric Association, 1987) or the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM–IV*; American Psychiatric Association, 1994), depending on their date of entry into the study.

Participants were recruited from families requesting treatment at the University of Washington Parenting Clinic, a clinic widely known in the region for its treatment of young children with conduct problems. About one third of the families were self-referred, and the remainder were referred by professionals in the community (20% by teachers and 38% by physicians). Parents were given more information about the study, including the ongoing assessments and the possibility of being randomly assigned to a treatment or wait-list condition. Interested parents were invited to participate in a telephone screen, which the researchers used to identify children in the clinical range on the ECBI. These families were eligible for a 2- to 3-hr structured intake interview developed by our staff, after which a diagnosis was rendered according to *DSM–III–R* or *DSM–IV* criteria. Highly trained therapists conducted the interviews, which were videotaped for review. Random and regular review of approximately 15% of interviews indicated 100% reliability for ODD and CD diagnoses.

The final sample consisted of 142 boys and 39 girls between the ages of 3.0 and 8.5 years at intake ($M = 5.25$, $SD = 1.2$). The sample included children from the following racial/ethnic groups: 79% European American, 9% Latino/Hispanic American, 6% Asian American, 4% African American, 1% Native American, and 1% Unspecified. All were living in a large metropolitan setting in the northwestern United States. Their mothers ranged in age from 24 to 65 years ($M = 34.83$, $SD = 5.89$); participating fathers were slightly

older, ranging in age from 26 to 77 years ($M = 37.15$, $SD = 6.70$). Seventy-three percent of mothers were currently married or living with their partner. All mothers and most fathers (96%) had completed high school. Forty percent of mothers and 52% of fathers had completed a 4-year college degree. Sixty-one percent of mothers and 93% of fathers were currently employed. The careers of nearly half of the parents (45%) were categorized as major or minor professional according to the Hollingshead Index of Social Position (Hollingshead, 1957). The remaining participants reported skilled (29%), semiskilled (19%), or unskilled (7%) professions. Table 1 contains other demographic information by treatment condition.

Procedures

Intervention. After baseline assessments were completed, families were randomly assigned to either a wait-list condition or to the IY parent-training program. In total, 111 participant families received the parent-training intervention, and 70 families were assigned to the wait-list control group and received the parent training after their post-assessment. Detailed descriptions of the treatment have appeared elsewhere (Webster-Stratton & Hancock, 1998). However, we provide a brief outline of the parent training below.

The parent-training condition included the basic content and principles of the IY. The program focuses on teaching parents child-directed play, social and emotional coaching skills, positive and responsive parenting, effective discipline approaches, communication and problem-solving skills, strategies for coping with parental stress, anger and depression, ways to give and get support, and strategies for strengthening children's prosocial behaviors and social skills. The groups are led by mental-health professionals who use brief videotape vignettes of actual parent–child interactions to teach each skill. After presenting a vignette, the group leaders facilitate discussion using Socratic questioning and reflective listening. Parents are then invited to take turns practicing the targeted skills in role plays. In the first session, the parents identify goals for themselves and their children. Then they learn parent

Table 1
Summary of Baseline Characteristics

	PT			Control		
Variable	M or %	SD	n	M or %	SD	n
Child's age (months) at intake	63.02	14.19	111	63.47	16.05	70
Child's gender (% male)	81.1%		111	74.3%		70
Mother's age (years)	34.73	6.13	110	34.99	5.54	70
Mother's education	2.82	0.94	111	2.54	0.97	70
Father's age (years)	37.18	7.27	102	37.12	5.74	66
Father's education	2.50	1.16	103	2.40	1.19	67
Mother's marital status (% partnered)	69.4%		111	78.6%		70
Hollingshead Social Position score	32.99	15.85	110	31.19	16.28	70
Total no. of children in home	1.82	0.80	111	1.99	0.79	70

Note. PT = parent training; for the education scale, 1 = graduate school, 2 = college graduate, 3 = partial college, 4 = high school completed, 5 = grades 10–11, 6 = grades 7–9; for Hollingshead Social Position, high score = low social position.

behavior-management principles, which they apply to their targeted goals. Of relevance to understanding its hypothesized impact on depression symptoms, identified goals include working on a child's internalizing symptoms as part of the behavior planning. They move on to learn cognitive strategies for themselves, such as self-praise, coping thoughts, how to challenge negative thoughts, and how to get support, including group support-skills, that they are encouraged to model for and teach their children. Finally, they learn how to be more positive and nurturing through social and emotional coaching. To its credit, this program has been shown in numerous randomized clinical trials to improve parenting, to reduce noncompliant and aggressive behaviors, and to increase social competence in children (e.g., Beauchaine, Webster-Stratton, & Reid, 2005; Webster-Stratton, 1984, 1990b, 1994; Webster-Stratton & Hammond, 1997; Webster-Stratton, Kolpacoff, & Hollinsworth, 1988; Webster-Stratton, Reid, & Hammond, 2004).

Child Outcome Measures

Measures included both mother reports and father reports of child behaviors.

Child Behavior Checklist (CBCL). The CBCL (Achenbach, 1991) is a 113-item informant-report measure that yields two broad band factors, Internalizing and Externalizing, and a number of more specific subscales (e.g., Attention Problems, Anxious/Depressed). Behavioral descriptors (e.g., "doesn't seem to feel guilty after misbehaving") are rated by parents across three anchors (0 = *not true*, 1 = *somewhat true*, 2 = *very true*), which are summed for each factor-analytically derived subscale. These scores are then indexed to national norms. For the present study, we used maternal reports of the broadband Internalizing factor as a measure of internalizing symptoms for our primary outcome analyses. This factor includes the broadest range of behaviors related to depressive symptoms. In addition, we used fathers' CBCL ratings for additional outcome analyses. Psychometric properties of the CBCL are well established (see Achenbach, 1991).

Targeting a broad spectrum of internalizing symptoms was based on several key empirical premises. First, subclinical internalizing symptoms are associated with significant functional impairment and service use (Angold et al., 1999; Costello et al., 1996). Second, internalizing symptoms in early childhood (meeting criteria for disorder or not) are associated with elevated risk for negative socioemotional outcomes in adolescence and adulthood (Ialongo et al., 2001). Third, internalizing disorders versus internalizing symptoms are much less frequently observed in young children. Thus, on a practical level, targeting internalizing symptoms enhanced the generalizability of the intervention findings.

The Child Mood subscale of the Parenting Stress Index (PSI; Abidin, 1990), described below, was also used in outcome analyses to determine the specific effect of the intervention on depressed mood, rather than the more global effect on internalizing symptoms offered by the CBCL analyses. The Child Mood subscale is composed of five items that ask parents to rate whether their child cries excessively or is withdrawn or depressed. High scores indicate that children are unhappy and/or do not display signs of happiness. Research has supported a two- or three-factor structure of the PSI across diverse samples, and the Child Mood scale consistently loads on the Child factor (Abidin, 1990; Hutcheson &

Black, 1996; Solis & Abidin, 1991). The internal consistency of the Child Mood scale is acceptable, ranging from .58 for an African American sample (Hutcheson & Black, 1996) to .63 for Hispanic samples (Solis & Abidin, 1991) and .66 for Caucasians (Abidin, 1990). The 6-month stability is very strong ($r = .41$), especially for a measure of mood. Scores on the Child Mood scale have also been shown to relate to maternal ratings of child temperament (Hutcheson & Black, 1996).

Eyberg Child Behavior Inventory (ECBI). The ECBI (Robinson et al., 1980) is a 36-item informant-report measure of conduct problems for children aged 2–16 years. Scores from the ECBI correlate well with independent behavioral observations and differentiate between clinic-referred and control children. For the present study, we used mother and father reports of the total behavior problems score in the structural equation models described below. It has good internal consistency ($\alpha = .98$) and test–retest reliability ($r = .86$).

Measures of Putative Mediators

Parenting Stress Index (PSI). The PSI (Abidin, 1990) is a 126-item parent-report instrument of child behavior problems and parental adjustment. The PSI includes both parent domain and child domain scores, which are summed to yield a total stress score that assesses the overall magnitude of life stress a parent is experiencing. Alpha reliability coefficients were reported to be .95, and test–retest reliabilities ranged from .82 to .71 (Abidin, 1990). The Parenting Competence subscale assesses the parent's perceived success and capabilities in fulfilling the parenting role and includes items related to knowledge of how to manage the child's behavior and comfort in making decisions such as when and how to discipline (e.g., "Being a parent is harder than I thought it would be"). The Attachment subscale taps parents' perceived emotional closeness to their child, as well as the parent's ability to accurately determine their child's needs (e.g., "It takes a long time for parents to develop close, warm feelings for their child," and "My child knows that I am his/her parent and wants me more than other people"). High scores also indicate a low level of parental monitoring of child behavior. The Role Restriction subscale measures the extent to which parents view their responsibilities as frustrating or limiting. Items include "I feel trapped by my responsibilities as a parent," and "Most of my life is spent doing things for my child." The three subscales were highly correlated (intercorrelations ranged from .37 to .55 at each time point), justifying their aggregation as indicators of a construct that was labeled *parenting effectiveness* for some analyses described below.

Analytic Plan

Handling data from multiple informants. We conducted most analyses separately by parent informant because of the large amount of missing data from fathers. Whereas we collected data from every mother participant at each time point, only 128 fathers provided ratings at the second time point. Also, prior research suggested that mothers and fathers provide unique perspectives on child behavior changes that should be considered separately and together (Webster-Stratton, 1988).

We combined mother and father ratings for two analyses. First, we aggregated parent ratings in some tests evaluating the clinical

significance of the intervention effect. Here we were interested in the number of children moving from the clinical to the nonclinical range of symptoms by either parent report. We used the highest score given by either source, a common method for aggregating data from two sources about child internalizing symptoms. This technique facilitates identifying a behavior of interest when one source may be underreporting for reasons of social desirability or because the nature of the behavior makes it less salient to one of the reporters (Piacentini, Cohen, & Cohen, 1992; Reich & Earls, 1987). Mothers and fathers contributed a comparable amount of data to these analyses. At baseline, mothers gave the highest score for 54% of participants who had both mother and father ratings, fathers gave the highest score for 38%, and mother and father ratings were identical for 8% of participants. At post-treatment, the percentages were reversed. Mothers gave the highest score for 36%, fathers provided 53%, and their ratings were identical for 11% of participants.

Second, we aggregated mother and father data using structural equation modeling (SEM) to test mediation hypotheses. Although combining mother and father data lowered the power and sensitivity of these analyses, it provided a more rigorous test of the mediation hypothesis by ruling out source bias as the sole explanation for any observed mediation effects.

Outcome analyses. Initial outcome analyses were conducted using a series of 2 (pre vs. post) $\times$ 2 (intervention condition) repeated-measures analyses of variance (ANOVAs) using an intent-to-treat design with all cases. Mother and father CBCL Internalizing ratings at post-treatment served as outcome variables. Given our primary interest in child depression, parental ratings of child mood on the PSI were also used as primary measures of outcome. Given that the children were originally recruited into the trial on the basis of their externalizing symptoms, we took the following steps to determine the intervention's specific impact on depressive and internalizing symptoms: (a) We controlled for baseline externalizing problems in all outcome analyses, and (b) we repeated all analyses using only data from children who were depressed at baseline. In addition, we tested moderation effects of baseline externalizing symptoms and each demographic variable by including each variable and its cross-product with treatment condition as a covariate for each outcome variable.

Predictor and moderator analyses. After conducting primary outcome analyses, we followed guidelines given in Curry et al. (2006) for testing predictor and moderator effects. These analyses were considered exploratory, as we did not have a priori hypotheses about the effects of each candidate variable on outcomes. Rather, we were interested in testing whether any sociodemographic variable or baseline conduct symptoms predicted or moderated treatment response so as to inform future investigations. Each model tested the main and interaction effects of treatment and each candidate predictor/moderator on post-treatment internalizing symptoms. To be consistent with the primary efficacy analyses reported above, we included baseline internalizing and externalizing symptoms in these predictor/moderator analyses. Also, to limit the number of analyses conducted for these exploratory hypotheses, we focused only on predictors/moderators of the primary outcome variable in this study, maternal reports of internalizing symptoms on the CBCL.

Mediation analyses. We used SEM to examine the relations between the predictors, mediators, and outcome variables. SEM

was conducted using Mplus 4 (Muthén & Muthén, 2004), and maximum likelihood estimates were obtained. Structural model fit was evaluated using multiple indicators of fit: chi-square, the comparative fit index (CFI), the Tucker-Lewis Index (TLI), standardized root-mean-squared residual (SRMR), and root-mean-square error of approximation (RMSEA). In general, CFI and TLI values above .90 represent adequate fit (Hu & Bentler, 1995); CFI and TLI values above .95 and RMSEA and SRMR values less than .08 represent acceptable fit (Hu & Bentler, 1999). However, in the present analyses, more weight was given to the maximum-likelihood-based SRMR, given the relatively small sample size that resulted from including both mother and father data ($n = 124$). Hu and Bentler (1999) found that TLI and RMSEA tend to over-reject models (inflated Type I error rate) for smaller sample sizes.

Mediated effects were tested according to guidelines outlined by MacKinnon, Lockwood, Hoffman, West, and Sheets (2002). Specifically, we tested the significance of the indirect effect from the predictor to the outcome using the delta method (see MacKinnon et al., 2002). A significant indirect effect was taken as evidence of mediation. We included pre- and post-treatment internalizing, externalizing, and parent effectiveness scores in these models to evaluate the unique and shared changes in each of these latent constructs. We also followed recommendations by Russell, Kahn, Spoth, and Altmaier (1998) for conducting SEM with longitudinal intervention data. In particular, we attempted to minimize correlated measurement error by allowing error terms for repeated measures to correlate and by constraining loadings of measured variables with parallel latent variables to be equal over time.

Results

Preliminary Analyses

Baseline characteristics and equivalence of intervention and control groups. We calculated descriptive statistics and preliminary Pearson correlation analyses to determine the univariate relations among study variables. Table 1 lists demographic characteristics for each study group. There were no significant differences between the two conditions on any demographic or key study variable at baseline. Table 2 provides mean scores for each group on key study variables at baseline and after intervention. As expected, internalizing symptoms were fairly common among these children. Using the highest score of either mother or father ratings, we found that 47% of the children had T scores of 60 or higher on the Internalizing subscale of the CBCL (borderline-clinical range), and 17.1% had scores of 70 or higher (severe-clinical range).

Attrition analysis. Complete mother ratings at baseline and post-treatment were available for all participants, so attrition analyses for these data were not needed. Children with fathers who completed ratings had comparable scores on baseline mother-rated CBCL Internalizing, $t(179) = 1.09$, $p > .05$, and PSI Child Mood, $t(179) = 1.09$, $p > .05$, as children whose fathers did not. In addition, the subgroups with and without father participants were of a similar age, $t(179) = 1.09$, $p > .05$, and had comparable distributions of gender, $\chi^2(1, N = 181) = 2.30$, $p > .05$, and race (Caucasian vs. not), $\chi^2(1, N = 181) = 1.60$, $p > .05$.

Table 2
Intervention Effects on Child Internalizing Symptoms and Parenting Domains

	Control				Intervention				Group × Time ANOVA		
	Pre		Post		Pre		Post				
Variable	M	SD	M	SD	M	SD	M	SD	df	F	Cohen's d
Mother's CBCL Internalizing T score	57.57	9.28	55.80	9.88	56.05	10.69	51.44	10.42	1, 178	5.86**	.37
Mother's PSI Child Mood	14.49	3.10	14.24	2.81	14.42	3.61	12.58	3.67	1, 178	9.56***	.47
Father's CBCL Internalizing T score	54.69	9.44	52.40	10.16	53.77	9.91	49.47	10.10	1, 126	2.04	.26
Father's PSI Child Mood	13.73	2.99	13.60	2.79	13.65	3.61	12.57	3.21	1, 126	2.66*	.30
Mother's PSI Parent Competence	34.78	7.97	34.33	8.64	35.94	7.17	30.91	6.43	1, 178	29.64***	.84
Mother's PSI Attachment	14.59	3.13	14.37	3.71	15.05	3.85	13.51	3.47	1, 178	6.37**	.39
Mother's PSI Role Restriction	20.49	5.73	20.10	5.06	21.63	5.97	19.32	5.90	1, 178	7.22***	.41

Note. ANOVA = analysis of variance; CBCL = Child Behavior Checklist (Achenbach, 1991); PSI = Parenting Stress Index (Abidin, 1990). All analyses included baseline CBCL Externalizing symptoms as a covariate.
* $p < .10$. ** $p < .05$. *** $p < .01$.

Intervention Effects

Outcome analyses. The repeated-measures ANOVAs applied to mothers' ratings of internalizing symptoms (on the CBCL) yielded a significant Group × Time interaction, $F(1, 178) = 5.86$, $p < .05$, effect size (ES) = .37 (see Table 2). Inspection of marginal means revealed a significantly greater drop in internalizing symptoms for the treatment group from baseline to post-treatment (56.04 to 51.44) relative to the control group (57.57 to 55.80). The significant Group × Time interaction persisted when applied to children with elevated levels of depression at baseline (T scores of 60 or greater), $F(1, 66) = 5.01$, $p < .05$, ES = .55. Marginal means indicated that the treatment group experienced a greater reduction in internalizing symptoms (baseline = 67.26, post-treatment = 59.40), compared with the control group (baseline = 66.77, post-treatment = 63.80).

Although the effect on fathers' ratings of internalizing symptoms for the overall sample was not significant, $F(1, 126) = 2.04$, $p = .16$, ES = .26, the analysis focusing only on children with baseline elevations was significant, $F(1, 37) = 5.14$, $p < .05$, ES = .74. Inspection of marginal means revealed a significant reduction in treated children's Internalizing scores (65.09 to 55.32) relative to the control group (64.89 to 61.50).

For outcome analyses specific to depressed mood, the repeated-measures ANOVAs applied to mothers' ratings of child mood (on the PSI) yielded a significant Group × Time interaction, $F(1, 178) = 9.56$, $p < .05$, ES = .47. Inspection of marginal means revealed a significantly greater drop in internalizing symptoms for the treatment group from baseline to post-treatment (14.42 to 12.58) relative to the control group (14.49 to 14.24). Fathers' ratings of child mood symptoms yielded a marginally significant Group × Time interaction, $F(1, 126) = 2.66$, $p < .10$, ES = .30. Inspection of marginal means revealed a greater drop in internalizing symptoms for the treatment group from baseline to post-treatment (13.65 to 12.57) relative to the control group (13.72 to 13.60). As before, the effect was stronger for analyses focusing on children with elevated baseline internalizing symptoms, $F(1, 36) = 4.40$, $p < .05$, ES = .69.

We also examined treatment effects for each of the proposed mediators, parent-reported parent competence, attachment, and role restriction. Treatment had a significant effect on each of these parenting domains, with effect sizes ranging from .39 to .84 (see Table 2).

Clinical significance. In addition to the effect-size data reported above, we also calculated the percentage of children moving from the clinical ranges of symptoms (separately for children with baseline scores above 59 and 69, respectively), as well as the percentage of children achieving a 20% or greater reduction in symptoms over time for both groups. Using mothers' ratings of internalizing symptoms, we found that 48.7% of treated children with internalizing scores in the borderline-clinical range (60 or higher) improved to the normal range (<60) at post-treatment, compared with 36.7% of children in the control group. These observed differences in improvement, however, were not statistically significant ($p > .05$). For children with internalizing scores in the severe-clinical range (70 or higher), 71% of treated children were no longer in the severe-clinical range at post-treatment, compared with 36% of the control group (Cramer's $\phi = .41$, $p = .045$). Although 29% of treated children were in the normal range at post-treatment, compared with 0% of control children, this effect was only marginally significant (Cramer's $\phi = .38$, $p = .064$). On the basis of father report, we determined that 64% of children in the treatment group who were in the borderline-clinical range at baseline were in the normal range at post-treatment, compared with 39% in control group ($p < .10$); in addition, 57% of children in the treatment group who were in the severe-clinical range at baseline were in the normal range at post-treatment, compared with 0% in control group (Cramer's $\phi = .57$, $p = .058$). Both of these latter findings were also only marginally significant.

We repeated these analyses on combined mother and father data, using the highest score of either informant to determine each child's clinical designation (clinical or normal range) at baseline and post-treatment. Seventy percent of control children remained in the borderline-clinical range at follow-up (by mother *or* father-report), compared with 48% of treated children, but this comparison was only marginally significant (Cramer's $\phi = .22$, $p = .090$). Seventy-eight percent of control children remained in the severe-clinical range at follow-up on either parent report, compared with only 26% of treated children (Cramer's $\phi = .51$, $p = .011$). Moreover, 31% of children in the treatment group who were rated in the severe-clinical range at baseline returned to the normal

range at follow-up, compared with no children (0%) in the control group; again, this apparent difference was only marginally significant (Cramer's ϕ = .38, p = .061).

Next, we calculated the likelihood that children in both groups experienced a 20% reduction in symptoms from baseline to post-treatment (just over a one-standard-deviation reduction based on baseline scores). By mother report, for children with internalizing scores in the borderline-clinical range (60 or higher) at pre-test, a significantly higher percentage of children who received the intervention (23.1%) achieved a 20% reduction in internalizing scores at post-test than did children in the control condition (3.3%), χ^2(1, N = 69) = 6.20, p < .05.

Predictor/Moderator Analyses

We did not find evidence that baseline externalizing symptoms or sociodemographic factors predicted or moderated treatment effects. Baseline externalizing symptoms on the CBCL did not predict post-treatment CBCL Internalizing scores (adjusted for baseline), F(1, 178) = 2.36, p = .13, or moderate treatment effects, F(1, 124) = 0.82, p = .71. Similarly, child sex did not predict, F(1, 176) = 1.414, p = .23, or moderate, F(1, 176) = 2.56, p = .11, effects; nor did child race/ethnicity (White vs. other racial/ethnic groups), F(1, 176) = 0.04, p = .85, and F(1, 176) = 2.99, p = .09, respectively; mother marital status (currently married vs. not), F(1, 176) = 1.55, p = .22, and F(1, 176) = 0.03, p = .86, respectively; or Hollingshead social class category (professional vs. skilled/semiskilled), F(1, 175) = 2.66, p = .10, and F(1, 175) = 0.29, p = .59, respectively. Although none of these moderator effects was significant, it is worth noting the marginally significant ps for the child sex and race/ethnicity interactions given the reduced power associated with these analyses.

Mediation Analyses

To further evaluate the nature of the treatment effects, including potential mediation of the effects, we conducted SEM. Our measurement model included six latent variables: baseline and post-treatment internalizing symptoms (mother and father ratings on the CBCL Internalizing scale and the PSI Child Mood scale), externalizing symptoms (mother and father ratings on the CBCL Externalizing scale and the Eyberg Total Behavior scale), and perceived parenting effectiveness (mother and father ratings on the Parenting Competence and Role Restriction subscales of the PSI; although we had hoped to include the Attachment scores as well, we could not produce an adequate measurement model with it included for both informants). Intercorrelations among the latent variables are given in Table 3. The loadings for the final measurement model are given in Figure 1.

The structural model tested the hypotheses that treatment condition would be significantly related to perceived parenting effectiveness and internalizing and externalizing symptoms at post-treatment when we controlled for the respective baseline ratings of these constructs (see Figure 1). The model provided an adequate fit to the data, χ^2(227, N = 181) = 344.44, CFI = .92, TLI = .90, RMSEA = .065 (.050–.078), and SRMR = .075.

Consistent with the outcome findings described above, treatment condition had significant total (total = .31, p < .001) and direct (B = .22, p = .005) effects on post-treatment internalizing

Table 3
Interrelations Among Time 1 and Time 2 Internalizing Symptoms, Externalizing Symptoms, Parenting Effectiveness, and Treatment Group

Variable	1	2	3	4	5	6
1. T1 internalizing	—					
2. T2 internalizing	.66**	—				
3. T1 externalizing	.46**	.28**	—			
4. T2 externalizing	.10	.23**	.50**	—		
5. T1 parent effectiveness	.47**	.28**	.63**	.37**	—	
6. T2 parent effectiveness	.08	.15	.22**	.18*	.72**	—
7. Treatment condition	.04	.22**	.08	.33**	.01	.33**

** p < .05.

symptoms in this model. In addition, treatment condition had a direct effect on self-perceived parenting effectiveness at post-treatment (B = .33, p = .001), which in turn had a direct effect on post-treatment internalizing symptoms (B = .28, p = .014). The total indirect effect of treatment condition on internalizing symptoms was significant (indirect = .10, p = .025). This was taken as evidence that parenting effectiveness partially mediated the effect of treatment on internalizing symptom improvement.

As expected, treatment condition also had significant total (total = .50, p < .001), direct (B = .33, p < .001), and indirect (indirect = .17, p = .006) effects on externalizing symptoms at post-treatment. Final path coefficients were derived from final betas in each of the above structural models. These coefficients are depicted in Figure 1.

Discussion

The present study investigated the impact of a parent behavior-management intervention on the internalizing symptoms of young children. Findings supported the continued application and extension of a parent behavior-management program in the treatment of childhood depression and anxiety. Children who received the intervention were more likely to have lower mother-rated internalizing symptoms at post-treatment compared with children in a wait-list control group. Although the effect on the basis of father ratings was not significant when applied to the entire sample, subsequent analysis using only children with elevated father-rated internalizing scores at baseline was significant. The analyses using fathers' data were also limited by lower power because fewer fathers than mothers completed assessments. The effect sizes observed in the present intervention fell in the small to medium range for the sample as a whole. Some evidence supported our hypothesis that effects would be strongest for children with baseline depressive symptoms in the clinical range; effect sizes for these comparisons ranged from medium to large.

Subsequent analyses also revealed that perceived changes in parenting effectiveness partially mediated the effect of treatment on post-treatment internalizing symptoms. The finding was consistent with study hypotheses and social learning explanations of child internalizing symptoms that guided selection of putative mechanisms. By showing that an intervention targeting parenting behaviors reduces child internalizing symptoms and that these effects were partially mediated by changes in key dimensions of
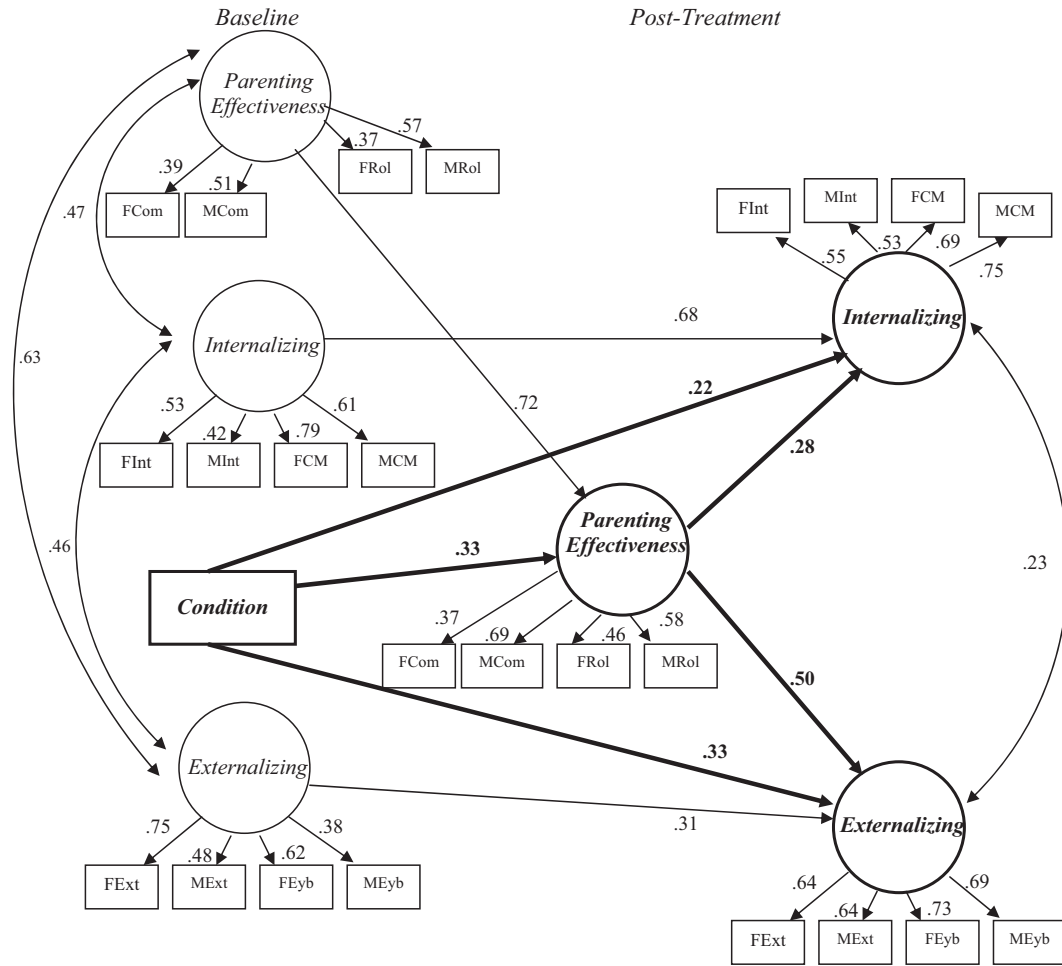
Figure 1. Final mediated model with internalizing and externalizing symptoms. FInt = father's rating on Internalizing subscale of the Child Behavior Checklist (CBCL; Achenbach, 1991); MInt = mother's rating on Internalizing subscale of the CBCL; FCM = father's rating on the Child Mood subscale of the Parenting Stress Index (PSI; Abidin, 1990); MCM = mother's rating on the Child Mood subscale of the PSI; FExt = father's rating on Externalizing subscale of the CBCL; MExt = mother's rating on Externalizing subscale of the CBCL; FEyb = father's rating on Eyberg Child Behavior Inventory (ECBI; Robinson, Eyberg, & Ross, 1980); MEyb = mother's rating on ECBI; FCom = father's rating on the Parent Competence subscale of the PSI; MCom = mother's rating on the Parent Competence subscale of the PSI; FRol = father's rating on the Role Restriction subscale of the PSI; MRol = mother's rating on the Role Restriction subscale of the PSI.

parenting, the present study contributes to the emerging body of literature linking specific parenting behaviors to child internalizing symptoms.

The findings speak both to the mechanisms involved in the development of child internalizing symptoms as well as to the development of new and innovative treatment strategies that have been recommended for child depression (Weisz et al., 2006). The results are consistent with the recent call to create interventions that can simultaneously impact multiple problem behaviors of youth (Biglan, Brennan, Foster, & Holder, 2004). Finding multi-impact interventions for children who are depressed may be especially important given the high rate of co-occurring psychopathology associated with child depression (Herman, Ostrander, Silva, March, & Walkup, 2007).

The findings also are promising because we found these treatment and potential preventative effects while employing an inter-

vention most known for its effects on reducing child conduct problems. Although it allows clinicians the flexibility to address other specific symptoms (e.g., social withdrawal or skill deficits), IY may prove to be even more impactful on internalizing symptoms when combined with other standardized interventions that target the most common problems in internalizing symptoms (e.g., behavior-activation procedures for depression or fear hierarchies in anxiety).

It may also be helpful to use IY as a targeted *prevention* strategy aimed at reducing children's risk for internalizing symptoms. The significant effects that were found for the analyses involving the whole sample imply that IY may provide some preventive benefit, as well. A selective or indicated prevention approach warrants further testing. As one example, counseling psychology researchers might offer IY to parents of children with known risk factors for future internalizing symptoms and disrupted parenting prac-

tices (e.g., subsyndromal depressive symptoms, attention-deficit hyperactivity disorder [ADHD], maternal depression). For instance, children with ADHD have a high risk of developing depression over time, at least in part because of the unstructured, conflictual home environment that is associated with ADHD (Ostrander & Herman, 2006). A tenable hypothesis is that IY would increase positive parenting practices for children with ADHD and, in turn, lower their risk for depression. Alternately, IY might be used as part of a universal prevention package provided to all children or as an indicated intervention for children who do not respond to other less intensive interventions. In this vein, the Center for Prevention and Early Intervention at Johns Hopkins School of Public Health has begun conducting feasibility trials by combining IY with empirically supported school-based prevention strategies (e.g., the Good Behavior Game, Barrish, Saunders, & Wolf, 1969; PATHS, Greenberg, Kusché, & Mihalic, 1998) during the early elementary years.

Future work is also needed to examine the use of IY in promoting optimal parenting, even for parents who have children with minimal or no dysfunction. Counseling psychologists have been pioneers in the positive psychology movement, including efforts to maximize human happiness and potential. Using IY to empower healthy parents is consistent with recent calls to reinforce counseling psychology's commitment to promoting wellness with strength-based interventions (Lopez et al., 2006).

Although they are promising, the findings must be tempered with an appreciation of the limitations of this study. First, the study did not employ a contact control condition, and thus, we cannot determine the contributions of nonspecific therapeutic effects (e.g., therapist attention) unrelated to parent behavior-management strategies. Although changes in perceived parent effectiveness mediated the intervention effect, which is consistent with the proposed mechanisms of change, a future study is needed to contrast parent behavior-management training with an attention-control condition (i.e., an active intervention that is expected to have minimal, nonspecific therapeutic effects, comparable to a placebo control used in medication trials) to determine the specific effects. In addition, future research will need to include measures of other hypothesized mediators of change (e.g., observed changes in parent behavior) that are consistent with social learning theory. However, it is important to note that wait-list controlled randomized trials, such as the one reported here, are recognized by virtually all groups that rate evidence-based practices as an important first step in establishing an intervention's efficacy (see Kratochwill, 2007, for a recent review of issues related to evidence-based interventions in child research).

Second, the study relied on parent report of child internalizing symptoms, which was necessitated by the young age of the child. Multiple ratings are generally preferred, when possible, to enhance reliability. On the positive side, the CBCL is a widely used and accepted method for rating child depressive symptoms in young children. Still, future research is needed that incorporates, when possible, child-reported depressive symptoms (e.g., for children aged 6 years and older).

Third, and perhaps most important, the study was originally designed to test the intervention's effects for children with conduct problems. All children were selected for study entry on the basis of their conduct symptoms, not their depressive symptoms. Thus, not all children were depressed at baseline. It is unknown whether these findings will generalize to other samples of children or to children who are depressed only without any conduct problems. However, as noted above, a large percentage, if not a majority, of children who are depressed at this young age also have co-occurring conduct problems. Thus, an intervention study such as this, with a high percentage of children who have co-occurring symptoms, may have greater generalizability than a study involving only depressed children. Given the high prevalence of children with conduct problems and depressive symptoms, some authors have suggested that it may represent a distinct disorder or subtype of an existing disorder (Angold et al., 1999). Moreover, the high rate of co-occurring syndromes in childhood psychopathology has led some authors to argue that comorbidity is the next frontier for intervention research (Jensen, 2003). Unfortunately, existing methods for understanding and studying comorbidity are fairly primitive (see Herman et al., 2007).

In this study, we attempted to consider the role of co-occurring symptoms using several strategies: controlling baseline symptoms, analyzing the moderation effects of externalizing symptoms, conducting analyses for children with and without baseline depressive symptoms, and including both externalizing and internalizing symptoms in mediation analyses. Despite the limitations of existing methods for understanding co-morbidity, several features of the present study support the notion that IY may have antidepressive effects for children. First, intervention effects held when we controlled for baseline externalizing symptoms and when we conducted analyses on only children with clinically significant internalization. Second, we considered externalizing as well as internalizing symptoms in our mediation model and found comparable effects. Finally, the findings are entirely consistent with social learning explanations of child depression and with a growing body of research showing the links between parenting behaviors and depressive symptoms. Still, testing IY with depressed children in a randomized clinical trial and an active comparison condition would be the best way to determine the specific effects of IY on child depressive symptoms.

Aside from concerns about co-occurring syndromes, the generalizability of the findings is limited further by the nature of the sample, as 80% of children were European American. Additional research with greater representation of children from diverse backgrounds is needed to determine whether the findings apply to other racial and ethnic groups, as well as to groups from other socioeconomic and geographic backgrounds. More generally, greater attention to broader cultural issues is needed in the conceptualization stage of research on parenting practices. The unique sociopolitical histories of given ethnic groups in the United States, as well as contemporaneous contexts such as racism and access to resources, may contribute to parenting variations among different ethnic groups (Dearing, 2004; Sagrestano, Paikoff, Holmbeck, & Fendrich, 2003). Perhaps as a function of lower perceived access to community and institutional supports (e.g., school resources), for instance, African American and Latino American parents are more likely to view parental control and restrictive monitoring as signs of effective parenting than are European American parents living in similar contexts (Elder, Eccles, Ardelt, & Lord, 1995; Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999). Likewise, family characteristics and parenting behaviors may be adaptive or maladaptive depending on the environment. For instance, in one

study, the benefits of restrictive parenting were found only for African American children living in risky neighborhoods and not for European American children living in similar settings (Dearing, 2004). In other words, theories about the effects of family variables on psychosocial development and corresponding interventions may need to be qualified by sociodemographic characteristics (Herman, Ostrander, & Tucker, 2006).

It is also important to note that not all hypotheses were supported in the present study. The findings for father ratings were somewhat inconsistent, although all were in the predicted direction. In the primary outcome analysis, the effects on father-rated internalizing symptoms were not significant when applied to the entire sample but were significant for children who were depressed at baseline. Moreover, father ratings of children who were originally in the clinical range of symptoms and moved to lower ranges were significant at the .10 level. These findings highlight the different perspective that each parent brings to descriptions of their child and the need for multiple informants in outcome analyses (Webster-Stratton, 1988). It is important to note that the analyses with father's data were limited by lower power, given the smaller sample size of fathers who completed assessments. A follow-up study with a larger sample would help address these concerns.

These findings have implications for counseling psychology researchers and clinicians. First, clinicians working with young children who are depressed should promote effective behavior-management practices for the parents of those children. The findings from this study support the notion that effective behavior-management practices for depressed children include many of the same practices used with children who have conduct problems: clear expectations, structured and predictable environments, and consistent consequences for desired and undesired behaviors. Second, counseling researchers are encouraged to contribute to the emerging literature regarding effective interventions for child depression. In particular, counseling psychologists can contribute their expertise in multicultural counseling and interventions to advance the practices for children from all racial and ethnic backgrounds.

Finally, the findings are promising for counseling psychologists interested in prevention of and early intervention in mental health problems in children. In this study, a single intervention positively impacted multiple symptoms in children with behavior problems. Prevention-oriented counseling psychologists might pilot IY as a preventive intervention for high-risk samples, such as children with ADHD or in Head Start or foster care. Those interested in universal prevention strategies might consider delivering IY to otherwise healthy populations during important life transitions. For instance, most college campuses have programs for students who have young children. Providing these students with IY groups may offer support to the students in their academic careers in addition to the benefits effective parenting practices will likely have for their children. Likewise, offering IY services to new parents by partnering with local hospitals could provide benefits to parents and children as they welcome a new addition to their family. Of course, further research is needed in the context of a prevention trial (versus the intervention trial analyzed here) to determine whether IY also prevents the onset of depressive symptoms in children with high or low risk for future depression.

Conclusions

Child depression is a serious public health burden without any currently accepted empirically supported treatments. Given the dire consequences of life-course persistent depression and the developmental roots of depression in childhood, effective treatments and prevention strategies are urgently needed. The parent behavior-management intervention used in the present study is a widely used and accepted treatment. Given mounting pressures toward time-limited therapy and the widely accepted high rates of co-occurring behavior problems in children, clinicians and researchers welcome any evidence that single interventions can promote change in multiple problem areas. Current evidence suggests that the parent behavior-management program tested in this study offers a viable treatment for reducing depressive symptoms in young children.

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