

A Teacher-Consultation Approach to Social Skills Training for Pre-Kindergarten Children: Treatment Model and Short-Term Outcome Effects

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Received June 12, 2003; revision received May 5, 2004; accepted June 21, 2004

This study evaluated the post-treatment outcome effects of a classroom-based social skills program for pre-kindergarten children, using a teacher-consultation model. The pre-K RECAP (Reaching Educators, Children, and Parents) program is a semi-structured, cognitive-behavioral skills training program that provides teachers with in-classroom consultation on program implementation and classroom-wide behavior management. Data on children's social skills and behavior problems were collected from parents and teachers at pre- and post-treatment, for 149 children aged 4–5 years (of whom 56% were girls). Significant treatment effects were found for teacher but not parent reports, with treatment group children improving significantly more than comparison group children in their teacher-rated social skills and internalizing and externalizing problems. These results provide some preliminary support for the efficacy of the program on children's social skills and behavior problems, and for a teacher-consultation model for training teachers to implement school-based mental health programs.

KEY WORDS: school-based intervention; teacher consultation; pre-kindergarten; social skills; behavior problems.

It has been estimated that at any given point in time, between 12 to 20% of children and adolescents in the general population have a diagnosable mental health disorder (Institute of Medicine, 1989), with prevalence estimates reaching up to 30% for children from high-risk, socio-economically disadvantaged backgrounds (Raadal, Milgrom, Cauce, & Mancini, 1994; Tolan & Henry, 1996). Even preschool children can be at risk for serious emotional and behavioral difficulties, with some studies reporting that approximately 20% of preschool children in the general population show moderate to clinically signif-

icant levels of emotional and behavioral problems (e.g., Lavigne et al., 1996).

Early emotional and behavioral problems have significant implications for young children, as these problems often interfere with the acquisition of age-appropriate skills and adversely affect developmental trajectories. For instance, preschool children who have developed oppositional or aggressive coping styles at home often continue to use these coping styles when they enter school; often, these behavioral styles lead first to rejection by peers and teachers who find this behavior aversive (Patterson & Stoolmiller, 1991) and then to a negative cycle of social and academic failure (Fergusson, Lynskey, & Horwood, 1996). Chronic externalizing problems in the preschool years increase the risk for aggressive behavior and delinquency in middle childhood (Campbell, 1995; Prinz & Connell, 1997), with the severity of behavior problems tending to increase as children get older (Lavigne et al., 1998). Hence, rather than “growing out” of these problems, for many children early problems remain stable or even intensify as the children become older.

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One potentially useful approach to intervening with preschool-age children may be through classroom-based behavioral programs targeting children's social and problem-solving skills. School-based programs have a number of advantages, including increased access to children and the opportunity to work directly in a primary environment of the children, the school (Catron & Weiss, 1994). Several studies of social-cognitive problem-solving skills training for preschool children suggest that classroom-based intervention can significantly improve young children's abilities to generate alternative solutions for interpersonal conflict situations (Shure, 1997; Shure & Spivack, 1980), increase their positive social behaviors (Denham & Burton, 1996) and cooperative behavior (Doescher & Sugawara, 1992), and reduce their negative emotional reactions and behavior problems (Brigman, Lane, Switzer, Lane, & Lawrence, 1999; McKinney & Rust, 1998). These studies are, however, limited by various methodological shortcomings, including lack of a control group (McMahon, Washburn, Felix, Yakin, & Childrey, 2000), failure to assess children's behavior problems as an outcome (Doescher & Sugawara, 1992; Vaughn, Ridley, & Bullock, 1984), and small sample sizes. Thus, the extent to which school-based programs for preschool children can prevent or reduce their aggressive and disruptive behaviors and enhance their social skills remains unclear.

It is encouraging, however, that among older children (i.e., elementary school-age children), there is evidence that classroom-based programs targeting behavioral and social problems produce positive effects, with small to moderate mean effect sizes across different types of programs (Durlak, 1995; Wilson & Lipsey, 2000). Classroom-based programs can be effective at increasing students' prosocial behavior and decreasing their aggressive and disruptive behavior (e.g., Greenberg, Kusche, Cook, & Quamma, 1995; Kellam, Rebok, Ialongo, & Mayer, 1994), although outcome data are not entirely consistent. In a controlled evaluation with second- and third-grade children who received a teacher-implemented social-cognitive skills training program, for instance, significant treatment effects were found for students' aggressive behavior as assessed by behavioral observations, but effects for parent and teacher reports were not significant (Grossman et al., 1997).

An important approach to behavioral interventions for preschool populations is to use teachers as program implementers. As central change agents with a consistent presence in the classroom, teachers can promote children's positive development and generalization of positive skills through their ability to provide children with frequent opportunities to practice new skills

(e.g., Hawkins, Von Cleve, & Catalano, 1991; Kellam et al., 1994; Weissberg, Barton, & Shriver, 1997). However, there have been few studies of teacher-implemented mental health programs with preschool children, but evidence from these studies does suggest that intervention programs implemented by the classroom teacher can be effective in increasing young children's social skills (Brigman et al., 1999; Denham & Burton, 1996) and decreasing behavior problems (McKinney & Rust, 1998). Thus, a model of providing behavioral interventions to preschool children through the classroom teacher represents an important and potentially effective approach to reducing or preventing children's mental health-related problems.

Although teachers represent an important avenue for program implementation, training teachers in program implementation is not a simple matter. The literature on teacher training clearly indicates that one-shot workshops and brief in-service training likely will be insufficient to support the introduction and maintenance of complex interventions, as problems inevitably arise as teachers integrate a new program into the extant classroom curriculum and environment; without support, teachers often revert to their old approaches when faced with new challenges (Rose & Church, 1998). When program implementation is teacher-based, a focus on teacher training and ongoing consultation regarding program implementation appears to be critical for ensuring program fidelity and enhancing child outcomes (see Han & Weiss, 2005). For instance, in a study of two different types of teacher consultation provided to preschool teachers implementing a classroom social skills program, children whose teacher received ongoing consultation on implementing the social skills program exhibited increased levels of cooperative play behavior compared to children whose teacher had received consultation not focused on implementation (Farmer-Dougan, Viechtbauer, & French, 1999). Although this finding was based on a small sample, studies of behavioral consultation with teachers in regard to instructional techniques have similarly shown that direct training procedures involving modeling, rehearsal, and feedback regarding intervention plans lead to higher treatment fidelity (Rose & Church, 1998; Sterling-Turner, Watson, & Moore, 2002). Moreover, performance feedback provided by a consultant regarding implementation of behavioral plans has been found to increase teacher use of the intervention program and improve treatment fidelity (Mortenson & Witt, 1998; Noell, Witt, Gilbertson, Ranier, & Freeland, 1997; Witt, Noell, LaFleur, & Mortenson, 1997). Consequently, mechanisms built into an ongoing supervision process that promote teachers' implementation skills appear to increase the likelihood of accurate

program implementation and also program maintenance without the consultant's continued presence (Leach & Conto, 1999; Sterling-Turner et al., 2002).

The purpose of the present study was to evaluate the efficacy of a pre-kindergarten intervention program based on a teacher-consultation model, in which teachers are supported in their implementation of the classroom program through ongoing in-classroom consultation to ensure correct implementation and adaptation (see Han & Weiss, 2005). The intervention program used in the present study was a modification of the RECAP program (Reaching Educators, Children, and Parents; Weiss, Harris, Catron, & Han, 2003), which is a semi-structured, school-based, cognitive-behavioral and social skills training program initially developed for elementary school children with internalizing and externalizing problems. In a controlled study with fourth-grade children selected for the presence of co-occurring internalizing and externalizing problems, children assigned to the original RECAP program demonstrated greater rates of improvement over a 20-month assessment period than children in the control group in regard to both internalizing and externalizing problems (Weiss et al., 2003).

The pre-kindergarten RECAP program (Han, 2001) was developed as a universal intervention program because of the need for a classroom-based program that provided teachers with the structure and materials to address preschool children's emotional and behavioral problems and promote their prosocial skills development. Pre-K RECAP includes (a) a classroom-based curriculum and behavior management system, both of which are designed to enhance children's social skills and adaptive problem-solving; (b) weekly site-based teacher training and consultation on implementation throughout the academic year; and (c) a bi-weekly parent group component. The goals of the program are to increase children's social skills and reduce their internalizing and externalizing problems. Delivered by teachers for one academic year, RECAP emphasizes the remediation of children's skills deficits at both the cognitive and behavioral levels, and focuses on training in social skills, affect regulation (e.g., awareness, labeling, and monitoring of affect), and problem-solving. The parent and teacher components of the program emphasize positive reinforcement, appropriate use of negative consequences, clear communication and expectations, and strengthening of adult-child relations. Using pre- and post-treatment data collected from parents and teachers in the fall and spring of the academic year, the present study evaluated the effects of the pre-K RECAP program on children's behavior, as an initial investigation of the value of an intensive teacher-consultation intervention model.

METHOD

Participants

Selection, Enrollment, and Assignment of Participants to Condition

Participants were selected from 12 pre-kindergarten classrooms in 6 public elementary/middle schools that serve children from low-income backgrounds (i.e., in all schools, greater than 60% of students were enrolled in the federal free and reduced-price meal program). Because of the possibility that the intervention program might influence comparison group classrooms in the same school (via informal teacher discussions, etc.), random assignment to the treatment or comparison condition occurred at the school level. Three schools containing six classrooms were assigned to receive the intervention program and three schools containing six classrooms were assigned to the comparison condition.⁶ All children in the treatment and comparison classrooms were eligible for participation. At the beginning of the school year, school personnel contacted families, informed parents or guardians (hereafter referred to collectively as parents) about the project, and requested permission to provide their names and telephone numbers to the research project. Families who provided permission were contacted by project staff and were given more detailed information about the project. Written informed consent for participation was obtained during the initial interview, which occurred either at the home or the school.

Participant Characteristics

Of the 220 children (aged 4–5 years) in the 12 participating pre-kindergarten classrooms, 166 (75%) children and their parents were recruited for participation in the study and completed the pre-treatment assessment. The final evaluation sample included 149 children and their parents who provided both pre- and post-treatment data, which were collected in the fall (September and October) and spring (April and May), respectively, of the academic year. Table I presents the demographic characteristics of this sample. The mean age of the children was 4.4 years ($SD = 0.3$), and 56% were female. Reflecting the neighborhoods in which the families resided,

⁶Although 13 classrooms were initially recruited, one of the teachers assigned to the treatment condition who had agreed to participate subsequently decided that the program was incompatible with her teaching style and withdrew from the project.

Table I. Demographic Characteristics of the Sample by Group

	Comparison group (<i>n</i> = 66)	Treatment group (<i>n</i> = 83)	Overall (<i>n</i> = 149)
Child's age (in years, <i>M</i> with <i>SD</i>)	4.41 (0.30)	4.39 (0.30)	4.40 (0.30)
Child's sex (% of girls)	44.6	55.4	55.7
Child's race (%)			
African American	89.4	89.2	89.3
Caucasian	6.1	4.8	5.5
Mixed/other	4.5	6.0	5.4
Parent's age (in years, <i>M</i> with <i>SD</i>) ^a	29.48 (8.07)	29.24 (7.08)	29.35 (7.52)
Parent's level of education (%) ^a			
11th grade or lower	18.5	26.3	22.7
High school diploma	26.2	34.2	30.5
Some college	43.1	31.6	36.9
Bachelor's or professional degree	12.3	7.9	9.9
Parent's marital status (%) ^a			
Never married	67.7	67.1	67.4
Married	21.5	19.7	20.6
Divorced	4.6	5.3	5.0
Separated	4.6	5.3	5.0
Widowed	1.5	2.6	2.1
Annual household income (%) ^{b,c}			
Less than \$10,000	30.8	49.3	40.6
Between \$10,000 and \$20,000	23.1	21.9	22.5
Between \$20,000 and \$30,000	20.0	12.3	15.9
Between \$30,000 and \$40,000	15.4	8.2	11.6
Above \$40,000	10.8	8.2	9.4
Family structure (%) ^a			
Living with two parents	43.1	34.7	38.6
Living with single parent	56.9	65.3	61.4

Note. Percentages may not add up to 100 due to rounding.

^aSample sizes are 65 and 76 for the comparison and treatment groups, respectively.

^bSample sizes are 65 and 73 for the comparison and treatment groups, respectively.

^cThe groups differed on annual household incomes, $t(136) = 2.11$, $p < .05$, with comparison group families reporting a higher mean level of income ($M = \$18,100$, $SD = \$13,900$) than treatment group families ($M = \$14,500$, $SD = \$12,300$).

the racial/ethnic composition was 89% African American, 6% Caucasian, and 5% of mixed or other racial background. Parent informants were primarily mothers (80%), followed by other female guardians (9%), fathers (8%), and other male guardians (3%). Mean annual family income was \$16,200 ($SD = \$13,100$).

Treatment and Comparison Groups

Comparison Group

A no-treatment comparison group was used. Children in the comparison schools were assessed on the same schedule as the treatment group, but their classrooms received no intervention from the project.

Treatment Group

The treatment group received the pre-kindergarten RECAP (Reaching Educators, Children, & Parents; Han, 2001; Weiss et al., 2003) program, which provided (a) a classroom behavior management system and a teacher-administered social skills training curriculum delivered to the classroom; (b) site-based teacher training and consultation in the administration of the classroom program and behavior management system; and (c) group parent training conducted by a program consultant. The classroom program provided training for children in (a) social skills (e.g., making and keeping friends); (b) affect recognition and expression; (c) re-attribution training (e.g., for hostile attributions); (d) self-monitoring and self-control skills; (e) problem-solving skills (e.g., evaluating goals and consequences of behavior choices); and (f) relaxation

strategies. The classroom curriculum was adapted for the pre-kindergarten level from the original fourth-grade RECAP lessons and incorporated some materials (e.g., puppets, pictures) from a commercially available program, Second Step for the preschool level (Committee for Children, 1991). From September to May of the academic year, classroom lessons were taught by teachers two to three times per week and were reinforced daily by teachers throughout the school day using positive reinforcement tokens (friendly suns), teacher modeling and mediation of problem-solving steps, and explicit discussion of behavioral and affective consequences of behavior choices. The aim of the classroom program was to help students learn a common language and set of skills for functioning adaptively, to in turn develop prosocial classroom norms and expectations for children's interactions with each other.

Throughout the academic year, program consultants spent one day (4–6 hr) per week in each classroom for ongoing training of teachers and teaching assistants in weekly group meetings, observation of teachers' program implementation, and consultation on implementation. Topics for teacher training on the program included: (a) understanding the reasons for children's behavior (i.e., what factors are reinforcing the behavior); (b) establishing effective classroom expectations and structure; (c) importance of and techniques for reinforcement of students' positive behavior; (d) use of consistent, fair, and effective discipline; (e) adaptive communication skills; (f) home-school communication; and (g) modeling adaptive problem-solving in naturally occurring situations. While in the classroom, the consultant helped to reinforce and model the program's principles, and provided teachers and their assistants with feedback on their implementation of program strategies and techniques (e.g., helping teachers to customize the program for the particular needs of their classroom). Consultation focused on program implementation to guide the teachers in administering the classroom social skills curriculum correctly and tailoring the behavioral management system to fit the needs of the classroom.

Consultation served two primary functions. The first function was to help teachers implement the program accurately and consistently by (a) directly observing teachers' implementation and students' responses to the program; (b) providing feedback on implementation and collaboratively resolving implementation issues; and (c) modeling program techniques. The second function was to identify sources of positive reinforcement for the teachers' efforts at program implementation, in order to promote teacher motivation. This was achieved by (a) focusing teacher attention on incremental program

successes; (b) guiding teachers to objectively evaluate and interpret the immediate or short-term effect of a particular program lesson or technique on their students; and (c) helping teachers to make accurate attributions of improved student behavior to teachers' use of effective techniques. Further elaboration of this model for providing intensive in-classroom teacher consultation to support program implementation is discussed in Han and Weiss (2005).

The pre-K RECAP program also included a parallel component for parents (Weiss, 1998) that was aimed at enhancing parents' skills in (1) establishing clear expectations for prosocial behavior; (2) using positive and negative consequences that consistently reinforce appropriate behaviors and effectively discourage inappropriate behaviors; (3) reinforcing children's use of "friendly skills" at home and school; (4) assisting their children to "stop and think" about their behavior choices and consequences; and (5) communicating more effectively with teachers about their children's behavior and educational program. The parent training component was administered by the program consultant and was offered to parents of children in the treatment classrooms in a group format with 16 bi-weekly sessions at the school. However, parent attendance at these meetings was very low, with less than 5% of parents in the treatment group attending any of the meetings. Hence, the implementation of the parent component was not successful, despite the consultants' attempts to maintain ongoing communication with parents through newsletters, personal contact, etc.

Consultant Training, Supervision, and Maintenance of Treatment Fidelity

Two masters-level clinicians served as the program consultant to teachers and the group leader for the parent groups. Consultant training was provided by Susan Han and Bahr Weiss, developers of the RECAP and pre-K RECAP programs. Consultants first read program manuals and related materials and then participated in training sessions regarding the conceptual and clinical background of the program and the rationale and importance of staying within the framework of the program. Training also was provided regarding what forms of flexibility are acceptable within the model (e.g., different forms of positive reinforcement may be used by teachers, as long as the positive reinforcement is administered appropriately), and how to handle clinical issues within the framework of the model (e.g., teacher resistance to providing high rates of positive reinforcement). To review program implementation and maintain treatment fidelity, the program developers periodically visited the classrooms to

observe the consultants, and consultants received weekly individual supervision. For supervision purposes and to help maintain treatment fidelity, consultants completed weekly reports of teachers' implementation activities in each classroom and any adaptations to or deviations from the intervention protocols. Throughout the duration of the project, the consultants also participated in weekly group supervision meetings with the program developers and other RECAP consultants involved in other projects, to monitor treatment fidelity and address ongoing clinical and implementation issues within the program's framework.

Measures

Parent Report

Parents completed two questionnaires regarding their children's behaviors. The Child Behavior Checklist (CBCL) for ages 1.5 to 5 (Achenbach & Rescorla, 2000) is a broad-band measure of children's behavioral and emotional problems. It contains 99 problem items rated on a 0 to 2 scale and produces two broad-band factors (Internalizing and Externalizing) and seven narrow-band factors (Emotionally Reactive, Anxious/Depressed, Somatic Complaints, Withdrawn, Sleep Problems, Attention Problems, Aggressive Behavior). The CBCL scales have an average 1-week test-retest reliability of .84, and a correlation of .70 has been found between the CBCL total problem score and the Mouton-Simien, McCain, and Kelley (1997) Toddler Behavior Screening Inventory (Achenbach & Rescorla, 2000). In the present study, correlation coefficients between pre- and post-treatment assessments (7-month interval) for Internalizing, Externalizing, and Total Problems were, respectively, .70, .63, and .71 for the comparison group, and .60, .75, and .70 for the treatment group. Parents also completed the Social Skills Rating System (SSRS; Gresham & Elliott, 1990), a standardized measure of children's social behaviors. The SSRS contains 39 social skills items and produces four subscales (Cooperation, Assertion, Self-Control, and Responsibility). Four-week test-retest reliability coefficients for the subscales range from .77 to .84 for parents of elementary school students, and the SSRS total score correlates .58 with the social competence scale of the Achenbach and Edelbrock (1983) Child Behavior Checklist (Gresham & Elliott, 1990). In the present study, correlation coefficients between pre- and post-treatment assessments (7-month interval) for the Cooperation, Assertiveness, Self-Control, and Responsibility subscales and the Total Social Skills scale were, respectively, .60, .72, .39,

.54, and .60 for the comparison group, and .80, .57, .72, .68, and .81 for the treatment group.

Teacher Report

Teachers completed parallel forms of these measures for each child. The Caregiver-Teacher Report Form (C-TRF for ages 1.5 to 5; Achenbach & Rescorla, 2000) is a broad-band inventory containing 99 items assessing children's behavior problems. The C-TRF scales have an average 1-week test-retest reliability of .81, and a discriminant analysis using the C-TRF scales correctly classified 71% of children by their referral status (Achenbach & Rescorla, 2000). In the present study, correlation coefficients between pre- and post-treatment assessments (7-month interval) for Internalizing, Externalizing, and Total Problems were, respectively, .74, .73, and .77 for the comparison group, and .77, .78, and .82 for the treatment group. The teacher version of the Social Skills Rating System (SSRS; Gresham & Elliott, 1990) contains 30 social skills items and produces three subscales (Cooperation, Assertion, and Self-Control). Reliability coefficients for the SSRS scales range from .75 to .88 over a 4-week interval for teachers of elementary school students, and the SSRS total score correlates $-.68$ with the total scale (with higher scores indicating a greater number of problems) of the Stephens (1978) Social Behavior Assessment (Gresham & Elliott, 1990). In the present study, correlation coefficients between pre- and post-treatment assessments (7-month interval) for the Cooperation, Assertiveness, and Self-Control subscales and the Total Social Skills scale were, respectively, .52, .53, .55, and .57 for the comparison group, and .63, .69, .69, and .70 for the treatment group.

Procedure

Data were collected from parents and teachers before the start of the intervention program in the fall (September and October) and at the end of the program in the spring (April and May).⁷ Interviews with parents were conducted at the home or the school, and they were paid \$20 for each interview, which lasted from a half-hour to one hour. Teachers received \$15 for each student for whom they provided data at each assessment timepoint.

⁷Behavioral observations of children's prosocial, negative social, and aggressive behaviors in the classroom, playground, and cafeteria also were obtained. However, very low base rates (e.g., approximately one aggressive act every 12 hr) prevented these observations from having utility as an outcome measure.

RESULTS

Preliminary Analyses

Attrition

Of the 166 children and their parents who completed the pre-treatment assessment in the fall, 149 (90%) participated in the post-treatment assessment in the spring and thus were included in the outcome analyses. Seventeen families (3 in the control group, 14 in the treatment group; Fisher's exact test, $p < .05$) moved to other schools during the school year and did not provide post-treatment information. Dropouts and completers did not differ significantly on age, racial background, parental age, parent education level, parent marital status, or family income. They did differ in regard to proportion of males, with dropouts having a higher percentage of males than completers (88% v. 44%, respectively; Fisher's exact test, $p < .001$). In addition, the proportion of dropouts living in two-parent households was higher than that for completers (71% v. 39%, respectively; Fisher's exact test, $p < .05$). Moreover, although parent reports did not show significant differences in levels of problems or social skills for dropouts v. completers, teachers rated dropouts as having higher levels of total problems ($p < .05$) and lower levels of total social skills ($p < .001$) than completers. Thus, there were some indications that children who dropped out of the evaluation had lower initial levels of functioning.

Treatment and Comparison Group Comparability at Pre-Treatment

Project completers in the treatment and comparison groups were compared on their demographic and other baseline characteristics. Of the eight demographic variables examined (see Table I), the groups differed significantly on annual household income, with parents in the comparison group reporting a higher level of income than those in the treatment group ($t[136] = 2.11$, $p < .05$); comparison group families reported an average annual income of about \$18,100 ($SD = \$13,900$) whereas treatment group families reported an average annual income of about \$14,500 ($SD = \$12,300$). However, family income was not correlated with any of the pre-treatment measures of children's problems and social skills, as rated by either parents or teachers.

At pre-treatment, there were no significant differences between the treatment and comparison groups in regard to parent ratings of children's behavior problems and

social skills (see Table II). Pre-treatment T -scores based on parent reports for the Total Problems score and the Internalizing and Externalizing syndromes on the Child Behavior Checklist were, respectively, 53.0, 54.4, and 51.1 for the comparison group, and 51.2, 51.9, and 50.4 for the treatment group, indicating that the mean level of problems was in the normal range for both groups.⁸ However, 11% of children in the comparison group and 11% of children in the treatment group had total problem scores in the clinical range (i.e., T -scores of 64 and higher), based on parent reports.

In contrast, teacher ratings on the Caretaker-Teacher Report Form at pre-treatment were significantly higher for the treatment group as compared to the comparison group on several variables, including the Total Problems scale ($F[1, 140] = 26.47$, $p < .0001$), the Internalizing Problems scale ($F[1, 140] = 33.89$, $p < .0001$), and the Externalizing Problems scale ($F[1, 140] = 16.00$, $p < .001$), as well as on the narrow-band scales. In addition, the treatment group was significantly lower than the comparison group in their level of assertion skills ($F[1, 145] = 5.42$, $p < .05$); but they did not differ on teacher ratings of cooperation, self-control, and total social skills. Table III presents the raw mean scores and standard deviations for teachers' ratings. Mean pre-treatment T -scores based on teacher ratings for the Total Problems score and the Internalizing and Externalizing syndromes on the Caretaker-Teacher Report Form were, respectively, 48.6, 45.5, and 50.9 for the comparison group, and 59.1, 57.7, and 59.2 for the treatment group. Although the treatment group had significantly higher problem scores than the comparison group, its mean scores still were in the normal range. However, 5 and 31% of children in the comparison and treatment groups, respectively, had total problem scores in the clinical range (i.e., T -scores of 64 and higher), based on teacher reports.

Cross-Informant Correlations

At pre-treatment, parents and teachers generally showed little agreement in their ratings of children's behavior problems. Cross-informant correlations between the Child Behavior Checklist and the Caretaker-Teacher Report Form for Internalizing, Externalizing, and Total Problems at pre-treatment were, respectively, .03, .02, and -.05 for the comparison group, and .12, .27, and .18 for

⁸Because T -scores from the CBCL and C-TRF involve non-linear transformations, we analyzed raw scores. However, standardized T -scores are reported here for comparative purposes. For the broad-band scales, T -scores between 60 and 63 are in the borderline range, and scores of 64 and higher demarcate the clinical range.

Table II. Raw Score Means (and Standard Deviations) of Parent Ratings of Children's Behavior Problems and Social Skills

Scales and subscales	Comparison group		Treatment group	
	Pre-Tx	Post-Tx	Pre-Tx	Post-Tx
Total problems ^a	39.04 (20.98)	35.37 (21.12)	35.36 (20.67)	34.61 (21.42)
Internalizing problems	11.18 (6.94)	10.56 (7.03)	9.67 (6.72)	10.46 (7.00)
Emotionally reactive	2.65 (2.01)	2.44 (1.84)	2.00 (1.70)	2.74 (2.02)
Anxious/depressed	3.70 (2.27)	3.37 (2.51)	3.41 (2.47)	3.49 (2.89)
Somatic complaints	2.61 (2.41)	2.82 (2.61)	2.18 (1.89)	2.00 (2.00)
Withdrawn	2.21 (2.03)	1.93 (2.10)	2.08 (2.26)	2.23 (2.03)
Sleep problems	3.93 (3.20)	3.07 (3.02)	3.15 (2.56)	2.49 (2.28)
Externalizing problems	13.68 (7.67)	12.44 (7.91)	13.21 (8.02)	12.79 (8.80)
Attention problems	3.02 (1.76)	2.56 (1.67)	2.90 (2.01)	3.00 (2.13)
Aggressive behavior	10.67 (6.48)	9.88 (6.75)	10.31 (6.73)	9.79 (7.26)
Total social skills ^b	47.74 (10.91)	51.83 (11.62)	47.78 (10.53)	51.55 (11.98)
Cooperation	11.74 (3.82)	12.57 (3.60)	11.72 (3.79)	12.60 (3.79)
Assertion	13.35 (3.00)	14.00 (3.19)	13.75 (2.41)	14.55 (2.94)
Self-control	12.83 (3.14)	13.96 (3.70)	12.85 (3.52)	13.13 (3.73)
Responsibility	9.81 (3.50)	11.30 (3.71)	9.47 (3.45)	11.27 (3.77)

Note. The effect of group was not significant for Total Problems or Total Social Skills; post-treatment group differences (adjusted for pre-treatment scores) were all nonsignificant.

^aSample sizes are 57 and 61 for the comparison and treatment groups, respectively.

^bSample sizes are 54 and 60 for the comparison and treatment groups, respectively.

the treatment group. At post-treatment, correlations between parent and teacher ratings for Internalizing, Externalizing, and Total Problems were, respectively, .27, .20, and .17 for the comparison group, and .12, .45, and .24 for the treatment group. For both groups, parent and teacher

ratings showed a general pattern of numerically increasing or remaining the same from pre- to post-treatment.

On ratings of children's social skills, the correspondence between parents and teachers was generally modest at pre-treatment and did not show a consistent pattern of

Table III. Raw Score Means (and Standard Deviations) of Teacher Ratings of Children's Behavior Problems and Social Skills

Scales and subscales	Comparison group			Treatment group			
	Pre-Tx	Post-Tx	Post-Tx adjusted z-scores ^c	Pre-Tx	Post-Tx	Post-Tx adjusted z-scores ^c	Post-Tx group difference <i>p</i>
Total problems ^a	18.63 (19.30)	24.84 (25.94)	0.21	42.58 (37.67)	35.89 (48.44)	-0.22	<.01 ^d
Internalizing problems	4.03 (4.76)	6.32 (7.65)	0.20	13.13 (13.61)	10.19 (16.20)	-0.22	<.01 ^d
Emotionally reactive	0.87 (1.35)	1.34 (2.39)	0.09	2.80 (3.52)	1.90 (3.56)	-0.19	<.05 ^d
Anxious/depressed	1.32 (1.84)	1.73 (2.28)	0.08	3.83 (3.97)	2.71 (4.18)	-0.17	<i>ns</i>
Somatic complaints	0.18 (0.50)	0.39 (0.86)	-0.01	1.44 (2.48)	1.69 (3.55)	0.07	<i>ns</i> ^e
Withdrawn	1.66 (2.37)	2.87 (3.32)	0.23	5.06 (4.91)	3.89 (5.56)	-0.19	<.01
Externalizing problems	9.95 (11.27)	11.69 (13.24)	0.11	19.61 (16.21)	15.93 (18.41)	-0.16	<.05
Attention problems	3.58 (4.05)	4.02 (4.24)	0.12	6.81 (4.55)	4.88 (5.37)	-0.26	<.01
Aggressive behavior	6.37 (8.12)	7.68 (9.53)	0.08	12.80 (12.30)	11.05 (13.55)	-0.09	<i>ns</i>
Total social skills ^b	38.69 (9.61)	40.15 (10.15)	-0.01	35.29 (12.76)	41.57 (15.18)	0.31	<.01
Cooperation	13.85 (3.74)	13.94 (3.45)	-0.05	12.95 (4.49)	14.59 (5.24)	0.23	<.05
Assertion	11.63 (3.44)	12.35 (4.20)	-0.01	9.99 (4.79)	12.85 (5.76)	0.36	<.01
Self-control	13.22 (4.20)	13.86 (4.01)	0.04	12.35 (4.84)	14.13 (5.18)	0.22	<i>ns</i>

^aSample sizes are 62 and 80 for the comparison and treatment groups, respectively.

^bSample sizes are 65 and 82 for the comparison and treatment groups, respectively.

^cZ-scores ($M = 0$, $SD = 1$) were standardized across both timepoints for the whole sample and were adjusted for pre-treatment scores.

^dAnalyses were conducted on the square root of the variables because of non-normal distribution.

^eAnalyses were conducted on the natural log of the variable because of non-normal distribution.

numerically increasing or decreasing from pre- to post-treatment for either group. Correlation coefficients for Cooperation, Assertiveness, Self-Control, and Total Social Skills were, respectively, .09, .24, .12, and .20 for the comparison group, and .26, .40, .22, and .33 for the treatment group at pre-treatment; and $-.19$, $-.03$, $-.01$, and $-.07$ for the comparison group, and .15, .10, .36, and .21 for the treatment group at post-treatment.

Treatment Outcome

Two sets of primary analyses were conducted. The first set involved parent reports of children's (a) total problems from the Child Behavior Checklist and (a) total social skills from the Social Skills Rating System; the second set involved teacher reports of children's (a) total problems from the Caretaker-Teacher Report Form and (b) total social skills from the Social Skills Rating System. Data were analyzed using analysis of covariance, with group as a between-subjects factor and the linear and quadratic terms for the pre-treatment outcome measure scores as covariates. A Bonferroni correction setting the significance threshold to $p < .025$ was applied to each set of primary analyses, with follow-up analyses of subscales conducted for informant domains that were significant. For variables that were not normally distributed, a square root or natural log transformation was applied to achieve normality.

Parent Report

The effect of group was not significant for parent reports of children's total problems on the Child Behavior Checklist or total social skills on the Social Skills Rating System. Consequently, follow-up analyses involving the subscales were not conducted, but for informational purposes Table II presents the raw score means and standard deviations.

Teacher Report

Teachers' ratings of children's behavior problems on the Caretaker-Teacher Report Form showed a significant main effect of group on Total Problems ($F[1, 139] = 10.44$, $p < .01$), with children in the treatment group showing significantly greater change in behavior problems than children in the comparison group. Follow-up analyses indicated that there was a significant main effect of group on Internalizing problems ($F[1, 139] = 8.51$, $p < .01$) and Externalizing problems ($F[1, 139] = 5.09$, $p < .05$), with the treatment group showing significantly greater improvement than the comparison group. Table

III presents the groups' post-treatment scores adjusted for pre-treatment scores.

The follow-up analyses also indicated a significant main effect of group on the Emotionally Reactive ($F[1, 139] = 3.97$, $p < .05$), Withdrawn ($F[1, 139] = 10.01$, $p < .01$), and Attention Problems ($F[1, 139] = 8.94$, $p < .01$) subscales, with children in the treatment group showing greater improvement than comparison group children (see Table III). The main effect of group was nonsignificant for the Anxious/Depressed, Somatic Complaints, and Aggressive Behavior subscales.

Teachers' ratings for Total Social Skills on the Social Skills Rating System also showed positive treatment effects ($F[1, 144] = 5.73$, $p < .05$), with children in the treatment group showing significantly greater improvement in total social skills as compared to comparison group children. Follow-up analyses indicated a significant main effect of group on the Cooperation ($F[1, 144] = 3.99$, $p < .05$) and Assertion ($F[1, 144] = 7.12$, $p < .01$) subscales, but not for the Self-Control subscale. Treatment group children showed significantly greater improvement in skills related to cooperation and assertion than children in the comparison group children (see Table III).

DISCUSSION

The present study evaluated the efficacy of the RECAP program for children enrolled in pre-kindergarten classrooms in public schools serving students from predominantly low-income families. In our sample, the mean level of children's behavior problems and social skills was within the normal range, although 11% of parents and 5 to 31% of teachers rated these children as showing clinical levels of behavior problems. Our evaluation of the RECAP program for these pre-kindergarten children produced an inconsistent set of findings from parents and teachers. Although no treatment effects were found for parents' reports of children's behavior problems or social skills, teachers' ratings did show positive treatment effects. Teachers rated children in the treatment group as showing significantly greater improvement than children in the control group in terms of their total problems, as well as internalizing and externalizing problems. With regard to children's social skills, teachers' ratings showed positive treatment effects on total social skills, specifically with regard to cooperation and assertion but not self-control.

For the narrow-band problem domains, teachers' ratings showed differential effects of treatment. Teachers rated treatment group children as having improved

significantly more than the control group on the Emotionally Reactive, Withdrawn, and Attention Problems subscales; but no effects were found for teachers' ratings on the Anxiety/Depressed, Somatic Complaints, and Aggressive Behavior subscales. With regard to the Anxious/Depressed subscale (which did not show a significant treatment effect), a comparison of its items with those of the Emotional Reactivity and Withdrawn subscales (both of which did show significant treatment effects) indicates that whereas the Anxious/Depressed subscale focuses on affective functioning (e.g., sad; feelings are easily hurt), the Emotional Reactivity and Withdrawn subscales focus on more overt behavior (e.g., whining; withdrawn/doesn't get involved with others). This suggests that the intervention program may be more effective at changing overt behavior, perhaps because the pre-K RECAP program is a universal program targeting the whole classroom, which makes it efficient in creating behavioral norms to guide individuals' overt behavior but not as efficient for targeting individuals' internal, affective states.

In considering the results of our evaluation of the pre-kindergarten RECAP program, three possible explanations for the inconsistency between parent and teacher reports regarding the efficacy of the program were considered. First, it is possible that treatment group teachers may have been biased in their reports of children's post-treatment functioning; that is, the intervention program may not have been effective but treatment group teachers reported improvement in their students' functioning because of positive feelings that they had developed toward the program over the course of their involvement with the consultants. However, the pattern of cross-informant correlations between parents and teachers does not support this interpretation. If teacher bias were the reason that treatment group children showed greater improvement in their teacher-report scores, parent-teacher correlations should have decreased from pre- to post-treatment, for the treatment group only; this is because teacher bias would represent an additional source of error variance (i.e., by definition, it would be variance unrelated to the true score or latent construct). Thus, post-treatment teacher ratings for the treatment group would have increased error variance, resulting in a decreased correlation with parent ratings. To the contrary, the results for teacher reports of both behavior problems and social skills do not fit this pattern. In regard to behavior problems, parent-teacher correlations did not decrease but in fact actually increased numerically in most instances from pre- to post-treatment; this argues against increased error variance due to teacher bias. In regard to social skills, the treatment group did show decreased parent-teacher correlations at post-treatment but the comparison group also

showed decreased parent-teacher correlations from pre- to post-treatment, of a similar magnitude to that observed for the treatment group. This pattern suggests that this decrease was not due to something specific to the treatment group (i.e., teacher bias), but rather something common to both the treatment and comparison groups such as, perhaps, maturation leading to increased environmental specificity in the use of social skills.

Another possible explanation for the inconsistency in findings between informants is that teacher reports of the treatment group's improvement represented regression to the mean. Regression to the mean results when a sample or subjects are chosen on the basis of extreme pre-test scores, and the reliability of the scores is less than one (Shaughnessy & Zechmeister, 1990). Several aspects of our data do not support this interpretation, however. First, in the present case participants were not selected based on extreme scores but rather, all students in each class were eligible for participation in the study. Second, although certain aspects of our data are congruent with regression-to-the-mean effects (specifically, the parent-report data that did not show pre-treatment differences also did not show treatment effects, whereas the teacher-report data that did show pre-treatment differences did show treatment effects), other aspects to our data do not fit a regression-to-the-mean pattern. To explain this, we note that there are basically two factors that relate to the extent of regression to the mean: (a) the extremeness of the scores upon which the subjects were selected; and (b) the test-retest reliability of the measure (the smaller the test-retest reliability, the greater the potential for regression to the mean). Several of the teacher-report psychopathology subscales (Anxious/Depressed, Somatic Complaints) that did not show treatment effects (a) had pre-treatment treatment-comparison group differences comparable to that of the teacher-report psychopathology subscales that did show treatment effects and (b) actually had lower test-retest correlations, which should have resulted in a larger treatment effect if regression to the mean were responsible for the treatment effects. But the Anxious/Depressed and Somatic Complaints subscales did not show significant treatment effects, despite having comparable or higher regression-to-the-mean potential as subscales that did show significant treatment effects (Total Problems, etc.); this suggests that the significant treatment effects were not a function of regression-to-the-mean effects. Nor can the failure of the Anxious/Depressed and Somatic Complaints subscales to show treatment effects be attributed to floor or ceiling effects, because the comparison group's pre-treatment scores on these variables were relatively low (giving them room to increase) whereas the treatment group's pre-treatment scores on these variables

were relatively high (giving them room to decrease). In addition, there were parent-report subscales (e.g., the parent-report Emotionally Reactive subscale) that showed similar regression-to-the-mean potential based on their pre-treatment treatment-comparison group differences and test-retest reliability, but did not show significant group effects.

A different explanation for the inconsistency in findings between informants is that teachers were accurate in their reporting of children's functioning at school, and that the lack of treatment effects for parent reports was due to a failure of the school-based program to impact on children's behaviors at home. That is, the discrepancy in parent and teacher reports may reflect real differences in children's behaviors at home and school. Because so few parents attended the parent group meetings, it is unlikely that they would have employed the intervention strategies at home. Given the failure to fully implement the parent component of the program with the vast majority of parents, it is not surprising that parents did not report changes in their children's behavior as a function of treatment, as the parent component essentially failed to be implemented and thus was ineffective in changing children's behavior at home.

The challenges inherent in engaging parents in school-based interventions have often been noted in other studies of school-based programs (Barkley et al., 2000; Weiss, Catron, Harris, & Phung, 1999). There are several factors that may have contributed to parents' poor attendance in group meetings. For parents who work outside the home or who have other child care responsibilities, attendance may have been difficult. This problem may have been exacerbated by the fact that because the children in our sample were not selected on the basis of having significant mental health problems, parents may not have viewed their children or themselves as needing help from the parent program, even though the purpose of the groups was presented as a means for parents to learn ways to support their children's use of the skills taught by the program. In fact, within the treatment group (whose parents were eligible to participate in the parent groups), only about 11% of parents viewed their children as exhibiting clinically significant problems, whereas teacher reports identified about 31% of these children as having problem levels in the clinical range. Thus, the majority of parents in our sample did not view their children as having problems and consequently did not see a need to adjust their schedules to participate in these groups.

In studies that have achieved high rates of parent participation in school-based intervention programs (e.g., Weiss et al., 2003), more resources have been devoted to facilitating parent attendance by making home visits in

the beginning to address parents' questions and concerns individually, providing transportation and child care, telephoning parents to remind them of meeting times, etc. As parents often may not fully understand the purpose of these types of groups or may not initially feel comfortable in a group setting, home visits or one-on-one meetings with parents are clearly important opportunities for program group leaders to orient parents to the purpose of the group and address parents' questions and concerns. Although an introduction to the intervention program was presented to parents by program group leaders during parent orientation and parent-teacher conferences in the beginning of the school year, the personnel resources necessary to make individual home visits were unfortunately not available in the present study.

Other school-based intervention research has found that when parents are not actively involved in the treatment program, program effects may remain specific to the school environment and thus are not observed by parents (Barkley et al., 2000). Conversely, training programs oriented toward parents, but not involving teachers, may produce improvement in young children's behavior at home but not at school (Webster-Stratton, 1998). The different expectations and demands of the home v. school environment may contribute to children's different behaviors in these settings. The more structured classroom environment, encountered for the first time in pre-kindergarten, may challenge children's emotional and behavioral regulation in ways that the less structured, more familiar home environment does not. As the classroom environment places new demands on children to follow group rules and attend to structured activities, these preschool children may display certain problems at school that they do not display at home.

Several methodological caveats regarding this study should be noted. First, although schools were randomly assigned to groups, children in treatment and comparison schools differed at pre-treatment in regard to several variables (teacher-report problems and skills; family income). To control for these initial differences, post-treatment scores were adjusted for pre-treatment scores. However, it is unclear what impact other unassessed initial differences may have had on our results. Second, the fact that participant attrition was higher in the treatment group may have influenced our results in unknown ways. Children who transferred to other schools and thus did not provide outcome data were rated by teachers as exhibiting significantly higher levels of problems than children who remained in the study, and these dropouts also tended to be boys and to live in two-parent households. It is possible that the retention of these children would have decreased the magnitude of treatment effects. Third, due

to funding limitations, we were unable to follow our participants after they completed pre-kindergarten. Although meta-analytic reviews of outcome studies suggest that, in general, interventions tend to maintain their effects at follow-up (Weisz, Weiss, Alicke, & Klotz, 1987; Weisz, Weiss, Han, Granger, & Morton, 1995), determining the durability of pre-kindergarten RECAP treatment effects will be important in future research.

These results provide some preliminary support for the efficacy of the program on children's behavior problems and social skills, at least within the school setting. However, it is unclear what the active ingredients of this multi-component program are, as the structure of the study did not allow for parceling out the effects of the classroom program by itself without the teacher-consultation component. Based on our model of processes underlying the sustainability of teachers' program implementation (see Han & Weiss, 2005), we chose to provide teachers with intensive consultation on program implementation, as a means to ensure that program fidelity was maintained as teachers implemented the program for the first time. Although no sustainability data were collected in the present study to assess teachers' continued level of program implementation beyond the initial year of implementation with support from the program consultant, our results do support the use of a teacher-consultation model for training teachers to implement a classroom-based mental health program with fidelity. In particular, guidance from a site-based consultant who observed teachers in the classroom and provided corrective feedback on implementation was important for teachers, who oftentimes are unfamiliar or uncomfortable with the format of psychosocial classroom lessons that require role-playing, talking about feelings, and generating multiple problem-solving ideas with students.

In demonstrating the efficacy of a teacher-implemented, pre-kindergarten RECAP program that provided intensive in-classroom consultation on program implementation to teachers, this study represents a first step in also validating the practical value of a teacher-consultation model for training teachers to implement classroom mental health programs. However, further investigation is clearly needed to establish that the provision of intensive teacher consultation results in long-term sustainability of program implementation by teachers in the real world, even after consultation is subsequently discontinued. Future research will need to design multi-year studies that assess sustainability directly by comparing teachers who receive this type of intensive implementation consultation and those who receive only basic training on implementing the program without ongoing in-classroom guidance. Moreover, further investigation

is needed to better understand differential treatment effects on problem domains and the mechanisms mediating the effects of the intervention program on children. Finally, although teachers do represent an efficient means of providing services to a greater number of children, it also will be important to make modifications to the program to increase parents' active participation in the intervention.

ACKNOWLEDGMENTS

This research was supported in part by a grant from the Byrne Foundation, the Memorial Foundation, the Kroger Foundation, Centerstone Community Mental Health Centers, and the Tennessee Department of Mental Health & Developmental Disabilities; by grants from the National Institute of Mental Health (NIMH RO1-MH54237; NIMH RO1-MH58275); and by the Vanderbilt Institute for Public Policy Studies. The authors wish to thank the parents, children, and teachers who participated in the project; the principals of the participating schools; the consultants who provided the intervention, Jane Howard and Rebecca Lovell; Debi Tate for her assistance in bringing the local funding agencies together; and Vicki Harris and Carol Guth for their support and encouragement throughout the project.

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