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# Multi-Year Evaluation of the Effectiveness of a Resilience-Based Prevention Program for Young Children

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*This article describes the results of a multi-year, multi-state evaluation of the effectiveness of an early childhood prevention initiative that translates resilience research into practice. Targeted to children in preschool through the early elementary grades, the intervention comprises teacher training, a year-long classroom curriculum, original materials and music, and a companion parent education program. The evaluation methodology evolved from pre-experimental to true experimental design and encompassed multiple program replications. Child outcome data indicate that the intervention is effective in both: (a) strengthening children's social-emotional competence and positive coping skills and (b) suppressing the development of antisocial, aggressive behavior. The systematic process and outcome evaluation of this prevention initiative fills a gap by providing hard evidence of the effectiveness of a developmentally appropriate, research-based intervention for young children.*

**KEY WORDS:** early childhood; preventive intervention; resilience; evaluation.

## INTRODUCTION AND BACKGROUND

Recent years have seen the emergence of the study of *resilience* as holding great potential to guide and even transform the design of human service practice across many disciplines (Benard, 1999). A commonly accepted definition of resilience is the manifestation of competence in the face of adverse conditions

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that pose significant challenges to development (Masten & Coatsworth, 1998). More specifically, an understanding of resilience rests on the concepts of risk and protective factors, where risk factors are any influences that increase the probability of onset or worsening of problem conditions or behaviors, and protective factors are those forces both within and outside the individual that ameliorate risk and enhance the attainment of developmentally appropriate outcomes (Fraser & Galinsky, 1997; Werner, 2000). With this in mind, the definition of resilience may be further explicated as "adaptive behavior that produces positive social and health outcomes arising from the interplay of risk and protective factors," (Fraser & Galinsky, 1997, p. 265). Prevention programs that build on this understanding would have a dual focus of interrupting or reducing the impact of risk factors and negative life events while strengthening protective processes and resources that enhance the development of competence (Miller et al., 1998).

The past decade has witnessed increased national concern over the dramatic rise in children's exposure to and involvement with family and community violence and substance abuse (American Psychological Association, 1993; Finkelhor & Dziuba-Leatherman, 1994; National Institute for Drug Abuse, 1995). The harmful effects of such adverse conditions are cumulative across settings and increase the likelihood that children will experience a wide range of negative outcomes in later childhood, adolescence, and adulthood (Garmezy & Masten, 1994; Sandler, 2001). Masten and Coatsworth (1998) suggest that early risk exposure may lead to later problems by interfering with children's mastery of developmental competencies, resulting in their failure to fulfill socially appropriate roles. Failure in social roles may in turn increase negative outcomes. In fact, numerous studies show that children who are unable to master social task demands placed on them in the classroom as early as first grade (e.g., sit still, do not disrupt, raise your hand to participate), but who instead demonstrate disruptive or aggressive behaviors, are prone to later social problems including drug abuse, conduct disorders, and violence (see, e.g., Kellam et al., 1998). Furthermore, evidence demonstrates that the earlier the onset of problem behaviors, the greater the risk of future, chronic problems. Because early aggression has been found to be one of the leading predictors for later violence (see, e.g., Coie & Dodge, 1998; Loeber & Hay, 1994, 1997), Miller et al. (1998) caution that a "major mental health concern facing our nation today is the early identification and prevention of antisocial behavior in children and youth" (p. 364).

On a more positive note, a number of studies of children at risk reveal environmental and individual factors that help buffer children from negative influences and predict more favorable, competent outcomes. Cross-cultural studies of children who grew up to lead productive, healthy lives despite being raised in impoverished, adverse conditions have identified a number of protective factors associated with resilience, some of which include: communication and problem-solving skills, healthy coping mechanisms, autonomy, positive self-concept, internal and realistic sense of control, empathy, self-discipline, and the involvement of a caring,

competent adult (Bliesener & Loesel, 1992; Born et al., 1997; Cowen et al., 1995; Parker et al., 1990; Rutter, 1987; Werner, 1993, 1995; Werner & Smith, 1989, 1992). Moreover, those factors found to be associated with resilience in children at risk are the same as those associated with competence in normal development. Thus, enhancing resiliency-related protective factors, resources, or processes fosters better outcomes not only among children facing risks but also among children who lead more ordinary lives (Masten & Coatsworth, 1998).

Studies of early childhood development highlight the importance of the attainment of social-emotional skills in the preschool years for the foundation of later competence (Masten & Coatsworth, 1998). One key developmental task is the beginning of self-regulation, which includes self-control (e.g., regulation of negative emotions and aggressive behaviors), appropriate compliance, and the expression of prosocial behavior. Along with other individual-level characteristics (such as intellectual ability and temperament), parenting influences and school/community factors have also been found to affect children's development of competent social adjustment (Catalano & Hawkins, 1996).

## Implications for Early Childhood Prevention Programs

Prevention theorists have begun to recognize that programs based on a resiliency framework that incorporates both risk reduction and enhancement of protective factors can positively affect the development of successful life competencies in children (Consortium, 1996; Miller et al., 1998). More specifically, research findings support directly teaching children "cognitive, affective, and behavioral skills as a means toward promoting positive social, psychological, personal, and health outcomes" (Consortium, 1996, p. 277). Schools are widely viewed as ideal settings for promoting children's competence because they provide access to all children on a regular basis over a period of many years and because the school can actually serve as "an agent of developmental change" (Pianta et al., 1995, p. 295). Schools frequently serve as the locus for universal prevention programs, i.e., programs that address broad populations such as all children in a classroom or school, as opposed to providing targeted interventions to individuals who have particular characteristics (e.g., those having symptoms of psychopathology or at risk for school failure).

In the time period of early childhood, prevention efforts can capitalize on "... a window of opportunity to strengthen skills that will be important for multiple domains of competence" in young children (Masten & Coatsworth, 1998, p. 209). The use of proactive approaches focuses on strengthening individual capacities and modifying controllable features of home, school, and community environments (Krovetz, 1999). Strength-based interventions operate on the premise that the burden of risk in a child's life can be offset by the compensatory effects of building skills and enhancing protective factors (Masten, 2001). Pianta and Walsh (1998) report that, from a developmental systems view, the most effective programs for

enhancing resilience in children do not focus solely on teaching children isolated skills; rather, they incorporate other components such as strengthening parenting skills or relationships with teachers, and intentionally helping children to integrate new competencies into existing patterns of behavior.

Classrooms are particularly appropriate for the implementation of prevention programs for young children because the structured, supportive environment in itself constitutes a protective factor (Rutter, 1989). In addition, it has been found that teachers can play a significant positive role in enhancing the resiliency of children at risk (Freedman, 1993; Radke-Yarrow & Brown, 1993; Werner & Smith, 1992). Having a supportive relationship with an adult is one of the most commonly reported protective factors in the literature on resilience (Pianta & Walsh, 1998; Werner, 1999). Werner (1995) noted that the role of teachers was crucial in the Kauai Longitudinal Study, observing that, "All of the resilient high-risk children in the Kauai study could point to at least one teacher who was an important source of support" (p. 83). The quality of children's relationships with teachers has been found to be a major component of adaptation in school (Pianta et al., 1995). Teachers can act as role models (Henderson & Milstein, 1996), reward and reinforce children's competencies (Werner, 1995), and provide high levels of social support (Miller et al., 1998).

Although a number of preventive interventions designed to enhance resilience have been developed in recent years, the majority have targeted children in the older elementary grades through adolescence. Recently, researchers have urged more deliberate attention to the preschool and early elementary years as a time when children's responses to risk and receptiveness to protective resources are more malleable (Pianta & Walsh, 1998). One program originally developed for children aged four to five years (although it has been extended to elementary-age children) is Interpersonal Cognitive Problem Solving, or ICPS. Identified by Greenberg et al. (1999) as an effective prevention program, ICPS has a specific focus on enhancing children's interpersonal competence by teaching communication, problem solving, and decision making skills. Another program cited in the same study as demonstrating effectiveness, although not addressing the preschool population, is Promoting Alternative Thinking Strategies, or PATHS. Geared for children in kindergarten through sixth grade, PATHS offers a classroom curriculum designed to promote emotional and social competencies and reduce aggression and behavior problems by addressing five conceptual domains: self-control, emotional understanding, building self-esteem, relationships, and interpersonal problem solving skills. PATHS was also identified as an effective positive youth development program by Catalano et al. (1998) and has been recognized as a Promising Program by the U.S. Department of Education's Expert Panel on Safe, Disciplined, and Drug-Free Schools.

Because of the mounting evidence of the important effects of early experiences on later outcomes, it is critical that "systematic and deliberate efforts to build

resilience processes. . . focus disproportionately on the early years of school" (Pianta & Walsh, 1998, p. 414). The need for testing preventive approaches earlier in child development in order to reduce potential social and health problems in children has long been identified (Hawkins et al., 1992). However, reviews of prevention programs—even those cited as among the best in the nation—reveal numerous unaddressed research and practice issues (Catalano et al., 1998; Greenberg et al., 1999), and many interventions lack credible evidence of effectiveness or replicability (Fashola & Slavin, 1997; Werner, 1999). Consequently, research-based, carefully evaluated, developmentally appropriate, and replicable prevention programs, especially for children in the early childhood years, remain rare (Lecca & Watts, 1993; Masten & Coatsworth, 1998).

## DESCRIPTION OF THE INTERVENTION

### Conceptual Framework and Goals

*Al's Pals: Kids Making Healthy Choices* is a universal early childhood prevention initiative for children aged three through eight that was developed at the Virginia Institute for Developmental Disabilities (now the Partnership for People with Disabilities) at Virginia Commonwealth University in the mid-1990's. The impetus for the creation of *Al's Pals* came from early childhood teachers and administrators in Virginia who were seeking help to work more effectively with their young students, many of whom were living in impoverished, high-risk environments where they were routinely exposed to substance abuse and violence. *Al's Pals* fills a gap in prevention programming by offering a comprehensive, multimodal preventive intervention targeted for children in preschool through the early elementary grades.

Central to *Al's Pals* is the systematic application of resiliency research to practice in all of its components, from teacher training to classroom curriculum to parent education. Through its classroom program, *Al's Pals* is designed to promote social and emotional competence in young children by enhancing teachers' abilities to create nurturing classroom environments and to foster children's development of resilience-related behaviors. *Al's Pals* teachers play a facilitative role in helping strengthen children's personal and social skills that act as protective mechanisms against risk. Specific goals of the school-based intervention are:

*Goal 1*: To increase the protective factor of social-emotional competence in young children (aged three through eight) through a 46-lesson resiliency-based prevention curriculum implemented by trained teachers in a variety of settings including preschools, child care centers, other early childhood classrooms, and after-school programs.

*Goal 2*: To decrease the risk factor of early and persistent antisocial or aggressive behavior by preventing the development of increased aggression and antisocial behaviors in young children over the course of a typical school year, through implementation of the preventive intervention referenced in Goal 1.

The learning goals of each of the *Al's Pals* lessons are designed to help young children develop specific skills related to four components of resiliency—social competence, problem-solving, autonomy, and a sense of purpose and belief in a bright future (Benard, 1993). By building children's abilities to communicate, express feelings, relate positively to others, care, think flexibly, solve problems, use self-control, and make healthy choices, *Al's Pals* aims to help increase the likelihood that children will be better equipped to handle stressors in their lives, will refrain from emulating negative role models and adopting attitudes favoring risky and unsafe behaviors when they are older, and will have a firm foundation for developing into healthy, competent adolescents and adults.

A second focus of the *Al's Pals* approach is to train teachers to infuse resilience-promoting concepts into their teaching practices and classroom environments, so that they model and reinforce children's skill building throughout teacher-child and child-child interactions that occur during the course of the day. This approach recognizes that fostering resilience is an ongoing process (Benard, 1999), not simply a series of lessons or a static, time-limited activity. It is also congruent with the developmental systems view that children's "resilience skills" must be embedded in broader, functional contexts, rather than being seen as a property of the child (Pianta & Walsh, 1998).

## The Al's Pals Curriculum

The *Al's Pals: Kids Making Healthy Choices* curriculum (Wingspan, LLC, 1999) was developed by a team of experts in early childhood education, child development, clinical social work, substance abuse and violence prevention, and creative expression. The diversity of these preventionists' backgrounds is reflected in the richness of the curriculum's teaching approaches. The resiliency-based curriculum is designed to provide real-life situations that introduce children to health-promoting concepts and build prosocial skills, such as: understanding feelings, expressing feelings appropriately, caring about others, accepting differences, establishing and maintaining social relationships, brainstorming ideas, thinking flexibly, using self-control and managing anger, distinguishing between safe and unsafe substances and situations, making healthy choices, solving problems peacefully, and coping in safe and healthy ways.

A trained classroom teacher leads two *Al's Pals* lessons per week over a 23-week period. Lessons last approximately 15 to 20 minutes, depending on the age and developmental readiness of the children and the group size. Each lesson taps

into the developmental needs of young children to be active, use their imagination, and have fun. Lessons consist of two to three engaging activities including puppet-led discussions, brainstorming, role-plays, guided creative play, and purposeful use of music, books, pictures, artwork, and movement. Three original puppets, Al, Ty and Keisha, reinforce prosocial behavior and express clear norms that the use of violence, drugs, and alcohol is not acceptable. They lead lively discussions and activities designed to help children practice getting along well with others and making safe and healthy choices. In addition, 12 original songs, set to music ranging from pop/soul to reggae to rock, rap, and country, capture *Al's Pals* prosocial concepts and serve as another tool for infusing the *Al's Pals* messages into the classroom environment and the school as well as the home.

The curriculum kit furnishes all needed materials and gives clear instructions on how and in what order to conduct the lessons. The lessons include notes to the teacher, instructional narratives, and complete puppet scripts. In addition, *Al's Pals* offers unique methods to communicate its content to parents. Fourteen lessons have parent letters from Al that explain what is being taught in the curriculum and offer activities for parents to do at home with their children to reinforce what is being learned in school. Sets of parent letters on bright-hued paper are provided in the kit, ready for distribution, sparing teachers from having to prepare copies and ensuring that the information is presented in an appealing way. The kit also contains eight colorful "Al-a-grams" which are informative school-to-home message pads that acknowledge children's demonstration of positive behavior. *Al's Pals* also offers a companion parent education program (currently under evaluation) that complements the school-based curriculum.

## Teacher Training and Program Implementation

The *Al's Pals* curriculum kit is distributed to and may be used only by authorized classroom teachers who are required to attend *Al's Pals* training prior to receiving their materials. Expert trainers prepare teachers to implement *Al's Pals* with integrity to the underlying conceptual framework during a two-day introductory workshop that has been standardized across content, process, delivery methods, and materials. The interactive training combines theoretical background with practical skill building, introducing teachers to how to apply concepts of prevention, resiliency, risk, and protective factors to early childhood education, and ways to foster social-emotional growth in children.

*Al's Pals* training is designed to enhance teachers' abilities to establish resiliency-promoting classroom environments, characteristics of which include: acting as nurturing, caring adults; setting high expectations for success; providing opportunities for children to become meaningfully involved; recognizing and reinforcing positive behavior; offering opportunities for children to make decisions that affect them; and establishing clear norms promoting prosocial, healthy,

appropriate behavior. Teachers practice active listening; non-judgmental responding to children's disclosure of sensitive topics; and techniques to guide children to brainstorm ideas, solve problems, make healthy decisions, and cope. They are encouraged to analyze their own teaching style and to adopt an approach that focuses on strengthening children's abilities to handle what comes their way rather than on "fixing" children's lives. In fact, although data on teacher outcomes are not reported in this paper, *Al's Pals* has an extensive qualitative database of structured interviews with teachers that reveals significant changes in classroom management practices and an increased sense of their own efficacy in dealing with difficult situations.

Because the *Al's Pals* developers recognize the importance of fidelity of program implementation (Lynch et al., 1998), program administrators are encouraged to attend the introductory training along with the teachers. This familiarizes them with the approaches being discussed and enables them to monitor implementation in the classroom. An *Al's Pals* tool, the Implementation Monitoring and Observation Form, is provided to administrators to assist them in this task. The challenge of teacher turnover is addressed by requiring participating programs to sign an agreement prohibiting new teachers from using the *Al's Pals* curriculum and materials until they have received training to deliver the intervention as designed. Finally, consultation and advanced training for experienced *Al's Pals* teachers is available to help ensure sound program implementation.

## METHOD

### Pilot Studies

*Al's Pals: Kids Making Healthy Choices* was first implemented as a small pilot project in Virginia during the 1993–94 school year. Since the project's inception, evaluation has been an integral part of program planning, development, and improvement. Both process and outcome evaluation data have been collected during all years of the project. During several years of piloting, teachers' written and verbal feedback, along with first-hand observations by program developers of actual program implementation in the classroom, were compiled and reviewed regularly. The information thus obtained was used to shape improvements to the curriculum content, format, and training, preparing the program for wide-scale dissemination. During the same period of time, outcome measures were adopted and/or developed and improved, and outcome data were also obtained. Table I illustrates the progression in the development of the evaluation methodology over time.

Although the main focus of this article is the evaluation study implemented during the 1996–1997 year (a period when resources allowed staff to implement the strongest evaluation design), outcomes from two earlier pilot studies are briefly

**Table I.** Progression in Evaluation Methodology for "Al's Pals: Kids Making Healthy Choices"

| Years | Location | Number of classrooms | Child outcome measures | Design |
|---|---|---|---|---|
| 1993–94 | VA | 3 intervention 1 comparison | Project-developed 20-item scale, teacher ratings of child behavior (CBRS-20) | Pre-experimental |
| 1994–95 | VA | 10 intervention 4 comparison | CBRS-20; Individually administered child assessments in 1 intervention and 1 comparison classroom (intensive sites) | Quasi-experimental |
| 1995–96 | VA | 18 intervention 7 comparison | CBRS-20; Literature-based 13-item scale, Teacher Report of Child Coping[a] | Quasi-experimental |
| 1996–97 | MI | 18 intervention 19 control | Project-revised CBRS-30[b] (30 items); Teacher Report of Child Coping; Published instrument: Preschool and Kindergarten Behavior Scales (PKBS)[c] | True experimental |
| 1996–97 | Henrico County, VA | 4 intervention 4 1 control | CBRS-30; Teacher Report of Child Coping; Adapted PKBS (3 subscales) | True experimental |
| 1996–97 | VA | 75 intervention | CBRS-30; Teacher Report of Child Coping; Adapted PKBS (3 subscales) | Replication: one group pre-post |

[a]Eisenberg et al., 1993.
[b]Virginia Commonwealth Intellectual Property Foundation, 1997.
[c]Merrell, 1994.

summarized first and preliminary findings from later replication studies are also noted. These additional data demonstrate a consistent pattern of results that has occurred over variations in time and location.

*1994–1995 Virginia Pilot.* Ten classrooms serving at-risk four-year-old children in Head Start programs and other community-based preschool or child care centers across Virginia were chosen as pilot intervention sites during the 1994–1995 school year. The classrooms were located in a variety of settings (urban, suburban, or rural), and were selected on the basis of three criteria: (a) having children with similar characteristics (i.e., all from families of low socioeconomic status); (b) having teachers with comparable skills (e.g., no first-year teachers); and (c) having no other specialized training or prevention programs in place during the year of participation. An additional four classrooms with similar characteristics served as the pool of comparison sites. To the extent that logistics permitted, classrooms were randomly assigned to condition. Examination of the demographic characteristics of the children and teachers showed no significant differences between the intervention and comparison groups (Dubas et al., 1998).

Teachers completed pre and post ratings of 173 intervention and 48 comparison children using the Child Behavior Rating Scale-20 (CBRS-20), a 20-item measure developed for this study to assess aspects of children's behavior reflecting social-emotional competence. Sample items include appropriate expression of feelings, demonstration of self-control, and use of prosocial methods of interpersonal problem-solving. Child behaviors were rated on a 5-point Likert scale, ranging from "almost never does" to "almost always does." The coefficient alpha for the CBRS-20 was .97; the stability index (test-retest reliability) was .86.

Repeated measures analysis of variance (ANOVA) was used to examine child behavior outcomes over the course of the project (a period of approximately five months, from January through May). A significant group by time effect was found, such that intervention children made greater gains on the CBRS-20 and received higher post-ratings than the comparison children [$F(1, 217) = 14.13$, $p < .001$]. Children receiving the intervention had mean scores of 3.43 ($SD = .78$) and 4.26 ($SD = .60$) on the CBRS-20 at pre- and posttest, whereas control children had mean pre- and posttest scores of 3.70 ($SD = .77$) and 4.08 ($SD = .72$).

*1995–1996 Virginia Pilot.* Similar criteria and procedures were used to select and obtain pre-post outcome data for 16 intervention ($n = 230$) and 7 comparison classrooms ($n = 103$) over the course of seven months during 1995–1996. This pilot study expanded the classrooms to include some mixed 3- and 4-year-old groupings. There were no significant differences between the intervention and comparison children or teachers on demographic characteristics. In addition to the CBRS-20, the Teacher Report of Child Coping (adapted from Eisenberg et al., 1993) was used to measure changes in children's coping styles over the course of the study. Scale items describe five different coping strategies (Seeking Support, Instrumental Coping, Venting, Aggression, and Distract/Avoid), and are rated on a 7-point Likert scale ranging from "not at all likely to do" to "very likely to do." Factor analysis was used to identify the initial constructs being measured; this factor structure was confirmed in the *Al's Pals* data. Coefficient alphas reported for the original subscales ranged from .84 to .98, and construct validity has been extensively verified (Eisenberg et al., 1993).

Repeated measures analysis of variance was used to examine child outcomes. As in 1994–1995, the CBRS-20 results showed a statistically significant group by time effect in favor of the intervention children, who made greater gains on the CBRS-20 and received higher post-ratings than the comparison children. To analyze the Coping scale data, the items on the Venting and Aggression subscales were aggregated to create "Negative Coping" strategies, Seeking Support and Instrumental Coping were combined to create "Positive Coping" strategies, and Distract/Avoid was left intact. There were significant group by time interaction effects for Positive and Negative Coping. The intervention group received higher post-ratings than the comparison group for Positive Coping, and decreased on Negative Coping whereas the Comparison group did not. Results from the 1995–1996 pilot study are presented in Table II.

**Table II.** Pre-Post Child Outcomes for 1995–1996 Virginia Pilot Study

| | | Pre | | Post | | | |
|---|---|---|---|---|---|---|---|
| Measure | Group | *M* | *SD* | *M* | *SD* | *F df* | *p* |
| CBRS-20 | I | 3.54 | 0.75 | 4.06 | 0.75 | 38.55 1, 331 | <.001 |
| | C | 3.51 | 0.78 | 3.59 | 0.83 | | |
| Coping | | | | | | | |
| Positive | I | 4.73 | 1.49 | 5.11 | 1.41 | 10.85 1, 332 | <.01 |
| | C | 4.26 | 1.60 | 4.48 | 1.41 | | |
| Negative | I | 3.54 | 1.69 | 3.10 | 1.65 | 9.62 1, 341 | <.05 |
| | C | 2.66 | 1.39 | 2.67 | 1.36 | | |
| Distract/Avoid | I | 3.43 | 1.34 | 3.32 | 1.42 | 1.79 1, 335 | *ns* |
| | C | 3.67 | 1.23 | 3.41 | 1.20 | | |

*Note*. Intervention (I) $n = 230$; Comparison (C) $n = 103$. Max ratings for CBRS-20 = 5; for Coping scales = 7.

## 1996–1997 Michigan Controlled Study

*Design and Participants.* During the 1996–1997 school year, an evaluation of the *Al's Pals* program was conducted in a large Head Start program in Lansing, Michigan. Thirty-seven classrooms deemed comparable by the program director were selected and then randomly assigned to receive the *Al's Pals* curriculum or to serve as controls. Seventeen intervention classrooms ($n = 218$ children) and 16 control classrooms ($n = 181$ children) provided complete sets of data for the study. Teachers and instructional assistants in the intervention group received the two-day teacher training on risk and protective factors, prevention principles, and effective teaching practices to foster resilience. Pre and post ratings were made by teachers in the intervention and control classrooms in the fall and spring, approximately seven months apart.

There were no significant differences between the intervention and comparison groups on age, gender, or race/ethnicity. The mean age of children at entry into the program was 52.3 months for the intervention group, and 52.0 months for the control group. The gender breakdown for the two groups was 50%/50% (intervention) and 51.5% boys/48.5% girls (control). Both groups were made up of approximately half Caucasian children, one-quarter African-American children, and one-quarter Hispanic, biracial, or children of other ethnicity.

*Measures.* Instruments used to assess child outcomes included the Child Behavior Rating Scale-30 (CBRS-30) (Virginia Commonwealth University Intellectual Property Foundation, 1997), the Teacher Report of Child Coping (Eisenberg et al., 1993), and the Preschool and Kindergarten Behavior Scale (PKBS) (Merrell, 1994). The CBRS-30, a revised version of the CBRS-20 comprising 30 items, was developed to strengthen the content validity of the instrument. The coefficient alpha for the CBRS-30 was .98 and test-retest reliability for the total scale was .87. In order to establish concurrent construct validity, CBRS-30 total scores were correlated with positive and negative subscales of the PKBS. The correlations were

statistically significant in the desired direction ($r = +.53$ for the positive subscale and $r = -.67$ for the negative subscale), confirming that the CBRS-30 is measuring prosocial child behaviors.

The PKBS contains 76 items comprising two major scales (Social Skills and Problem Behaviors) and several subscales. The 34-item Social Skills scale consists of 3 subscales: Social Cooperation (12 items); Social Interaction (11 items); and Social Independence (11 items). The 42-item Problem Behaviors scale is made up of 5 subscales: Self-Centered/Explosive (11 items); Attention Problems/Overactive (8 items); Antisocial/Aggressive, (8 items); Social Withdrawal (7 items); and Anxiety/Somatic Disorders (8 items). Each item is rated on a 4-point Likert scale (0–3), corresponding to never true, rarely true, sometimes true, and often true. The PKBS subscales and area scores have demonstrated strong construct and content validity as well as internal consistency (reliability coefficients ranged from .81 to .97) and test-retest reliability correlations (ranging from .58 to .87) (Merrell, 1994).

*Results.* Three sets of analyses were conducted: (a) independent t-tests, to assess differences between the intervention and control groups on each of the measures at the outset of the study; (b) paired t-tests, to examine within-group changes from pre to posttest; and (c) repeated measures analysis of variance, to determine whether the two groups changed similarly across time on each of the measures, from pre to posttest. Classroom means were the unit of analysis.

Independent $t$-tests conducted at pretest indicated no statistically significant differences between the control and intervention classrooms on any of the three measures overall or on any of their subscales. Thus, the classrooms were essentially equivalent before the *Al's Pals* intervention was implemented. Paired t-tests demonstrated that the classrooms receiving the *Al's Pals* intervention showed significant positive changes from pre to posttest on prosocial skills as measured by the CBRS-30 and the PKBS, as well as on the Positive Coping and Distract/Avoid scales of the Teacher Report of Child Coping; they did not change significantly on any of the problem behavior scales. In contrast, the control classrooms did not make any statistically significant changes on prosocial skills as measured by the CBRS-30, the PKBS, or the Teacher Report of Classroom Coping over time, but did make significant changes *in the wrong direction* on the PKBS Problem Behaviors scale and each of its subscales (see Figs. 1 and 2). That is, the control group received significantly higher mean ratings on the problem behavior scales at the end of the school year than it had at the beginning. (See Table III for pre and posttest mean scores by group.)

Repeated measures analysis of variance was then used to determine whether there were significant differences in the changes made between the groups from pretest to posttest on each of the three child outcome measures. Statistically significant differences in favor of the intervention group were found on the CBRS-30 (see Fig. 1), the Social Independence subscale of the PKBS Social Skills scale, and the Problem Behaviors scale of the PKBS (see Fig. 2), as well as each of

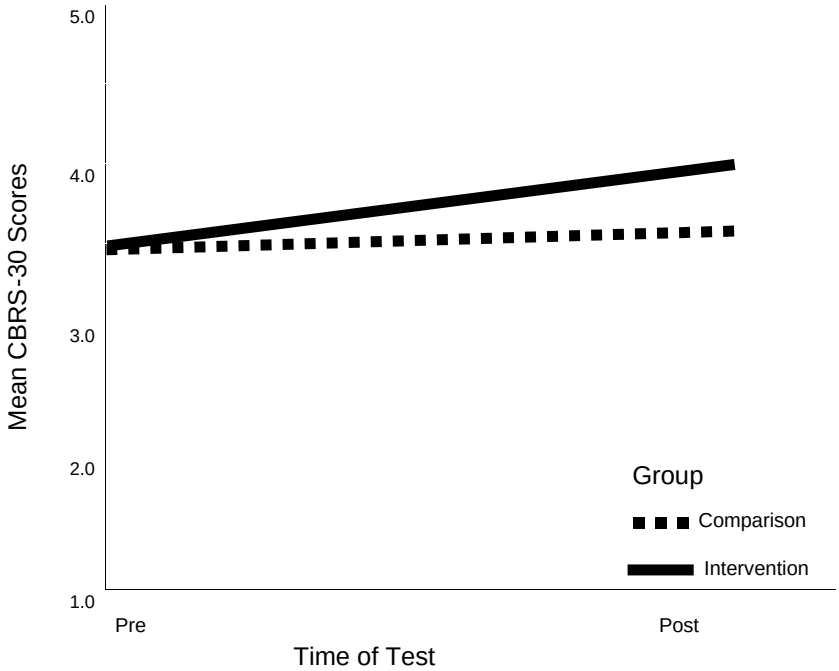


**Fig. 1.** CBRS-30: Michigan classroom means for intervention and comparison groups.

its subscales (Self-Centered/Explosive, Attention Problems, Aggressive, Social Withdrawal, Anxiety/Somatic Problems). Trends toward significance were noted on the Positive Coping and Distract/Avoid scales of the Teacher Report of Child Coping (see Table III).

Finally, exploratory analyses were run to examine the possible influence of child-level factors such as gender and ethnicity on outcomes, based on pre-post CBRS-30 scores. No statistically significant interaction effects were detected for either gender or ethnicity, although boys received lower CBRS ratings than girls at both pretest and posttest.

## 1997–2000 Replication Studies

*Al's Pals* was so well received by several of the early childhood programs that participated in the original evaluation studies that many program directors placed the intervention in all of their classrooms in succeeding years. In many cases, programs agreed to continue to provide the project with data on child outcomes to allow staff to continue to assess effectiveness. During the years 1997 through 1999 several additional one-group pre-post replication studies of *Al's Pals*

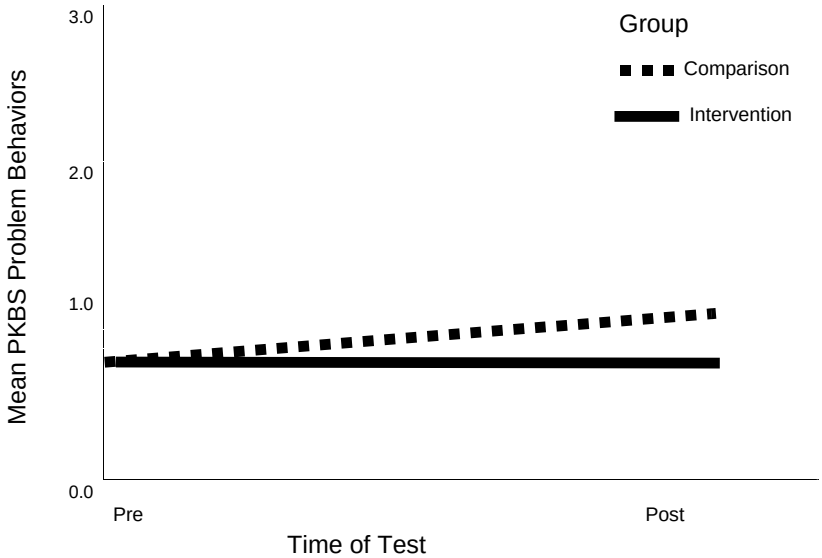


**Fig. 2.** PKBS Problem Behaviors: Michigan classroom means for intervention and comparison groups.

were conducted in a variety of locations in preschools and child care programs in Virginia, Michigan, and Missouri. In almost all cases, statistically significant pre-post gains were observed on the measures of children's prosocial behaviors, social interaction, and positive coping skills; these findings repeated patterns of results similar to those obtained in the earlier *Al's Pals* evaluation studies.

In 1999–2000 two additional comparison group studies were conducted that extended the systematic evaluation of the effectiveness of *Al's Pals* to other populations. In Hampton, Virginia, *Al's Pals* was introduced into the early elementary grades (K through 2), and in greater Des Moines, Iowa, the program was implemented in "typical" child care centers. Results indicate that *Al's Pals* had a positive impact on children in these intervention groups as well. Furthermore, preliminary analyses of the data suggest that the apparent preventive effect that suppressed increases in antisocial, aggressive behavior in *Al's Pals* participants in the 1996–1997 Michigan study was also observed in some of the subgroups in these later studies.

## DISCUSSION

Evaluation data on child outcomes collected over a period of several years in a variety of geographic locations consistently indicate that the preventive intervention *Al's Pals: Kids Making Healthy Choices* is effective in strengthening children's skills related to the development of resilience. The Michigan evaluation study corroborated the results of earlier pilot studies that children who participated

**Table III.** Pre-Post Child Outcomes for 1996–1997 Michigan Controlled Study

| | | Pre | | Post | | | |
|---|---|---|---|---|---|---|---|
| Measure | Group | *M* | *SD* | *M* | *SD* | *F df* | *p* |
| CBRS-30 | I | 3.58 | 0.35 | 3.96 | 0.38 | 8.79 1, 31 | <.01 |
| | C | 3.56 | 0.39 | 3.55 | 0.33 | | |
| PKBS | | | | | | | |
| Social skills total | I | 2.37 | 0.28 | 2.56 | 0.23 | 2.68 1,31 | *ns* |
| | C | 2.35 | 0.32 | 2.39 | 0.25 | | |
| Cooperation | I | 2.52 | 0.22 | 2.62 | 0.23 | 2.13 1, 31 | *ns* |
| | C | 2.46 | 0.27 | 2.45 | 0.26 | | |
| Interaction | I | 2.08 | 0.40 | 2.39 | 0.33 | 1.76 1, 31 | *ns* |
| | C | 2.04 | 0.43 | 2.18 | 0.26 | | |
| Independence | I | 2.50 | 0.28 | 2.66 | 0.20 | 4.24 1, 31 | <.05 |
| | C | 2.55 | 0.35 | 2.54 | 0.28 | | |
| Problem behavior total | I | 0.65 | 0.35 | 0.63 | 0.38 | 7.00 1, 31 | <.05 |
| | C | 0.61 | 0.49 | 0.88 | 0.56 | | |
| Self-centered, explosive | I | 0.66 | 0.36 | 0.67 | 0.46 | 5.29 1, 31 | <.05 |
| | C | 0.62 | 0.56 | 0.90 | 0.61 | | |
| Attention problems | I | 0.80 | 0.37 | 0.77 | 0.42 | 4.49 1, 31 | <.05 |
| | C | 0.77 | 0.50 | 1.01 | 0.56 | | |
| Antisocial, aggressive | I | 0.52 | 0.27 | 0.58 | 0.35 | 6.02 1, 31 | <.05 |
| | C | 0.48 | 0.53 | 0.81 | 0.54 | | |
| Social withdrawal | I | 0.73 | 0.51 | 0.67 | 0.42 | 5.94 1, 31 | <.05 |
| | C | 0.60 | 0.53 | 0.86 | 0.57 | | |
| Anxiety, somatic problems | I | 0.57 | 0.40 | 0.48 | 0.35 | 10.32 1, 31 | <.01 |
| | C | 0.55 | 0.52 | 0.81 | 0.57 | | |
| Coping | | | | | | | |
| Positive | I | 3.91 | 1.05 | 4.44 | 0.85 | 4.13 1, 31 | =.051 |
| | C | 4.41 | 1.00 | 4.42 | 0.79 | | |
| Negative | I | 2.88 | 0.87 | 2.70 | 0.83 | 2.13 1, 31 | *ns* |
| | C | 2.86 | 0.97 | 3.11 | 0.95 | | |
| Distract/Avoid | I | 3.29 | 0.77 | 2.77 | 0.73 | 3.99 1, 31 | =.055 |
| | C | 2.91 | 0.79 | 3.10 | 0.95 | | |

*Note*. Intervention (I) $n = 17$ classrooms; Control (C) $n = 16$ classrooms. Max ratings for CBRS-30 = 5; for PKBS scales = 3; for Coping scales = 7.

in *Al's Pals* demonstrated greater social-emotional competence and better coping skills than children who did not receive the intervention. Moreover, the Michigan results highlighted a suppressor effect of *Al's Pals* on aggressive, antisocial, and other problem behaviors in early childhood. The mean ratings of problem behaviors in control classrooms increased significantly over the course of the school year, but remained constant in classrooms receiving the *Al's Pals* intervention.

The cumulative findings of these studies of the effectiveness of *Al's Pals* are important for several reasons. Research on early childhood development (e.g., Masten & Coatsworth, 1998) has emphasized the critical significance of young children's development of social and emotional competence and coping skills in laying the foundation for successful adjustment later in life. The focus on helping children develop, practice, and apply their own self-regulation and problem-solving skills has been a cornerstone of the *Al's Pals* intervention, and is the area in which

the intervention's effectiveness has been most clearly and consistently demonstrated. Conversely, other research has shown that children who exhibit patterns of early aggression and antisocial behavior have a great risk of future, chronic problems (e.g., Hawkins et al., 1992). The *Al's Pals* evaluation data suggest that the intervention helps to prevent increases in antisocial, aggressive behavior that might otherwise occur in young children participating in early childhood programs over a period of time.

Another feature of the *Al's Pals* intervention that is congruent with the latest research on how to build effective resilience programs is its multi-faceted approach to enhancing protective factors and processes and ameliorating risks. Thus, *Al's Pals* trains its teachers not only to conduct the curriculum's lessons, but also to embed children's skill development in functional contexts throughout the day. *Al's Pals t*eachers regularly report that they develop new skills in interacting with children in ongoing ways that communicate warmth and caring, confidence in children's abilities, and high expectations of success. Furthermore, *Al's Pals* recognizes the important role of parents in supporting and reinforcing the messages that the teachers are conveying to the children, through its complementary parent education component.

One aspect of this set of studies that warrants a cautionary comment is the reliance on teacher ratings as the primary source of child outcome data, which may be positively biased in the intervention groups. However, an argument could be made that even comparison group teachers might have a tendency to rate their children more positively at the end of the school year, and since in most cases intervention and comparison group classrooms were in separate buildings, there is no reason to infer a "demoralization" effect. Moreover, there is no obvious explanation for the finding of an increase in children's *negative* behaviors in the non-intervention classrooms. The strength of these studies' findings lies in the fact that they have been consistently observed across a variety of early childhood programs in several states, and have been replicated year after year.

Future evaluations will build on the existing research by adding objective observational measures to teacher reports of child behavior (such as data on school discipline referrals), examining the effect of booster sessions the year following initial program implementation, and obtaining longitudinal data on children's behavioral outcomes as they progress through the early elementary grades. Other areas for exploration include more in-depth analyses of the relationships between teacher change, fidelity of implementation, and child outcomes. New data from the additional comparison group studies that extended *Al's Pals* to children in other states, beyond the preschool years, and to "typical" populations will allow a closer look at the potential influence of moderator variables such as age, gender, and ethnicity on child outcomes. All of these topics have been identified as important

research issues in two large-scale studies of school-age prevention and positive youth development programs (Catalano et al., 1998; Greenberg et al., 1999).

Although it is not without limitations, this report of the study of the effectiveness of *Al's Pals* makes an important contribution through its systematic process and outcome evaluation and replication of an early childhood prevention initiative. It also addresses the call for researchers to provide "hard evidence" of the effectiveness of interventions that claim to build resilience (Werner, 1999). Created on the foundation of resiliency research, *Al's Pals* is a solid example of a developmentally appropriate prevention program that shows great promise for promoting children's competencies and suppressing early problem behaviors to reduce the chances of future involvement with substance abuse, delinquency, and violence. In 2001, in recognition of the credibility of the evidence of effectiveness compiled through extensive evaluation, the U.S. Department of Education's Expert Panel on Safe, Disciplined, and Drug-Free Schools designated *Al's Pals* as a Promising Program. In 2002, *Al's Pals* was selected as a model program by the Substance Abuse and Mental Health Services Administration of the U.S. Department of Health and Human Services.

## REFERENCES

American Psychological Association. (1993). *Violence and youth: Psychology's response. Summary report of the American Psychological Association Commission on Violence and Youth* (Vol. 1). New York, NY: Sol Goldman Charitable Trust.

Benard, B. (1993). Fostering resiliency in kids. *Educational Leadership, 51*(3), 44–48.

Benard, B. (1999). The foundations of the resiliency paradigm. In N. Henderson, B. Benard, & N. Sharp-Light (Eds.), *Resiliency in action: Practical ideas for overcoming risks and building strengths in youth, families, and communities* (pp. 5–9). Gorham, ME: Resiliency in Action.

Bliesener, T., & Loesel, F. (1992). Resilience in juveniles with high risk of delinquency. In F. Loesel, D. Bender, & T. Bliesener (Eds.), *Psychology and law: International perspectives* (pp. 62–75). Berlin, Germany: Walter De Gruyter.

Born, M., Chevalier, V., & Humblet, I. (1997). Resilience, desistance and delinquent career of adolescent offenders. *Journal of Adolescence, 20,* 679–694.

Catalano, R. F., Berglund, M. L., Ryan, J. A. M., Lonczak, H. S., & Hawkins, J. D. (1998). *Positive youth development in the United States: Research findings on evaluations of positive youth development programs.* Retrieved September 4, 2002, from U.S. Dept. of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation Web site: http://aspe.hhs.gov/hsp/PositiveYouthDev99/

Catalano, R. F., & Hawkins, J. D. (1996). The social development model: A theory of antisocial behavior. In J. D. Hawkins (Ed.), *Delinquency and crime: Current theories* (pp. 149–197). New York: Cambridge University Press.

Coie, J. D., & Dodge, K. A. (1998). Aggression and antisocial behavior. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Vol. 3, Social, emotional, and personality development* (5th ed., pp. 779–862). New York: Wiley.

Consortium on the School-based Promotion of Social Competence. (1996). The school-based promotion of social competence: Theory, research, practice, and policy. In R. J. Haggerty, L. R. Sherrod, N. Garmezy, & M. Rutter (Eds.), *Stress, risk, and resilience in children and adolescents: Processes, mechanisms, and interventions.* Cambridge, UK: Cambridge University Press.

Cowen, E. L., Wyman, P. A., Work, W. C., & Iker, M. R. (1995). A preventive intervention for enhancing resilience among highly stressed urban children. *Journal of Primary Prevention, 15,* 247–260.

Dubas, J. S., Lynch, K. B., Galano, J., Geller, S., & Hunt, D. (1998). Preliminary evaluation of a resiliency-based preschool substance abuse and violence prevention project. *Journal of Drug Education, 28,* 235–255.

Eisenberg, N., Fabes, R. A., Bernzweig, J., Karbon, M., Poulin, R., & Hanish, L. (1993). The relations of emotionality and regulation to preschoolers' social skills and sociometric status. *Child Development, 64,* 1418–1438.

Fashola, O. S., & Slavin, R. E. (1997). Promising programs for elementary and middle schools: Evidence of effectiveness and replicability. *Journal of Education for Students Placed At Risk, 2,* 251–307.

Finkelhor, D., & Dziuba-Leatherman, J. (1994). Victimization of children. *American Psychologist, 49,* 173–183.

Fraser, M. W., & Galinsky, M. J. (1997). Toward a resilience-based model of practice. In M. W. Fraser (Ed.), *Risk and resilience in childhood: An ecological perspective* (pp. 265–275). Washington, DC: NASW Press.

Freedman, M. (1993). *The kindness of strangers.* San Francisco: Jossey-Bass.

Garmezy, N., & Masten, A. S. (1994). Chronic adversities. In M. Rutter, E. Taylor, & L. Hersov (Eds.), *Child and adolescent psychiatry: Modern approaches* (pp. 191–208). Oxford, England: Blackwell Scientific.

Greenberg, M. T., Domitrovich, C., & Bumbarger, B. (1999). *Preventing mental disorders in school-age children: A review of the effectiveness of prevention programs.* Retrieved September 6, 2002, from Penn State University Prevention Research Center Web site: http://www.prevention.psu.edu/CMHS.html

Hawkins, J. D., Catalano, R. G., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early childhood: Implications for substance abuse prevention. *Psychological Bulletin, 112,* 64–105.

Henderson, N., & Milstein, M. M. (1996). *Resiliency in schools: Making it happen for students and educators*. Thousand Oaks, CA: Corwin Press.

Kellam, S. G., Ling, X., Merisca, R., Brown, C. H., & Ialongo, N. (1998). The effect of level of aggression in the first grade on the course and malleability of aggressive behavior into middle school. *Development and Psychopathology, 10,* 165–185.

Krovetz, M. L. (1999). *Fostering resiliency: Expecting all students to use their minds and hearts well.* Thousand Oaks, CA: Corwin Press.

Lecca, P. J., & Watts, T. D. (1993). *Preschoolers and substance abuse: Strategies for prevention and intervention.* Binghamton, NY: Haworth Press.

Loeber, R., & Hay, D. (1994). Developmental approaches to aggression and conduct problems. In M. Rutter & D. F. Hay (Eds.), *Development through life: A handbook for clinicians* (pp. 488–515). Oxford: Blackwell Scientific.

Loeber, R., & Hay, D. (1997). Key issues in the development of aggression and violence from childhood to early adulthood. *Annual Review of Psychology, 48,* 371–410.

Lynch, K. B., Geller, S. R., Hunt, D. R., Galano, J., & Dubas, J. S. (1998). Successful program development using implementation evaluation. *Journal of Prevention and Intervention in the Community, 17*(2), 51–64.

Masten, A. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56,* 227–238.

Masten, A., Best, K. M., & Garmezy, N. (1990). Resilience and development: Contributions from the study of children who overcome adversity. *Development and Psychopathology, 2,* 425–444.

Masten, A. S., & Coatsworth, J. D. (1998). The development of competence in favorable and unfavorable environments: Lessons from research on successful children. *American Psychologist, 53,* 205–220.

Merrell, K. W. (1994). *Preschool and kindergarten behavior scales test manual*. Brandon, VT: Clinical Psychology Publishing Co.

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.

National Institute for Drug Abuse. (1995). *Monitoring the future.* Washington, DC: U.S. Department of Health and Human Services.

Parker, G. R., Cowen, E. L., Work, W. C., & Wyman, P. A. (1990). Test correlates of stress affected and stress resilient outcomes among urban children. *Journal of Primary Prevention, 11,* 19–35.

Pianta, R. C., Steinberg, M. S., & Rollins, K. B. (1995). The first two years of school: Teacher-child relationships and deflections in children's classroom adjustment. *Development and Psychopathology, 7,* 295–312.

Pianta, R. C., & Walsh, D. J. (1998). Applying the construct of resilience in schools: Cautions from a developmental systems perspective. *School Psychology Review, 27,* 407–417.

Radke-Yarrow, M., & Brown, F. (1993). Resilience and vulnerability in children of multiple-risk families. *Development and Psychopathology, 5,* 581–592.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry, 57,* 316–331.

Rutter, M. (1989). Pathways from childhood to adult life. *Journal of Child Psychology and Psychiatry, 30,* 23–51.

Sandler, I. (2001). Quality and ecology of adversity as common mechanisms of risk and resilience. *American Journal of Community Psychology, 29,* 19–61.

Virginia Commonwealth University Intellectual Property Foundation. (1997). *Child Behavior Rating Scale.* Richmond, VA: Wingspan, LLC.

Werner, E. E. (1993). Risk, resilience, and recovery: Perspectives from the Kauai Longitudinal Study. *Development and Psychopathology, 5,* 503–515.

Werner, E. E. (1995). Resilience in development. *Current Directions in Psychological Science, 4,* 81–85.

Werner, E. E. (1999). How children become resilient: Observations and cautions. In N. Henderson, B. Benard, & N. Sharp-Light (Eds.), *Resiliency in action: Practical ideas for overcoming risks and building strengths in youth, families, and communities* (pp. 11–20). Gorham, ME: Resiliency in Action.

Werner, E. E. (2000). Protective factors and individual resilience. In J. P. Shonkoff & S. J. Meisels (Eds.), *Handbook of early childhood intervention* (2nd ed., pp. 115–134). Cambridge, UK: Cambridge University Press.

Werner, E. E., & Smith, R. S. (1989). *Vulnerable but invincible: A longitudinal study of resilient children and youth.* New York: Adams, Bannister, Cox.

Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High risk children from birth to adulthood.* New York, NY: Cornell University Press.

Wingspan, L. L. C. (1999). *Al's Pals: Kids Making Healthy Choices*. Richmond, VA: Author.