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Long-term Outcomes of Parent Training and Predictors of Adolescent Adjustment

Julie A. Rinaldi

A dissertation submitted in partial fulfillment of the requirements for the degree of

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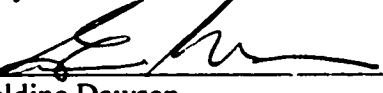


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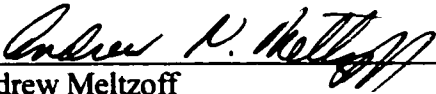
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Abstract

Long-term Outcomes of Parent Training and Predictors of Adolescent Adjustment

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Families of 66 children (83.5 % of the original sample) participated in a follow-up study which investigated the long-term outcomes of parent training as an intervention for children with early-identified behavior problems. Behavioral and emotional adjustment into adolescence as well as predictors of outcome were examined. Prior to treatment, children's ages ranged from 4 to 8. Follow-up assessments were conducted 8 to 12 years later when the children were aged 12 to 19. Assessments included home interviews with the parents and teenagers separately. Results indicated that at least 75% of the teenagers adjusted typically into adolescence with minimal behavioral and emotional problems. Furthermore, parenting skills taught in the intervention had lasting effects. Important predictors of long term outcome were mothers' level of critical statements and fathers' use of praise. In addition, the level of coercion between the children and mothers during the treatment phase was a significant predictor of later teen adjustment. Factors that did not predict long term outcome were parental psychopathology and marital communication and conflict resolution skills. Results are promising and suggest that enhancing parenting skills is a useful and important key to improving conduct problems in children and maintaining those improvements to prevent further adolescent behavior problems.

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INTRODUCTION

Researchers have recognized the need to focus their efforts towards developing treatments for young children with conduct problems because child conduct problems are both *prevalent* and if not treated tend to *persist* into later childhood and adolescence. Child conduct problems are one the most prevalent disorders in childhood with estimates ranging from 7 - 25%, with the prevalence varying according to the population surveyed (Campbell, 1995; Landy & Peters, 1991; Richman, Stevenson, & Graham, 1982), and account for the majority of clinic referrals to mental health professionals for children (Reid, 1993). Early reports of the stability of behavior problems into adolescence suggested a moderate percentage of persisters. Loeber and Dishion (1983) reported that 30-43% of aggressive boys at age 4-11 continued with high rates of aggressive behavior 4 - 9 years later. Olweus (1979) reviewed 8 longitudinal studies of aggression in children under age 6 and found short-term stability (.5 to 1.5 years) was quite high, average correlation of .76. Recent studies have established the long-term (3 to 7 years) continuity of preschool behavior problems into elementary school age (see review by Campbell, 1995). These data suggest that at least 50% of 3 to 4 year old children with behavior problems will continue to show difficulties throughout the elementary school years and into early adolescence. Therefore it is clear that unless there is some intervention, children who begin with high rates of aggressive behavior are likely to continue on a trajectory toward antisocial behavior.

Parent training has been identified as a well-established treatment for children with conduct problems (Brestan & Eyberg, 1998). The Incredible Years Parenting Program (Webster-Stratton, 1985) which utilizes videotape modeling and therapist-led group discussion has been empirically validated in at least 6 randomized control group studies with approximately 2/3 of the children maintaining clinically significant improvements lasting up to 3 years (Webster-Stratton, 1990). One third of the families continued to have concerns about their children's behavior and peer difficulties. These results are consistent with other parent training studies which have suggested that 30% to 50% of treated families fail to maintain clinically significant improvements (Forehand, Furey, & McMahon, 1984; Schmalings & Jacobson, 1987; Webster-Stratton, 1985). With the stability of behavior problems so high and the transition into adolescence often so stressful, one may wonder if these rates of improvements are maintained in the long run.

While parent training is one of the most well researched treatments for children and adolescents, there is a dearth of studies that evaluate the long-term outcomes beyond 2-3 years. Only one program has attempted to elucidate the treatment outcomes of a parenting program beyond 2-3 years. In a series of follow-up studies that were beset with very high attrition (approximately 50%), and a small sample size (approximately 25 participants), Forehand and colleagues conducted follow-up assessments at least 4.5 years after treatment (Forehand & Long, 1988) when the children were between the ages of 11 and 14, and another follow-up approximately 14 years following treatment when the participants were at least 17 years old (Long, Forehand, Wierson, & Morgan, 1994). These studies lend some support for long term maintenance and prevention of antisocial

outcomes (the treatment group did not differ from a community sample on key outcome measures), but the methodological problems greatly limit the conclusions that can be drawn.

Long term outcome studies are important not only to establish the long-term efficacy of treatment, but also to identify the factors associated with positive or negative long term outcomes. Because early-identified behavior problems are a primary risk factor for later delinquency (Loeber & Dishion, 1983; Loeber, 1990), substance abuse (Hawkins, Catalano, & Miller, 1992) and violent behavior (Farrington, 1991); Lipsey & Derzon, 1998), it is important to understand the factors which may be associated with poor outcomes. Identification of the predictors of outcome may lead to enhancements to the existing treatment for those families with risk factors amenable to change. Additionally, the predictors may help identify those persons who are at greatest risk for continued problems and thereby in need of continued treatment or booster sessions.

The current study is a 10-year follow-up study of families who received the Incredible Years Parenting Program as treatment for their young children's behavior problems. The study had 2 aims. The first aim was to describe the long-term outcomes of the adolescents in terms of their emotional and behavior adjustment. No study to date has described the long-term outcomes on a large sample of adolescents whose parents received parent training as a treatment for their young children's conduct problems. We sought to determine the extent to which children were in the normal range of functioning on standardized behavior ratings. In this sample, approximately two-thirds to three-fourths of the children were functioning in the normal range as rated by their parents and

teachers approximately 1 year after intervention. We were interested to see if that remained true in the long run and to see for what percentage of these children were high-risk behaviors and psychological maladjustment (e.g. delinquency, substance abuse, depression, and school dropout) prevented.

The second aim was to identify the factors associated with long term outcome. Factors related to the severity of the child's behavior, family factors (e.g. SES and marital status), and parental adjustment factors (e.g. stress and depression) were considered as predictors. In addition, initial response to treatment (e.g. improvements in parenting and marital communication) was considered as a predictor. This was important in order to validate whether or not the treatment model is based on a correct assumption, namely that parenting practices and marital conflict resolution skills are important in the development and maintenance of many maladaptive child behaviors, and that improvements in these skills are the key to facilitating positive child behavior change. Webster-Stratton and her staff (Webster-Stratton, 1994) have collected detailed data on these families before and after treatment including observations of the child with both parents, observations of the parents participating in a problem solving task, and reports from both parents and teachers on the child's adjustment in several domains. These data provided a rich database from which to predict later outcome.

METHODS

Participants

Sixty-six families with a teenager between the ages of 12 and 19 were the participants for this study. Participants were drawn from a group of families (1 or both parents and an identified child) whose parents received parent training treatment at the University of Washington Parenting Clinic 10 years earlier for their children (ages 3-7) who were diagnosed with oppositional defiant disorder (ODD), conduct disorder (CD), or both. At the time of treatment, participants included 78 families whose parents received either parent training alone, or parent training plus an additional treatment which targeted stress management and problem solving skills between adults (Webster-Stratton, 1994). Study children included 58 boys and 20 girls. Study parents included 77 mothers and 58 fathers. Of these, 54 were married or partnered and 24 were single. At the time of intake, criteria for study entry required that a) the child was between 3 and 8 years; b) the child had no debilitating physical impairment, intellectual deficit, or history of psychosis and was not receiving treatment at the time of referral; c) the primary referral problem was child misconduct that had been occurring for more than 6 months (e.g., noncompliance, aggression, oppositional behaviors); d) parent rated the child as having clinically significant number of behavior problems according to the Eyberg Child Behavior Inventory (ECBI; Robinson, Eyberg, & Ross, 1980); and e) the child met the criteria of the Diagnostic and Statistical Manual of Mental Disorders (3rd ed., rev.; DSM-III-R; American Psychiatric Association, 1987) for ODD/CD.

Although the original study included 78 families, attempts were made to contact 79 families. One family was dropped from the analyses in the original report (Webster-Stratton, 1994) due to low treatment-session attendance rate. This family was retained in the current study because they had complete assessment data that would contribute to the analysis of predictors of outcome regardless of their attendance rate. Sixty-six of the original 79 families (83.5%) agreed to participate in the study. Of the 13 families who did not participate, 9 refused (e.g. too busy or not interested), and 4 were not located. The group of participants did not differ from the group of nonparticipants on pre-treatment assessments of SES, income, and marital status. Mother's depression status assessed throughout the initial treatment and short-term follow-up phase did not differ among the participants versus nonparticipants. Furthermore, initial child problem severity as assessed by mother report of symptoms (ECBI; CBCL-Child Behavior Checklist, Achenbach & Edelbrock, 1991) and by independent observations of child behavior with his/her mother did not differ among participants versus nonparticipants. Since there were no systematic differences distinguishing participation status, the group of participants was assumed to be a representative sample of the families who received the parenting intervention.

At the current long-term assessment, the age of the sample of 66 teenagers ranged from 12 to 19, with the average age being 15 years. The length of time between the pre-treatment and long-term follow-up assessments ranged from 8 to 12 years with a mean length of 10 years.

Measures

Predictors of Outcome

1. *Family Characteristics*

- *SES* - Hollingshead and Redlich's (1958) Two-Factor Index is based on occupation and education. The continuously scaled position score was used.
- *Marital status* - partnered or not
- *Income* - family income referred to all known sources of income (gross) available to the family during the previous year. Income was classified into three categories: welfare (less than 9,000), low/middle (9-28,999), or high (29,000+).

2. *Parent Characteristics*

- *Depression* - The Beck Depression Inventory (BDI; Beck, 1972) consists of 21 items, each rated on a 0- to 3-point scale. It has been shown to correlate significantly with clinicians' ratings of depression (Metcalf & Goldman, 1965) and with objective behavioral measures of depression (Williams, Barlow, & Agras, 1972). Split-half reliability achieved a Spearman-Brown reliability coefficient of .93.
- *Parenting Stress*- The Parenting Stress Index (PSI; Abidin, 1983) contains 126 items that are divided into two major domains reflecting stress in the parent-child relationship. The first domain represents parent characteristics and includes seven subscales that constitute the total Parent Domain Score. These are Depression, Attachment, Restricted Role, Competence, Isolation, Spouse Support, and Health. The second domain, representing child characteristics, was not be used in this study (other measures have been chosen for child characteristics, see below). The PSI has

been shown by the authors to have acceptable content, concurrent, and construct validity. Alpha reliability coefficients were reported to be .95, and test-retest reliabilities ranged from .82 to .71 (Abidin, 1983).

- *Life stress* - The Life Experience Survey (LES; Sarason, Johnson, & Seigel, 1978) is a 57-item measure that permits the respondent to assess positive and negative life experiences over the previous year (e.g. unemployment, death in family, pregnancy, move, divorce, etc.). It was normed on 345 university students and found to have 5-6 week test-retest reliabilities of .56 to .88. In addition, the scale has been shown to be related to measures such as anxiety, achievement, maladjustment and depression. The negative life experience score (NLES; Sarason et al., 1978) was used in this study as a measure of life stress.
- *Antisocial behavior*- Intensive 2-hour interviews were conducted with the parents to obtain information about their prior or ongoing experiences with drugs and alcohol, the criminal justice system, and spouse abuse. These were scored as having occurred or not occurred.

3. *Child Characteristics*

- *Parent Report of Child Behavior* - The parent form of the widely used Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991) consists of 118 items, each rated on a 0-2 point scale. The items constitute multiple behavior-problem scales derived separately for boys and girls in different age groups (e.g., 4-5 years, 6-11 years). In this study the Total Behavior Problem summary score was used because it applies to a variety of behavioral problems in all age and sex groups.

- *Independent Observations of the Child with Parents* - The Dyadic Parent-Child Interactive Coding System - Revised (DPICS-R) (Robinson & Eyberg, 1981) is a widely researched observational measure developed specifically for recording behaviors of conduct-problem children and their parents. The DPICS-R, which consists of 29 behavior categories, was used to code the parent-child interactions at home. For the child's behavior, 2 summary variables were formed: 1) Total Child Deviance (sum of frequency of whine + yell + cry + physical negative + smart talk + aggression) and 2) Negative Affect Valence. Every 5 minutes observers paused to code the child's valence towards the parent on a scale ranging from "exuberant affect" (1) to "unrestrained negative affect" (5). Affect valence describes the emotional quality of the content behaviors and is coded on the bases of nonverbal gestures, body posture, facial expressions, and tone of voice and/or inflections.
- *Teacher Report of Child Behavior* -
 - ◊ The teacher report form (TRF) of the widely used Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991) consists of 118 items, each rated on a 0-2 point scale. The items constitute multiple behavior-problem scales derived separately for boys and girls in different age groups (e.g., 4-5 years, 6-11 years). In this study the Total Behavior Problem summary score was used because it applies to a variety of behavioral problems in all age and sex groups.
 - ◊ The Preschool Behavior Questionnaire (PBQ; Behar, 1977) includes 30 items, each rated on a 0-2 point scale, and is designed to be completed by preschool teachers of children 3-7 years of age. Factor analysis yielded three sub-scales in

addition to a Total Behavior Problem Score: Hostile-Aggressive, Anxious-Fearful, and Hyperactive-Distractible. The author reported that test-retest reliabilities ranged from .60 to .99 and that an interrater reliability of .84 was derived from the overall scale and of .81, .71, and .67 was derived for the factors.

The PBQ was also reported to discriminate normal from disturbed populations.

- *Child Problem Solving* - The Child Social Problem-Solving Test-Revised (SPST-R; Rubin & Krasnor, 1983) is derived from Spivak and Shure's (1974) Preschool Problem-Solving Test. The child is presented with pictures of problem situations and then is asked what the story character could do or say to accomplish the desired goal. For each situation, two responses are requested and answers are scored on the basis of number and type of solutions offered (prosocial, antagonistic). The proportion of prosocial to antagonistic solutions was used as the measure of children's problem solving. The validity of SPST-R has been established by showing that conduct-problem and rejected children use more aggressive strategies and, in the face of failure, are less flexible in finding alternative strategies. Interrater reliability for coding response has been reported at 85%.

4. *Skills targeted by the intervention to mediate child behavior change*

- *Parenting Skills* -

- ◊ The Dyadic Parent-Child Interactive Coding System - Revised (DPICS-R) (Robinson & Eyberg, 1981) is a widely researched observational measure developed specifically for recording behaviors of conduct-problem children and their parents. The DPICS-R, which consists of 29 behavior categories, was used

to code the parent-child interactions at home. For this study 2 scores were used as indicators of parenting behavior: 1) Negative Affect Valence directed towards the child (described above in the child characteristics section) and 2) Total Commands and Criticisms. Parents' affect valence towards each other was also coded during these observations and was used in this study (as a marital factor).

- ◇ The parent Daily Discipline Interview (DDI) (Webster-Stratton, 1991) consists of a list of 19 negative and 19 prosocial behaviors commonly exhibited by children. At pre-treatment, parents were asked to select those negative and positive behaviors that they perceived as problems. These individually tailored checklists were used as the basis for phone calls conducted twice weekly for 2 weeks at pre- and post-treatment assessments. During phone calls, the checklist was read to the mothers, who were asked to observe and report on the occurrence or nonoccurrence of the "target" behaviors for the previous 24 hours. If the behavior occurred then the parents were asked how they handled the problem. The discipline responses were then coded into six categories: physical force, critical verbal force, limit setting, teaching, empathy, and guilt induction. Previous studies have reported interrater reliability ranging from .56 to .97, test-retest reliability of .75 and acceptable internal consistency (.59-.96). For this study, physical force which includes hitting, spanking, and slapping was used. The DDI has been shown to correlate with direct observations of mother behaviors with their children during home observations (Webster-Stratton & Spitzer, 1991).

- *Marital Problem Solving and Collaboration Skills* - The Problem-Solving-Interaction Communication-Affect-Engagement Coding System (PSI-CARE) was developed (Webster-Stratton, King, & Hollinsworth, 1991) to record parenting problem-solving skills and marital collaboration. Couples were asked to choose two child behavior problems to discuss for 15 minutes while being videotaped. For this study 3 scores were used as indicators of marital conflict management. Collaborative Problem Solving Skills were rated on a 5-point scale ranging from low collaboration ([1] abrasive, dismissive, stonewalling) to high collaboration ([5] cooperative, mutually reinforcing, joint ownership of problem). Total Negative Communication was a summary score based on the frequency of 10 items (e.g. coerce/threaten, escalate/negative affect, masked meanness, deny responsibility, ignore/no acknowledgment, withdraw/retreat, disagree-closed, fault finding, complain/whine, command/moralize). The third marital variable, Parent Affect Valence, was recorded during the home visits as part of the DPICS-R coding system, described previously.

Teen Outcome Measures at Long-term Follow-up (Data collected for present study)

1. Parent Report on Adolescent Adjustment

- *Child Behavior Checklist* (CBCL; Achenbach & Edelbrock, 1991) - previously described
- *Parent Interview* - Parents were asked to describe their experience of parenting a child with early-identified behavior problems. Specific questions were asked and include amount of additional therapy received (family, marital, individual parent or child) upon completion of the parenting clinic program, the extent of academic

problems, number of transitions in family structure, and the occurrence of teen criminal justice system involvement. Parents were also asked questions about their current parenting styles regarding parental monitoring and discipline. These parenting questions were taken from a parent interview developed by the Oregon Social Learning Center (1984).

2. *Adolescent Self-report*

- *Delinquency* - The Elliott Delinquency Scale is a self-report measure consisting of 45 items that can be administered as a questionnaire or an interview (Elliott et al., 1985). The scale assesses the number of delinquent acts over the past 1 year. Items are divided into two subscales, major and minor delinquency. Examples of minor delinquent acts include purposely damaging property belonging to others, carrying a hidden weapon other than a plain pocket knife, making obscene telephone calls, hitting or threatening to hit someone (e.g. parent, teacher, peer). Examples of major delinquent acts include attacking someone with idea of seriously hurting him or her, selling hard drugs, and burglarizing a residence. The interview method was most often used in the study. A few teens who lived out of state completed it as a questionnaire.
- *Substance Use* - This interview measure (Oregon Social Learning Center, 1984) is designed to assess teen substance use. Six substances are separately queried (tobacco, beer, wine, hard liquor, marijuana, other drugs) for information regarding amount, frequency, and problems associated with use.

- *Sexual Activity* - This interview measure (Oregon Social Learning Center, 1984) is designed to assess teen sexual activity. Teens are asked questions about intimacy ranging from kissing to sexual intercourse as well as methods of birth control and disease protection.
- *Anxiety* - The Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985) is 37-item self-report measure of children's anxiety. Each item is rated as either true or false. Standardization data are available for children ranging from age 6 to 17. The total Anxiety score was used in this study. The lie subscale was used to exclude subject data that was indicative of inaccurate self-report.
- *Depression* - The Child Depression Inventory (CDI; Kovacs, 1981) is the most widely used self-report measure of children's depression (Kazdin, 1981) and includes 27 items, each rated on a 0- to 3-point scale. Standardization data are available for children ranging from age 7 to 17.
- *Self-Worth* - The Self-Perception Profile for Adolescents (Harter, 1988) is a widely used self-report measure of children's self-perception and includes 45 items, each rated on a 1- to 4-point scale. Several subscales are available and this study used the global self-worth subscale consisting of 5 items. Internal consistency for the global self-worth subscale was .89 for the normative sample A presented in the manual. The means and standard deviations from this sample were used in the current study to create Z scores.

Procedures

Initial Treatment and Assessment

All families (mothers, fathers, and identified child) were assessed before the Incredible Years parenting program (BASIC version) on the aforementioned predictors of outcome measures. All parents then attended the BASIC parenting program, coming to the clinic weekly for 12 to 13 2-hour sessions. Each week, groups of 10 to 15 parents met with a therapist to view the series of 10 videotape programs of modeled parenting skills (approximately 250 vignettes and 25 minutes of videotape per program). After presenting each 2-min parent-child vignette, the therapist led a focused discussion of the important interactions and encouraged parents' ideas and problem solving. Topics covered include play skills, praise and rewards, limit setting, and handling misbehavior. A more complete description of the videotape training programs and conceptual bases is available (Webster-Stratton, 1993).

Upon completion of the BASIC parenting program, all families were reassessed on the same measures. Thirty-nine families were randomly assigned to no further treatment, and 38 families were assigned to the ADVANCE parenting program. The families who received this additional treatment came to the clinic weekly for 14 additional 2-hour sessions covering topics including personal self-control, anger, stress, and depression management, and problem-solving skills between adults.

Upon completion of the ADVANCE treatment, all families (both those that received the additional treatment and those who did not) were reassessed on the same

measures. Approximately 1 year later, families were again contacted and were asked to complete questionnaires (no observational assessments were conducted).

To summarize, data from the following time points will be used to predict long term outcome: pre-treatment, post-BASIC, post-ADVANCE (1-year after study entry), and short-term follow-up (2-3 years after study entry).

Long-term Follow-up Assessment

Long term follow-up assessments included an interview with at least 1 parent, interview with the teenager (5 teenagers did not participate), and questionnaires completed by both parents (when possible). Interviews were conducted in the families' homes when possible. Thirteen families were interviewed by phone since they had moved away from the Seattle area. The parent and teen interviews were conducted separately and privately.

Of the 66 families who participated, parent interviews were conducted with 44 mothers only, 9 fathers only, 10 with both parents as a married couple, 3 with both parents separately since they were divorced. Of the 44 mother-only interviews, 20 fathers also completed questionnaires. Of the 9 father-only interviews, 6 of the teens lived almost exclusively with their fathers. The remaining 3 father-only interviews were conducted that way since the mother did not want to participate. Interviews were also conducted 61 teenagers - 48 males and 18 females.

RESULTS

There were 2 main aims of this study. The first aim was to characterize the sample in terms of both externalizing and internalizing outcomes to see how these adolescents were functioning 10 years after treatment. The second aim was to determine whether any factors assessed early in the treatment phase predicted long term outcome. The results are presented in three sections. The first section describes the long-term outcomes that characterize the sample of teenagers 10 years after treatment, separately by externalizing and internalizing outcomes. Sections 2 and 3 present predictors of outcome. Section 2 identifies predictors by taking a retrospective perspective. For this, the sample was divided into 2 groups based on their long-term outcome status testing for differences in the variables hypothesized to be important predictors of long-term outcome. The third section identified predictors of long-term outcome using initial treatment response. For these analyses, the sample was divided into two groups based on their treatment response immediately post treatment. These two groups were then compared on their outcomes at the 10-year follow-up. These analyses take a prospective approach to answering the predictors of outcome question.

Long Term Outcomes

In the assessment of long term outcomes, several criteria were used. The first was the extent to which parent and teen reports of teen emotional distress and behavioral adjustment were within the normal, or nonclinical, range of functioning on standardized measures. T-scores ≥ 63 , 90th percentile, on the CBCL, CDI, RCMAS, and Harter Self Worth were considered to be in the clinical range. The second assessment was the extent

of involvement in high risk behaviors (e.g. substance use, delinquency). On these non-standardized assessments, teens who scored at the upper 10% of the scale compared to the entire sample were classified as exhibiting a negative outcome. A teen was considered to exhibit a negative outcome if he or she had been expelled from school, involved with the criminal justice system, or placed out of the home for more than 1 month.

Lastly, the total number of negative outcomes the teenagers exhibited was determined to establish a cumulative negative outcome score. A total of 12 negative outcomes were possible (8 externalizing and 4 internalizing). Data for all 66 subjects were not available for all outcomes since some teenagers were not interviewed, and a few parents did not complete questionnaires. Table 1 outlines the measures used and the data available. Sixty subjects had complete data and so were eligible for all 12 negative outcomes. The remaining 6 subjects had partial data.

Externalizing Behaviors

Parent Report

Table 2 displays the long term externalizing outcomes of the teenagers by mother and father report on the CBCL. Mother report of teen behavior indicated that 24 out of 56 (42.9%) scored in the clinical range (T-score ≥ 63) as measured by the externalizing subscale of the CBCL. Father report of teen behavior on the CBCL indicated that 7 out of 27 (25.9%) scored in the clinical range. To get a sense of the history of these children's behaviors, the number of children in the clinical range (CBCL Total Behavior T-Score ≥ 63) at previous time points was examined. Of the 66 families that participated,

65 had mother CBCL data upon study entry. At that time, 42 out of the 65 (64.6%) mothers' reports of their children's behaviors were in the clinical range (23/65 in the normal range). Immediately post-ADVANCE, approximately half of those abnormal scores reverted to the normal range (Table 3), increasing the number of reports in the normal range from 23 to 43 out of 65 (66.2%). Examination of the number of "relapses" (normal scores at post-ADVANCE that became abnormal at follow-up) revealed that 10 out of 43 (23.3%) relapsed at the 2-3 year follow-up, and 14 out of 38 (36.8%; only 38 possible due to missing questionnaires) relapsed at the 10 year follow-up (Table 4). The 10 "relapsers" at short-term follow-up were not the same "relapsers" at long term follow-up. Four were "chronic relapsers" (abnormal score at both short and long term follow-up), while 10 new "relapses" occurred at the long term follow-up. Results were similar for fathers' reports as well (Tables 3 & 4)

Combination of the data from the 44 mother-only interviews, 9 father-only interviews, and 13 2-parent interviews (66 families in all), indicated that 8 (12.7%) teenagers had been expelled from school in the past, 12 (18.2%) teens had been involved with the criminal justice system, and 5 (7.9%) teens had been removed from their homes for more than 1 month (Table 5).

Teenager Self Report

Table 6 displays a summary of the long term externalizing outcomes that were based on teen self-report.

For the substance use measure, a total of 33 (54.1%) teenagers reported having never tried any of the 5 substances queried. To be classified as exhibiting a negative

outcome, a teenager had to try at least 4 substances and use at least one substance as frequently as once a week. Of the 61 teenagers who participated, 7 (11.5%) met these criteria.

The delinquency measure is divided into 2 subscales, major and minor delinquent acts. On the major delinquency subscale, 47 of the 61 teenagers (77.0%) did not commit any serious acts. Criteria for a negative outcome was set at more than 1 major delinquent act in the past year OR if any one of the following 4 acts were endorsed once in the past year: stealing an item worth more than \$50, selling hard drugs, breaking into a building or vehicle, burglarizing a house or business. Twelve out of the 61 teenagers (19.7%) met this criterion. On the minor delinquency scale, 13 teenagers (21.3%) did not commit any acts in the past year. To meet criteria for a negative outcome, a teen had to commit 90 acts in the last year. One need not commit 90 different acts to meet criterion; rather, the same act, committed on multiple instances also counted towards the 90-act criterion. Six teenagers (9.8%) met negative outcome criteria.

Thirteen teenagers (21.3%) had engaged in sexual intercourse, and all were assigned a negative outcome for this behavior.

A total of 8 negative externalizing outcomes were identified, 4 from teen self-report and 4 from parent report. Of the entire sample, nearly half of the teenagers, 31 out of 66 (47.0%), did not exhibit a single negative externalizing outcome. Another one-third exhibited 1 or 2 negative outcomes. The remaining 13 teenagers (19.7%) exhibited 3 or more negative outcomes. Of those 13, the teenager with the highest score exhibited 6 out of 8 negative outcomes.

Internalizing Symptoms

Table 7 displays the long term internalizing outcomes of the teenagers by mother and father report on the CBCL. Mother report of teen internalizing symptoms as measured by the CBCL indicated that 15 out 56 (26.8%) scored in the clinical range (T-score \geq 63). Father report of teen internalizing symptoms indicated that 7 out of 27 (25.9%) scored in the clinical range.

Figure 1 displays a summary of the long term internalizing outcomes from teen self-report. To assess depressive symptoms, all but 2 teens were administered the Children's Depression Inventory. Two teens were administered the adult version, BDI, since they were too old for the child's version. In addition, 1 teen refused to complete the CDI. Using a cutoff score of 10 on the BDI and t-score of 63 on the CDI, 6 teenagers (10%) met criteria for elevated depressive symptoms.

On the Revised Child Manifest Anxiety Scale (RCMAS), 7 out of 60 (11.7%) scored in the clinical range. Following guidelines that were proposed by the authors of the scale, one teenager's score was removed as she scored high on both the anxiety and the lie scale, indicating inaccurate self-report.

On the Harter Self Perception Scale, 5 out of 60 (8.3%) scored in the clinical range using a z-score derived from normative data published in the manual (Harter, 1988). One teenager did not complete the form correctly and so his data is not included.

A total of 4 negative internalizing outcomes were identified. Of the entire sample, over half of the teenagers, 37 out of 64 (57.8%), did not exhibit a single negative outcome. Eighteen (28.1%) exhibited 1 negative outcome. The remaining 9 teenagers

(14.1%) exhibited 2 or 3 negative outcomes. No teenager exhibited all 4 negative outcomes.

Retrospective Analyses of Differences in Long Term Outcomes

Based on the analysis of number of negative outcomes, teenagers were classified as having a poor outcome or typical outcome. Teenagers with 4 or more negative outcomes were considered to have a poor outcome. Teenagers with criminal justice system involvement were automatically placed in the poor outcome group regardless of the number of total negative outcomes. In addition, one teen who met negative outcome criteria for both major and minor delinquency was also placed in the poor outcome group. Sixteen teenagers were identified as having a poor outcome. These 16 teenagers were compared to the remaining 50 teenagers on demographic variables collected pre-treatment and at the 10-year assessment period, as well as on key measures hypothesized to be important predictors of long term outcome. The aim of these analyses was to determine whether there were any significant factors assessed during the treatment phase that predicted long-term outcome classification.

Repeated measures analyses of variance (ANOVA) were conducted with one between group factor (group: poor vs. typical) and one within-group factor with three levels (time: pre-treatment, post-BASIC, and post-ADVANCE) for observational measures and four levels (additional time point – short-term follow-up) for questionnaire measures. For dichotomous early predictor variables, chi-square analyses and Fisher's Exact Tests were conducted. Dependent variables were those factors thought to be important early predictors of outcome (e.g. family, child, parent, and marital factors).

For the repeated measures ANOVAs, the statistics of interest include the main effect of group and the interaction of group and time. The main effect of time indicates overall response to treatment which was significant for many of the treatment indicators and has been previously reported (Webster-Stratton, 1994) and therefore will not be reported here.

Demographic and Family Factors

Families with a teenager in the poor outcome group differed on pre-treatment and current demographic factors when compared to families with a teenager in the typical outcome group. Teenagers with a poor outcome were more likely to come from a single-parent, lower income household. Eight of the 16 (50%) poor outcome teenagers presented to treatment with a single parent, compared to 10 out of 50 (20%) in the remaining group; $\chi^2 = 5.50$, $p < .05$; Fisher's Exact $p < .05$. Mean level of income of at the pre-treatment assessment was lower for the poor outcome group compared to the remaining group, $t(64) = 2.0$, $p < .05$. At the current long term assessment, a higher percentage of teens with a poor outcome were living with single parents (8/16, 50%) compared to the teens with a typical outcome (12/50, 24%); $\chi^2 = 3.88$, $p < .05$; Fisher's Exact $p = .064$. Note that although the percentage of single parents for the poor outcome group was 50% at both time points, the single parents at the pre-treatment assessment were not the exact same single parents at the current assessment. Income level at the current long-term assessment was not different between the two groups. Hollingshead SES assessed at the pre-treatment assessment as well as the current long-term assessment

did not distinguish the groups. In addition, the teens in the two groups did not differ on age or gender distribution.

The family factor of spouse abuse assessed pre-treatment distinguished the groups at long term outcome. A higher percentage of parents of the poor outcome teens reported a history of spouse abuse (9/16, 56.3%) compared to the remaining group (12/50, 24.0%); $\chi^2 = 5.81$, $p < .05$; Fisher's Exact $p < .05$.

Family factors that were marginally significant in distinguishing the two groups were adoption status, drug and alcohol abuse in the family, and child abuse. Three teens in the poor outcome group (19.0%) were adopted, compared to 2 in the remaining group (4.0%); $\chi^2 = 3.77$, $p = .05$; Fisher's Exact $p = .087$. The parents of those teenagers with a poor outcome were more likely to have reported drug and alcohol problems at the pre-treatment assessment than the parents of the remaining group, 63% and 38%, respectively; $\chi^2 = 2.95$, $p = .086$; Fisher's Exact $p = .147$. A higher percentage of the parents of the poor outcome teens (31%) reported incidents of child abuse compared to 12% of the parents of the typical outcome teens; $\chi^2 = 3.23$, $p = .07$; Fisher's Exact $p = .118$. The two groups did not differ on parental history of being abused as children.

Mother and father stress and depression as assessed by the PSI and BDI at the pre-treatment, post-BASIC, post-ADVANCE, and short-term follow-up time points did not distinguish the established groups at long term follow-up. In addition, the number of reported stressful events on the NLES assessed at the same time points did not distinguish the groups.

Child Factors

After dividing the sample into the two groups based on long term outcome, several child factors that were assessed prior to treatment were tested to see if there were differences among the two identified outcome groups. It was thought that child factors that differentiated the two outcome groups would indicate a biological risk factor towards developing a poor outcome. The two outcome groups did not differ in terms of their rates of early infancy problems (e.g. hospitalized after birth, colic) nor developmental problems (e.g. delayed speech, delayed toileting). In addition, the two groups did not differ in pre-treatment assessments on the CBCL attention subscale (both mother and father report) and the Behar PBQ hyperactivity subscale.

In addition to the biological risk factors, the child's prior behavior (assessed at the earlier time points) was also considered a risk factor, since the stability of behavior problems is so high. The child's behavior was observed separately with both his/her mother and father. In addition, mother and father reports of their child's behavior were also analyzed to see if the child's prior behavior distinguished the two outcome groups.

Child Behavior with Mother

A repeated measures ANOVA (group X 3 time points) revealed that the teenagers who later presented with a poor outcome exhibited higher levels of deviance and noncompliance when independently observed with their mothers at home (DPICS-R), main effect of group $F(1,62) = 12.47, p = .001$ (Figure 2). Furthermore, differences between mother reports of teen behavior were marginally significant. A repeated measures ANOVA (group X 4 time points) with mother report on the CBCL as the

dependent variable, revealed that mothers of the poor outcome teens reported higher levels of child behavior problems, main effect of group, $F(1,62) = 3.66, p = .06$ (Figure 3). A repeated measures ANOVA (group X 3 time points) with mother report on the ECBI as the dependent variable also revealed higher levels of behavior problems for the poor outcome group, main effect of group, $F(1,63) = 3.76, p = .057$ (Figure 4). The group by time interaction was marginally significant for the ECBI, $F(2,126) = 2.97, p = .055$. Follow-up paired t-tests revealed that the mothers in the group with a typical outcome teen consistently reported a decrease in the level of their children's behavior problems across time: pre-treatment to post-BASIC, $t(49) = 10.12, p < .001$, and post-BASIC to post-ADVANCE, $t(49) = 3.50, p = .001$. In contrast, while the mothers in the group with a poor outcome teenager reported a decrease in the level of their children's behavior problems from pre-treatment to post-BASIC, $t(14) = 6.32, p < .001$, they reported no further decline from post-BASIC to post-ADVANCE, $t(14) = 0.00, N.S.$ Although the group by time interaction was not significant for the child's level of deviance and noncompliance, the pattern was the same in that the children in the poor outcome group did not continue to decrease their behavior problems after the BASIC parenting program.

Child Behavior with Father

Repeated measures ANOVAs (group X time) revealed no significant main effects of group nor group X time interactions for the dependent variables of child deviance and noncompliance with his/her father (DPICS-R), father report on ECBI, and father report on CBCL.

Teacher Report

Repeated measures ANOVAs (group X time) revealed no significant main effects of group or group X time interactions for the teacher report variables. These report measures included the TRF and the PBQ (Total disturbed behavior score and hostile/aggressive subscale score)

Parenting Factors

Mothers

Mothers' behavior towards their children varied by long term outcome status. A repeated measures ANOVA (group X 3 time points) with mothers' use of critical statements (DPICS-R) as the dependent variable revealed that the group of mothers whose teens exhibited a poor long-term outcome used significantly more critical statements when observed with their children in the home than the mothers whose teens exhibited a typical long term outcome, main effect of group $F(1,62) = 11.06, p = .001$ (see figure 5).

Repeated measures ANOVAs (group X 3 time points) with dependent variables of mothers' use of praise (DPICS-R), the ratio of praise to critical statements (DPICS-R), and the use of harsh discipline (DDI) revealed no significant main effects of group nor group X time interactions.

Fathers

Repeated measures ANOVAs (group X 3 time points) with the dependent variables (from DPICS-R) of fathers' use of critical statements, father's use of praise, and

the ratio of praise to critical statements, revealed no significant main effects of group nor group X time interactions.

Marital Factors

Repeated measures ANOVAs (group X 2 time points - pre-ADVANCE, post-ADVANCE) with dependent variables of total problem solving (PSI-CARE), collaboration (PSI-CARE), and negative affect valence towards spouse (DPICS-R) revealed no significant main effects of group nor group X time interactions for both mothers and fathers.

Prospective Analyses of Initial Treatment Response as a Predictor of Long Term

Outcome

At the completion of treatment, Webster-Stratton (1994) defined a number of clinically significant improvements among the participants in the program. Families were defined as responders or nonresponders to treatment on a number of measures. The next set of analyses tested whether treatment responders exhibited better long-term outcomes compared to nonresponders. The treatment responders were compared to the nonresponders using independent t-tests with dependent variables (assessed at the 10-year follow-up) of teen self-reported depression (CDI), anxiety (RCMAS), self-worth (Harter), minor delinquency, major delinquency, substance use, and sexual activity. Responders and nonresponders were also compared on parent report of teen behavior including CBCL reports and the occurrence of criminal justice system involvement, school expulsion, and out of home placement. Lastly, responders and nonresponders were compared on the number of negative outcomes they exhibited at the long-term

assessment, and their long-term outcome classification (poor versus typical outcome).

Chi-square analyses were used for dichotomous variables.

Child Factors

Child Behavior with Mother

The sample was divided into treatment responders and nonresponders based on children's level of deviant and noncompliant behavior (DPICS-R) when observed with their mothers at post-ADVANCE. Criterion for normal behavior (responder to treatment) was set at 10 or fewer deviant or noncompliant acts in 30 minutes (Webster-Stratton & Hammond, 1998). Those children exhibiting great than 10 deviant acts in 30 minutes (i.e., more than one every 3 minutes) were classified as nonresponders. Fewer responders (5/37, 13.5%) were later classified as having a poor outcome than were nonresponders (10/28, 35.7%); $\chi^2 = 4.43$, $p < .05$; Fisher's Exact $p < .05$. Table 8 displays the number of responders and nonresponders who met poor outcome criteria for 4 of the negative outcomes.

The sample was divided into treatment responders and nonresponders based on mother report of child behavior at the 2-3 year follow-up.

Child Behavior with Father

When the sample was divided in the same way with observations of children with their fathers (DPICS-R), there were no significant differences between responders and nonresponders on any of the long-term outcome variables.

Child Problem Solving

Treatment response was also based on children's performance on the Child Social Problem-Solving Test-Revised (SPST-R; Rubin & Krasnor, 1983). Children were classified as responders to treatment if they exhibited a 30% increase in their ratio of prosocial to agonistic solutions on a problem-solving task. Ten years later, none of the 21 responders to treatment had any criminal justice system involvement whereas 7 of the 26 nonresponders (27%) had criminal justice system involvement; $\chi^2 = 6.64$, $p < .01$; Fisher's Exact $p < .05$.

Parenting Factors

Mothers

The sample was divided into treatment responders and nonresponders based on mothers' use of critical statements assessed post-ADVANCE. Criterion for normal parenting behavior (responder to treatment) was set at 10 or fewer critical statements in 30 minutes (Webster-Stratton & Hammond, 1998). Those mothers exhibiting greater than 10 critical statements were classified as nonresponders. Results indicated that children of nonresponders exhibited a greater number of negative externalizing outcomes at the long term follow-up assessment ($M = 2.05$, $SD = 2.21$) compared to children of responders ($M = 1.05$, $SD = 1.65$), $t(63) = 2.04$, $p < .05$. Table 9 displays the number of responders and nonresponders who met negative outcome criteria for 3 of the 8 externalizing outcomes.

When the sample was divided into treatment responders and nonresponders based on mothers' improvement (i.e. 30% increase) in their use of praise (DPICS-R) from their

pre-treatment to post-ADVANCE levels, there were no significant differences between them on any of the long term outcome variables.

Fathers

When the sample was divided into treatment responders and nonresponders based on fathers' use of critical statements (cutoff score of 10), there were no significant differences between them on any of the long-term outcome variables.

The sample was divided into treatment responders and nonresponders based on fathers' use of praise (DPICS-R). Fathers were classified as responders to treatment on this measure if they exhibited a 30% increase in the number of praising statements directed towards their children. Compared to the nonresponders, the fathers classified as responders had teens with fewer behavior problems 10 years later as measured by their own reports of the teenagers' behaviors (CBCL), $t(23) = 2.64$, $p < .05$, as well as by the mothers' reports of the teenagers' behaviors (CBCL), $t(38) = 2.83$, $p < .01$. In addition, fewer of the CBCL reports were in the clinical range for the children of responders, both for father report, $\chi^2 = 5.85$, $p < .05$, and mother report, $\chi^2 = 11.11$, $p < .001$ (table 10). Furthermore, teens classified as having a poor outcome were also more likely to have fathers who were classified as nonresponders on the praise variable. Seven out of 9 (77.8%) teens in the poor outcome group had fathers who were classified as nonresponders to treatment based on the praise variable, compared to only 12 out of 40 (30.0%) in the remaining sample; $\chi^2 = 7.06$, $p < .01$; Fisher's Exact $p < .05$.

Marital Factors

When the sample was divided into treatment responders and nonresponders based on improvements in marital communication and problem solving (PSI-CARE) from the pre-ADVANCE to post-ADVANCE level, there were no significant differences between them on any of the long term outcome variables.

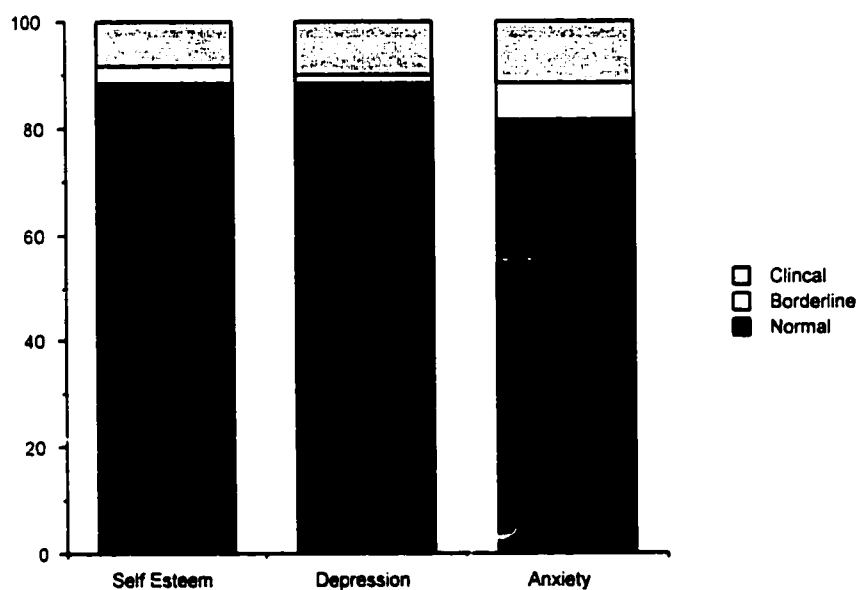


Figure 1. Percentage of teens in clinical, borderline, and normal ranges on teen self-report measures of internalizing outcomes

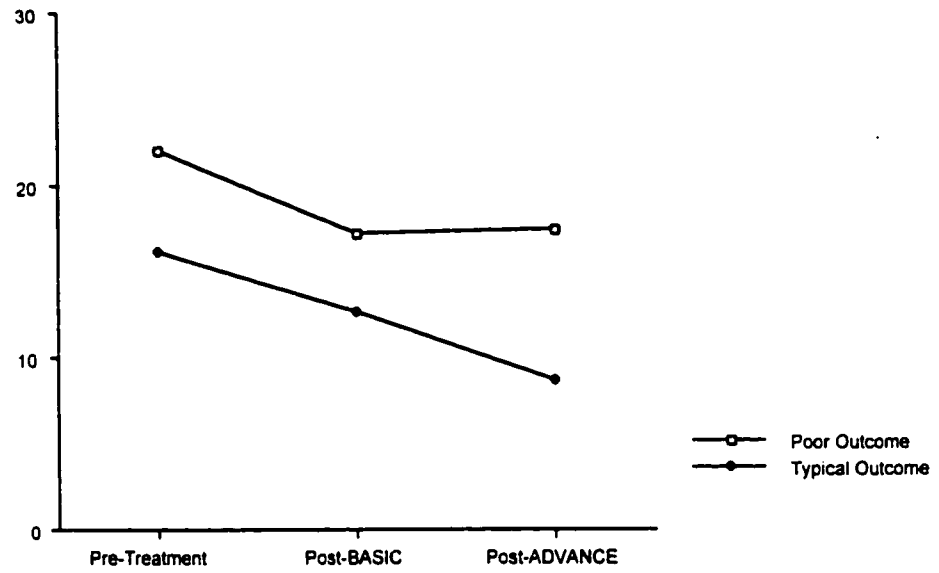


Figure 2. Number of deviant or noncompliant behaviors exhibited by child during 30 minute observation by long-term outcome status

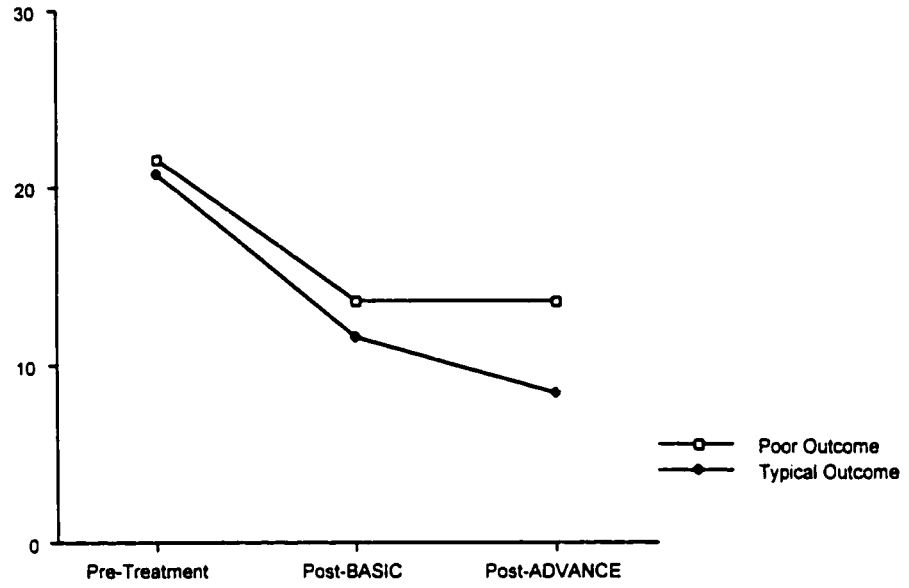


Figure 3. Mother total behavior Eyberg score by long-term outcome status

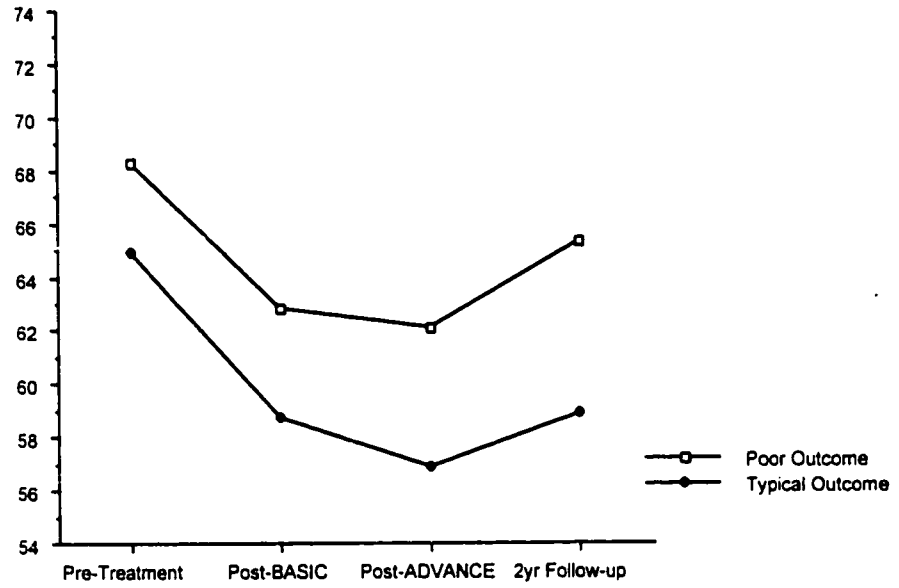


Figure 4. Mother total behavior CBCL T-score by long-term outcome status

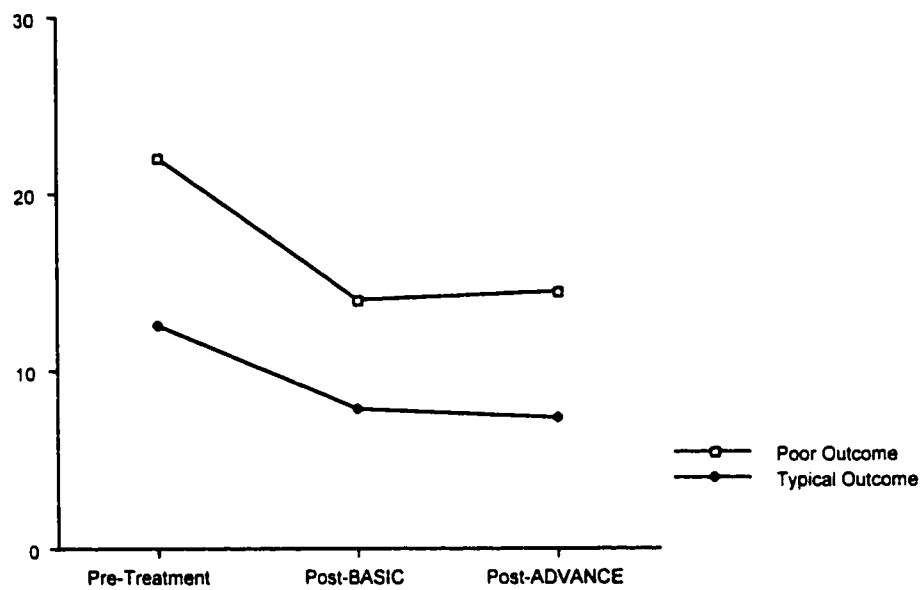


Figure 5. Number of critical statements made by mother during 30 minute observation by long-term outcome status

Table 1. Data availability

N	Parent Interview	Parent Questionnaire	Teen Interview/Questionnaires
60	X	X	X
1	X		X
3	X	X	
2	X		
TOTAL	N=66	N=63	N=61
<u>Externalizing Measures</u>			
	Expelled (y/n)	CBCL - ext	Substance Use
	Criminal Justice (y/n)		Major Delinquency
	Out of Home Placement (y/n)		Minor Delinquency
			Sexual Intercourse
<u>Internalizing Measures</u>			
		CBCL - int	CDI
			RCMAS
			Harter Self Worth

Table 2. CBCL Externalizing Scores at long-term assessment

	Mean T-score	SD	% Clinical Range
Mother Report	57.96	12.58	24/56 (42.9%)
Father Report	54.37	11.77	7/27 (25.9%)

Table 3. Clinical significance of treatment effects according to CBCL Total Behavior Scores immediately post-ADVANCE

	Abnormal scores at baseline	Abnormal scores that became normal at post-ADVANCE
Mother Report	42/65 (64.6%)	20/42 (47.6%)
Father Report	31/52 (59.6%)	19/30 (63.3%)

Table 4. Relapse rates according to CBCL Total Behavior Scores at short- and long-term follow-up

	Normal scores at post-ADVANCE	Normal scores that became abnormal at 2-3 yr. follow-up	Normal scores that became abnormal at 10 yr. follow-up
Mother Report	43/65 (66.2%)	10/43 (23.3%)	14/38 (36.8%)
Father Report	36/49 (73.5%)	8/34 (23.5%)	0/16 (0%)

Table 5. Parent report of teen behavior at long term assessment

Expelled	# of subs	Criminal Justice	# of subs	Out of home placement	# of subs
No	58	No	53	No	61
Yes	8	Yes	13	Yes	5
Total	66	Total	66	Total	66

Note: Parent interviews were conducted with 44 mothers only, 9 fathers only, and 13 with both parents. Data are not reported separately for mother and father report.

Table 6. Long term externalizing outcomes by teen self-report

Substance use	# of teens	Inter-course	# of teens	Total # of Minor Delinquent Acts	# of teens	Total # of Major Delinquent Acts	# of teens
No use	33	No	48	0	13	0	47
Once or twice in last year (1 or 2 substances)	8	Yes	13	1-4	16	1-7	12
Every 2-3 months (2-5 substances)	13			5-20	13		
Once a week or more (4-5 substances)	7			21-63	13		
				>90	6	>100	*2
Total	61		61		61		61

* Both of these teens committed the act of using force or strong-arm methods to get money or things from others more than 100 times during the last year, thus accounting for their scores on this measure

Table 7. CBCL Internalizing Scores at long-term assessment

	Mean T-score	SD	% Clinical Range
Mother Report	54.95	11.64	15/56 (26.8%)
Father Report	54.04	10.53	7/27 (25.9%)

Table 8. Differences in the incidence rates of negative outcomes by children's deviant and noncompliant behaviors with their mothers

	<u>Criminal Justice Involvement</u>		<u>Minor Delinquency</u>		<u>Substance Use</u>		<u>Out of Home Placement</u>	
	N (%)	χ^2	N (%)	χ^2	N (%)	χ^2	N (%)	χ^2
Responders	3/37 (8.1%)		1/34 (2.9%)		2/34 (5.9%)		1/37 (2.7%)	
Nonresponders	8/28 (28.6%)	4.74**	5/26 (19.2%)	4.34**	6/26 (23.1%)	3.77 **	4/28 (14.3%)	3.01*

* p < .10
 ** p < .05

Table 9. Differences in the incidence rates of negative outcomes by mothers' use of critical statements

	<u>Sexual Activity</u>		<u>Criminal Justice Involvement</u>		<u>Major Delinquency</u>	
	N (%)	χ^2	N (%)	χ^2	N (%)	χ^2
Responders	6/41 (14.6%)		4/43 (9.3%)		4/41 (9.7%)	
Nonresponders	7/19 (36.8%)	3.77 *	7/22 (31.8%)	5.23 *	8/19 (42.1%)	8.49 **

* p < .05
 ** p < .01

Table 10. Differences in long-term CBCL reports by fathers' improvement in praise

Measure	N	<u>Responders</u>			<u>Nonresponders</u>			Statistic	
		Mean	SD	Number abnormal	N	Mean	SD		Number abnormal
Father CBCL	18	50.39	8.67	2	7	61.43	11.21	4	t(23) = 2.6 *
Mother CBCL	24	52.13	10.83	4	16	62.44	11.99	11	t(38) = 2.83 **

* p < .05
 ** p < .01

DISCUSSION

The purpose of this study was to evaluate the long-term adjustment of children whose parents received the Incredible Years Parenting Program and to determine whether there were any factors that were associated with long term outcome. In terms of the long-term outcomes, the adjustment of many of the teenagers was quite good. Approximately 60% of the teens were behaving in the nonclinical range according to mothers' reports on the CBCL. Immediately post-ADVANCE, approximately two-thirds were in the nonclinical range; thus, there was only a slight decrease in the number of kids who "relapsed" and fell out of the nonclinical and into the clinical range. In fact 14 subjects had "relapsed" from the post-ADVANCE assessment, with 4 of them relapsing the year following the post-ADVANCE assessment. In terms of adolescent high-risk behaviors we hoped to prevent, approximately half of the teens did not experiment at all with drugs or alcohol, and over three-fourths had not engaged in sexual intercourse. There were a moderate number of teens who engaged in minor delinquent behavior, but only a few who exhibited frequent minor delinquent or any major delinquent behavior. Unfortunately, no current normative data on teenage behaviors are available so it is not possible to speculate as to whether these rates are typical. It is important to highlight that only 1 of the teenagers in this sample of 66 had dropped out of school. This teen was also the only teenager who had become pregnant. None of the teenagers had served any time in juvenile detention or jail.

In terms of internalizing outcomes, this sample exhibited very low levels of internalizing problems. According to mothers' and fathers' reports on the CBCL,

approximately one fourth of the teens exhibited a clinically significant number of internalizing symptoms. Approximately 10% of the sample self-reported elevated symptoms of depression, anxiety, or low self-worth. Although the intervention was not aimed to prevent the onset of internalizing problems, early externalizing problems do predict to long term internalizing problems (Fischer, Rolf, Hasazi, & Cummings, 1984) and so it is encouraging to find so few teens with internalizing problems.

Results from this study identified many factors that were related to long term adjustment. Demographic factors that distinguished those families who later presented with a poor versus typical outcome teen include single-parent and low-income status. These factors were present in more of the families with a poor outcome teenager. This is consistent with previous findings (Webster-Stratton & Hammond, 1990) that confirmed the importance of socioeconomic disadvantage and single-parent status as important predictors of treatment outcome and suggest that these intractable characteristics have long lasting effects. Webster-Stratton & Hammond (1990) identified other factors that often accompany socioeconomic disadvantage as important predictors of outcome, including negative life stress and depression. In the current study, these factors were not significant predictors of long term outcome. Perhaps stress and depression are transient states that affect functioning in the short term, thus impeding initial response to treatment. However, in the long run, it appears that income and marital status prove to have more long lasting effects.

Those parents who endorsed spouse abuse at the pre-treatment assessment were more likely to have a teen with a poor outcome. Other family factors that were

marginally significant in distinguishing long term outcome status were the presence of parental drug and alcohol problems and child abuse. A larger percentage of families with a poor outcome teen reported having these problems when they presented to treatment. That these risk factors continue to be important predictors of long-term teen adjustment suggests that the intervention may have been too short or too narrow in focus in order for these families to maintain improvements. These families may have needed multi-systemic treatment to include treatment for the parental problems of substance abuse and anger management.

It is interesting that child biological factors including hyperactivity did not distinguish the groups at the long-term assessment. This may indicate that other variables, which may be more amenable to treatment, are important in the maintenance of behavior problems. Unimproved child problem solving ability predicted to later involvement with the criminal justice system. It could be argued that problem-solving ability is a component of general intelligence and thereby a biological factor that predicted to long term outcome. However, the assessment of biological risk factors was limited.

It is no surprise that the stability of child behavior problems into adolescence was high. Teenagers who exhibited a poor outcome were seen by their mothers as having a greater number of behavior problems as preschoolers as compared to those with a typical outcome. The poor outcome teens also exhibited more deviant and noncompliant behaviors with their mothers at the earlier time points. What is interesting is that although these teenagers were more deviant and noncompliant than the typical outcome

teens, they did benefit from treatment immediately after the BASIC parenting intervention. While the typical outcome group continued to improve during the time that half of the families received the ADVANCE program, the poor outcome group did not. In fact, when a subset including the 10 most severe cases of the 16 poor outcome teens were analyzed separately, they actually demonstrated a worsening of symptoms from post-BASIC to post-ADVANCE. Since there were no significant differences in the two outcome groups as to which treatment they received, it seems that for the poor outcome group, receiving no further treatment or receiving a further treatment not specific to basic parenting was detrimental. For these families, continued parent training may have been useful.

Looking back nearly 10 years, the teens with a poor outcome were no more deviant and noncompliant with their fathers than the typical outcome teens. It may be that since only 8 of the 16 poor outcome teens came from a 2-parent household, there was not enough power to detect significant differences. It may also be a true finding that children's behaviors with their fathers is not a good predictor of long term outcome because the children may be "on their best behavior" around their fathers since fathers in general tend to spend less time with their children than do mothers. In fact, at the post-BASIC assessment, children from both outcome groups combined were less deviant around their fathers than with their mothers.

Father and teacher reports did not distinguish the two groups at the long-term assessment. Again, the low sample size may explain the lack of predictive ability using fathers' reports. However, teachers have been considered unbiased reporters of child

behavior. Is it that mothers are actually less biased than once thought? It may be that a child's behavior with his/her mother represents the child's core ability to regulate his/her emotions and behavior. Despite the child's ability to "keep it together" in formal situations (i.e. school), the child's inability to regulate his/her emotions and behavior at home (specifically with the mother) is the determiner of future problems. Whatever the reason, it is clear that mothers who report high levels of aggressive behavior in their preschoolers should be taken seriously as their reports are predictive of continued behavior problems. Furthermore, the mothers who felt their children were more aggressive responded to them more negatively as is discussed in the next paragraph.

Examination of parenting variables revealed that the teens with a poor outcome had more critical mothers than the teens with a typical outcome. The two groups did not differ on other maternal parenting measures including use of praise and use of harsh discipline. Furthermore, the two groups did not differ on any of the father parenting variables. The only distinguishing variable was mothers' use of critical statements. The pattern of mothers' use of critical statements was consistent with their children's levels of deviance and noncompliance. The mothers with a poor outcome teen benefited from the treatment initially, but showed no further improvements after the BASIC intervention. The mothers with a typical outcome teen also showed the initial improvement; however, they did not demonstrate a further improvement (i.e. decrease in their use of critical statements) from post-BASIC to post-ADVANCE, unlike their children who demonstrated a decrease in observed deviance. This lack of further improvement is likely due to floor effects. Recall that more than 10 critical statements during the 30 minute

observation is considered abnormal (Webster-Stratton & Hammond, 1998). The mean for the typical outcome group fell from 12 (pre-treatment) to 7 (post-BASIC), which is a normal amount of correction and well below the cutoff of 10 (figure 5). Since the majority of the parents of the typical outcome teens reached the normal level after the BASIC parenting intervention, there was little room for further improvement.

The lack of further improvements for the poor outcome group in both mother and child behavior suggests a “coercive process” between the mother-child dyad (Patterson, 1982). In this process, children learn to escape or avoid parental criticism by escalating their negative (i.e. deviant, noncompliant) behaviors, which in turn leads to increasingly aversive parent interactions. These negative responses, in turn, directly reinforce the child’s deviant behavior and the parents’ hostile, non-responsive (in this case critical) behavior. What accounts for their lack of improvements from post-BASIC to post-ADVANCE? What happened during that time frame for these families? Were there transitions in the home? High amounts of stress? Parental depression? Further analyses were conducted to answer this question and revealed no significant findings related to parental depression, negative family events, or changes in marital status. Again, perhaps it is that these mothers required more parent training. They were no less satisfied with the program than mothers whose teens adjusted typically, and they showed an initial response to the treatment. Perhaps these mothers were slow to change, possibly because their children were more negative, and if given more intervention, they would have been able to make more lasting improvements.

At the post-ADVANCE assessment, a significantly greater number of children who later exhibited a poor outcome had sought therapy outside of the parenting clinic (4/16, 25%) compared to the children who did not present with a poor outcome 10 years later (2/50, 4%). One to two years after the post-ADVANCE assessment, more children from the poor outcome group were receiving therapy (8/15, 53.3%) compared to the typical outcome group (7/40, 17.5%). It is encouraging that at least half of the group who later exhibited a poor outcome sought continued treatment soon after their involvement in the parenting clinic. In fact, all but two teens in the poor outcome group eventually received some treatment during the long-term follow-up period. These parents did not give up and continued to try to work with their children to better manage their emotions and behavior. This high percentage of treatment seekers also speaks to the intractability of the behavior problems seen in this poor outcome group.

At the end of the intervention, families were assessed on many factors targeted by the intervention and were classified as treatment responders and nonresponders. If a family was classified as a treatment responder, were they more likely to exhibit a more positive outcome? When assessing child behavior improvements, a child nonresponder had approximately a 15-40% chance of later exhibiting a particular negative outcome (e.g. minor delinquency). Responder rates were less than 15%. While the differences are significant, it does not necessarily help in terms of being able to identify families at risk if the majority of the nonresponders adjust well in the long run. Should all of the nonresponders receive more treatment if the majority may not require it?

The children of critical moms had a consistently higher likelihood of later exhibiting a greater number negative externalizing outcomes, including sexual activity, criminal justice system involvement, and major delinquency. For those outcomes, approximately a third of the children of maternal nonresponders went on to exhibit a negative outcome, compared to approximately 10% of the children of responders. Again, while 30% is not a high enough percentage to use as a target for more treatment, this finding is useful in underscoring the effect of critical parenting. It is also possible that these mothers are more critical because they are parenting more difficult children, as explained by the “coercive process” (Patterson, 1982), described previously.

Perhaps the most interesting finding in this study was the effect of fathers’ improvements in praise on their teenagers’ long-term outcomes. Fathers who responded to the intervention by increasing their level of praise were more likely to have their children in the typical outcome group at the 10-year follow-up. Both the fathers and mothers rated the teenagers of the father responders as having fewer behavior problems. Many fathers are often not as involved as mothers in everyday parenting efforts yet often assume the negative role of disciplinarian. Fathers may spend less time with their children, with the quality of that time being diminished due to life/work stress and fatigue. Father-child interactions may have been greatly enhanced by fathers’ increased use of praise which may have had a significant impact on their children, thus explaining their positive adjustment into adolescence.

The hypothesis that marital conflict resolution would predict to long term outcome was not supported. Unfortunately, only half of the sample had marital data from

the earlier time points so it is possible the sample was too small to detect effects. It will be interesting to see if current levels of marital satisfaction are related to teen behavior problems as well as current parenting skills. These assessments were conducted and will be reported in future papers.

A few limitations of this study deserve comment. First, because the original treatment study utilized a wait-list control design, the comparison group could not be maintained for the long-term follow-up assessment; thus, we cannot evaluate the long-term effectiveness of the intervention. It would not have been ethical to withhold treatment from families who were clinically-referred. Current studies of the Incredible Years program utilize a community based prevention model which will allow the comparison of a treated sample to a non-treated sample over time. Since this is a prevention trial, the families are not clinically referred, and so the non-treated sample will remain untreated. While these studies will shed light on the long-term effectiveness of the Incredible Years program on non-clinically referred children, the question of the long-term effectiveness of clinically-referred children will remain unanswered. What would aid this line of study would be to establish normative data on teen behavior (e.g. substance use, delinquency) that would enable researchers to identify typical from atypical levels of high risk behaviors.

A second limitation of this study is the length of time between the last follow-up assessment (2-3 years after study entry) and the current 10-year assessment. Had yearly assessments been possible, we would have data that would identify when behavior problems occurred and the factors associated with later recurrence. Statistical strategies

including growth curve modeling could then be utilized to aid in the tracking of treatment effects. Many factors that likely contributed to the long-term adjustment of these teenagers could have occurred in the seven years between these assessments, but were difficult to assess with retrospective reports.

A third limitation of this study is the focus on teen negative outcomes. It would be useful to establish the positive outcomes and identify the predictors of adolescent positive adjustment (e.g. social competency) as well as parental emotional adjustment and parenting skills. The relationship between current parenting efforts and teen adjustment would also be useful in understanding the complex relationship between parenting and continuing behavior problems. These studies are already under consideration as much of this data was collected.

The results from this study are encouraging in that the majority of the teenagers have adjusted well. While it is true that the natural course of conduct problems would suggest that half would desist, the study was useful in that predictors of outcome were identified. Most importantly, parenting factors, which were improved as a result of the intervention, remained important predictors of adolescent adjustment. This supports the notion that enhancing parenting skills is a useful and important key to improving conduct problems in children and maintaining those improvements to prevent further adolescent behavior problems.

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