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How Long Is Long Enough? Outcomes for a School-Based Prevention Program

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ABSTRACT: *One-year versus 2-year outcomes are compared for a school-based prevention project for children at risk for emotional disturbance. Matched pairs of children were randomly assigned to Parent-Teacher Action Research (PTAR) teams or a control group for their 1st- and 2nd-grade years (Total* n = *82). All children, along with their classmates, received social skills instruction from their teachers. Many more significant effects were found at the end of Year 2 than at the end of Year 1, including significant changes in children's problems and competencies, as well as significant interactions demonstrating the effectiveness of PTAR teams. Implications are discussed regarding short-term versus more long-term implementation of prevention programs for elementary age at-risk children.*

Over the course of development, children face many challenges that can bring on behavioral and emotional problems. For some, the problems come and go as a natural part of the growth process. For others, the problems persist and ultimately lead to negative outcomes in adolescence and young adulthood (Achenbach, Howell, McConaughy, & Stanger, 1995a, 1995b, 1995c, 1998; Fergusson & Lynskey, 1998; Loeber, 1991; Moffitt, 1993). There is also evidence that the number of American children with severe problems has risen, and that increases in problems have been accompanied by decreases in children's competencies (Achenbach & Howell, 1993).

The longitudinal findings underscore the need for early prevention programs that can alter the course of problem behaviors before they become intractable and lead to negative consequences later in life. Experts in the treatment of conduct disorders, for example, have argued that interventions need to begin at least by 3rd-grade (age 8) in order to prevent such problems from becoming chronic (Kazdin, 1995; Walker, et al., 1998). Educational experts have also argued that prevention strategies need to be implemented earlier rather than later in a child's life in order to alter behavioral patterns leading to more maladaptive conduct (Kamps & Tankersley, 1996; Kauffman, 1999). Moreover, early prevention is a natural corollary to the special education principle that services should be

provided in the least restrictive environment. After behavioral problems have intensified, Kauffman pointed out, what used to be least restrictive is unlikely to be effective.

Schools can be ideal sites for prevention programs for children at risk for emotional and behavioral problems. Schools are major arenas for social interaction among children and between children and adults. Schools are also environments where children experience many tests of their academic and social competencies. Educational transitions (e.g., kindergarten to 1st-grade; elementary to middle school) also represent marked shifts in interpersonal relationships and academic expectations. With these environmental characteristics in mind, Miller, Brehm, and Whitehouse (1998) reviewed several school-based prevention programs that have shown positive outcomes in more than one school or district. All of the programs were targeted on reducing early antisocial behavior, as well as attenuating risks, building skills, and promoting competencies. The programs reviewed took on many different forms, including individual classroom, schoolwide, and multisetting approaches. Most of the successful programs included primary prevention efforts for skill building in general education settings, combined with secondary prevention strategies targeted at reducing problems of children considered to be at risk. Similarly, Kay (1999) described six empirically validated school-based prevention programs that involved multifaceted primary and secondary prevention, including classroom social skills instruction, positive behavior management, schoolwide discipline plans, and school-family-community linkages.

Despite the recognized need for early prevention, a number of factors have worked against implementation of prevention programs, especially programs for preventing severe emotional and behavioral problems. Limiting factors include concerns about labeling and stigmatizing children with problems, fears about mistakenly targeting children without serious problems (false positives), questions about the costs and effectiveness of prevention programs, and misguided optimism that children will simply outgrow their problems without intervention (Kauffman, 1999).

An additional concern is the fundamental question of how much time and effort is necessary for prevention programs to produce positive results. On the one hand, the persistence of some children's early emotional and behavioral problems suggests that longer-term interventions are likely to be more effective than any "short-term fix." On the other hand, relatively lengthy programs run the risk of creating dependency, which can produce barriers for terminating programs once they are in place. So the question becomes what is the minimal length of time needed for an early prevention program to achieve its desired outcomes without creating dependency for its constituents? In other words, "How long is long enough?" The present study was designed to answer this question for a particular program by further analyzing data collected on the Achieving, Behaving, Caring (ABC) Project, a school-based prevention program for elementary children at risk for developing emotional disturbance (ED).

The Achieving Behaving Caring (ABC) Project

The ABC Project employed whole-class social skills instruction as a primary prevention strategy combined with collaborative teaming in the form of Parent-Teacher Action Research (PTAR) as a secondary prevention strategy (Kay & Fitzgerald, 1997; McConaughy, Kay, & Fitzgerald, 1998). The participants were two consecutive cohorts of children initially identified by their kindergarten teachers as at risk for behavioral or emotional problems. In their 1st- and 2nd-grade years, one half of the targeted sample was assigned to PTAR teams, while the other half served as matched controls in the same classrooms. In addition to participating in PTAR teams, 1st- and 2nd-grade teachers also provided social skills instruction to all children in their classes, according to a curriculum selected by each school's staff. Social skills curricula covered four general areas: communication, interpersonal skills, personal skills, and response skills (for details, see McConaughy et al.).

PTAR Teams. The PTAR teams included the child's 1st- or 2nd-grade teacher, at least one parent, and a parent liaison recruited from the local community. Other professionals, such as

guidance counselors, joined team meetings upon invitation. On PTAR teams, parents and teachers worked together as equal partners to design and implement interventions and accommodations for each child. Parent liaisons supported parents at PTAR team meetings and made home visits between meetings. For Cohort 1, ABC researchers initially acted as facilitators at team meetings and continued in that role throughout Year 2. For Cohort 2, parent liaisons gradually assumed the facilitator role, while ABC researchers attended meetings at the request of parent liaisons.

The first two PTAR meetings used a structured protocol to identify each target child's strengths and problems as well as the parent's and teacher's hopes and fears for the child. They then established mutual parent-teacher goals, identified observable indicators for each goal, and agreed how each would collect data. Subsequent PTAR team meetings reviewed goals and observations, following an action research cycle of asking questions to promote reflection, identifying practical theories, suggesting ways to carry out home and school action plans, and offering support to parents and teachers (for details, see Kay & Fitzgerald, 1997; McConaughy et al., 1998). Facilitators or parent liaisons documented each team meeting and distributed notes to all parties. The frequency of PTAR meetings ranged from once a week to every 6 weeks, with most occurring for 1 hr once a month.

Parent liaisons contacted parents at least once between meetings to support them in data collection and carrying out action plans. Parent liaisons also referred families to resources in the school and community when parents requested additional services. Parent liaisons met once a month with ABC researchers and kept detailed field notes. Meetings with ABC researchers continued after parent liaisons assumed the role of PTAR facilitators, which, along with a common protocol for PTAR meetings, helped to establish treatment fidelity.

McConaughy et al. (1998) reported preliminary 1-year outcomes for the first cohort (n = 36). The preliminary findings showed significantly greater reductions in certain types of teacher-reported problems for children with PTAR teams than for matched controls who received only social skills instruction. Classroom observers also reported reductions in problems for PTAR children in contrast to increases in problems for controls. However, there appeared to be no changes in parent-reported problems for either group. Subsequently, McConaughy, Kay, and Fitzgerald (1999) reported 2-year outcomes for the full sample (n = 82). Some of the 2-year findings were consistent with the preliminary Year 1 findings, while others were not. In addition, there appeared to be many more significant effects at the end of Year 2 than at the end of Year 1. The differences between the two studies raised additional questions about the relatively short-term versus longer-term outcomes of the ABC Program. Specifically, we questioned whether the ABC prevention program had produced more beneficial effects after 2 years than it did after only 1 year. Another question was whether different types of effects occurred after 2 years versus 1 year. Since the preliminary findings were based only on a partial sample, the present study addressed these questions by analyzing 1-year results for the entire sample for comparison to the 2-year results reported by McConaughy et al. (1999).

METHOD

Sample Selection/Participants

Two separate cohorts of participants (total n = 82) were selected in 2 consecutive years using a multiple gating system (for details, see McConaughy et al., 1999). At Gate 1, kindergarten teachers used the Systematic Screening for Behavior Disorders (SSBD; Walker & Severson, 1990) to identify children in their classes with externalizing (disruptive or aggressive) or internalizing (affective or emotional) behaviors. At Gate 2, children were selected who had suitable matches for gender, SSBD-designated Internalizer or Externalizer, and placement with same 1st-grade teacher. At Gate 3, parent liaisons obtained parents' permission for children's participation. Ninety-one percent of Cohort 1 parents and 94% of Cohort 2 parents agreed to the project conditions, whereupon kindergarten teach-

ers completed the Teacher's Report Form (TRF; Achenbach, 1991b).

At Gate 4, pairs of eligible children were matched for gender, designated 1st-grade teacher, SSBD or TRF Internalizer or Externalizer, and TRF Total Problems score. Each member of a matched pair was then randomly assigned (by a coin flip) to a PTAR team or a control group, resulting in 18 matched pairs for Cohort 1 and 23 matched pairs for Cohort 2.

The total sample of 82 children included 56 boys and 26 girls. Cohort 1 children (n = 36) attended 8 different schools with 14 1st-grade and 16 2nd-grade teachers. Cohort 2 children (n = 46) attended 12 different schools with 20 1st-grade and 29 2nd-grade teachers. Of 41 matched pairs of children, 19 pairs had the same teacher for 1st- and 2nd-grade. Children with mental retardation or physical disabilities were excluded from the study in order to focus interventions on problems that were not complicated by low cognitive ability or physical limitations. Parents and teachers each received equal stipends for their participation in the project.

There were no significant group differences in kindergarten TRF Total Problems T scores (PTAR Group = 58.0; Controls = 58.5), nor any other TRF problem scale, demonstrating the success of the matching process. There were also no significant group differences for TRF Academic Performance or Adaptive Functioning, nor parental socioeconomic status (SES) scored on Hollingshead's (1975) 9-point scale. Among 81 participants, 47% obtained a kindergarten TRF Total Problems T score $\geq$ 60 ($\geq$ 82nd percentile), which marks the borderline clinical cutpoint for differentiating referred from nonreferred children (Achenbach, 1991b). (One kindergarten teacher failed to complete the TRF.) In addition, 46% scored above the borderline clinical cutpoint for TRF Internalizing and 41% scored above the same cutpoint for TRF Externalizing.

Outcome Measures

To obtain quantitative measures of outcomes over 1-year and 2-year intervals, teachers and parents completed standardized rating scales at four different time periods: fall and spring of the child's 1st- and 2nd-grade years. Independent observers also rated the children's behavior in the classroom and at recess at each of the same four time periods.

Teacher Reports. Teachers completed the TRF (Achenbach, 1991b) and Social Skills Rating System (SSRS-T; Gresham & Elliott, 1990). The TRF and SSRS-T are widely used instruments with well established reliability and validity, as detailed in their respective manuals.

The TRF contains 118 problem items, each of which is rated on a 3-point scale for how true the item is over the past 2 months. Teachers also rate the child's academic performance on a 5-point scale and adaptive functioning on a 7-point scale. Normed for ages 5-11 and 12-18, the TRF profile provides scores for Internalizing, Externalizing, Total Problems, Academic Performance, Adaptive Functioning, and eight cross-informant syndromes: Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behavior, and Aggressive Behavior.

The SSRS-T contains items for 30 social skills and 18 problems, each rated on a 3-point scale. Teachers also provide ratings of academic competence in basic skill areas and overall functioning. The SSRS-T profile provides scores for Total Social Skills and three social subscales: Cooperation, Assertion, and Self-Control. Scores are also provided for Total Problems, Internalizing, Externalizing, Hyperactivity, and Academic Competence.

Parent Reports. Parents completed the Child Behavior Checklist (CBCL; Achenbach, 1991a) and Social Skills Rating System (SSRS-P; Gresham & Elliott, 1990), both of which also have well established reliability and validity, as detailed in their respective manuals.

The CBCL has 118 problem items, each of which is rated on a 3-point scale for how true it is over the past 6 months. Parents also rate 20 competence items, covering their child's activities, social relations, and school performance. Normed for ages 4-11 and 12-18, the CBCL profile provides scores for the same eight syndromes and broad scales as the TRF, plus Total Competence and three competence subscales: Activities, Social, and School.

The SSRS-P contains 38 social skills items and 17 problems, each rated on a 3-point scale. The SSRS-P profile provides scores for Total Social Skills and four social subscales: Cooperation, Assertion, Self-Control, and Responsibility, as well as scores for Total Problems, Internalizing, Externalizing, and Hyperactivity.

Parents also completed the Family Empowerment Scale-School Version (FES-S). The FES-S was adapted from the FES (Koren, DeChillo, & Friesen, 1992), which measures parent's or caregiver's sense of empowerment in obtaining mental health services for their child. For the ABC Project, the FES-S assessed parent's views on obtaining school-based services for their child. School services were defined as including extra help with academic work, communication with school staff, guidance and counseling, services from the school nurse, or changes in the classroom, such as seating or grouping, as well as changes in the curriculum. The FES-S has 34 items rated on a 5-point Likert scale, ranging from *1 = not at all true* to *5 = very true.* Items were scored on four factor analytically derived scales developed by Singh et al. (1995): Systems Advocacy, Knowledge, Competence, and Self-Efficacy. A total FES-S raw score was computed by adding respondents' ratings across the 34 items.

Independent Observations. The Direct Observation Form (DOF; Achenbach, 1986; McConaughy, Achenbach, & Gent, 1988) was used to score direct observations in classrooms and at recess over four separate 10-min periods. The DOF has 96 problem items similar to those on the CBCL and TRF, each of which is scored on a 4-point scale. On-task behavior is also scored at 1-min intervals over the 10-min period. Independent observers wrote a narrative description of the child's behavior as it occurred over a 10-min interval and then rated problems observed during that period. The DOF profile provides scores for On-Task, Internalizing, Externalizing, and Total Problems, and six syndromes: Withdrawn/Inattentive, Nervous/Obsessive, Depressed, Hyperactive, Attention Demanding, and Aggressive. Scores are averaged across multiple observation sessions. For the ABC Project, McConaughy et al. (1998) reported an average interrater reliability of .86 for DOF Total Problems and .90 for DOF On-Task scores.

Data Collection

Parent liaisons obtained the CBCL, SSRS-P, and FES-S from parents during home visits in the fall and spring of the child's 1st- and 2nd-grade years. Parent liaisons read instructions to parents who completed questionnaires in counterbalanced order. Parents returned the questionnaires in self-addressed, stamped envelopes to ensure confidentiality. The project data manager mailed the TRF and SSRS-T to classroom teachers with a self-addressed envelope with instructions to complete the forms in counterbalanced order and on different days for each child. Because teachers participated in the PTAR teams, it was not possible to keep them blind to the child's group assignment.

Fourteen independent observers used the DOF to rate four separate 10-min observations of each PTAR and control child during the fall and spring of each year (for details, see McConaughy et al., 1998, 1999). Observers rated two classroom observations in the morning and afternoon of two different days, plus two recess observations. The observers were kept blind to the child's group assignment and had no prior knowledge of the child's behavior or academic performance. The DOF problem scores were averaged separately for classroom and recess observations for each child.

Data Analyses

McConaughy et al. (1999) reported details of analyses and results for the 2-year interval from 1st-grade fall to 2nd-grade spring. To analyze 2-year outcomes for the PTAR group versus their matched controls, they performed a series of fixed effects 2x2 multivariate analyses of variance (MANOVA), followed by univariate analyses of variance (ANOVA) and Least Square Means (LSM) pairwise tests, employing General Linear Models procedures (GLM; SAS Institute, 1990). Each set of MANOVAs and ANOVAs treated 1st-grade fall and 2nd-grade spring scores as repeated measures and PTAR versus control groups as between-subject measures. Dependent variables included standardized problem and competence scores of the CBCL, TRF,

DOF, SSRS, and FES-S. To test 1-year outcomes, we performed similar MANOVAs treating 1st-grade fall and 1st-grade spring scores as repeated measures and PTAR versus control groups as between-subject measures. All multivariate hypotheses were tested using the Wilks' lambda (λ) criterion, although other major criteria led to identical decisions regarding statistical significance of effects. Significant interaction effects indicated differences between PTAR versus control children's scores over the same time period.

For the present study, we computed the percent of variance accounted for [$eta^2 = 100(1-\lambda)$] by each significant effect in the ANOVAs, as recommended by Thompson (1999) and the American Psychological Association's (1994) publication guidelines. By examining the percent of variance listed in the tables for each variable, readers can directly compare the magnitude of significant effects for 1-year versus 2-year outcomes. According to Cohen's (1988) criteria, effect sizes accounting for 1% to 5.8% of variance are considered small, 5.9% to 13.7% medium, and >13.8% large.

RESULTS

Problem Scales

For problem scales showing significant effects, Table 1 lists the type of effect and percent of variance accounted for at the end of Year 1 (1st-grade fall vs. 1st-grade spring) vs the end of Year 2 (1st-grade fall versus 2nd-grade spring). At the end of Year 1, significant main effects of time were found on only four scales: TRF Internalizing, $F(1,80) = 6.65$, $p = .012$, accounting for 7.7% of variance ($\lambda = .923$); TRF Withdrawn, $F(1,80) = 4.93$, $p = .029$, accounting for 5.8% of variance ($\lambda = .942$); SSRS-T Internalizing, $F(1,80) = 4.52$, $p = .037$, accounting for 5.4% of variance ($\lambda = .946$); and CBCL Thought Problems, $F(1,80) = 6.33$, $p = .014$, accounting for 7.3% of variance ($\lambda = .927$). On each of these scales, scores averaged across both PTAR and control groups decreased from fall to spring. The DOF Nervous/Obsessive scale showed a borderline interaction effect, $F(1,80) = 3.87$, $p = .053$, accounting for 4.7% of variance ($\lambda = .953$). On this scale, scores for the PTAR children decreased from fall to spring, while scores for the control children increased.

At the end of Year 2, significant main effects of time were found for 11 problem scales and significant interaction effects were found for 9 scales (for statistical details, see McConaughy et al., 1999). Teachers reported significant decreases in problem scores averaged across both PTAR and control children on TRF Internalizing and Withdrawn scales, as they did at the end of Year 1, but they did not continue to report decreases on the SSRS-T Internalizing. A significant interaction effect for TRF Internalizing at the end of Year 2 showed a greater decrease in internalizing problems for PTAR children than for control children. At the end of Year 2, but not Year 1, there was also a significant interaction effect for TRF Delinquent Behavior, showing a decrease in teacher-reported Delinquent Behavior for PTAR children, in contrast to an increase in Delinquent Behavior for control children.

A significant time effect for CBCL Thought Problems at the end of Year 2 was consistent with the Year 1 finding. However, by the end of Year 2, additional significant time effects were found for the CBCL and SSRS-P Total Problems, CBCL and SSRS-P Externalizing, CBCL Internalizing, CBCL Withdrawn, CBCL Aggressive Behavior, and SSRS-P Hyperactive scales. All of these scales showed significant decreases in parent-reported problems averaged across both PTAR and control children. At the end of Year 2, significant interaction effects were also found for parent-reported problems on four scales. These included CBCL Total Problems, CBCL Externalizing, and SSRS-P Externalizing, all of which showed significantly greater decreases in scores for PTAR children than for controls. On CBCL Delinquent Behavior, scores for PTAR children decreased, while scores for control children increased, similar to the Year 2 interaction effect for TRF Delinquent Behavior.

Finally, at the end of Year 2, ratings of independent observers produced significant interactions on the DOF Internalizing, Depressed, and Nervous-Obsessive scales. On all of these scales, scores for PTAR children decreased while scores for control children increased. As indi-

TABLE 1

One-Year Versus Two-Year Effects on Problem Scales

	End of Year 1[a]		End of Year 2[b]	
Scale	*Effect*	*% Variance*	*Effect*	*% Variance*
Teacher Ratings				
TRF Internalizing	Time	7.7	Time	6.9
TRF Internalizing	—	—	Interaction	5.1
TRF Withdrawn	Time	5.8	Time	8.3
TRF Delinquent Behavior	—	—	Interaction	6.9
SSRS-T Internalizing	Time	5.4	—	—
Parent Ratings				
CBCL Total Problems	—	—	Time	24.9
CBCL Total Problems	—	—	Interaction	5.7
CBCL Internalizing	—	—	Time	11.5
CBCL Externalizing	—	—	Time	20.6
CBCL Externalizing	—	—	Interaction	5.5
CBCL Withdrawn	—	—	Time	9.0
CBCL Thought Problems	Time	7.3	Time	11.9
CBCL Delinquent Behavior	—	—	Interaction	9.7
CBCL Aggressive Behavior	—	—	Time	12.9
SSRS-P Total Problems	—	—	Time	9.9
SSRS-P Externalizing	—	—	Time	24.9
SSRS-P Externalizing	—	—	Interaction	5.5
SSRS-P Hyperactive	—	—	Time	7.5
Classroom Observers				
DOF Internalizing	—	—	Interaction	6.3
DOF Nervous/Obsessive	Interaction	4.7	Interaction	7.7
DOF Depressed	—	—	Interaction	4.9

Note: n = 82, except for DOF, n = 80. In all interactions, the PTAR group showed significantly greater decreases in problem scores over time than did controls.

[a] Grade 1 fall versus Grade 1 spring. [b] Grade 1 fall versus Grade 2 spring, as reported by McConaughy, Kay, and Fitzgerald, 1999.

cated earlier, at the end of Year 1, only the DOF Nervous-Obsessive scale showed a borderline interaction ($p = .053$), but the effect size was small (4.7% of variance), in contrast to a medium effect size (7.7% of variance) at the end of Year 2. (It should also be noted that at Time 1, the PTAR group scored significantly higher than controls on DOF Internalizing and DOF Nervous/Obsessive. Therefore, regression to the mean may have influenced the interaction effects found on these two scales.)

Competence Scores

Table 2 lists the type of effect and percentage of variance accounted for on the competence scales showing significant effects at the end of Year 1 versus the end of Year 2. At the end of Year 1, significant main effects of time were found on three scales: SSRS-T Total Social Skills, $F(1,76) = 10.41$, $p = .002$, accounting for 12.1% of variance ($\lambda = .880$); SSRS-T Assertion, $F(1,76) = 9.96$, $p = .002$, accounting for 11.6% of variance ($\lambda = .884$); and SSRS-T Self-Control, $F(1,76) = 6.41$, $p = .013$, accounting for 7.8% of variance ($\lambda = .922$). On these scales, scores averaged across PTAR and control children showed significant increases over time. The SSRS-P Cooperation scale showed a significant interaction by the end of Year 1, $F(1,79) = 5.32$, $p = .024$, accounting for 6.3% of variance ($\lambda = .937$). On this scale, the score for PTAR children increased, while the score for control children decreased slightly. Also at the end of Year 1, the FES-S Total Score showed a significant group effect, $F(1,79) = 4.38$, $p = .040$, accounting for 5.3% of variance ($\lambda = .937$), as did the FES-S Systems Advocacy scale, $F(1,79) = 6.37$, $p = .014$, accounting for 7.5% of variance ($\lambda = .925$). On these two FES-S scales, parents of PTAR children scored themselves significantly higher than did parents of control children. The FES-S Competence scale showed a significant main effect of time, $F(1,79) = 9.33$, $p = .003$, accounting for 10.6% of variance ($\lambda = .894$). On this scale, the score averaged across both groups of parents increased over time. There were no significant interaction effects on any of the FES-S scales at the end of Year 1.

At the end of Year 2, significant time effects were found for 10 competence scales, significant interactions for 6 scales, and significant group effects for 2 scales (for statistical details, see McConaughy et al., 1999). Time effects on SSRS-T Total Social Skills, SSRS-T Assertion, and SSRS-T Self-Control were consistent with those at the end of Year 1. However, additional significant time effects for TRF Adaptive Functioning, TRF Academic Performance, and SSRS-T Cooperation were evident only by the end of Year 2. On all of the scales showing time effects, teachers reported significant increases in scores averaged across PTAR and control children.

Significant time effects were found only at the end of Year 2 for parent-reported competencies on CBCL Activities, SSRS-P Total Social Skills, SSRS-P Self-Control, and SSRS-P Responsibility. On these scales, parents reported significant increases in scores averaged across PTAR and control children. Additional interaction effects at the end of Year 2 showed significantly greater increases for PTAR than control children for CBCL Total Competence, SSRS-P Cooperation, and SSRS-P Self-Control. However, only one of these interaction effects (SSRS-P Cooperation) was evident at the end of Year 1. Finally, by the end of Year 2, interaction effects on the FES-S showed significantly greater increases for PTAR parents than control parents on the FES-S Total Score, FES-S Knowledge, and FES-S Competence scales, all of which were not evident at the end of Year 1.

DISCUSSION

Accumulating evidence is demonstrating the effectiveness of school-based prevention programs. However, to our knowledge, no studies have assessed how long any of the programs need to be maintained in order to produce desired results. Because the ABC Project was carried out over the course of 2 years, spanning 1st- and 2nd-grades, we were able to compare 1-year versus 2-year outcomes for two consecutive cohorts. Specifically, the present study analyzed 1-year results on several standardized rating scales completed by teachers, parents, and observers and compared those findings to 2-year results reported by McConaughy et al. (1999).

TABLE 2
One-Year Versus Two-Year Effects on Competence Scales

Scale	End of Year 1[a]		End of Year 2[b]	
	Effect	*% Variance*	*Effect*	*% Variance*
Teacher Ratings				
TRF Adaptive Functioning	—	—	Time	7.8
TRF Academic Performance	—	—	Time	6.6
SSRS-T Total Social Skills	Time	12.1	Time	17.5
SSRS-T Cooperation	—	—	Time	5.3
SSRS-T Assertion	Time	11.6	Time	20.7
SSRS-T Self-Control	Time	7.8	Time	7.0
Parent Ratings				
CBCL Total Competence	—	—	Interaction	6.9
CBCL Activities	—	—	Time	8.1
SSRS-P Total Social Skills	—	—	Time	8.7
SSRS-P Cooperation	Interaction	6.3	Interaction	7.5
SSRS-P Self-Control	—	—	Time	15.9
SSRS-P Self-Control	—	—	Interaction	9.8
SSRS-P Responsibility	—	—	Time	13.1
FES-S Total	Group	5.3	Group	8.1
FES-S Total	—	—	Interaction	6.2
FES-S Systems Advocacy	Group	7.5	Group	8.6
FES-S Knowledge	—	—	Interaction	6.5
FES-S Competence	Time	10.6	Interaction	5.4

Note: ns vary from 73 to 82. In all group effects, the PTAR group scored significantly higher than controls; in all interactions, the PTAR group showed significantly greater increases in scores over time than did controls.
[a] Grade 1 fall versus Grade 1 spring. [b] Grade 1 fall versus Grade 2 spring, as reported by McConaughy, Kay, and Fitzgerald, 1999.

By the end of Year 1 (children's 1st-grade year), small to medium time effects were found on four problem scales and four competence scales. Teachers reported significant reductions on the TRF Internalizing scale and improvements in SSRS-T Total Social Skills, SSRS-T Assertion, and SSRS-T Self-Control, averaged across both PTAR and control children. Parents also reported significant reductions in CBCL Thought Problems and improvements in SSRS-

P Cooperation, averaged across both groups. However, only two interaction effects showed any incremental benefits for children with PTAR teams versus control children. These included a medium effect on the SSRS-P Cooperation scale and a small borderline effect on the DOF Nervous-Obsessive scale.

By the end of Year 2 (most children's 2nd-grade year), there were significant time effects on 21 scales and 15 significant interaction effects that demonstrated the incremental benefits of PTAR teams. Both teachers and parents reported significant reductions on the TRF and CBCL Delinquent Behavior scales for PTAR children versus increases in Delinquent Behavior for control children. The Delinquent Behavior scale measures problems such as lying or cheating, stealing, swearing, and other violations of social rules. Teachers also reported greater reductions on the TRF Internalizing scale, while parents reported greater reductions on the CBCL Externalizing scale for PTAR versus control children. Internalizing includes withdrawal, anxiety, depression, and somatic complaints. Externalizing includes delinquent and aggressive behavior. Independent classroom observers corroborated some of these findings by scoring PTAR children significantly lower than controls on the DOF Internalizing, Nervous-Obsessive, and Depressed scales by the end of Year 2. In addition to reductions in problems, PTAR parents reported significantly greater improvements than did control parents in their children's competencies, as measured on the CBCL Total Competence scale and SSRS-P Cooperation and Self-Control scales.

The greater number and greater magnitude of interaction effects at the end of Year 2 versus Year 1 clearly show that the full 2 years were necessary to produce significant incremental changes in PTAR children's problems and competencies compared to controls without PTAR teams. The greater number and greater magnitude of significant time effects at the end of Year 2 also suggest that the full 2 years of the ABC program produced more beneficial effects for the entire sample than did 1 year. The time effects were most likely due to the social skills instruction provided to all participants and their classmates. However, because there was not a control group of children without social skills instruction, we were unable to directly test the effects of this primary prevention strategy.

The lack of a control group without any intervention was one of several limitations of the ABC Project discussed by McConaughy et al, (1998, 1999). Future research is needed to test whether whole-class social skills instruction alone or PTAR teams alone would have produced similar or different changes in problems and competencies for 1st- and 2nd-grade children at risk for ED. A second limitation was the moderate level of at-risk status of some children in our sample. As a first step in the selection process, kindergarten teachers used the SSBD to identify Internalizers and Externalizers in their classrooms. After obtaining parental permission for children's participation, we found that 53% of the sample scored in what is considered the normal range (below the 82nd percentile) for Total Problems on their kindergarten teachers' TRFs. After the children entered 1st-grade, we also found that their 1st-grade teachers and parents reported fewer problems on the TRF and CBCL, respectively, than did the kindergarten teachers who had originally identified the children.

Requiring better agreement and higher initial problem scores would have been one way to guarantee selection of a more high-risk sample. However, this would require casting a much wider net and selecting fewer children at each site. For research in rural settings like ours, more rigorous selection practices would greatly increase costs in personnel and travel. Furthermore, if we had required initial consensus among all informants, we may have missed some children who could benefit from the interventions, according to their kindergarten teachers. On the other hand, by relying only on kindergarten teachers for selecting participants, we may have missed some children who needed the interventions and included others who did not, according to 1st-grade teachers or parents. In addition, restricting the sample to include only children with severe problems runs counter to the goals of primary and secondary prevention, which seeks to intervene early in order to reduce or correct problems before they become severe (Kamps & Tankersley, 1996; Kauffman, 1999).

A third limitation was the fact that 1st-grade teachers and parents could not be kept blind to the children's group assignments. Thus teachers' and parents' reports of reduced problems and improved competencies could represent some expectancy biases, as well as real changes in the children's behavior. However, DOF ratings by independent observers were not subject to expectancy bias because the observers were unaware of children's group assignment or the focus of the interventions. The interaction effects on the three DOF internalizing scales thus corroborated similar interaction effects on TRF Internalizing by the end of Year 2. The interactions on the TRF and CBCL Delinquent Behavior scales at the end of Year 2 were not corroborated by significant changes in DOF Externalizing, although the direction of effects on DOF Externalizing was similar to those for CBCL and TRF Delinquent Behavior.

IMPLICATIONS FOR PRACTICE

The findings from the present study have several implications for practice. First, they underscore the importance of allowing sufficient time for early prevention programs to produce changes in at-risk children's behavior. As indicated earlier, longitudinal studies have revealed the persistent quality of many children's problems (Achenbach et al., 1995a, 1995b; Walker & Sprague, 1999). Other studies have shown high rates of co-occurrence, or comorbidity, for internalizing and externalizing problems, which adds to the complexity of presenting problems (McConaughy & Skiba, 1993). In addition, by the time children enter 1st-grade, some have already experienced multiple risk factors that can disrupt their home and school routines and further exacerbate their problems (Barnett, et al., 1997; Knitzer, Steinberg, & Fleish, 1990). All of these factors affecting children's behavior make it unlikely that brief, "one-shot" interventions will have much success or long-lasting impact.

Second, to be effective, collaborative teaming requires extended time to develop the skills of collaboration (Friend & Cook, 1996; Johnson & Johnson, 1997; Thousand & Villa, 1992), as well as time for assessment, planning, and evaluation of interventions (Barnett et al., 1997). As Thousand and Villa note, "few adults have had the opportunity to receive instruction and practice in small group interpersonal skills" (p.87). In the ABC Project, parent liaisons set ground rules designed to create new group norms for the interaction between parents and teachers. The PTAR meetings were frequent and regular, as well as structured and facilitated, to allow both parties time to recognize their need for new skills in collaboration, see those skills demonstrated, practice them, and receive feedback.

While extensive, the time needed for the PTAR team process was no greater than that of other forms of collaborative consultation. The PTAR teams averaged 10 meetings per year, of approximately 1 hr in length, which resulted in an average of 20 hr of meeting time over a 2-year period. Similarly, in the Ohio Early Childhood Intervention Project (OECIP; Barnett et al., 1997), the average case required 24.3 hr (SD = 9.6) for school psychologists' consultation to parents and teachers of 3- to 5-year-old children. At least half of that time was spent on problem identification and analysis (M = 5.4 hr; SD = 2.8) and plan development (M = 7.6 hr; SD = 5.9). Later stages of consultation required an average of 3.1 hr (SD = 2.3) on plan implementation, 3.9 hours (M = 2.3) on plan evaluation, and 4.5 hr (SD = 4.3) on case management. If the average 24.3 hr per OECIP case were divided into 1-hour team meetings, this would require 24 meetings. If meetings were held at the average rate of one per month, as they were in the ABC Project, then the interventions would easily extend across 2 school years.

Third, time is needed for parents and teachers to develop mutual trust and to acknowledge one another's expertise. Parity is essential for true collaboration. This requires that each participant value the other's contributions equally and have equal power in decision making (Friend & Cook, 1996). To develop collaborative home-school partnerships, Ysseldyke and Christenson (1994) delineated three guidelines, each of which requires that parents and teachers spend adequate time together. The first was to focus on improving the child's performance in school. Keeping the focus on the success of the child can help to prevent parents and teachers

from blaming one another. The second was to listen and communicate. The third was to learn to take the other's perspective. All of these processes take time. Moreover, parental involvement over the full course of a program may be a crucial component for effective school-based prevention that involves home-school partnerships. For example, after 2 years of a multi-component secondary prevention school program, Braswell et al. (1997), found no significant changes in children's externalizing behavior, as reported by parents or teachers of intervention or control children. These nonsignificant effects may have been due, at least partially, to poor parental involvement or dropout from intervention activities, including attending parent sessions and completing outcome measures. By the end of Year 2, Braswell et al. reported that 72.7% of intervention parents and 53.3% of control parents attended no parent training sessions.

In the ABC Project, parents remained involved as equal partners with teachers on PTAR teams throughout the 2-year period. In addition, parent liaisons maintained contact with parents between meetings to support them in data collection and to act as role models of effective parents. Significantly higher FES-S scores for PTAR versus control parents at the beginning and end of Year 1 suggest that even initial teaming with teachers enhanced PTAR parents' feelings of empowerment in obtaining school services for their children. By the end of Year 2, PTAR parents showed significant improvements in their FES-S scores, particularly regarding their knowledge and feelings of competence, in contrast to little change in FES-S scores for control parents.

Finally, a longer time period may be needed for both parents and teachers to internalize new skills. In the ABC Project, both parents and teachers identified changes they needed to make in their interactions with PTAR children. Often, they acknowledged that these changes were beneficial for other children in their care as well. Over time, these new practices improved the consistency of the messages that the children received at both home and school, often leading to visible improvements in the children's behavior necessary for academic success.

REFERENCES

Achenbach, T. M. (1986). *Direct Observation Form of the Child Behavior Checklist (Rev.ed.).* Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M. (1991a). *Manual for the Child Behavior Checklist/4-18 and 1991 Profile.* Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M. (1991b). *Manual for the Teacher's Report Form and 1991 Profile.* Burlington, VT: University of Vermont, Department of Psychiatry.

Achenbach, T. M., & Howell, C. T. (1993). Are American children's problems getting worse? A 13-year comparison. *Journal of the American Academy of Child and Adolescent Psychiatry, 32,* 1145-1154.

Achenbach, T. M., Howell, C. T., McConaughy, S. H., & Stanger, C. (1995a). Six-year predictors of problems in a national sample: I. Cross-informant syndromes. *Journal of the American Academy of Child and Adolescent Psychiatry, 34,* 336-347.

Achenbach, T. M., Howell, C. T., McConaughy, S. H., & Stanger, C. (1995b). Six-year predictors of problems in a national sample: II. Signs of disturbance. *Journal of the American Academy of Child and Adolescent Psychiatry, 34,* 488-498.

Achenbach, T. M., Howell, C. T., McConaughy, S. H., & Stanger, C. (1995c). Six-year predictors of problems in a national sample: III. Transitions to young adult syndromes. *Journal of the American Academy of Child and Adolescent Psychiatry, 34,* 658-669.

Achenbach, T. M., Howell, C. T., McConaughy, S. H., & Stanger, C. (1998). Six-year predictors of problems in a national sample: IV. Young adult signs of disturbance. *Journal of the American Academy of Child and Adolescent Psychiatry, 37,* 718-727.

American Psychological Association. (1994). *Publication manual of the American Psychological Association.* Washington, DC: Author.*

Barnett, D. W., Bell, S. H., Baver, A., Lentz, F. E., Petrelli, S., Air, A., Hannum, L., Ehrhardt, K. E., Peters, C. A., Barnhouse, L., Reifin, L. H., & Stollan, S. (1997). The Early Childhood Intervention Project: Building capacity for service delivery. *School Psychology Quarterly, 12,* 293-315.

Braswell, L., August, G. J., Bloomquist, M. L., Realmuto, G. M., Skare, S. S., & Crosby, R. D. (1997). School-based secondary prevention for children with disruptive behavior: Initial outcomes. *Journal of Abnormal Child Psychology, 25,* 197-208.

Cohen, J. (1988). *Statistical power analyses for the behavioral sciences* (2nd ed.) New York: Academic Press.*

Fergusson, D. M., & Lynskey, M. T. (1998). Conduct problems in childhood and psychosocial outcomes in young adulthood: A prospective study. *Journal of Emotional and Behavioral Disorders, 6,* 2-18.

Friend, M., & Cook, L. (1996). *Interactions: Collaboration skills for school professionals (2nd ed.)* White Plains, NY: Longman.*

Gresham, F. M., & Elliott, S. N. (1990). *Social Skills Rating System.* Circle Pines, MN: American Guidance Service.*

Hollingshead, A. B. (1975). Four factor index of social status. Unpublished manuscript, Yale University.

Johnson, D. W. & Johnson, F. P. (1997). *Joining together: Group theory and group skills (6th ed.).* Needham Heights, MA: Allyn and Bacon.*

Kamps, D. M., & Tankersley, M. (1996). Prevention of behavioral and conduct disorders: Trends and research issues. *Behavioral Disorders, 22,* 41-48.

Kauffman, J. M. (1999). How we prevent prevention of emotional and behavioral disorders. *Exceptional Children, 65,* 448-468.

Kay, P. J. (Ed.) (1999). *Prevention strategies that work: What administrators can do to promote positive student behavior.* Burlington, VT: University of Vermont, Department of Education. (Available from The School Research Office, Department of Education, 429 Waterman, University of Vermont, Burlington, VT 05405 or via the Internet at http://www.air.org/cecp/preventionstrategies).

Kay, P. J. & Fitzgerald, M. F. (1997). Parents + teachers + action research = real involvement. *TEACHING Exceptional Children, 30,* 8-11.

Kazdin, A. (1995). Treatment of antisocial behavior in children: Current status and future directions. *Psychological Bulletin, 102,* 187-203.

Knitzer, J., Steinberg, Z., & Fleish, B. (1990). *At the school house door.* New York: Bank Street College of Education.*

Koren, P. E., DeChillo, N., & Friesen, B. J. (1992). Measuring empowerment in families whose children have emotional disabilities: A brief questionnaire. *Rehabilitation Psychology, 37,* 305-321.

Loeber, R. (1991). Antisocial behavior: More enduring than changeable? *Journal of the American Academy of Child and Adolescent Psychiatry, 30,* 393-397.

McConaughy, S. H., Achenbach, T. M., & Gent, C. L. (1988). Multiaxial empirically based assessment: Parent, teacher, observational, cognitive, and personality correlates of Child Behavior Profiles for 6-11-year-old boys. *Journal of Abnormal Child Psychology, 16,* 485-509.

McConaughy, S. H., Kay, P., & Fitzgerald, M. (1998). Preventing SED through Parent-Teacher Action Research and social skills instruction: First year outcomes. *Journal of Emotional and Behavioral Disorders, 6,* 81-93.

McConaughy, S. H., Kay, P., & Fitzgerald, M. (1999). The Achieving Behaving Caring Project for preventing ED: Two-year outcomes. *Journal of Emotional and Behavioral Disorders, 7,* 224-239.

McConaughy, S. H., & Skiba, R. (1993). Comorbidity of externalizing and internalizing problems. *School Psychology Review, 22,* 421-436.

Miller, G. E., Brehm, K., & Whitehouse, S. (1998). Reconceptualizing school-based prevention for antisocial behavior within a resiliency framework. *School Psychology Review, 27,* 364-379.

Moffitt, T. E. (1993). "Life-course persistent" and "adolescence-limited" antisocial behavior: A developmental taxonomy. *Psychological Review, 100,* 674-701.

SAS Institute Inc. (1990). *SAS/SAT User's Guide, Release 6.08 Edition.* Cary, NC: Author.*

Singh, N. N., Curtis, W. J., Ellis, C. R., Nicholson, M. W., Villani, T. M., & Wechsler, H. A. (1995). Psychometric analysis of the Family Empowerment Scale. *Journal of Emotional and Behavioral Disorders, 3,* 85-91.

Thompson, B. (1999). Improving research clarity and usefulness with effect size indices as supplements to statistical significance tests. *Exceptional Children, 65,* 329-337.

Thousand, J. S. & Villa, R. A. (1992). Collaborative teams: A powerful tool in school restructuring. In RA. Villa, J. S. Thousand, W. Stainback, & S. Stainback (Eds.), *Restructuring for caring & effective education,* (pp. 73-108). Baltimore: Brookes.*

Walker, H. M., Kavanagh, K., Stiller, B., Golly, A., Severson, H. H., & Feil, E. G. (1998). First step to success: An early intervention approach for preventing school antisocial behavior. *Journal of Emotional and Behavioral Disorders, 6,* 66-80.

Walker, H., & Severson, H. (1990). *Systematic screening for behavior disorders (SSBD).* Longmont, CO: Sopris West.*

Walker, H. M., & Sprague, J. R. (1999). Longitudinal research and functional behavior assessment issues. *Behavioral Disorders, 24,* 335-337.

Ysseldyke, J., & Christenson, S. (1994). *TIES II-The instructional environment system-II: A system to identify a student's instructional needs.* Longmont, CO: Sopris West.*

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