

## **Individually Administered Videotape Parent Training: "Who Benefits?"<sup>1</sup>**

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*One-hundred families with young conduct problem children were randomly assigned to either an individually administered videotape modeling parent training program (IVM) or to a waiting-list control group. Results immediately posttreatment indicated that treated parents reported using significantly less physical discipline and perceived improvements in their children's behavior problems compared with untreated control parents. During home observations, treated parents exhibited significant changes in at least two of the four behavior outcome variables in their interactions with their children compared with untreated parent-child interactions. One year later, these changes were maintained and the children continued to improve. Correlational analyses indicated that, for treated families, single mother status, maternal depression, and mother's mental age were significantly correlated with at least two of the four mother outcome variables at both posttreatment assessments. A 1-year followup social class was significantly correlated with more critical mother behaviors and increased child deviance. For fathers, analyses indicated that high negative life stress and father depression was correlated with more negative father perceptions of child adjustment and increased child deviance at immediate posttreatment. At 1-year followup only father mental age was correlated with teacher perceptions of child behavior problems. The data support the general effectiveness of the IVM program but caution its use as the sole treatment with highly stressed families.*

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**KEY WORDS:** videotape modeling; parent training; conduct-disordered children.

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The prevalence of children with conduct problems is increasing and far exceeds personnel and resources available for dealing with them. Moreover, most of the traditional parent training intervention programs have been costly and time-consuming, and have rarely reached those most in need of services. There is an urgent need to develop and evaluate standardized, low-cost programs of treatment which can be used for mass training, prevention, and intervention.

One method of training parents that is potentially both efficient and cost-effective is to use videotape parent training materials. In a recent study, Webster-Stratton, Kolpacoff, and Hollinsworth (1988) reported that a cognitive social-learning-based videotape modeling treatment which did not have the benefit of therapist leadership or group support was effective, both in terms of cost and in improving parents' reports of child conduct problems and parent-child interactions, compared with untreated control families. However, although the individually administered videotape modeling treatment (IVM) was the most cost-effective, it was not as effective as a treatment group which combined videotape modeling plus therapist-led parent group discussion. Because of the implications of these findings for reaching more families in a cost-effective manner, it is important to understand the variables which characterize families who can successfully implement a self-administered videotape parent training program with their children as well as the characteristics of those families who do not seem to benefit from this approach.

Few, if any, studies exist which have assessed the extrafamilial or intrafamily or individual psychological factors that are most likely to predict a parent's success or failure with an individually administered videotape parent training program based on cognitive social learning theory. The sample size for the original Webster-Stratton et al. (1988) study was too small (29 mothers and 20 fathers) to adequately determine the predictors of the families who were responders or nonresponders to the IVM treatment. On the other hand, there does now appear to be consensus by a number of investigators that a family's ability to benefit from a parent training program based on one-to-one counseling with a therapist is influenced by intraparental and psychological factors such as maternal depression, marital discord, and father absence, as well as extrafamilial factors such as negative life stressors, and low socioeconomic status (Dumas & Wahler, 1983; Griest & Wells, 1983; Webster-Stratton, 1985a). Perhaps these same factors may even more seriously limit the usefulness of an individually administered videotape parent training, which requires a great deal of self-control, self-monitoring, and personal motivation. In addition, we hypothesized that a parent's intelligence (verbal and abstract thinking ability) would predict a failure to respond to this treatment approach.

Therefore, the purpose of this study was to randomly assign a large sample of families with young conduct-problem children to either an individually administered videotape modeling program or to a waiting-list control group. The study then proposed to determine how multiple predictor measures at pretreatment predicted mothers' and fathers' successful implementation of the IVM treatment program posttreatment and 1 year later. Treatment outcome was defined by both mother and father, and teacher reports, as well as by home observations of father and mother and child behavioral interactions immediately posttreatment and 1 year later. The "clinical significance" of the posttreatment changes was also evaluated. Increased knowledge in this area could have some practical applications for determining who can benefit from self-administered videotape parent training programs and who cannot.

## METHOD

### *Subjects*

Criteria for study entry required that (a) the child was between 3 and 8 years old; (b) the child had no debilitating physical impairment, intellectual deficit, or history of psychosis and was receiving no treatment at the time of referral; and (c) the primary referral problem was child misconduct that had been occurring for more than 6 months (e.g., noncompliance, aggression, oppositional behaviors), and parents rated their child as having a clinically significant number of behavior problems (more than 2 standard deviations above the mean) according to the Eyberg Child Behavior Inventory (ECBI; Eyberg & Ross, 1978; Robinson, Eyberg, & Ross, 1980).

The 100 families entered into the trial were either self-referred (46%) or professionally referred (54%). Study children included 72 boys and 28 girls with a mean age of 60.2 months. The mean number of pretreatment behavior problems according to the ECBI was 21.07 ( $SD = 5.5$ ), indicating that the children were in the clinic range according to Eyberg and Ross (1978) (for nonclinic range,  $M = 6.8$ ,  $SD = 3.9$ ). Home observations prior to treatment confirmed the ECBI results, with the children exhibiting non-compliant and deviant behaviors at a rate of greater than one a minute (39 in 30 min).

Study parents included 95 biological mothers, 62 biological fathers, and 5 adoptive mothers. Of these, 66 (66.0%) were married and 34 (34.0%) were single. The mean age of mothers was 33.7 years, and of fathers was 35.8 years. Yearly income ranged from the welfare level ( $n = 15$ ), to less than \$28,999 ( $n = 32$ ), to above \$29,000 ( $n = 53$ ). Interviews indicated

that 27 (27%) of the mothers had experienced spouse abuse, and that 41 (41%) of the families reported alcoholism or drug abuse in the immediate family, and 55 (55%) reported it in the extended family. Eleven (11%) of the mothers reported that they were abused as children. Thirty-seven (37.4%) of the mothers and 10 (14.3%) of the fathers reported mild to moderate depression, above a score of 10 on the Beck Depression Inventory (BDI; Beck, 1972).

## Measures

### *Extrafamilial Measures*

*Socioeconomic (SES).* Family social class was determined by Hollingshead and Redlich's (1958) Two-Factor Index, based on occupation and education. The index yielded a wide range of social class for the sample (higher values indicate lower status): Class 5 ( $n = 14$ ), Class 4 ( $n = 17$ ), Class 3 ( $n = 32$ ), Class 2 ( $n = 23$ ), and Class 1 ( $n = 14$ ).

*The Life Experience Survey (LES).* The 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 and has been found to have 5- 6-month test-retest reliabilities of .56 to .88. The Negative Life Experience score (NLES) was used in this study because it was shown to be more reliable, and the authors reported it to be a better measure of life stress.

### *Interparental Measures*

*Marital Status (MARSTAT).* A family was considered to be a two-parent household (intact) if the mother was married and living with her husband, or cohabiting for 2 years. A family was considered a single or a one-parent household if the mother had never been married, was separated or divorced, or had been living away from her husband for at least 2 years.

*Marital Adjustment Test (MAT).* The MAT (Locke & Wallace, 1959) is a 32-item self-report questionnaire measuring the quality of marital satisfaction.

### *Parental Psychological Measures*

*Beck Depression Inventory.* The widely used BDI (Beck, 1972) continues to be regarded as the best self-report measure of general depression

available (Rehm, 1981). Split-half reliability achieved a Spearman-Brown reliability coefficient of .93.

*Shipley-Hartford Verbal and Extraction Test.* This test (Shipley, 1940) is a scale for measuring mild degrees of intellectual impairment in individuals of normal intelligence. The scale consists of a vocabulary test and an abstract thinking test, and impairment is measured to the extent by which the individual's abstract thinking falls short of his or her vocabulary. The total mental age scale was used in this study because an individual's ability to benefit from a self-administered videotape program may depend on verbal and abstract-thinking ability. Reliability coefficients were .87 for the vocabulary test, .89 for the extraction test, and .92 for the two combined.

### *Parent Perceptions*

*Parenting Stress Index (PSI).* The PSI (Abidin, 1983) contains 126 items that are divided into two major domains reflecting stress in the parent-child relationship. The first domain, representing parent characteristics (e.g., restricted role, isolation), was used in this study. 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).

*Child Behavior Checklist (CBCL).* The CBCL (Achenbach & Edelbrock, 1983) consists of 118 items each rated on a 0- to 2-point scale. In this study, the Total Behavior Problem summary score was of primary interest because of its applicability to a variety of child conduct problems.

*Eyberg Child Behavior Inventory.* The ECBI (Robinson et al., 1980) is a 36-item behavioral inventory of conduct problems for children aged 2-16 years. Previous ECBI research with normative samples of 512 children has demonstrated reliability coefficients from .86 (test-retest) to .98 (internal consistency), indicating that the inventory is stable and homogeneous (Robinson et al., 1980). There are two scores: A Total Problem score permits the parent to indicate (yes/no) whether this behavior is a problem for her or him, and an Intensity score permits the parent to rate on a scale of 1-7 the frequency of the behavior problem.

### *Teacher Perceptions of Child Behaviors*

*Behar Preschool Behavior Questionnaire (PBQ).* The PBQ (Behar, 1977) was completed at immediate posttreatment and at 1-year followups. The PBQ includes 30 items, each rated on a 0- to 2-point scale, and is

designed to be filled out by preschool teachers of children 3–7 years of age. Behar (1977) reported that test–retest reliabilities ranged from .60 to .99, an interrater reliability of .84 was derived from the overall scale, and reliabilities of .81, .71, and .67 were derived for each of the factors.

### *Home Observation Measures*

The Dyadic Parent–Child Interaction Coding System (DPICS; Robinson & Eyberg, 1981), consisting of 29 behavior categories, was used to observe parent–child interactions in the home. From the behavior categories, four summary variables were formed for parent behaviors: no-opportunity commands, praise, critical statements, and affect. For the target child there was one variable: total child deviance (sum of the frequency of whine + cry + physical negative + smart talk + yell + destructive + noncompliance).

The home observations were obtained by making two home visits at each assessment period, in which each parent–child dyad was observed for 30 min at each of the visits (4:30–7:30 p.m.). Home observations were made by extensively trained observers who were blind to the hypotheses of the study. They initially received extensive training and had to maintain 80% reliability with practice tapes before conducting home observations. To assess reliability, a second observer was present for at least 30% of all home observations. Mean overall interrater reliability (based on occurrence agreements for each 5-min segment) was 82% (range 72–95%). For the mother behavior categories, the product-moment correlations calculated between observers ranged from .80 to .90; and for the child behavior dimension the correlation was .80.

### *Mother Observations*

The Parent Daily Reports (PDR; Chamberlain & Reid, 1987) consist of a list of 19 negative and 19 prosocial behaviors commonly exhibited by children. During the intake, parents were asked to select those target negative behaviors that they felt were major problems as well as positive behaviors that would please them. These individually tailored checklists were used as the basis for the phone calls that were conducted biweekly from the time of intake until the posttreatment assessment. 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. The interviewer also asked about the occurrence of spanking, time out, and low-rate events such as fire setting and running

away. The PDR has been shown to have good test-retest reliability and to correlate significantly with concurrent home observation data (Chamberlain & Reid, 1987).

### Procedures

Prior to the onset of the IVM program, families were assessed on the measures outlined above. They were randomly assigned to either the control group ( $n = 41$  mothers and 30 fathers) or the 10-week IVM treatment ( $n = 59$  mothers and 37 fathers). The parents assigned to the control condition received no treatment and had no contact with a therapist. Following completion of the treatment program, all subjects were reassessed on the same measures and the control group was then assigned to the treatment condition. Two mothers and three fathers dropped out of the control group, and two mothers and six fathers dropped out of the IVM treatment. One year later, 50 of the 59 treated mothers (84%) and 29 of the 37 treated fathers (78%) completed followup assessments. Delayed-treatment control group families were not included in followup analyses.

### Treatment

#### *Individually Administered Videotape Modeling Training<sup>3</sup>*

The parents in the IVM treatment came to the clinic weekly to see 10 videotape programs. Each week, a secretary provided them with a room and with one of the 10 videotape programs to watch. The treatment program was based on cognitive social learning theory. The content included teaching parents play and reinforcement skills, effective limit setting and nonviolent discipline techniques, and problem-solving approaches.

In addition to the behavioral aspects of the content of the program, the process of the intervention had some cognitive components. The program included a parents' manual to be used along with each of the videotape programs. This manual described each videotape scene, asked 4-5 open-ended questions for each scene, and then discussed the author's interpretation of the scene. Parents were instructed by the secretary not to read the discussion section before trying to answer the questions themselves. These questions focused on helping parents examine their beliefs about children's behaviors and emotional reactions as well as their own responses. Questions were asked to help parents assess the advantages or disadvantages of holding

<sup>3</sup>A more complete description of the training program is available from the author.

certain assumptions as well as the short-term vs. long-term advantages of various behaviors (e.g., spanking, yelling). In addition, there were weekly homework assignments which included self-monitoring and records of the distressing thoughts which occurred to parents when their child misbehaved. These assignments were followed by others designed to help parents substitute more calming thoughts for their disordered and angry thoughts. Parents were also given exercises in self-praise statements. It was hypothesized that through the process of studying the manual with its detailed discussions along with the viewing of videotape examples, the parents would be helped to respond in a more rational and self-controlled manner.

The average time parents took to complete the programs was 9.61 hours ( $SD = 2.45$ ) for mothers and 9.73 hours ( $SD = 2.24$ ) for fathers. Fifty-eight of the 59 mothers completed the program in 10 sessions, and one mother completed it in 11 sessions. Thirty-three of the 37 fathers attended the 10 sessions, while 3 attended 9 sessions and 1 attended 8 sessions.

## RESULTS

Treatment effects were evaluated by mother and father self-report measures (ECBI, CBCL, and PSI); by maternal daily observation and reports of discipline (PDR); by mother and father behaviors (no-opportunity commands, praise, criticism, affect); by child behaviors (total deviance); and by consumer satisfaction. With baseline values serving as covariates, each set of dependent variables was initially submitted to a multivariate analysis of covariance (MANCOVA). When MANCOVA revealed a significant effect, an analysis of covariance (ANCOVA) was performed for each of the dependent variables. The multivariate analysis of variance (MANOVA) revealed no significant differences between the treatment and the control group on demographic and family background variables (marital status, education, income, social class, or child sex and age). There were no significant differences between the dropouts and the rest of the sample on any of the demographic or dependent variables.

### *Parent Report Measures*

The MANCOVA revealed a significant group effect for the set of four mother report variables,  $F(4, 88) = 9.01, p < .001$ . As can be seen in Table I, ANCOVA revealed significant ( $p < .01$ ) differences in all four mother report variables between the treatment mothers' reports and the



Table 1. Parent Report Measures Before (Pre) and After (Post) Treatment by Group, and at 1-Year Followup (FU)<sup>a</sup>

Report measure	IVM						Control						IVM vs. control (ANCOVA)	FU		Pre vs. FU
	Pre		Post		Pre		Post		Pre		Post			M	SD	
	M	SD	M	SD	M	SD	M	SD	M	SD						
ECBI total problem	20.74	5.39	12.34	6.41	21.42	5.79	17.75	6.97	16.83 <sup>b</sup>	11.14	6.15	9.32 <sup>b</sup>	11.14	6.15	9.32 <sup>b</sup>	
Mother	17.71	5.63	11.69	7.82	17.75	5.69	14.61	5.51	3.58	8.52	5.28	7.64 <sup>b</sup>	8.52	5.28	7.64 <sup>b</sup>	
ECBI intensity	158.60	24.01	126.40	25.24	155.73	28.68	143.63	33.63	18.70 <sup>b</sup>	121.21	26.77	9.34 <sup>b</sup>	121.21	26.77	9.34 <sup>b</sup>	
Mother	145.06	23.99	122.00	23.97	146.61	18.14	135.86	18.23	9.26 <sup>c</sup>	116.00	26.82	5.11 <sup>b</sup>	116.00	26.82	5.11 <sup>b</sup>	
CBCL total behavior problem	68.16	9.50	59.83	10.68	65.54	10.48	62.79	9.98	12.64 <sup>b</sup>	57.67	13.10	6.42 <sup>b</sup>	57.67	13.10	6.42 <sup>b</sup>	
Mother	66.43	6.65	58.60	8.23	65.39	8.25	61.89	9.08	5.72 <sup>d</sup>	56.78	9.41	6.42 <sup>b</sup>	56.78	9.41	6.42 <sup>b</sup>	
PSI parent domain	150.55	24.22	137.73	23.84	143.07	28.22	139.73	32.54	7.94 <sup>c</sup>	134.26	25.20	7.23 <sup>b</sup>	134.26	25.20	7.23 <sup>b</sup>	
Mother	124.34	24.25	117.43	19.77	136.50	19.44	132.46	19.10	4.27 <sup>d</sup>	119.60	20.02	n.s.	119.60	20.02	n.s.	
Father																
Teacher reports	19.19	11.64	14.69	10.83	17.10	10.98	16.24	10.39	2.24	13.52	11.50	2.96 <sup>c</sup>	13.52	11.50	2.96 <sup>c</sup>	
PBQ total problems																

<sup>a</sup>Note: ECBI = Eyberg Child Behavior Inventory; CBCL = Child Behavior Checklist; PSI = Parenting Stress Inventory; IVM = Individually administered videotape modeling program; PBQ = Behar Preschool Questionnaire. N = 41 mothers and 30 fathers for control group; N = 59 mothers and 37 fathers for IVM group. FU presents followup data only for IVM-treated families.

<sup>b</sup>p < .001.

<sup>c</sup>p < .01.

<sup>d</sup>p < .05.

**Table II. Mother Observations and Reports of Target Child Behaviors and Discipline Approaches Before (Pre) and After (Post) Treatment by Group, and at 1-Year Followup (FU)<sup>a</sup>**

PDR variable	IVM						Control						IVM vs. control	FU		Pre vs. FU
	Pre		Post		Pre		Post		Pre		Post			M	SD	
	M	SD	M	SD	M	SD	M	SD	M	SD						
Target negative behaviors	5.89	2.56	4.00	2.47	6.19	2.79	5.58	3.00	8.99 <sup>b</sup>	3.34	1.72	8.63 <sup>c</sup>	3.34	1.72	8.63 <sup>c</sup>	
Time-out	5.15	6.00	3.34	3.17	5.57	6.51	5.00	8.07	6.21 <sup>b</sup>	1.62	2.45	4.60 <sup>f</sup>	1.62	2.45	4.60 <sup>f</sup>	
Prosocial behaviors	5.67	2.21	7.13	3.19	6.16	3.17	6.35	3.18	11.69 <sup>c</sup>	7.46	3.20	-6.01 <sup>c</sup>	7.46	3.20	-6.01 <sup>c</sup>	
Mother spansks	0.98	1.62	0.47	1.02	2.32	5.81	2.49	4.79	8.07 <sup>b</sup>	0.22	0.68	-3.72 <sup>c</sup>	0.22	0.68	-3.72 <sup>c</sup>	
Father spansks	0.23	0.61	0.02	0.15	0.64	1.19	0.78	1.62	5.82 <sup>b</sup>							

<sup>a</sup>Note: PDR = Parent Daily Reports.

<sup>b</sup> $p < .01$ .

<sup>c</sup> $p < .001$ .

control group reports. For the father report measures, MANCOVA also revealed a significant group effect for the set of four father report variables,  $F(4, 54) = 3.17, p < .02$ . ANCOVA revealed significant differences in three of the four father report variables between treatment fathers' reports and control fathers' reports.

#### *Mother Observations*

The MANCOVA for the mother observations and reports on the five PDR variables was significant,  $F(5, 85) = 5.03, p < .001$ . Biweekly telephone reports indicated that, compared with control mother observations, the IVM mothers reported significantly ( $p < .01$ ) less use of spanking, time-out, targeted negative behaviors, and significantly increased observations of prosocial behaviors (see Table II).

#### *Parent Behavior Summary Variables*

The MANCOVA revealed a significant group effect for the set of mother behavior variables,  $F(4, 80) = 3.78, p < .007$ . As can be noted in Table III, treated mothers were observed to have significantly more positive affect, increased praises, and decreased criticisms, in comparison to control mothers. The MANCOVA for the set of father behaviors was also significant,  $F(4, 47) = 4.05, p < .007$ . Treated fathers were observed to have significantly reduced criticisms and no-opportunity commands.

#### *Child Behavior Variables*

ANCOVA revealed a significant effect for total child deviance and noncompliance when children were observed interacting with their fathers,  $F(1, 62) = 6.08, p < .01$ . The treated children showed a nonsignificant reduction in total deviance and noncompliance when interacting with their mothers compared with control children's interactions with their mothers,  $F(1, 93) = 3.47, p < .06$ .

#### *One-Year Followup*

Analyses initially consisted of repeated measures analyses of variance (pretreatment, posttreatment, followup) for each set of dependent variables: parent reports, mother daily observations, and independent observations of parent and child interactions. Since there was no longer an

Table III. Parent-Child Behavior Summary Scores Before (Pre) and After (Post) Treatment by Group, and at 1-Year Followup (FU)<sup>a</sup>

Behavior	IVM						Control						IVM vs. control	FU		Pre vs. FU
	Pre		Post		Pre		Post		Pre		Post			M	SD	
	M	SD	M	SD	M	SD	M	SD	M	SD						
Total no-opportunity commands	20.25	17.43	15.28	12.45	20.29	12.13	18.56	11.37	2.65	14.27	10.31	2.14 <sup>b</sup>	14.27	10.31	2.14 <sup>b</sup>	2.58 <sup>c</sup>
Mother	16.37	14.28	12.75	8.61	18.05	11.54	21.39	18.06	6.08 <sup>c</sup>	9.86	6.41	2.58 <sup>c</sup>	9.86	6.41	2.58 <sup>c</sup>	
Total criticisms	15.06	14.84	10.23	10.60	15.50	9.33	14.75	10.09	6.93 <sup>c</sup>	9.79	10.10	3.15 <sup>c</sup>	9.79	10.10	3.15 <sup>c</sup>	3.49 <sup>c</sup>
Mother	10.71	7.89	6.87	4.69	11.00	6.74	11.57	7.39	10.31 <sup>c</sup>	5.79	5.22	3.49 <sup>c</sup>	5.79	5.22	3.49 <sup>c</sup>	
Total praise	4.81	4.84	8.32	8.86	3.99	4.01	4.37	3.67	6.08 <sup>c</sup>	7.54	7.33	-2.82 <sup>c</sup>	7.54	7.33	-2.82 <sup>c</sup>	-2.69 <sup>c</sup>
Mother	2.12	1.67	6.29	4.68	4.59	5.13	5.05	6.19	2.86	5.41	6.29	-2.69 <sup>c</sup>	5.41	6.29	-2.69 <sup>c</sup>	
Positive affect	2.99	0.29	2.82	0.34	3.04	0.30	3.05	0.29	10.97 <sup>d</sup>	2.78	0.31	3.55 <sup>d</sup>	2.78	0.31	3.55 <sup>d</sup>	2.39 <sup>b</sup>
Mother	2.96	0.32	2.79	0.27	2.89	0.31	2.94	0.38	3.60	2.73	0.20	2.39 <sup>b</sup>	2.73	0.20	2.39 <sup>b</sup>	
Child total deviance	38.69	27.64	29.43	19.98	39.37	20.28	36.39	20.64	3.47	25.51	16.05	3.51 <sup>d</sup>	25.51	16.05	3.51 <sup>d</sup>	4.63 <sup>d</sup>
With mother	31.59	20.54	24.46	15.79	36.81	23.01	35.53	22.34	4.46 <sup>b</sup>	18.42	10.88	4.63 <sup>d</sup>	18.42	10.88	4.63 <sup>d</sup>	

<sup>a</sup>Note: Followup data are only presented for IVM-treated families.

<sup>b</sup> $p < .05$ .

<sup>c</sup> $p < .01$ .

<sup>d</sup> $p < .001$ .

untreated control group, further analyses consisted of planned comparisons: (a) pretreatment vs. 1-year followup, and (b) posttreatment vs. 1-year followup. (Delayed-treatment families were not included in this analysis.)

Repeated-measures ANOVA revealed significant time effects for the set of mother and father report variables (CBCL, ECBI, PSI), and for the set of mother daily observations (PDR). As can be noted in Table I, when we compared 1-year followup report data with baseline pretreatment scores, treated mothers and fathers reported significantly ( $p < .001$ ) fewer child behavior problems (ECBI, CBCL), and mothers reported significantly reduced stress levels (PSI), whereas fathers did not. Teachers also reported significantly fewer behavior problems on the PBQ. For the PDR daily telephone reports, mothers reported significantly fewer target negative behaviors, and less use of time-outs and spanking, whereas they reported significant increases in child prosocial behaviors (see Table II).

Repeated-measures ANOVA revealed significant effects for the mother-child and father-child behavioral variables. When 1-year followup home observations were compared with pretreatment observations, mothers and fathers continued to exhibit significant behavioral improvements on three out of four behavioral variables ( $p < .01$ ). Finally, we observed that treated children had significantly fewer noncompliant and deviant behaviors when interacting with mothers and fathers, compared with pretreatment levels (see Table III). Thus, the independent observations of children's behaviors not only corroborated the parents' reports of improved adjustment, but indicated that the children continued to improve over time.

### *Clinical Impact of Treatment*

In order to assess the "clinical significance" of these findings, several criteria were used. The first two criteria were the extent to which parent and teacher reports of the child's adjustment were within the normal or nonclinical range of functioning (Jacobson & Revenstorf, 1988). Therefore, in order for a child to be classified as a responder to treatment, the parent had to report a  $T$  score of 63 or lower (raw score = 37 to 42) on the parent CBCL Total Behavior Problem Score and the teacher had to report a score below 17 on the PBQ. These cutoff scores were employed because Achenbach and Edelbrock (1983) and Behar (1977) have reported these scores as the cutoff points between normalcy and deviancy (90th percentile). The third criterion to indicate treatment response was whether or not families continued to request further therapy for their children's behavior problems at the 1-year followup. These three outcome criteria were chosen in order to avoid

reliance on a single informant or criterion measure and to provide validity to the findings.

Results according to mother reports are based on the 40 treated mothers (69%) who reported pretreatment CBCL behavior problem scores in the abnormal range (*T* scores above 63). According to mothers' reports, 19 (47.5%) showed a clinically significant change into the normal range at posttreatment, while 21 (52.5%) remained in the abnormal range. Of those mothers who completed the 1-year followup assessment and had abnormal scores at baseline, 17 (60.7%) were in the normal range at followup and 11 (39.3%) remained abnormal. All of the mothers who had normal scores pretreatment remained in the normal range at posttreatment and at followup.

Results according to father reports are based on the 22 treated fathers (61.1%) who reported pretreatment CBCL behavior problem scores in the abnormal range. Of these, 13 (59.1%) showed a clinically significant change into the normal range posttreatment, while 9 (40.9%) remained in the abnormal range. In addition, two of the fathers who reported behavior problems in the normal range pretreatment showed a change into the abnormal range immediately posttreatment. At the 1-year followup, 8 fathers (57.1%) showed a clinically significant change into the normal range, while 6 (42.9%) remained in the abnormal range. All of the fathers who reported behavior problem scores in the normal range pretreatment remained in the normal range at followup.

The results according to teacher reports are based on the 44 children who had 1-year followup teacher data. (There were 16 additional children who were either not in school or had missing teacher data.) Of these 44 children, at baseline, according to teacher reports, 20 (45.5%) were reported as behaving within the normal range according to the PBQ. Another 24 children (54.5%) were reported by teachers to be in the deviant range (16 were not enrolled in preschools or daycare centers). Of those 24 children originally reported as deviant according to teachers' PBQ scores, 10 (41.7%) improved and were in the normal range of functioning according to teacher (PBQ) scores 1 year later, and 14 (58.3%) remained abnormal. Of the 20 children who were previously reported by preschool teachers as behaving normally, 4 (20.0%) became significant problems in school 1 year later according to PBQ scores. Therefore, at the 1-year followup, of all the children in school, 26 children (59.1%) had teacher scores in the normal range, whereas 18 children (40.9%) had scores in the deviant range for behavioral conduct according to the PBQ.

The third criterion for treatment success or failure was whether or not a family (mother or father) requested further therapy at the 1-year followup assessment. Thirty-four families (77.3%) did not request further

help, whereas 10 families (22.7%) wanted more therapy for their children's behavior problems.

### *Prediction of Treatment Outcome*

One of the primary purposes of this study was to determine which predictor variables were related to treatment outcome. For treated mothers, the five predictor variables assessed were as follows: (a) mother depression (BDI); (b) socioeconomic status (SES); (c) number of negative life experiences (NLES); (d) mental age; and (e) single vs. married marital status (MARSTAT). In regard to the marital status predictor, approximately 34% of the mother group did not have marital partners. Since we were interested in predictors for both married and single mothers, the marital satisfaction score was also used for the married mother sample. For treated fathers, the predictive variables assessed were as follows: (a) father depression (BDI); (b) socioeconomic status (SES); (c) negative life experiences (NLES); (d) mental age; and (e) marital satisfaction (MAT). Since none of the fathers were single, the marital satisfaction score was used as the predictor rather than the single vs. married score which was used for the mothers. All five predictors were derived from the pretreatment assessment.

Three of the treatment outcome variables were chosen to assess a family's response to treatment: parent and teacher reports; total parent critical statements; and total child negative behaviors. These specific behaviors were selected from the DPICS coding system in order to focus on parent and child behaviors which have been shown to discriminate clinic and nonclinic mothers and children (Forehand, King, Reid, & Yoder, 1975; Patterson, 1982; Webster-Stratton, 1985b).

The relationships between the five predictors and the three dependent outcome variables at immediate posttreatment and at 1-year followup were examined using Pearson product-moment correlations. Correlations involving father measures and MAT scores were based only on the sample of 37 married fathers who were treated; correlations involving teachers were based on 42 teachers, as some children were not in school; the rest of the correlations and analyses involving mother measures were based on 59 treated families. Only correlations at  $p < .01$  level were considered significant.

At the immediate posttreatment assessment, for the parent report of child adjustment outcome criterion (CBCL), there were significant ( $p < .01$ ) correlations between single-mother status and high maternal depression and more negative perceptions of child adjustment (see Table IV).

**Table IV. Correlations Between Mother Predictors and Outcome Variables Immediately Posttreatment (Post) and at 1-Year Followup (FU)<sup>a</sup>**

	Outcome variables									
	Mother perception			Mother behavior			Child behavior with mother		Teacher perception	
	Post	FU	Post	FU	Post	FU	Post	FU		
<b>Intrafamilial predictors</b>										
MARSTAT	-.32 <sup>b</sup>	-.41 <sup>b</sup>	-.40 <sup>f</sup>	-.43 <sup>c</sup>	-.28 <sup>b</sup>	-.35 <sup>b</sup>	-.31 <sup>b</sup>	-.28 <sup>d</sup>		
BDI	.34 <sup>b</sup>	.14	.21 <sup>d</sup>	.46 <sup>c</sup>	.21 <sup>d</sup>	.40 <sup>b</sup>	.28 <sup>b</sup>	-.10		
Mental age	-.12	-.18	-.32 <sup>b</sup>	-.58 <sup>c</sup>	-.27 <sup>d</sup>	-.31 <sup>b</sup>	-.10	-.13		
MAT	-.30 <sup>d</sup>	-.07	-.18	-.16	-.20	-.20	.24	.25		
<b>Extrafamilial predictors</b>										
NLES	.17	.09	.32 <sup>b</sup>	.24 <sup>d</sup>	.34 <sup>b</sup>	.16	.15	-.008		
SES	.20	.19	.23 <sup>d</sup>	.55 <sup>c</sup>	.17	.53 <sup>c</sup>	.008	.11		

<sup>a</sup>Note: Marital Status (MARSTAT): 1 = married, 0 = single; socioeconomic status (SES): higher values indicate lower status; NLES is number of negative life events; MAT = Marital Adjustment Test (only married mothers:  $n = 37$  at post;  $n = 29$  at FU). BDI = Beck Depression Inventory. For all measures other than MAT,  $n = 59$  at post;  $n = 50$  at FU. Only treated subjects were included in analyses.

<sup>b</sup> $p < .01$ .

<sup>c</sup> $p < .001$ .

<sup>d</sup> $p < .05$ .



**Table V. Correlations Between Father Predictors and Outcome Variables Immediate Posttreatment (Post) and at 1-Year Followup (FU)<sup>a</sup>**

	Outcome variables									
	Father perception			Father behavior			Child behavior with father		Teacher perception	
	Post	FU	Post	Post	FU	Post	FU	Post	FU	
<b>Intrafamilial predictors</b>										
MAT	-.22	-.11	-.29 <sup>b</sup>	-.21	-.21	-.34 <sup>b</sup>	-.22	.03	.07	
BDI	.36 <sup>c</sup>	.16	-.12	.05	.35 <sup>c</sup>	.06	.30 <sup>b</sup>	-.16	-.09	
Mental age	.37 <sup>c</sup>	.32	-.03	.13	.06	.06	.05	-.20	-.46 <sup>c</sup>	
<b>Extrafamilial predictors</b>										
NLES	.40 <sup>c</sup>	.18	-.04	.11	.37 <sup>c</sup>	.29 <sup>b</sup>	.34 <sup>b</sup>	-.05	.03	
SES	.15	-.22	.20	.30 <sup>b</sup>	.29 <sup>b</sup>	.29 <sup>b</sup>	.29 <sup>b</sup>	.06	.20	

<sup>a</sup>Note: *n* = 35 at post; *n* = 29 at FU. Only treated subjects included in analyses. MAT = Marital Adjustment Test; BDI = Beck Depression Inventory; NLES = number of negative life events; SES = socioeconomic status.

<sup>b</sup>*p* < .05.

<sup>c</sup>*p* < .01.

For fathers, there were significant correlations between high mental age, depression, and high negative life stressors and more negative father perceptions of their children's behaviors (see Table V). According to teacher reports of child adjustment, mother single-parent status and depression were correlated with teacher reports of increased child behavior problems (see Table IV).

For the mother behavior outcome criterion, there were significant ( $p < .01$ ) correlations between single-parent status, low mental age, and high negative life stressors and more mother critical behaviors when interacting with their children. For the father behavior criterion, there were no significant correlations immediately posttreatment.

For the outcome criterion involving child behaviors with mothers, there were two significant positive correlations, between single-parent status and total negative life stress and more deviant child behaviors. For child behavior interactions with fathers, there were two significant correlations, between father reports of depression and negative life stress and more deviant child behaviors with fathers.

At the 1-year followup for the mother outcome criterion, there continued to be significant correlations between single-mother status and more negative mother perceptions of child adjustment and between high maternal depression, single status, low socioeconomic status, and low mental age and more critical mother behaviors and more deviant child behaviors. For the father outcome criterion, there were no significant correlations except that low father mental age was correlated with teacher reports of increased child behavior problems (see Table V).

Next, in order to determine how the predictor variables were related to families who showed clinically significant changes, families were coded as 1 if the mothers or fathers changed from the abnormal range on the CBCL into the normal range and as 0 if family scores remained in the abnormal range at both time points. With the exception of marital status, point-biserial correlations were computed between the predictors and the outcome variable. For marital status, which was dichotomized as partnered vs. nonpartnered, chi-squared tests were used.

Results for the mothers indicated that partnered mothers were more likely to show clinically significant change posttreatment than nonpartnered mothers (61.5% of partnered mothers vs. 21.4% of nonpartnered mothers showed significant change). Also low-SES mothers were more likely ( $p < .05$ ) to show clinically significant change posttreatment. There were no significant correlations for these predictors at 1-year followup. Results for fathers indicated that fathers with lower mental ages were more likely to show significant change at both posttreatment assessments. High-SES fathers were more likely to show clinically significant change at posttreatment (see Table VI).

**Table VI.** Correlations Between Predictors and Clinically Significant Change in Mothers' and Father's Perceptions of Behavior Problems<sup>a</sup>

	Mother perception		Father perception	
	Post	FU	Post	FU
Marital status	4.37 <sup>b,d</sup>	1.61 <sup>b</sup>	—	—
BDI	-.10	-.02	-.31	-.13
Mental age	.04	.26	-.56 <sup>c</sup>	-.50 <sup>d</sup>
MAT	.16	.22	.11	.05
NLES	-.04	-.04	-.25	-.19
SES	-.28 <sup>d</sup>	-.25	.46 <sup>d</sup>	.36

<sup>a</sup>Post = posttreatment; FU = followup; BDI = Beck Depression Inventory; MAT = Marital Adjustment Test; NLES = number of negative life events; SES = socioeconomic status.

<sup>b</sup>Chi-square.

<sup>c</sup> $p < .01$ .

<sup>d</sup> $p < .05$ .

## DISCUSSION

This study replicates an earlier study showing that individually administered videotape parent training based on cognitive social learning theory leads to significant improvements in both mother and father reports of child behavior problems and in parent-child behavioral interactions and discipline approaches immediately posttreatment. These improvements were maintained 1 year later.

The 1-year followup findings relative to the "clinical impact" of treatment indicated that approximately 39.3% of mothers and 42.9% of fathers who reported CBCL scores in the abnormal range pretreatment still reported abnormal scores 1 year later. Moreover, 40.9% of teachers still reported children to have behavior problems in the deviant or clinical range. More than 22% of the families still had ongoing concerns and wanted further therapy for their children.

The next important purpose of the study was to determine what extrafamilial, family, and psychological factors were related to a family's success or failure with the IVM treatment. This study indicated that the factors were somewhat different for mothers' responses than for fathers' responses to IVM treatment. For mothers, single-parent status was significantly correlated with more negative mother and teacher reports of child adjustment, more critical mother behaviors and more deviant child behaviors at both posttreatment assessments. High maternal depression and mental age were significantly correlated with two of the four outcome variables at both assessments. While negative life stress was correlated with mother critical behaviors and child deviance immediately posttreatment, this was not so at 1-year followup. At 1-year followup social class was significantly correlated

with more critical mother behavior and increased child deviance. As for the predictors of clinically significant change, being partnered and having low SES were significant predictors at posttreatment but not at followup.

For fathers, high negative life stress was significantly correlated with two of the outcome variables immediately posttreatment but not 1 year later. Father mental age was correlated with more negative perceptions of child adjustment immediate posttreatment and with more negative teacher reports of child adjustment 1 year later. Low education and occupation was not correlated with any outcome criteria at either assessment period. Father depression was significantly correlated with two of the four outcome variables immediately posttreatment but not at 1-year followup. As for the predictors of clinically significant change, surprisingly, low mental age predicted significant change at both assessment periods, while high SES predicted change at posttreatment.

Who, then, should be offered the IVM program? Based on these data, it could be argued that families with conduct problem children should be assessed and then assigned to the IVM program only if the mothers are partnered or have low depression or high mental age, or conversely, if fathers have low depression or low life stress or low mental age. However, the predictors only accounted for a small amount of variance in outcome. Further if this screening approach were used, it would not only eliminate many families, but also would not acknowledge the fact that approximately 69% of the families made clinically significant changes on their own (specifically, met at least two of the three criteria for treatment success at the 1-year followup). It would seem both expedient and cost-effective to first offer the IVM program to all families with conduct problem children. Upon completion of the program, the families could then be assessed for the severity of ongoing child behavior problems, their level of satisfaction with the program, degree of compliance, and motivation to do homework assignments, as well as for parents' ongoing personal problems. Based on this assessment, a decision could be made either that the family had responded in a clinically significant way to the treatment and needed no further intervention or that additional personalized therapy was needed.

Even for those depressed and highly stressed parents who in all likelihood will need further therapy, first offering them the IVM program could have potential advantages. By studying the videotape programs first, the parents are educated in social learning theory and the most effective parenting skills needed to foster their children's prosocial skills. Following this learning period, the therapist's time is then spent with the parents clarifying areas of misunderstanding and discussing areas of resistance and how emotional factors make it difficult to carry out the desired parenting skills. Thus the therapist's time is spent more efficiently in a collaborative

role with the parents, engaged in the process of "fine-tuning" the parents' learning by problem solving and reinforcing their own ideas rather than reiterating principles, lecturing, or telling the parents how they "should handle" problems. Moreover, this approach of first offering parents the IVM program to do on their own gives parents credit and responsibility for their own learning and, even if further therapy is indicated, sets the stage to foster the family's self-efficacy and self-control, and a collaborative approach.

One limitation of this study should be noted. At the 1-year followup, there was no longer an untreated control group. Due to the ethical issues of withholding treatment from families with conduct-disordered children, the control group was subsequently treated after a 4-month waiting period. Therefore, it cannot be stated with certainty that the continued mother and father and child improvements observed at 1 year were due to the self-administered videotape treatment programs as opposed to maturational or other effects. However, since the 1-year followup findings were so similar to those at immediate posttreatment, it would seem that long-term improvements were secondary to the intervention.

In summary, these data support that a cost-effective, self-administered videotape modeling parent training program can produce some significant improvements in parent perceptions and promote more positive parent-child interactions. It is an especially helpful approach for educated parents who have good family support, are not depressed, and are not experiencing a great deal of negative life stress. However, it is not as helpful an approach for highly stressed families. These results are not that different from other studies which have indicated that a family's ability to benefit from parent programs, even those involving intensive therapist counseling, is influenced by the parents' psychological status and level of extrafamilial support and life stress (Dumas & Wahler, 1983; Griest & Wells, 1983).

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