

The Effectiveness of Behavioral Parent Training to Modify Antisocial Behavior in Children: A Meta-Analysis

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From 117 studies on the outcome of behavioral parent training (BPT) to modify child antisocial behavior, 26 controlled studies met criteria for inclusion in a meta-analysis. Results support the short-term effectiveness of BPT to modify child antisocial behavior at home and school, and to improve parental personal adjustment. However, research still needs to examine if positive changes as a function of BPT are maintained over time, are comparable to changes resulting from other interventions for child antisocial behavior, and are related to important methodological and contextual variables. Findings and directions for future research are discussed in light of the limitations of the current literature on antisocial child behavior.

From its inception in the late 1960's, behavioral parent training (BPT) has rapidly grown to become one of the most widely used therapeutic interventions for children and families. This is evidenced by a considerable popular literature in this area (e.g., Barkley, 1987; Herbert, 1985; Patterson & Forgatch, 1987) and by the general availability of parent training programs in mental health and social services agencies throughout North America and beyond (e.g., Cerezo Jimenez, 1992). It is likely that this popularity reflects not only the documented effectiveness of BPT, but also the fact that BPT can usually be administered by paraprofessionals, is relatively inexpensive, and is generally much shorter than more traditional forms of child psychotherapy (Dumas, 1989; Kazdin, 1987; O'Dell, 1974; Webster-Stratton, 1991).

In one of the first BPT programs to be developed and evaluated, Hanf (1969) used didactic instruction, modeling, and role plays to teach parents to modify their own behavior in order to increase their child's compliance. Although

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this approach has since been applied to a variety of child behavior problems, its focus has generally remained on antisocial behavior, including noncompliance, temper tantrums, defiance, and aggressiveness. The methods of instruction and the two core techniques of BPT, differential reinforcement and time out, have been developed into comprehensive, manualized interventions to modify antisocial behavior in children (e.g., Eyberg & Boggs, 1989; Forehand & McMahon, 1981; Patterson & Forgatch, 1987; Webster-Stratton, 1981).

BPT emphasizes the role that parents play in the development and maintenance of child antisocial behavior. Most BPT programs make the following assumptions (see Dumas, 1989):

1. Human behavior is a function of the contingencies of reinforcement and punishment to which individuals are exposed in the course of daily exchanges with the environment.
2. Antisocial behavior is learned and sustained by this positive and negative reinforcement (e.g., social attention, avoidance) children receive from social agents, parents in particular.
3. Therapy seeks to establish a shift in social contingencies such that children's prosocial behaviors obtain positive parental reinforcement, and their aversive behaviors are consistently punished or ignored.
4. Maintenance and generalization of treatment gains relies on a process of positive reinforcement. As parents and children exchange reinforcers through their newly acquired pattern of interaction, this pattern is likely to maintain itself in time and generalize to new situations (p. 206).

There is strong empirical support for these assumptions, especially from studies of interactional patterns in families of antisocial children. Briefly stated, studies based on both analog procedures (Devine, 1971; Patterson & Cobb, 1971; Sawin & Parke, 1979; Woo, 1978) and direct observation of family interactions (Dumas, LaFreniere, & Serketich, 1995; Patterson, 1976; 1982; Wahler, Williams, & Cerezo, 1990) confirm the role played by positive and negative reinforcement, at least in the maintenance, if not in the development of antisocial behavior. Parents of antisocial children have commonly been found to be both power-assertive and lax in their discipline (Baumrind, 1967; Dumas, LaFreniere, Beaudin, & Verlaan, 1992; Dumas & Wahler, 1985). They make regular attempts to control their children through coercive means, but often abandon these attempts when they are met with child opposition, issue vague instructions that cannot be readily complied with, and/or respond to their children's disruptive behavior in an inconsistent manner, giving it both positive and negative attention (Dumas & Lechowicz, 1989; Patterson, 1982). Exposure to parental coercion and inconsistency fails in most cases to control child antisocial behavior but rather maintains it, as children respond to coercive and inconsistent parenting with increases, rather than decreases, in aversiveness (Dumas & Wahler, 1985; Patterson, 1982; Snyder, 1977).

In the first critical review of BPT, O'Dell (1974) concluded that programs that sought to modify child antisocial behavior by changing parental reinforce-

ment contingencies were generally successful. Narrative reviews published since have most often echoed this favorable conclusion (Atkeson & Forehand, 1978; Dumas, 1989; Kazdin, 1987; Sanders & James, 1983; Webster-Stratton, 1991). These reviews have not been unequivocally positive, however, showing that many studies suffer from major methodological limitations and that the general effectiveness of BPT can be severely limited by adverse contextual variables.

Sanders and James (1983) pointed to several methodological weaknesses in the literature, in particular calling into question the extent to which treatment gains obtained in BPT were maintained over time and generalized across settings. Similarly, O'Dell (1974) criticized the lack of experimental rigor of most studies, pointing specifically to an absence of control groups in many outcome evaluations. Lack of experimental control remains a major issue in this area, as illustrated by the fact that Atkeson and Forehand (1978), Dumas (1989), Kazdin (1987), and Webster-Stratton (1991) all based their favorable conclusions on five or fewer controlled studies of BPT. This issue is particularly troublesome when one considers that, although relatively uncommon, some important controlled studies have reported nonsignificant results. Specifically, a few studies have found that observations by objective raters do not unanimously support parent reports of improved child behavior (Bernal, Klinnert, & Schultz, 1980; Christensen, Johnson, Phillips, & Glasgow, 1980; Webster-Stratton, 1984), and other studies have found that treatment gains did not generalize from the home setting to the classroom (Reid, 1989; Walker, 1984).

Most narrative reviews have also pointed to the fact that BPT may be of limited effectiveness with families characterized by adverse sociodemographic characteristics. Typically, socioeconomically disadvantaged families and families in which mothers lack social support make limited treatment gains in BPT or fail to maintain their gains at follow-up (Dumas, 1984; Dumas & Wahler, 1983; Wahler, 1980; Webster-Stratton, 1985). Not surprisingly, these families are also likely to terminate treatment prematurely (McMahon, Forehand, Griest, & Wells, 1981), as are families in which mothers are single parents (Patterson, 1974; Strain, Young, & Horowitz, 1981; Webster-Stratton & Hammond, 1990), suffer from depressive symptomatology (Griest, Forehand, & Wells, 1981; McMahon et al. or experience marital discord (Reisinger, Frangia, & Hoffman, 1976; Webster-Stratton; Webster-Stratton & Hammond). Evidence of adverse contextual effects such as these have led to the development and evaluation of a variety of enhancement procedures for BPT that seek to address specific contextual variables while conducting parent training (Miller & Prinz, 1990).

In response to these issues, this article provides a comprehensive review of controlled BPT outcome studies to modify antisocial child behaviors. Strict inclusion criteria were utilized to ensure that only methodologically rigorous studies were reviewed. Meta-analytic techniques were used to (a) integrate the results of controlled BPT outcome studies into a common framework;

(b) quantify the magnitude of the effectiveness of BPT for children and families across several measures and as a function of the type of outcome measure used (e.g., parent, teacher, or observer reported changes in children's behavior and parent reported changes in their own psychological functioning); and (c) relate magnitude of effectiveness to methodological and contextual variables in order to determine the extent to which differences in effectiveness may be accounted for by such variables.

Method

Selection of Studies

A comprehensive literature search of *PsychLit*, *Dissertation Abstracts*, and the reference lists of relevant articles were conducted. To be included in the meta-analysis, a study had to meet the following criteria.

1. The primary target for treatment had to include at least one antisocial behavior, such as aggression, temper tantrums, or noncompliance. Studies of children treated primarily for hyperactivity, developmental disability, or autism were excluded.
2. Treatment had to include the training of parents/caregivers in the use of differential reinforcement and/or a time-out procedure. Studies were included if they used other therapeutic techniques (e.g., communication training, problem solving) in addition to differential reinforcement and/or time-out.
3. The sample consisted of children of preschool and/or elementary school age.
4. Each study had to contain at least one BPT group and a wait-list control, placebo, or therapeutic modality group other than BPT for comparison purposes. Both groups had to display elevated levels of problem behaviors; studies employing a control group of nonproblem children were excluded.
5. Experimental and control groups had to contain at least 5 subjects each.
6. At least one outcome measure had to address the child's behavior (either observed or reported). Studies measuring only the parents' behavior were not included.

A total of 117 studies, 114 of them published, met the first three criteria. However, only 27 of these studies also met the last three criteria. One of these 27 studies could not be used in the meta-analysis for lack of statistics reported in the results section (Christophersen, Barnard, Ford, & Wolf, 1976) and another (Wiltz & Patterson, 1974) had to be used in dissertation form (Wiltz, 1969) for the same reason. That left 26 studies, 22 publications, and 4 doctoral dissertations, that met all six inclusion criteria.

Data Analyses

For the purpose of data analysis, groups that received BPT were defined as experimental groups and groups that received another treatment or a placebo, or were placed on a waiting list, were defined as control groups. Al-

though one might expect different outcomes when behavioral treatment is compared to an alternative treatment as opposed to a control condition, only four alternative treatments were examined in the 26 studies. Given this small number, it seemed appropriate to combine the control conditions and alternative treatments into one comparison group.

Several of the qualifying studies included more than one experimental and/or control group. Consequently, the 26 studies yielded 36 comparisons of an experimental and a control group. Seventeen studies contributed one comparison, eight studies contributed two, and one study contributed three, for a mean number of 1.4 group comparisons per study. These 36 comparisons were used to calculate effect sizes for five outcome measures and to investigate relations between effect sizes and five methodological and five contextual variables.

Effect sizes. Effect sizes were calculated for five outcome measures, four child and one parental measure. Most studies reported a combination of three types of child outcome measures: parental report, behavioral observation, and/or teacher report. For each study reporting more than one child outcome measure, effect sizes were computed for overall child outcome (by averaging effect sizes for all reported child measures) and for each type of child measure separately, to determine if magnitude of outcome differed as a function of type of measure used. Some studies also investigated if changes in children's behavior as a function of BPT were associated with comparable changes in parents' psychological adjustment. These studies reported various measures of parental adjustment, such as marital satisfaction, depression, stress, irritability, and anxiety. As these measures varied considerably from study to study, their effect sizes were averaged to obtain an overall effect size for parental adjustment.

Effect sizes were computed using the following formula (Glass, McGaw, & Smith, 1981):

$$es = \frac{\text{mean of experimental group} - \text{mean of control group}}{\text{standard deviation of control group}}$$

and calculated with the help of the DSTAT computer program (Johnson, 1989). This program corrects for positive bias as a function of sample size (Glass et al.) and, when means and standard deviations are unavailable, uses other statistics such as *t*, *F* or *p* values to estimate effect sizes. This yielded an effect size for every outcome measure reported in a study, as long as at least a *p* value was given.

The 26 selected studies compared experimental and control groups on an average of five outcome measures (range 1–13). When groups were compared on more than one child outcome measure, effect sizes for those measures were averaged to produce one effect size for overall child outcome for each of the 36 comparisons. When experimental and control groups were compared on more than one parent or teacher report, behavioral observation or parental adjustment measure (e.g., some studies reported results for two parental re-

port measures, such as the CBCL and the Eyberg Child Behavior Inventory), effect sizes were also averaged within each type of measure. Consequently, for studies employing one or more measures of each type, five average effect sizes were calculated, one for each of the four types of outcome measures, and one for all child outcome measures combined. In other words, each comparison could only contribute one effect size to the calculation of the meta-analysis' mean effect size for each of the five outcome measures. This controlled for the possible undue influence of successful studies with multiple group comparisons. Effect sizes were based on all 36 comparisons for overall child outcome, on 27 comparisons for parental report, on 10 comparisons for teacher report, on 23 comparisons for behavioral observation, and on 12 comparisons for parental adjustment.

Methodological and contextual variables. Correlations between the 36 average effect sizes for overall child outcome and 10 methodological and contextual variables were computed and post hoc analyses performed as necessary. The methodological variables included sample size, treatment length, random assignment (which was coded dichotomously [no random assignment = 1, random assignment = 2]) and two accuracy and validity codes.

The accuracy code, which ranged from 1 to 3, was designed to reflect the precision of the statistics used to compute effect sizes for overall child outcome. Effect sizes were given an accuracy score of 1 if calculated on the basis of means and standard deviations, of 2 if calculated on the basis of a *t* or *F* value for a group effect, and of 3 if calculated on the basis of a *p* value or an *F* value for a group by time interaction.

The validity code reflected the extent to which authors reported complete statistics for all outcome measures, irrespective of their level of significance. Without complete data for nonsignificant outcome measures, effect sizes cannot be computed for these measures, a fact which may positively bias overall effect sizes. Effect sizes for overall child outcome were given a validity score of 1 if they reflected all child outcome measures, whether significant or not, and a score of 2 if they reflected only the significant child outcome measures.

The contextual variables included socioeconomic status (SES), based on the sample's average score on the Hollingshead and Redlich (1958) Two Factor Index; percentage of single parents in the sample; average age of the child sample; individual versus group BPT, which was coded dichotomously (individual = 1, group = 2); and traditional versus enhanced BPT, also coded dichotomously (traditional = 1, enhanced = 2).

All group comparisons reported enough information to code the methodological variables of sample size, random assignment, accuracy, and validity. However, some studies did not provide enough information to code treatment length. Consequently, analyses for this variable were based on only 32 of the 36 group comparisons. The only contextual variable that was coded for each of the 36 comparisons was BPT enhancement. Analyses for the remaining contextual variables were based on fewer than the 36 group comparisons, again because several studies failed to report the information needed. SES was based

on 18 group comparisons, percentage of single parents on 25, child age on 29, and individual versus group treatment on 35.

All studies were reviewed separately by the first author and a research assistant in order to derive the 10 methodological and contextual variables. Interrater agreement was assessed by calculating one kappa coefficient (Cohen, 1960) for all variables combined ($\kappa = .80$). Once this was done, the two reviewers resolved all disagreements by consulting the article together, discussing the disagreement, and arriving at a concurring opinion.

Results

Descriptive Statistics

Table 1 contains descriptive statistics for the 36 comparisons between experimental and control groups. In addition, 20 of the 36 groups that have clearly defined clinical ranges were assessed prior to treatment on instruments. Of these 20 groups, 19 were groups of children who scored within the clinical range on at least one scale. This supports the notion that the children's behavior was severe enough to warrant treatment. BPT was administered individually to 22 experimental groups, and 13 received BPT in a group setting. One study did not report how treatment was conducted. Eighteen groups received BPT only, and 18 groups received some other intervention designed to enhance treatment effectiveness. All but eight groups were randomly assigned to a treatment or control condition. The majority of effect sizes were calculated with precise statistics, as 23 group comparisons earned a score of 1 on the accuracy code, 6 earned a score of 2, and 7 earned a score of 3. Additionally, most authors reported complete statistics for all outcome measures, as 26 group comparisons earned a score of 1 on the validity code and 10 earned a score of 2.

Effect Sizes

Table 2 presents the effect size for overall child outcome following BPT, the effect sizes for child outcome based on the three different types of outcome

TABLE 1
DESCRIPTIVE STATISTICS FOR THE 36 GROUP COMPARISONS

Variables	Means (Standard Deviations)
Total number of subjects	28.86 (18.36)
Number of BPT sessions	9.53 (4.17)
Family SES ^a	3.29 (0.67)
Percentage of single parents	33.84 (17.27)
Age of children	6.05 (1.80)

^a Based on Hollingshead and Redlich's (1958) Two Factor Index of Social Position.

TABLE 2
MEAN EFFECT SIZES FOR OUTCOME VARIABLES

Outcome Variables	Means (Standard Deviations)
Overall child outcome	0.86 (0.36)
Child outcome based on:	
Parental report	0.84 (0.38)
Observer report ^a	0.85 (0.47)
Teacher report	0.73 (0.48)
Parental adjustment	0.44 (0.30)

^a Observer report included behavioral observations in the home or at school.

measures, and the effect size for parental adjustment. All five effect sizes were positive indicating that, overall, children and parents who participated in behavioral parent training were better adjusted on all measures of functioning than children and parents who did not.¹

The effect size for overall child outcome indicated that the average child with one or more parents in BPT was better adjusted after training than 81% of children who received another form of treatment or no treatment at all.² Effect sizes for parent, teacher, and observer report of child behavior yielded comparable results, indicating that the average child whose parents participated in BPT was better adjusted after treatment than 80%, 77%, and 80%, respectively, of children whose parents did not. The effect size for parental adjustment was lower, although the average parent who participated in BPT was still better adjusted after treatment than 67% of parents who did not.

Methodological and Contextual Effects

The methodological and contextual variables were correlated with the 36 effect sizes for overall child outcome (see Table 3). Significant correlations were found for three methodological and one contextual variables. Sample size had a significant, negative correlation to effect size, indicating that the larger the sample, the smaller the effect size for group comparison. The ac-

¹ If each study had only been allowed to contribute one comparison between an experimental and a control condition, the effect size for overall child outcome would have been 0.91. As this effect size and the one resulting from treating each experimental and control group comparison within a study separately were comparable, it was felt that separate analyses of experimental and control comparisons within studies were appropriate.

² Effect sizes are calculated in standard deviation units of the control group, so their values are equivalent to z scores (Glass et al., 1981). Thus, the area under the normal curve for the z score that is equivalent to the effect size corresponds to the percentage of control group subjects who are below the mean of the experimental group (Glass et al.).

TABLE 3
CORRELATIONS BETWEEN EFFECT SIZES AND METHODOLOGICAL AND CONTEXTUAL VARIABLES

Variables	Correlations with Effect Size for Overall Child Outcome
Sample size	-.52*
Number of BPT sessions	-.18
Random assignment	-.31
Accuracy of effect size	.85***
Validity of effect size	.82***
Family SES	.09
Percentage of single parents	-.12
Average age of children	.69**
Individual or group training	.38
Traditional or enhanced training	-.39

* $p < .05$. ** $p < .01$. *** $p < .001$.

curacy and validity codes were also strongly related to effect size, signifying that effect sizes calculated from less accurate statistics tended to be higher, as did effect sizes based only on reports of statistically significant results. Age had a significant, positive correlation with effect size, suggesting that BPT was more effective with parents of relatively older children.

As the significant correlations between overall effect sizes and the accuracy and validity codes suggested a possible positive bias in the results of the meta-analysis due to the influence of studies that reported less extensive results, ANOVAs were performed on the mean effect sizes for the accuracy and validity scores. Results for effect size by accuracy and effect size by validity were both nonsignificant ($p = .16$ and $p = .67$, respectively), although it should be noted that the mean effect sizes for groups were generally in the expected direction.

Discussion

Results indicated that, across different outcome measures, the average child whose parents participated in BPT was better adjusted after treatment than approximately 80% of children whose parents did not. This finding held whether child behavior was evaluated by parents or observers. In addition, the effects of BPT appeared to generalize fairly well to both children's classroom behaviors and parents' personal adjustment. Specifically, children whose parents participated in BPT were better adjusted at school after treatment than three quarters of their peers whose parents did not. Similarly, parents who participated in BPT were better adjusted themselves at the end of intervention than two thirds of parents who did not. These generalization findings should be considered tentative, however, because the mean effect size was based on 10 group com-

parisons for classroom behavior and on 12 for parental adjustment, as compared to 23 for observed behavior and 36 for parental report. However, the impressive consistency in effect sizes across various measures, informants, and settings suggests that the positive outcomes generally reported in the literature are a function of the effectiveness of BPT and do not merely reflect extraneous factors, such as expectation bias by parents.

Two post hoc findings provide further support for the positive results of this meta-analysis. First, of the 19 groups who were clearly in the clinical range on at least one scale before treatment was initiated, 17 dropped below the clinical range on at least one scale, and 14 on all scales. This provides initial support for the clinical utility of BPT in that BPT not only decreases antisocial behavior, it results in behavior that is equivalent to nondisordered children. Second, even if stricter criteria are applied and only groups that were randomized are used in the analyses, the overall effect size becomes .88, even higher than what was originally found with more lenient criteria.

Overall effect size was related to important methodological differences among studies. Specifically, BPT appeared to be more effective with smaller samples. Although direct evidence to account for this finding is unavailable, it is possible that studies based on smaller samples failed to report outcome data for subjects who dropped out before completing parent training, a failure likely to positively skew the results of three studies.

The effectiveness of BPT was also significantly correlated with the accuracy and validity of the data used to calculate effect sizes for overall child outcome, suggesting that results may be positively skewed due to less accurate and/or valid data. However, there were no significant mean differences in effect sizes as a function of the accuracy and validity of the measures used, but this may have been a function of lack of power in the analyses. There were 10 or fewer groups in the less accurate and valid categories. This small number of groups based on less accurate and valid data, along with the finding that effect sizes based on only the most accurate and valid measures were similar to effect sizes based on all group comparisons, does suggest that little overestimation of mean effect sizes occurred. This provides confidence in the overall results despite the significant correlations.

Finally, overall effect size was associated with only one contextual variable, showing that families with older children benefitted most from BPT. As the oldest sample had a mean age of 10.1 years, older may indicate elementary rather than preschool age. The fact that no other associations were found between overall child outcome and contextual variables does not negate the importance of these variables, however. The range of some variables was considerably restricted because of the small number of studies that met criteria for inclusion in the meta-analysis. For example, two-thirds of the scores on Hollingshead and Redlich's (1958) Two Factor Index were between 2.4 and 3.0. This restricted range may have made it difficult for socioeconomic status, and other variables with comparable narrow ranges, to result in significant correlations.

This meta-analysis provides support for the effectiveness of BPT to modify child antisocial behavior, but is somewhat limited in scope by the nature of the literature. Even though BPT has a strong empirical basis and has achieved clinical prominence, there are still striking methodological limitations and difficulties. Three issues are particularly relevant here: (a) only a small percentage of available studies in this area had enough methodological rigor to be included in a meta-analysis in order to assess the clinical utility of this form of intervention; (b) only a small percentage of controlled studies compared BPT to another intervention; and (c) very few controlled studies conducted a follow-up comparison of experimental and control groups. First, in the past 25 years, only 22% of treatment evaluation studies utilized adequate control groups. This makes it difficult to draw strong conclusions about the effectiveness and clinical utility of BPT, especially in regard to its ability to generalize beyond child behavior problems at home. Evidence that BPT is effective in modifying child classroom behavior and parental adjustment is promising, but tentative at best. The small number of controlled studies also restricts the range of values of important methodological and contextual variables, making it difficult to examine their relations to effect size.

In addition, it is important to remember that only 4 of the 36 comparisons in this meta-analysis compared BPT with a different intervention. Thus, the results of the meta-analysis largely provide support for the effectiveness of BPT in comparison to no intervention. Even though the mean effect size for the four studies comparing BPT to another intervention was 1.06, and other meta-analyses of child therapy in general have found behavioral techniques to be more effective than nonbehavioral techniques (Casey & Berman, 1985; Weisz, Weiss, Alicke, & Klotz, 1987), no reliable conclusions can be drawn about BPT's effectiveness in modifying antisocial behaviors relative to the effectiveness of other treatments.

Finally, to be socially valid, it is generally agreed that any clinical intervention must produce positive changes that are maintained over a reasonable period of time. Several of the studies included in this meta-analysis found that at least some behavioral changes in children were maintained over periods ranging from 2 months to 1 year (Firestone, Kelly, & Fike, 1980; Hamilton & MacQuiddy, 1984; Martin, 1977; Scott & Stradling, 1987; Spaccarelli, Colter, & Penman, 1992; Webster-Stratton, 1984, 1992). For ethical reasons, control groups were usually offered treatment immediately following the postassessment period of the experimental group, and thus BPT's long-term advantages over other treatments or no treatment at all have not been clearly established. Two studies in the meta-analysis did address this issue with mixed results. Kazdin and colleagues (1987) found that the BPT group maintained their behavioral gains at home and at school when compared to a contact control group at 1-year follow up. Bernal, Klinnert, and Schultz (1980), however, did not find any behavioral differences between a BPT group and a client-centered parent counseling group at 6-month and 2-year follow-ups. Thus at present, controlled studies of BPT have demonstrated that it produces beneficial changes

in the short-term, but not that these changes are maintained over time when compared to other treatment options.

Future Directions

In view of the small percentage of controlled studies in this area, it is obvious that more research is necessary. Studies comparing subjects who are randomly assigned to a BPT condition, another treatment modality, and a wait-list control group are most needed in order to discover whether BPT is more effective than other interventions and produces gains that are maintained over time. Although ethical constraints preclude the refusal of intervention to behaviorally disordered children on a long-term basis, it remains essential to compare the long-term basis, it remains essential to compare the long-term adjustment of BPT completers to families with similar levels of dysfunction who do not receive treatment.

In addition to including a BPT, another treatment modality, and a control group, and evaluating long-term child and family adjustment, more rigorous research methodologies and more extensive reporting of results should be undertaken in the field. Webster-Stratton (1992) and Webster-Stratton, Kolpacoff, and Hollinsworth (1988) are excellent models of quality research methodology and reporting. Both studies randomly assigned participants to treatment or control groups and utilized uniformed observers to code child behaviors in addition to collecting parental report data. They also used a teacher rating scale and measures of parental personal adjustment, two domains that have not received enough attention in the literature. These articles extensively described their samples, allowing for better evaluation of the relations between demographic variables and treatment outcome, and reported information about subject attrition, a common phenomenon deserving more attention. Finally, these studies reported means and standard deviations for all variables at pre- and post-assessment, in addition to *F* values for all group comparisons, regardless of their significance.

In spite of the limitations just discussed, the results of this meta-analysis provide support for the short-term effectiveness of BPT in modifying child antisocial behavior at home and at school, and in improving parental personal adjustment. The results also support the clinical utility of BPT in that antisocial behavior often declined into the nondisordered range. Despite this favorable outcome and the impressive consistency of results, research still needs to examine if positive changes as a function of BPT are maintained over time, are equal to or greater than changes resulting from other interventions for child antisocial behavior, and are related to important methodological and contextual variables.

References

- Atkeson, B. M., & Forehand, R. (1978). Parent behavioral training for problem children: An examination of studies using multiple outcome measures. *Journal of Abnormal Child Psychology*, 6, 449-460.

- Barkley, R. A. (1987). *Defiant children*. New York: Guilford Press.
- Baumrind, D. (1967). Child care practices anteceding three patterns of preschool behavior. *Genetic Psychology Monographs*, 75, 43–88.
- * Bernal, M. E., Klinnert, M. D., & Schultz, L. A. (1980). Outcome evaluation of behavioral parent training and client centered parent counseling for children with conduct problems. *Journal of Applied Behavior Analysis*, 13, 677–691.
- Casey, R. J., & Berman, J. S. (1985). The outcome of psychotherapy with children. *Psychological Bulletin*, 98, 388–400.
- Cerezo Jimenez, A. (1992). *Programa de asistencia psicologica a familias con problemas de relacion y abusos infantil*. Valencia: Generalitat Valenciana.
- * Christensen, A., Johnson, S. M., Phillips, S., & Glasgow, R. E. (1980). Cost effectiveness in behavioral family therapy. *Behavior Therapy*, 11, 208–226.
- Christophersen, E. R., Barnard, J. D., Ford, D., & Wolf, M. M. (1976). The family training program: Improving parent-child interactions. In E. J. Mash, L. C. Handy, & C. A. Hamerlynck (Eds.), *Behavior modification approaches to parenting*. New York: Brunner/Mazel.
- Cohen, J. A. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement*, 200, 37–46.
- Devine, V. T. (1971). *The coercion process: A laboratory analogue*. Unpublished doctoral dissertation, State University of New York at Stony Brook.
- Dumas, J. E. (1984). Indiscriminate mothering: Empirical findings and theoretical speculation. *Advances in Behavior Research and Therapy*, 6, 13–27.
- Dumas, J. E. (1989). Treating antisocial behavior in children: Child and family approaches. *Clinical Psychology Review*, 9, 197–222.
- Dumas, J. E., LaFreniere, P. J., Beaudin, L., & Verlaan, P. (1992). Mother-child interactions in competent and aggressive dyads: Implications of relationship stress for behavior therapy with families. *New Zealand Journal of Psychology*, 21, 3–13.
- Dumas, J. E., LaFreniere, P. J., & Serketich, W. J. (1995). "Balance of power": A transactional analysis of control in three groups of mother-child dyads involving socially competent, aggressive, and anxious children. *Journal of Abnormal Psychology*, 104(1), 104–113.
- Dumas, J. E., & Lechowicz, J. G. (1989). When do noncompliant children comply? Implications for family behavior therapy. *Child and Family Behavior Therapy*, 11, 21–38.
- Dumas, J. E., & Wahler, R. G. (1983). Predictors of treatment outcome in parent training: Mother insularity and socioeconomic disadvantage. *Behavioral Assessment*, 5, 301–313.
- Dumas, J. E., & Wahler, R. G. (1985). Indiscriminate mothering as a contextual factor in aggressive-oppositional child behavior: "Damned if you do and damned if you don't!" *Journal of Abnormal Child Psychology*, 13, 1–17.
- Eyberg, S. M., & Boggs, S. R. (1989). Parent training for oppositional defiant preschoolers. In C. E. Schaefer & J. M. Briesmeister (Eds.), *Handbook of parent training*. New York: John Wiley and Sons.
- * Firestone, P., Kelly, M. J., & Fike, S. (1980). Are fathers necessary in parent training groups? *Journal of Clinical Child Psychology*, 9, 44–47.
- Forehand, R., & McMahon, R. J. (1981). *Helping the noncompliant child: A clinician's guide to parent training*. New York: Guilford Press.
- Glass, G. V., McGaw, B., & Smith, M. L. (1981). *Meta-analysis in social research*. Beverly Hills: Sage Publications.
- Griest, D. L., Forehand, R., & Wells, K. (1981). Follow-up analysis of parent behavioral training: An analysis of who will participate. *Child Study Journal*, 11, 221–229.
- * Hamilton, S. B., & MacQuiddy, S. L. (1984). Self-administered behavioral parent training: Enhancement of treatment efficacy using a time-out signal seat. *Journal of Clinical Child Psychology*, 13, 61–69.

* Asterisk indicates studies included in the meta-analysis.

- Hanf, C. (1969, April). *A two stage program for modifying maternal controlling during mother-child (M-C) interaction*. Paper presented at the meeting of the Western Psychological Association, Vancouver, British Columbia.
- Herbert, M. (1985). *Caring for your children*. New York: Basil Blackwell.
- Hollingshead, A., & Redlich, F. (1958). *Social class and mental illness: A community study*. New York: John Wiley and Sons.
- Johnson, B. T. (1989). *Software for the meta-analytic review of research literatures*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- *Karoly, R., & Rosenthal, M. (1977). Training parents in behavior modification: Effects on perceptions of family interaction and deviant child behavior. *Behavior Therapy*, 8, 406-410.
- Kazdin, A. E. (1987). Treatment of antisocial behavior in children: Current status and future directions. *Psychological Bulletin*, 102, 187-203.
- *Kazdin, A. E., Esveltd-Dawson, K., French, N. H., & Unis, A. S. (1987). Effects of parent management training and problem-solving skills training combined in the treatment of antisocial child behavior. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36, 416-424.
- *Kovitz, K. E. (1976). Comparing group and individual methods for training parents in child management techniques. In E. J. Mash, L. C. Handy, & L. A. Hamerlynck (Eds.), *Behavior Modification Approaches to Parenting*. New York: Brunner/Mazel.
- *Martin, B. (1977). Brief family intervention: Effectiveness and the importance of including the father. *Journal of Consulting and Clinical Psychology*, 45, 1002-1010.
- McMahon, R. J., Forehand, R., Griest, D. L., & Wells, K. (1981). Who drops out of treatment during parent behavioral training? *Behavioral Counseling Quarterly*, 1, 79-85.
- *McNeil, C. B., Eyberg, S., Eisenstadt, T. H., Newcomb, K., & Funderburk, B. (1991). Parent-child interaction therapy with behavior problem children: Generalization of treatment effects to the school setting. *Journal of Clinical Child Psychology*, 20, 140-157.
- Miller, G. E., & Prinz, R. J. (1990). Enhancement of social learning family interventions for childhood conduct disorder. *Psychological Bulletin*, 108, 291-307.
- O'Dell, S. L. (1974). Training parents in behavior modification: A review. *Psychological Bulletin*, 81, 418-433.
- *Olson, R. L., & Roberts, M. W. (1987). Alternative treatments for sibling aggression. *Behavior Therapy*, 18, 243-250.
- Patterson, G. R. (1974). Interventions for boys with conduct problems: Multiple settings, treatments, and criteria. *Journal of Consulting and Clinical Psychology*, 42, 471-481.
- Patterson, G. R. (1976). The aggressive child: Victim and architect of a coercive system. In L. A. Hamerlynck, L. C. Handy & E. J. Mash (Eds.), *Behavior modification and families: Theory and research (Vol. 1)*. New York: Brunner/Mazel.
- Patterson, G. R. (1982). *Coercive Process*. Eugene, OR: Castalia.
- *Patterson, G. R., Chamberlain, P., & Reid, J. B. (1982). A comparative evaluation of a parent-training program. *Behavior Therapy*, 13, 638-650.
- Patterson, G. R., & Cobb, J. A. (1971). A dyadic analysis of aggressive behaviors. In J. P. Hill (Ed.), *Minnesota Symposia on Child Psychology*, 5, Minneapolis: University of Minnesota Press.
- Patterson, G. R., & Forgatch, M. S. (1987). *Parents and adolescents living together, Part 1: The basics*. Eugene, OR: Castalia.
- *Peed, S., Roberts, M., & Forehand, R. (1977). Evaluation of the effectiveness of a standardized parent training program in altering the interaction of mothers and their noncompliant children. *Behavior Modification*, 1, 323-350.
- *Reid, H. A. (1989). Social learning therapy for families with aggressive boys: Individual family versus parent-group treatment. Unpublished doctoral dissertation, Indiana State University.
- Reisinger, J. J., Frangia, G. W., & Hoffman, E. H. (1976). Toddler management training: Gen-

- eralization and marital status. *Journal of Behavior Therapy and Experimental Psychiatry*, 7, 335-340.
- Sanders, M. R., & James, J. E. (1983). The modification of parent behavior: A review of generalization and maintenance. *Behavior Modification*, 7, 3-27.
- Sawin, D. B., & Parke, R. D. (1979). Inconsistent discipline of aggression in young boys. *Journal of Experimental Child Psychology*, 28, 525-538.
- * Scott, M. J., & Stradling, S. G. (1987). Evaluation of a group programme for parents of problem children. *Behavioural Psychotherapy*, 15, 224-239.
- Snyder, J. J. (1977). Reinforcement analysis of interaction in problem and nonproblem families. *Journal of Abnormal Psychology*, 86, 528-535.
- * Spaccarelli, S., Cotler, S., & Penman, D. (1992). Problem-solving skills training as a supplement to behavioral parent training. *Cognitive Therapy and Research*, 16, 1-18.
- Strain, P. S., Young, C. C., & Horowitz, J. (1981). Generalized behavior change during oppositional child training: An examination of child and family demographic variables. *Behavior Modification*, 5, 15-26.
- * Tursini, J. G. (1974). The effects of parent and teacher training on the generalization of behavior change in children. Unpublished doctoral dissertation, Arizona State University.
- Wahler, R. G. (1980). The insular mother: Her problems in parent-child treatment. *Journal of Applied Behavior Analysis*, 13, 207-219.
- Wahler, R. G., Williams, A. J., & Cerezo, A. (1990). The compliance and predictability hypotheses: Sequential and correlational analyses of coercive mother-child interactions. *Behavioral Assessment*, 12, 391-407.
- * Walker, J. M. (1984). A study of the effectiveness of social learning family therapy for reducing aggressive behavior in boys. Unpublished doctoral dissertation, Indiana State University.
- * Walle, D. L., Hobbs, S. A., & Caldwell, H. S. (1984). Sequencing of parent training procedures: Effects on child noncompliance and treatment acceptability. *Behavior Modification*, 8, 540-552.
- * Walter, H. I., & Gilmore, S. K. (1973). Placebo versus social learning effects in parent training procedures designed to alter the behavior of aggressive boys. *Behavior Therapy*, 4, 361-377.
- Webster-Stratton, C. (1981). Modification of mothers' behaviors and attitudes through a videotape modeling group discussion program. *Behavior Therapy*, 12, 634-642.
- * Webster-Stratton, C. (1984). Randomized trial of two parent-training programs for families with conduct disorder children. *Journal of Consulting and Clinical Psychology*, 52, 666-678.
- Webster-Stratton, C. (1985). Predictors of treatment outcome in parent training for conduct disordered children. *Behavior Therapy*, 16, 223-243.
- * Webster-Stratton, C. (1990). Enhancing the effectiveness of self-administered videotape parent training for families with conduct-problem children. *Journal of Abnormal Child Psychology*, 18, 479-492.
- Webster-Stratton, C. (1991). Annotation: Strategies for helping families with conduct disordered children. *Journal of Child Psychology and Psychiatry*, 32, 1047-1062.
- * Webster-Stratton, C. (1992). Individually administered videotape parent training: "Who benefits?" *Cognitive Therapy and Research*, 16, 31-35.
- Webster-Stratton, C., & Hammond, M. (1990). Predictors of treatment outcome for parent training for families with conduct problem children. *Behavior Therapy*, 21, 319-337.
- * Webster-Stratton, C., Kolpacoff, M., & Hollinsworth, T. (1988). Self administered videotaped therapy for families with conduct-problem children: Comparison with two cost-effective treatments and a control group. *Journal of Consulting and Clinical Psychology*, 56, 558-566.
- Weisz, J. R., Weiss, B., Alicke, M. D., & Klotz, M. L. (1987). Effectiveness of psychotherapy with children and adolescents: A meta-analysis for clinicians. *Journal of Consulting and Clinical Psychology*, 55, 542-549.
- * Wells, K. C., & Egan, J. (1988). Social learning and systems family therapy for childhood

Oppositional Disorder: Comparative treatment outcome. *Comprehensive Psychiatry*, 29, 138-146.

- *Wiltz, N. A. (1969). Modification of behaviors of deviant boys through parent participation in a group technique. Unpublished doctoral dissertation, University of Oregon.
- Wiltz, N. A., & Patterson, G. R. (1974). An evaluation of parent training procedures designed to alter inappropriate aggressive behavior of boys. *Behavior Therapy*, 5, 215-221.
- Woo, D. (1978). *Experimental studies of the reinforcement trap*. Unpublished master's thesis, University of Oregon.
- *Zangwill, W. (1983). An evaluation of a parent training program. *Child and Family Behavior Therapy*, 5, 1-16.

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