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A Preventive Intervention for Enhancing Resilience Among Highly Stressed Urban Children

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Describes the development and evaluation of a pilot 12-session, school-based preventive intervention designed to enhance resilience among inner-city children who have experienced major life stress. Thirty-six 4th-6th grade children participated in the intervention in groups of 5-8 co-led by school personnel. The curriculum focussed on understanding feelings in oneself and others, perspective-taking, social problem-solving, dealing with solvable and unsolvable problems, and building self-efficacy and esteem. Pre-post evaluation showed significant improvement among participants on teacher-rated indices of learning problems and task orientation and on child ratings of perceived self-efficacy, realistic control attributions and anxiety. Program limitations and factors that restrict generalization are considered and new directions for program development and research are proposed.

KEY WORDS: Resilience; preventive intervention; children.

INTRODUCTION AND BACKGROUND

This report describes the development and evaluation of a preventive intervention designed to enhance resilience in urban children exposed to major life stress. Although growing up under highly stressful conditions, as many children do, sharply increases risk for adjustment problems, some fraction of stress-exposed children not only "overcome the odds" (Werner

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& Smith, 1992) but adapt outstandingly well in the face of such adversity. Garmezy (1982) described these survivors as "healthy children in an unhealthy environment;" others have called them invulnerable (Garmezy & Nuechterlein, 1972), invincible (Anthony & Cohler, 1987) and, more recently, resilient.

Garmezy's (1982) depiction of these children as "keepers of a dream" directs attention to hope rather than despair, to proaction rather than repair. Accordingly, the study of resilience, defined as adjusting well in the face of profound stress, has become a prime focus for the fields of developmental psychopathology and prevention. For developmental psychopathologists, the concept's appeal resides in the belief that knowledge of developmental pathways to health informs understanding of abnormal development and vice versa (Cicchetti, 1984; 1989) — indeed that resilience and maladaptation are "different parts of the same story" (Masten, 1989). The concept also offers a directional beacon to those who view the promotion of wellness as a needed and promising alternative to mental health's longstanding emphasis on striving to repair things that have gone awry (Cowen, 1991). Thus, the concept vivifies an emerging paradigm-shift in mental health, built around the intriguing possibility that psychological dysfunction can better be approached through prevention than by struggling, however valiantly and compassionately, to undo deeply-rooted damage.

Although the concept of resilience is in many ways inviting and tantalizing, it nevertheless still poses many challenges. One important long-term challenge is to develop programs that enhance resilience among highly stressed, at-risk children (Masten, 1989; Werner & Smith, 1992). The present report describes a first step toward developing such a proactive model for stress exposed urban children.

Ideally a proactive prevention program should be built on a generative knowledge base identifying qualities or circumstances known to be associated with adaptive child outcomes (Cowen, 1984; Yoshikawa, 1994). Specific application of that guideline, in this case, suggests that prevention programs to enhance child resilience can best be shaped by research findings based on two broad sets of generative questions: 1) What attributes differentiate children with stress resilient (SR) vs. stress affected (SA) outcomes? 2) What mechanisms and protective processes underlie the formation of these adaptive qualities? (Rutter, 1987; Werner, 1993) Answers to both these questions have begun slowly to form in the past decade, and now offer a beginning foundation on which to build preventive interventions designed to enhance resilience.

Illustratively, several major on-going studies of childhood resilience such as Project Competence (Garmezy, Masten & Tellegen, 1984; Garmezy & Tellegen, 1984) and the 32-year longitudinal study of the children of

Kauai (Werner & Smith, 1982; 1992) have identified a triad of protective factors associated with resilient outcomes across diverse groups and stressful life situations: a) child qualities such as an easy early temperament; b) a warm caring relationship with a primary caregiver; and c) the availability of positive identification models and sources of support outside the family. Other child qualities shown to be part of the resilience constellation include a sense of efficacy; acquiring stage-salient competencies; self-esteem; and internal and realistic control attributions (Cowen, Wyman, Work & Parker, 1990; Masten, Best & Garmezy, 1990; Rutter, 1987; Werner, 1993; Werner & Smith, 1992).

Additionally, certain family milieu and parent-child relational factors that have been shown to differentiate SRs and SAs may act to lay down a base on which child attributes that favor SR outcomes develop (Cowen & Work, 1988). These parenting factors include warmth and caring for the child, a self-view of efficacy as a parent, the use of sound discipline practices, and sensitivity and responsiveness to the child's needs (Gribble, Cowen, Wyman, Work, Wannon and Raoof, 1993; Masten et al., 1990; Werner, 1993; Wyman, Cowen, Work & Parker, 1991). Masten et al. (1990) offered several hypotheses regarding the manner in which these parenting qualities are linked to child outcomes. For example, effective parents may promote self-efficacy in children by modeling, by providing appropriate mastery opportunities, and by reinforcing effective behaviors in the child. A wholesome parent-child attachment can also enhance efficacy by helping the child to feel worthwhile and loved and by providing a secure base for the kinds of exploration and mastery that help to build a sense of autonomy (Masten et al., 1990).

Data from the Rochester Child Resilience Project (RCRP) (Cowen, Work, Wyman, Parker, Wannon & Gribble, 1992; Parker, Cowen, Work & Wyman, 1990; Work, Cowen, Parker & Wyman, 1990; Wyman, et al., 1991; 1992) extend these findings. The initial RCRP was conducted with highly stressed 4th-6th grade urban children. It used in-depth testing of children and separate child and parent interviews in seeking to identify: a) correlates of SR outcomes at ages 10-12 (Cowen et al., 1992; Parker et al., 1990; Wyman et al., 1992); and b) life history and family milieu antecedents of such outcomes, including parent-child interaction and relational variables as well as child-rearing practices and discipline styles (Gribble et al., 1993; Wyman et al., 1991; 1992).

The RCRP test battery included 11 measures believed on conceptual and empirical grounds to have potential for differentiating SRs and SAs. Most of these measures did so in the directions predicted (Cowen et al., 1992; Parker et al., 1990). A discriminant function analysis (DFA) identified five variables that most sensitively differentiated the two groups: perceived

global self-worth, empathy, realistic control attributions, social problem-solving skills and self-esteem. A combination of these five variables predicted group membership with 84% accuracy (Parker et al., 1990). These differentiators reflect both: a) aspects of sound adjustment; and b) skills and competencies that enhance children's ability to adapt to stress. An example of the latter is realistic control, i.e., the ability to differentiate between problems a child can and cannot solve. This seems to be an adaptive quality for stress-exposed children, that may reduce the shame and/or burdens of problems they cannot control.

Parent interview data identified a second, internally consistent set of child history and family milieu indicators that differentiated SRs and SAs at ages 10-12 (Wyman et al., 1991). These included: a warm caring parent-child relationship; a self-view of being an efficacious parent; using positive, age-appropriate discipline practices; and having support available. A second DFA identified a maximally sensitive set of seven discriminators (i.e., the above variables plus positive expectations for the child's future, and both an easy child temperament and the absence of lengthy caregiver-child separations in infancy), which accurately classified 85.5% of the sample (Wyman et al., 1991). Several of these discriminators (e.g., parent-child relationship) may also underlie the development of child qualities that favor adaptive outcomes under stress. In that sense, they too may have important implications for shaping effective resilience-enhancing interventions.

Although the profile of the present intervention was shaped by RCRP findings identifying a set of child attributes that discriminated SRs and SAs, we recognized that such qualities were not likely to be changed enduringly by a brief child-centered intervention. Rather, they are attributes that form slowly over long time-periods, in specific family contexts. Although the latter reality, suggested both by the RCRP parent interview findings (Wyman et al., 1991) and others (Werner & Smith, 1992), was a major limiting factor in what a preventively-oriented "child-focused" intervention alone, might be expected to accomplish, we nevertheless thought it worthwhile, for several reasons, to probe the utility of such an intervention. One reason is the great need for starter-steps in that direction, given that major life stress poses serious adaptive problems for so many children in modern society. A second is the need to clarify the kinds of short-term gains that might accrue from such a time- and scope-limited intervention. Thus, even though an exclusively child-focused intervention may by itself be of limited value, it may still be an important element in a comprehensive intervention model that targets the child's caregiving environment.

Thus, the study's main goal was to explore the efficacy of a school-based prevention program informed by prior RCRP (DFA) findings identifying variables that discriminated SRs and SAs (Parker, et al., 1990). The

objective of this scope-limited (child-only) intervention was to strengthen these resilience-related qualities (e.g., perceived self-efficacy, realistic control attributions) in young highly stressed urban children.

METHOD

Subjects

Subjects included 36 children (20 boys and 16 girls) drawn from a single inner-city school over a 2-year period (23 in Year 1, 13 in Year 2). About 2/3rd of the subjects were minority children, most of whom were 4th and 5th graders, ages 9-11. The 36 youngsters comprised five separate intervention groups (three in Year 1, two in Year 2), ranging in size from 6-8.

Procedure

School mental health personnel were asked to follow three guidelines in identifying prospective program children, i.e., that the child: a) has experienced major life stress; b) is having *some* school adjustment problems; but c) does *not* require intensive therapy or continuing behavior management. Because many more 4th-6th graders met these criteria than the program could accommodate, a "rolling-admissions" plan was used to form a limited number of groups each year.

Parents of potential candidates were first contacted by a letter inviting their child to participate. The program was described as: "designed to help children deal with life stresses and the problems they encounter." The letter included a consent form and two brief measures that the parent was asked, but not required, to complete: a) a 32 item Life Events Checklist (LEC) used in prior resilience studies to identify highly stressed urban children (Work et al., 1990; Cowen et al., 1992); and b) a brief parent rating scale of their child's adjustment. Initially non-responding parents were recontacted by phone. Fewer than 10% of the parents initially contacted declined. Although group leaders obtained consent from parents of *all* participants, return rates for the (optional) parent screening forms were low. The nine children whose parents completed LECs averaged 10.3 stressors, close to the mean of 9+ reported for the highly stressed 4th-6th grade urban participants in our prior resilience studies (Parker et al., 1990; Cowen et al., 1992). This datum, consonent with group leaders' impressions, confirmed that program children had indeed experienced major life-stress.

Teacher and child program evaluation measures were completed twice, i.e., just before the intervention started (pre) and again when it needed (post). Child testing was done in small groups. However, due to a shortage of evaluators in the school, incomplete data and absences, *n*s on several child measures were as low as 23. The program ran from November-March in Year 1, from January-April in Year 2. All meetings were held in large offices in the school.

Measures

The program evaluation battery included three child-completed measures and a teacher rated measure of child-adjustment, selected for their relevance to important program goals.

Teacher-Child Rating Scale (T-CRS)

The 38-item T-CRS is a 2-part measure of young children's school adjustment (Hightower et al., 1986). Teachers rate the 18 problem behaviors (Part 1) on a 5-point severity scale (1 = *not a problem*, 5 = *very serious problem*). These 18-items comprise three 6-item factors: *Acting-Out* (e.g., "disturbs others"); *Anxious* (e.g., "shy, timid") and *Learning Problems* (e.g., "poor work habits"). High Part 1 scores reflect more serious problems. The 20-item Part 2 includes four 5-item competence subscales: *Frustration Tolerance* (e.g., "tolerates frustration"); *Assertiveness* (e.g., "questions rules that seem unfair"); *Task Orientation* (e.g., "is well-organized"); and *Peer Sociability* (e.g., "is friendly toward peers"). All items are rated on a 5-point scale (1 = describes *not at all*, 5 = describes *very well*). High Part 2 scores reflect greater competence. T-CRS subscale alphas range from .85-.92. Test scores discriminate referred and non-referred children and show concurrent relationships with measures of anxiety, self control and achievement (Hightower et al., 1986). They also differentiate SR from SA children (Work et al., 1990; Cowen et al., 1992).

Self-Efficacy

The Perceived Self-Efficacy Scale (PSES) assesses children's views of how well 20 frequently occurring problem situations work out for them (Cowen, Work, Hightower, Wyman, Parker & Lotyczewski, 1991). Based on the common stem: "How sure are you that things will work out well for you when . . .?", all items are rated on a 5-point scale (1 = *not at all*

sure; 5 = *very sure*). The PSES has three factors: *Difficult situations* (e.g., "someone counts on you to do something important"); *New experiences* (e.g., "do an activity for the 1st time") and *Problems with people* (e.g., "have to work out a problem with your mother"). High scores reflect greater perceived self-efficacy. The PSES has a test-retest reliability of .65 and an alpha of .81 (Cowen et al., 1991).

Realistic Control Measure (RCM)

The 18-item RCM (Wannon, 1990) assesses children's control expectations for controllable (e.g., ."Keep from failing a test") and uncontrollable (e.g., "Keep a family member from getting in trouble with the law") events. Children rate the extent to which they believe they can keep each event from happening, on a 4-point scale (1 = *almost always* to 4 = *almost never*). The RCM has been shown to consist of two 8-item factors (i.e., controllable and uncontrollable events). Factor and test scores are based on these items. High scores reelect more realistic control expectations. RCM alphas range from .74-.83. Test scores relate to school achievement and teacher ratings of child adjustment (Wannon, 1990).

Anxiety

The 20-item STAIC A-Trait scale (Spielberger, 1973) assesses the frequency of occurrence of 20 anxiety related behaviors (e.g., "I am secretly afraid") on a 3-point scale (1 = *hardly ever*; 2 = *sometimes*; 3 = *often*). STAIC alphas range from .78-.81 and test-retest reliabilities from .65-.71. A-trait scale scores correlated from .63-.75 with other child anxiety measures (Spielberger, 1973).

Leaders and Intervention

Group leaders were all staff members (i.e., two school psychologists, one social worker, two vice-principals, and a special education teacher) at the school in which the program was conducted. In Year 1, all leaders participated in five, 1 1/2-hour training sessions dealing with: a) program goals and strategies in relation to the problems that major stress poses for children; b) the actual program curriculum (2-3 sessions per meeting) and how to conduct it; and c) group processes and dynamics. Since all Year 2 leaders were veterans of Year 1, only two training-supervisory meetings were held in that year.

The 12-session program curriculum was adapted from an intervention format used earlier (Iker, 1990). A detailed (roughly 5-pages per session) program curriculum outlined each session's goals, activities, materials needed, procedures to follow, and gave examples of specific wordings for introducing the session's exercises. Although the outline was detailed enough to serve as a clear session guide, leaders were free to depart from it (e.g., to spend more or less time on specific exercises or use different exercises) to advance session goals, when their judgment so dictated. Engaging games and exercises, including role-playing, were used throughout to stimulate children's involvement in activities. A brief summary of session foci and content[2] follows:

Session 1. Provides opportunities for children to get acquainted; seeks to establish a safe, supportive environment and group identity and to clarify the group's purposes. The latter step was built around the notion that many families face difficult problems (concrete examples given) and that learning how to deal more effectively with such problems can help both personally and academically.

Session 2. Further effort is directed to getting the children to know each other and to understand group purposes. Also introduced is the topic of feelings: how they differ; how they relate to our experiences; and how to identify them in ourselves and others. Exercises and role-plays are used to stimulate involvement.

Session 3. Continues Session 2's focus on feelings and introduces the notion of perspective-taking (i.e., what it's like to be in "another person's shoes"). Exercises (e.g., guessing what kind of birthday present would make each child happiest) and role-plays are used to enliven the concept.

Session 4. Introduces the notion of "ups and downs" in feelings and uses this base to build a "personal lifeline" (which leaders first model). In this exercise, children represent "ups and downs" in their lives; these are shared with the group and discussed.

Session 5. Following the lifeline exercise, children are helped to recognize when and how to seek support from others. Each child constructs a "Who's There for Me"-list which indicates, for various problems, who potential helpers might be, and the type of help the child would like to have.

Session 6. Children are taught a set of interpersonal problem-solving steps including: a) defining the problem and setting a goal; b) generating alternative solutions; and c) considering the consequences of each solution.

[2]Dr. JoAnne Pedro-Carroll contributed to the development of this curriculum. Several exercises were adapted from Dr. Pedro-Carroll's Children of Divorce Intervention Program (CODIP).

Then, acting as teams, children begin to apply these new strategies to diverse problem-scenarios that are provided.

Session 7. Reviews and consolidates problem-solving steps and provides opportunities to work as teams to resolve typical interpersonal problems. Games and exercises are used to sharpen these new skills.

Session 8. Children are taught the important distinction between problems that can and cannot be solved. A "stop" (unsolvable) and "go" (solvable)-game is used to highlight this distinction. For solvable problems children role-play solutions, applying their newly learned problem-solving skills. Consideration also begins of how best to cope with unsolvable problems.

Session 9. Using role plays and discussion, children's reactions to unsolvable problems are identified and clarified. Next, strategies are considered for divesting energies from unsolvable problems and redirecting them toward age-appropriate tasks. This process is catalyzed using the "Ways to Help Myself Feel Better"-game to identify appropriate strategies for disengaging from unsolvable problems.

Session 10. Children review learnings from the four prior sessions (problem-solving, and solvable vs. nonsolvable problems). These are applied in an ego-involving game, i.e., WKID-TV, in which children rotate between the roles of describing problems and serving as expert panelists who offer solutions for the problems raised. The latter active role helps reinforce learning to that point. The notion of termination is introduced at the end of this session.

Session 11. This session seeks to enhance children's self-esteem by focusing on their strengths, accomplishments and unique contributions to the group. The session is built around the "You're a Special Person"-game, in which posters are developed for each child, listing his/her positive involvements and contribution to the group. More time is spent talking about termination and associated feelings.

Session 12. Children are invited to express additional feelings about the group and are encouraged to seek out sources of support, including group leaders and members, as needed in the future. Leaders distribute children's folders with materials cumulated during the program, and award each child a certificate of achievement for completing the program. A small party with refreshments is held to end the meeting on a positive note.

RESULTS

Children's pre to post changes were evaluated using within group *t* tests for all (one teacher and three child) criterion measures. The results

of these analyses are summarized in Table 1. Significant improvement was found on two T-CRS subscales (i.e., fewer learning problems and a stronger task-orientation) at post. Children also improved on perceived self-efficacy and realistic control attributions and evidenced a strong tendency ($p \leq .08$) toward less anxiety. There were no significant changes on other criterion measures.

DISCUSSION

Young, highly stressed urban children participated in a 12-session small-group preventive intervention designed to enhance resilience. The intervention was shaped by prior findings identifying factors that differentiated SR from SA outcomes among highly stressed urban children (Parker, et al., 1990). Thus, the program sought to enhance children's: a) ability to recognize and express feelings, and take the role of the other; b) social problem solving skills; c) ability to differentiate solvable from non-solvable problems, and detach constructively from the latter; and d) self-efficacy and esteem.

Using a pre-post evaluation design, teachers rated participants as significantly improved on measures of learning problems and task-orientation.

Table 1. Significance of Pre-Post Change Scores on Criterion Outcome Measures

	Pre		Post			
Variable (*n*)	*M*	*SD*	*M*	*SD*	*t*	*p*
T-CRS Problems (35)						
Acting Out	16.49	6.99	15.74	6.63	.90	ns
Anxiety	13.00	5.70	13.12	5.30	.15	ns
Learning Problems	18.29	6.68	16.43	6.60	2.45	.02
T-CRS Competence (35)						
Frustration Tolerance	10.83	4.36	11.37	4.41	1.08	ns
Assertive Skills	14.23	4.51	13.80	3.25	.91	ns
Task Orientation	12.32	4.11	13.21	4.66	2.02	.05
Peer Social Skills	14.80	4.37	14.94	3.73	.31	ns
Child Measures: Efficacy (24)						
Difficult Problems	15.67	4.61	17.46	5.59	1.74	.10
New Situations	8.13	2.68	9.79	3.18	3.61	.001
Problems with People	9.88	2.85	10.25	3.23	.60	ns
Total	33.67	8.00	37.50	9.93	2.82	.01
Realistic Control (24)						
Controllable	26.17	4.88	25.37	4.80	.73	ns
Uncontrollable	17.79	5.56	22.08	5.53	3.95	.001
Total	43.93	6.95	47.46	6.80	2.11	.05
STAIC-A Trait (23)	39.09	7.15	36.70	6.35	1.81	.08

Evidence of program gain was also found on all three child measurers. Specifically gains were noted on: a) overall perceived self-efficacy, and subscales assessing difficult problem situations and new situations; b) realistic control attributions, both overall and for uncontrollable situations; and c) reduced anxiety ($p \leq .08$).

Several aspects of these findings bear further comment. First, the improvements noted on both teacher and child measures are better described as modest and specific, than as strong and generalized. This suggests that the intervention was, at best, only moderately effective. The strongest child gains reported were for realistic control and self-efficacy, variables that correspond directly to key curricular units (i.e., solvable vs. unsolvable problems, and esteem-building). Indeed gains in these two areas may underlie that post-program trend toward reduced anxiety (a topic *not* addressed directly by the program).

The present exploratory study has important limitations beyond its small *n*. For one thing, the lack of a control group restricts generalization of the findings. This restriction, however, may be somewhat mitigated by the facts that significant gain: a) showed up both on teacher *and* child outcome measures; and b) was limited to about half the measures. This suggests that no overall halo effect favoring positive program outcomes was operating.

Several additional study limitations involve measures-issues. Several measures used, though relevant to intervention goals, had only marginal reliability. And, although the evaluation included some variables that differentiated SRs and SAs in prior generative studies, it did not reflect all such promising domains. Another limiting factor is that the initially small study sample was even further reduced on several child-completed outcome measures.

These reality constraints make it hard to judge the extent to which lack of gain in several outcome areas reflects intrinsic program, vs. design,-limitations (e.g., small *n*, restricted measurement). Finally, the intervention's time-limited, cross-sectional nature makes it difficult to know whether the modest gains noted will endure or simply reflect short-term learning from a specific curriculum. Follow-up is needed to resolve the latter questions.

Although the findings include several encouraging signposts, they should be interpreted conservatively. Illustratively, inferences cannot be made beyond the immediate, short-term benefits found to follow this child-only, preventive intervention. Moreover, prior demonstration of the important role that family milieu and parent-child relational factors play in laying the groundwork for resilient outcomes among profoundly stressed children (Werner & Smith, 1992; Wyman et al., 1991), suggests that an even more

promising conceptual pathway toward the goal of enduring resilience enhancement would be a yoked parent-child intervention. Such an intervention is likely to be most effective when children are young and their basic coping styles are still being formed. And, well beyond the need for effective comprehensive early intervention (Yoshikawa, 1994; Zigler, Taussig & Black, 1992), lie basic issues about the types of social change steps that can enhance justice, hope, and opportunity for many people in modern society who experience the chronic stressors often associated with disempowerment.

The present research, both because of its small *n* and the significant method limitations noted above, is more appropriately seen as an exploratory probe than as a definitive demonstration. Its findings suggest only that small positive, resilience-enhancing starter-steps *can* be taken with young highly stressed urban children. More basic, comprehensive and enduring second generation interventions of this type (Cowen, 1994; Weissberg & Elias, 1993) are needed, along with informed social change, to harness more fully the proactive potential that the concept of resilience offers to a richer psychology of wellness.

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REFERENCES

Anthony, E. J. & Cohler, B. J., Eds. (1987). *The invulnerable child*. New York: Guilford Press.

Cicchetti, D. (1984). The emergence of developmental psychopathology. *Child Development, 55*, 1-7.

Cicchetti, D. (1989). Developmental psychopathology: Some thoughts on its evolution. *Development and Psychopathology, 1*, 1-4.

Cowen, E. L. (1984). A general structural model for primary prevention program development in mental health. *Personnel and Guidance Journal, 62*, 485-490.

Cowen, E. L. (1991). In pursuit of wellness. *American Psychologist, 46*, 404-408.

Cowen, E. L. (1994). The enhancement of psychological wellness: Challenges and opportunities. *American Journal of Community Psychology, 22* (In press).

Cowen, E. L., & Work, W. C. (1988). Resilient children, psychological wellness and primary prevention. *American Journal of Community Psychology, 16*, 591-607.

Cowen, E. L., Work, W. C., Hightower, A. D., Wyman, P. A., Parker, G. R., & Lotyczewski, B. S. (1991). Toward the development of a measure of perceived self-efficacy in children. *Journal of Clinical Child Psychology, 20,* 169-178.

Cowen, E. L., Work, W. C., Wyman, P. A., Parker, G. R., Wannon, M. & Gribble, P. A. (1992). Test comparisons among stress-affected, stress resilient and nonclassified 4th-6th grade urban children. *Journal of Community Psychology, 20,* 200-214.

Cowen, E. L. ,Wyman, P. A., Work, W. C., & Parker, G. R. (1990). The Rochester Child Resilience Project (RCRP): Overview and summary of first year findings. *Development and Psychopathology, 2,* 193-212.

Garmezy, N. (1982). Foreword. In E. E. Werner & R. S. Smith, *Vulnerable but invincible: A study of resilient children* (pp. xii-xix). Nw York: McGraw-Hill.

Garmezy, N. Masten, A. S., & Tellegen, A. (1984). Studies of stress-resistant children: A building block for developmental psychopathology. *Child Development, 55,* 97-111.

Garmezy, N., & Nuechterlein, K. (1972). Invulnerable children: The fact and fiction of competence and disadvantage. *American Journal of Orthopsychiatry, 42,* 328-329.

Garmezy, N., & Tellegen, A. (1984). Studies of stress-resistant children: Methods, variables and preliminary findings. In F. Morrison, C. Ford, & D. Keating (Eds.), *Advances in Applied Developmental Psychology, Vol. 1,* (pp. 1-52). New York: Academic Press.

Gribble, P. A., Cowen, E. L., Wyman, P. A., Work, W. C., Wannon, M., & Raoof, A. (1993). Parent and child views of the parent child relationship and resilient outcomes among urban children. *Journal of Child Psychology and Psychiatry, 34,* 507-519.

Hightower, A. D., Work, W. C., Cowen, E. L., Lotyczewski, B. S., Spinell, A. P., Guare, J. C., & Rohrbeck, C. A. (1986). The Teacher-Child Rating Scale: A brief objective measure of elementary children's school problem behaviors and competencies. *School Psychology Review, 15,* 393-409.

Iker, M. R. (1990). Evaluation of a school-based preventive intervention for at-risk urban children. Unpublished Ph.D. dissertation, University of Connecticut, Storrs, CT.

Masten, A. S. (1989). Resilience in development: Implications of the study of successful adaptation for developmental psychopathology. In D. Cicchetti (Ed.), *Rochester Symposium on Developmental Psychopathology, Vol. 1,* (pp. 261-294). Hillsdale, NJ: Erlbaum.

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

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.

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

Spielberger, C. D. (1973). *State-Trait Anxiety Inventory for Children: Preliminary manual.* Palo Alto, CA: Consulting Psychologists Press.

Wannon, M. (1990). *Children's control beliefs about controllable and uncontrollable events: Their relationship to stress resilience and psychosocial adjustment.* Unpublished Ph.D. dissertation, University of Rochester.

Weissberg, R. P. & Elias, M. J. (1993). Enhancing young people's social competence and health behavior: An important challenge for educators, scientists, policy makers and funders. *Applied and Preventive Psychology, 2,* 179-190.

Werner, E. E. (1993). Risk, resilience and recovery: Perspectives from the Kauai longitudinal study. *Development and Psychopathology, 5,* 503-515.

Werner, E. E., & Smith, R. S. (1982). *Vulnerable but invincible: A study of resilient children.* New York: McGraw-Hill.

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

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

Wyman, P. A., Cowen, E. L., Work, W. C., & Parker, G. R. (1991). Developmental and family milieu interview correlates of resilience in urban children who have experienced major life-stress. *American Journal of Community Psychology, 19*, 405-4266.

Wyman, P. A., Cowen, E. L., Work, W. C., Raoof, A., Gribble, P. A., Parker, G. R., & Wannon, M. (1992). Interviews with children who experienced major life stress: Family and child attributes that predict resilient outcomes. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 904-910.

Yoshikawa, H. (1994). Prevention as cumulative protection: Effects of early family support and education on chronic delinquency and its risks. *Psychological Bulletin, 115*, 28-54.

Zigler, E., Taussig, C., & Black, K. (1992). A promising preventative for juvenile delinquency. *American Psychologist, 47*, 997-1006.