

*LONG-TERM EFFECTS OF OPPOSITIONAL CHILD  
TREATMENT WITH MOTHERS AS THERAPISTS  
AND THERAPIST TRAINERS*

PHILLIP S. STRAIN, PEGGY STEELE, TONI ELLIS, AND  
MATTHEW A. TIMM

UNIVERSITY OF PITTSBURGH AND REGIONAL INTERVENTION PROGRAM

The follow-up data reported represent a long-term (3 to 9 years out of treatment) evaluation of 40 children who were clients of the Regional Intervention Program (RIP) from 1969 to 1978. As 3-, 4-, and 5-year olds, these youngsters exhibited severe and prolonged tantrums, continual opposition to adults' requests and commands, and physical aggression toward parents. Each child and mother participated in a standardized intervention package modeled after Wahler's Opposition Child Treatment. Results from school and home-based follow-up showed that: (a) commands, demands, or requests made by parents were likely to be followed by former clients' compliance; (b) former clients' social interactions in the home were overwhelmingly positive and their nonsocial behavior was by and large appropriate; (c) parent behavior in the home was consistent with the child management skills taught many years ago; (d) there were no differences between the compliant, on-task, social interaction and appropriate/inappropriate nonsocial behaviors of former clients and randomly selected class peers; (e) there were no differences in teachers' commands, negative feedback, positive social reinforcement, and repeated commands that were directed toward either former clients or randomly selected class peers; (f) both teachers' and parents' rating of former clients on the modified Walker Problem Behavior Checklist were highly correlated; (g) there were no differences in teachers' rating of former clients and class peers; and (h) of all the studied demographic variables, only age that treatment began and family intactness were related to current levels of behavior.

DESCRIPTORS: parents, oppositional behavior, follow-up measures, maintenance

Efforts to alter parent-child problem interactions by teaching parents to use social learning techniques generally have met with considerable success. Not only are parent-child interactions improved in home and clinic settings (Strain, Young, & Horowitz, 1981), but these behavior changes may persist in the absence of treatment and generalize to other stimulus conditions (Wahler, 1975).

Research to investigate long-term outcomes of parent training is limited in number, meth-

odology, and scope. Where long-term follow-ups are concerned, most investigators have conducted a single assessment (e.g., Allen & Harris, 1971). With more extensive follow-up studies another problem exists. The multiple observational follow-ups conducted by Patterson and his colleagues (1974), and Wahler (1975) represent occasions for continued treatment with several families. As Forehand and Atkeson (1977) point out, these follow-up data cannot necessarily be equated with an interval of non-treatment. An additional methodological issue regarding follow-up studies concerns the time interval involved. The most lengthy follow-up reported to date has been 3 years (Rimm, Vernon, & Wise, 1975). However, the validity of the data is questionable given the exclusive use of parent opinion rather than more objective

---

The authors are indebted to the parents and children of the Regional Intervention Program for diligent support of this project. The research reported herein was made possible by a supplemental grant from the Office of Special Education, Washington, D.C. Reprints may be obtained from Phillip S. Strain, Western Psychiatric Institute and Clinic, 3811 O'Hara St., Pittsburgh, Pennsylvania 15261.

behavioral measures. In general, where direct observational methodology has been used, follow-up information has not been collected beyond 2 years (Wahler, 1975). Another limitation of most long-term outcome studies has been the number of families involved. Patterson and Fleishman's (1979) follow-up of 33 families represents the largest sample studied to date. Yet, the norm for the literature is far less.

The present follow-up study represents an initial attempt to address several of the methodological issues raised here. First, a large number of families (40) was studied, each having been exposed to identical treatment procedures. Second, multiple assessments were conducted on these clients, who had not been involved in treatment for a period ranging from 3 to 9 years. Third, original target behaviors were assessed in the home, along with other behaviors predictive of successful child performance in school settings. Fourth, various family and child demographics were obtained in order to investigate uncontrolled variables that may be predictive of long-term outcomes. Finally, to compare former clients' current behavior with that of normally developing children, data were collected on four randomly selected same age and sex peers from the classroom in which each former client was enrolled; and, both parent and teacher completed a modified Walker Problem Behavior Checklist on each target child (teachers also completed checklist on randomly selected peers).

## METHOD

### *Participants*

A total of 69 families in the Nashville, Tennessee, area, who were clients of the Regional Intervention Program (RIP) from 1969 to 1978, comprised the initial sample for this follow-up. Criteria for selecting families from this sample were: (a) child had entered or completed the first grade; (b) families currently resided within easy driving distance of Nashville; (c) families

were originally referred to the program because of child oppositional behaviors (e.g., refusal to follow requests, tantrums, aggression toward parent); and (d) parents and children had met behavioral criteria for exiting program, namely, demonstrated behavior change in the home setting for both parties. The final group of 40 families represented 90% of the total number of families that met the criteria listed above and who agreed to participate.

The 40 former clients were located in their elementary and middle school classes with the aid of parents. To preserve client confidentiality and to reduce reactive observation effects, all children in each designated class took home a permission letter for inclusion in a study on "school adjustment." Then, four same sex and age peers were selected randomly in each class along with the target child. A total of 160 class peers, 132 males and 28 females, were selected for observation and teacher ratings in the school setting. Absenteeism by three students during the course of the study reduced the final number of class peers to 157.

### *Treatment*

The RIP facility is a data-based treatment program that focuses on teaching parents of oppositional children differential attention procedures to manage their children's behaviors. A structural description of the program can be found in *Hospital and Community Psychiatry* (Gold Award description, 1976).

Families who entered the program with oppositional children were assigned to the Generalization Training (GT) module. Each family in GT proceeded through a predetermined sequence of treatment. During baseline, several days (usually 3 to 5) of nonintervention were used to assess child and mother problem behaviors and establish a stable level of behavior from which to judge the magnitude and direction of behavior change during treatment. The second treatment phase, designated as Differential Reinforcement I, saw the parent instructed in vari-

ous social learning techniques. Instructional procedures used with mothers included: (a) written materials describing techniques, (b) modeling (live and videotape), (c) role playing and rehearsal, and (d) feedback on performance. This phase continued until child behavior was appropriate 85% of the time across three consecutive sessions and parent attention was correctly applied to appropriate behavior 85% of the time across a similar number of sessions. The third treatment phase, Reversal, lasted from one to three sessions. Mothers were told to attend to any oppositional behaviors and ignore all cooperative responses. This phase was designed for two purposes: to provide a demonstration of functional control over oppositional behavior and to provide parents with a powerful example that their behavior was responsible for their child's improved performance. In the fourth and final phase of GT intervention, mothers once again began to reinforce cooperative behaviors socially and ignore oppositional responses. During this Differential Reinforcement II phase, mothers were given specific instructions regarding the leaning of reinforcement for cooperative child behaviors. Moreover, programming in the home setting was instituted. This phase continued until child cooperation was maintained in the home and clinic at or above 85% of the time under conditions of minimal adult attention. It was not unusual for cooperative behavior to maintain at criterion levels with five or less parent attention events per 20-min session. For each of the 40 families, clear experimental control over cooperative and oppositional child behavior was demonstrated across the four phases of treatment.

#### *General Observation Procedures*

Data on former clients and class peers were taken in two school settings: (a) group academic instruction, where the teacher was presenting a lesson to the entire class; and (b) unstructured recess or gym. Observers collected data in both settings for three 30-min sessions. All class and

home observations were completed within 3 wk. Three 30-min home sessions were scheduled immediately preceding or following the evening meal. Parents were asked to instruct all family members to be at home, not to turn on the television, not to make any phone calls, and to limit the length of incoming calls during the sessions.

#### *Behaviors Observed in School and Home*

Adult (teacher, aides, student-teacher) and child behaviors recorded during school observations included: adult command, demand, or request; repeated command, demand, or request; positive social reinforcement; negative feedback; compliance to adult command, demand, or request; noncompliance to adult command, demand, or request; on-task; off-task; positive social behavior with peers; negative social behavior with peers; appropriate nonsocial; and inappropriate nonsocial. Adult and child behaviors recorded in the home included all the categories listed above with the exception of on-task and off-task behaviors. Child and parent categories were selected because of their correspondence with initial treatment goals and current relevance to socially validated indices of adjustment (Strain, Note 1). Teacher behavior categories were selected because of their often demonstrated functional control over significant school-related behaviors of children.

#### *Observational Procedures*

The following sequence of observation was in effect for each 30-min school session: During the first minute the former client was observed, followed by peer #1 the second minute, the RIP client the third minute, peer #2 the fourth minute, and so on. Thus, for each 30-min session, 15 min of data were collected on the former client and 15 min on peer group members. As soon as any of the target behaviors occurred, they were recorded; however, only one occurrence of each category could be entered in a 10-sec interval. Using this system, it was possible to have intervals scored with incom-

patible behaviors (e.g., on task; off task). Positive and negative interactions were entered on a coding sheet such that it was possible to determine whether a focal subject or another child initiated these behaviors. During the three 30-min home observations, the former client and parents were the focus of observation. Therefore, only social exchanges in which this child was a participant were recorded. With this exception, all other procedures for collecting data in school were used during home observations.

#### *Observer Training and Reliability Assessment*

Eight observers received 40 hours of training over a 3-wk period on school and home observation systems. Prior to data collection, each observer had to reach a level of 90% agreement with a second observer on three 30-min sessions. Agreement was calculated on an interval-by-interval basis for each category of behavior scored. For example, if during one 10-sec interval observer A recorded "On task," "Off task," and "Positive Social Reinforcement" and observer B recorded "On task," and "Off task" only, then this interval would be scored as 100% occurrence agreement for on task, 100% occurrence agreement for off task, and 0% agreement on nonoccurrence for social reinforcement. On 17% of all 30-min observation sessions, observer agreement was assessed.

#### *Problem Behavior Checklist*

In school, the former clients' primary teacher completed a modified version of the Walker Problem Checklist (Walker, 1970) for these youngsters and each of the four classroom peers. The checklist, which contains 50 problem statements, calls for the rater to determine whether each statement is or is not applicable to the child in question. Nine new items were interspersed throughout the inventory. Each new item represented some index of academic problems; for example, retention in grades, referral for specialized testing, assignment to a special education class, and a failing grade in an academic subject, were assessed. One parent, usually the

mother, completed the modified Walker checklist.

## RESULTS

### *Observer Agreement*

The overall percentage of interobserver agreement across categories ranged from a low of 90% (on task, negative feedback) to a high of 97% (appropriate nonsocial, noncompliance to adult command, demand, or request).

### *Adult and Child Behaviors in School*

Adult behaviors directed toward the former clients and class peers were very similar. Specifically, 52% of the instances of commands, demands, and requests were directed at former clients with the remainder aimed at peers. Given the occurrence of child noncompliance there was a .10 probability that adults would direct another identical request to former clients and a .12 probability of this occurrence for class peers. Instances of positive social reinforcement rarely occurred. Adults reinforced former clients' compliance 4% of the time and peer compliance 5% of the time. On-task behavior by former clients and peers was reinforced on the average, 2% and 1% of the time, respectively. Occurrences of negative feedback were also observed infrequently. Given an episode of child noncompliance, adults gave former clients and peers negative feedback 12% and 14% of the time, respectively. Given an incidence of off-task behavior by former clients or peers, negative feedback was provided 2% and 1% of the time, respectively.

During group academic instruction, former clients and peers maintained a high level of compliance. For the former clients, compliance occurred, on the average, following 89% of the commands, demands, or requests, with a range across children of 60-100%. Averaged data for classroom peers showed that 87% of commands, demands, or requests were met with compliance, ranging from 53% to 100%. An examination of on-task behavior levels during group aca-

demic instruction also showed a close correspondence between former clients and peers. Former clients were observed to be on task during an average of 85% of the recording intervals, ranging from 69% to 100%. The classroom peers were observed to be on task during 87% of the recording intervals, ranging from 52% to 100%. When the children were observed during unstructured free play or gym, former clients and peers consistently engaged in behavior appropriate to this setting. Former clients and peers averaged 90% and 93% of the recording intervals engaged in appropriate behavior, respectively. Appropriate behavior levels ranged from 80% to 100% for both groups. The positive and negative interaction patterns of former RIP clients and class peers were similar also. The results of *t* tests comparing both groups of children on each of the behavior categories observed in school revealed no significant differences.

A variety of statistical procedures were used to assess the relationship between demographic characteristics and follow-up school measures. Multiple linear regression was used to investigate whether any of the following variables were predictive of performance on any of the child behavior categories: sex of client, race of client, birth order, number of siblings, percent attendance during scheduled client sessions, mother's age, family intactness (presence of mother and father in home), family income level, mother's educational level, years away from the program, age that treatment began, rapidity with which child met initial behavioral criteria in GT, and rapidity with which mother met initial behavior criteria in GT. The only demographic characteristic that predicted outcome measures was age that treatment began. Specifically, this variable was related to current levels of compliance, on-task behavior, and positive interaction initiated and received. On these four outcome measures, the earlier that treatment began the more favorable was the current level of behavior.

The demographic variables were also studied

independent of one another, using one-way analysis of variance to study the influence of dichotomous variables (e.g., sex, race, family intactness) and Pearson product moment correlation coefficients to examine the influence of continuous variables (e.g., birth order, number of siblings, mother's educational level, and years away from the program) on all possible outcome measures. Once again, the only statistically significant finding was associated with the 'age treatment began' variable. Here, moderate negative correlations were found between age treatment began and positive interaction ( $-.23, p < .10$ ), compliance ( $-.38, p < .05$ ), and on-task behavior ( $-.26, p < .10$ ).

#### *Parent and Child Behavior in the Home*

With few exceptions, parents engaged in patterns of interaction with their child that resembled the management skills taught 3 to 9 years previously. On 25% (range across parents of 18-40%) of the available opportunities, parents provided positive social reinforcement to their children for compliance. On the few occasions when noncompliance was observed, no negative feedback or repeated requests were observed. There was no evidence that parents responded differentially to their children when they engaged in appropriate or inappropriate nonsocial activity.

Former clients complied, on the average, with parents' commands, demands, and requests on 82% of the occasions (range across children of 70-97%). Inappropriate nonsocial activity by former RIP clients seldom occurred in the home setting. Less than one-half of 1% of the total number of observation intervals was scored as containing an episode of inappropriate nonsocial activity. Examining the social interactions of former RIP clients in their home settings reveals two major trends. First, over 97% of all interaction episodes were positive in nature (range across children of 85-100%). Second, the positive social exchanges in which these children participated were quite reciprocal. That is, there was an equal percentage of interac-

tions initiated by former clients (52%) and social partners (48%).

Multiple linear regression procedures were used to investigate whether any of the demographic characteristics mentioned earlier were predictive of former client behavior at home. Only two demographic variables were found to predict current performance. Age that treatment began was associated with current levels of compliance and positive social interaction. For each of these outcomes, earlier treatment was related to more favorable levels of behavior. The other demographic variable related to child behavior in the home was family intactness, which was associated with compliance only. Here, intact families tended to have children who were more compliant.

The demographic variables were also studied independent of one another, using one-way analysis of variance to study the influence of dichotomous variables and Pearson product moment correlation coefficients to examine the influence of continuous variables on all child behaviors in the home. Age that treatment began was highly correlated with child compliance ( $-.49, p < .05$ ), positive interaction ( $-.52, p < .05$ ), and appropriate nonsocial behavior ( $-.62, p < .05$ ). Intact families had children who were significantly more compliant ( $F = 4.76, p < .01$ ).

#### *Problem Behavior Checklist Data*

Data from the Walker Problem Behavior Checklist revealed four primary outcomes. First, there was a highly significant positive correlation between teacher- and parent-completed checklists on former clients ( $.81, p < .01$ ). Second, the teacher ratings of former clients and class peers were remarkably similar. On the average, teachers identified 8 problem behaviors for former clients (range of 0-40) and class peers (range of 0-50). A *t* test between the groups' ratings did not approach statistical significance. Third, none of the former clients had previously been referred for specialized testing

or special services because of behavior problems. Several of the children in both groups had experienced academic learning problems (i.e., retained in grade, placement in learning disabilities resource room). Finally, children's rating on the checklist were found to correlate significantly with a number of the observational measures. Specifically, there were significant negative correlations between the number of identified problem behaviors (scored by either teacher or parent) and clients' levels of on-task ( $-.59, p < .05$ ), compliance ( $-.64, p < .05$ ), and positive interaction in school ( $-.61, p < .05$ ). In the home setting there were significant negative correlations between problem behaviors identified and compliance ( $-.48, p < .05$ ), positive interaction ( $-.62, p < .05$ ), and appropriate nonsocial activity ( $-.56, p < .05$ ).

## DISCUSSION

The results of this long-term follow-up study showed that: (a) commands, demands, or requests made by parents were very likely to be followed by former clients' compliance; (b) former clients' social interactions in the home were overwhelmingly positive and their nonsocial behavior was by and large appropriate; (c) parent behavior in the home setting was consistent with the child management skills taught many years ago; (d) there were no differences between the compliant, on-task, social interaction and appropriate/inappropriate nonsocial behaviors of former clients and randomly selected class peers; (e) there were no differences in teachers' commands, negative feedback, positive social reinforcement, and repeated commands that were directed toward either former clients or randomly selected class peers; (f) both teachers' and parents' ratings of former clients on the modified Walker Problem Behavior Checklist were highly correlated; (g) there were no differences in teachers' rating of former clients and class peers; and (h) of all the studied demographic variables only age that treatment

began and family intactness were related to current levels of behavior.

Although it is tempting to speculate that the similarity in the behavior of former clients and classroom peers is due to the intervention experience, this conclusion is weakened by the absence of an adequate control group. Presently, we are collecting data sets identical to those used in this study on a group of referred clients who were forced by uncontrolled circumstances (e.g., left area, illness in family) to terminate treatment. We feel that these clients represent the only group that adequately controls for child behavior problems, parental motivation, and parental skills (all the clients terminated after successful completion of the first treatment phase).

If, in fact, the intervention experience was not responsible for client's appropriate behaviors at follow-up, then maturation is the most likely rival hypothesis. However, effects of maturation were negligible when regression analysis and correlation coefficients were used to study the effects of "years away from the program" on all outcome indices. Also, two 30-yr follow-up studies have shown that nontreated, oppositional patterns of behavior are relatively stable and may well continue into adolescence and adulthood (McCord, 1978; Olweus, 1979).

#### REFERENCE NOTE

1. Strain, P. S. *Assessment and identification of treatment targets for mainstreamed behaviorally disordered children*. Paper presented at the Conference on Severe Behavior Disorders, Tempe, Arizona, November 1980.

#### REFERENCES

- Allen, K. E., & Harris, F. R. Eliminating a child's excessive scratching by training the mother in reinforcement procedures. In A. M. Graziano (Ed.), *Behavior therapy with children*, Chicago: Aldine, 1971.
- Forehand, R., & Atkeson, B. M. Generality of treatment effects with parents as therapists: A review of assessment and implementation procedures. *Behavior Therapy*, 1977, 8, 575-593.
- Gold Award: A parent-implemented early intervention program for preschool children. *Hospital and Community Psychiatry*, 1976, 27, 728-731.
- McCord, J. A thirty year follow-up of treatment effects. *American Psychologist*, 1978, 33, 284-289.
- Olweus, D. Stability of aggressive reaction patterns in males: A review. *Psychological Bulletin*, 1979, 86, 852-875.
- Patterson, G. R. Interventions for boys with conduct problems: Multiple settings, treatments, and criteria. *Journal of Consulting and Clinical Psychology*, 1974, 42, 471-481.
- Patterson, G. R., & Fleishman, M. J. Maintenance of treatment effects: Some considerations concerning family systems and follow-up data. *Behavior Therapy*, 1979, 10, 168-185.
- Rimm, R. C., Vernon, J. C., & Wise, M. J. Training parents of behaviorally disordered children in groups: A three years' program evaluation. *Behavior Therapy*, 1975, 6, 378-387.
- Strain, P. S., Young, C. C., & Horowitz, J. Generalized behavior change during oppositional child training: An examination of child and family demographic variables. *Behavior Modification*, 1981, 5, 15-26.
- Wahler, R. G. Some structural aspects of deviant child behavior. *Journal of Applied Behavior Analysis*, 1975, 8, 27-42.
- Walker, H. M. *The Walker Problem Behavior Identification Checklist. Test and Manual*. Los Angeles: Western Psychological Service, Inc., 1970.

Received March 5, 1981

Final acceptance August 26, 1981