

A Comparison of Three Family Therapy Programs for Treating Family Conflicts in Adolescents With Attention-Deficit Hyperactivity Disorder*

By: Russell A. Barkley, David C. Guevremont, Arthur D. Anastopoulos, and Kenneth E. Fletcher

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Attention-deficit hyperactivity disorder (ADHD; American Psychiatric Association, 1987) is a relatively chronic developmental disorder of sustained attention, impulse control, and activity regulation that arises early in childhood and often persists into adolescence (Barkley, Fischer, Edelbrock, & Smallish, 1990; Weiss & Hechtman, 1986). Parents of ADHD adolescents, however, often are concerned about their teens' greater degree of behavior management problems, rebelliousness, conduct problems, and family interaction conflicts compared with normal adolescents (Ackerman, Dykman, & Peters, 1977; Barkley, Anastopoulos, Guevremont, & Fletcher, 1991; Robin, 1990; Weiss & Hechtman, 1986). These parents rated their relationships with their teenagers as filled with more issues of conflict, more anger during conflict discussions, and more negative communication patterns than did parents of adolescents in a control group. However, the majority of these interaction problems occur in that subgroup of ADHD adolescents having coexisting oppositional defiant disorder (ODD) than in those teens with ADHD alone (Barkley, Anastopoulos, Guevremont, & Fletcher, in press; Barkley, Fischer, Edelbrock, & Smallish, 1991). Both the ADHD/ODD teens and their parents are more likely to use aversive behaviors (e.g., insults, commands, complaints, defensiveness) during discussions with each other than are parent-teen dyads in control groups (Barkley et al., in press-a). Anecdotal evidence (Robin, 1990) suggests that these conflicts may be a major reason why parents seek treatment for their teens. Adolescent and adult outcome studies with hyperactive children, moreover, indicate that early and chronic family interaction conflicts are predictive of later young adult social maladjustment and antisocial behavior (Barkley et al., 1991; Hechtman,

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Weiss, Perlman, & Amsel, 1984; Loney, Whaley-Klahn, Kosier, & Conboy, 1981). For these reasons, interventions that specifically address these conflicts need to be evaluated for their efficacy with this mixed ADHD/ODD population.

To date, however, the only studies of treatments specifically with ADHD adolescents have been those on the efficacy of stimulant medication treatment (Klorman, Coons, & Borgstedt, 1987; Mackay, Beck, & Taylor, 1973; Lerer & Lerer, 1977; Varley, 1983, 1985). No studies, to our knowledge, have examined the potential promise of family-based interventions for parent-adolescent conflicts in specifically diagnosed ADHD teenagers. This dearth of studies has prompted recent reviewers to recommend that family interventions be a high priority for future child research (Kazdin, Bass, Ayers, & Rodgers, 1990).

Several promising family treatments do appear to exist for ADHD teenagers having family conflicts (Dumas, 1989; Kendall & Williams, 1986; Robin & Foster, 1989). One treatment for oppositional children has been child behavior management training (BMT) with parents (Dangel & Polster, 1984; Forehand & McMahon, 1981; Patterson, 1982). Barkley (1987) has designed such a program that successfully reduces parent-child conflicts and child noncompliance in hyperactive or ADHD children (Pisterman et al., 1989; Pollard, Ward, & Barkley, 1983). It would seem promising to modify this approach for parents of adolescents and evaluate its efficacy with ADHD teenagers.

A second approach is structural family therapy (SFT; Minuchin 1974; Minuchin & Fishman, 1981). A meta-analytic review of studies using this treatment that also used a control group concluded that it was more effective than alternative therapies or than a no-treatment control group (Hazelrigg, Cooper, & Borduin, 1987). More recently, others (Mann, Borduin, Henggeler, & Blaske, 1990; Szapocznik et al., 1989) found a broader multisystemic version of this therapy to be equivalent or even superior to individual child psychodynamic therapy and more effective than a control treatment condition in treating clinic-referred boys with behavioral problems. Such an approach would seem promising for families of ADHD adolescents.

A third approach is the recent development of problem solving and communication training (PSCT) programs for parent-adolescent conflicts (Patterson & Forgatch, 1987; Robin & Foster, 1989). This approach combines elements of both of the above treatments in that it instructs family members in behavioral skills, such as problem solving, communication tactics, and contingency management, along with aspects of family therapy such as treatment of family systems, coalitions, and degrees of enmeshment or disengagement. These techniques are also coupled with aspects of cognitive therapy (Beck, 1976; Ellis & Grieger, 1977) that focus on restructuring irrational beliefs. Studies (Foster, Prinz, & O'Leary, 1983; Robin & Foster, 1989) have found that PSCT was equally as effective as an alternative family therapy approach (systems and psychodynamic approaches) and more effective than a no-treatment control group. Only PSCT resulted in significant gains in problem-solving and communication behaviors as assessed by behavioral observations. Treatment gains were maintained at a 10-month follow-up. However, no previous studies of PSCT have used clinic-referred families but instead have relied on volunteers responding to newspaper ads soliciting distressed parent-adolescent dyads. Such families may be less deviant in their conflicts than those seen in clinics. Although PSCT holds

much promise for work specifically with ADHD/ODD adolescents, it remains to be tested on the levels of deviance and conflict often noted in clinic-referred populations.

The present study compared these three programs relative to each other in treating the parent–adolescent conflicts seen in adolescents with ADHD, the majority of whom also had ODD. All three programs had previously demonstrated their effectiveness relative to no-treatment control groups and psychodynamic approaches to therapy. Also, ethical issues were raised in withholding treatment from clinic-referred families at this institution. Therefore, a waiting-list or no-treatment control condition was not used.¹ Instead, we tried to determine the relative effectiveness of these treatments for ADHD adolescents.

Recent reviews of treatment outcome studies of child and adolescent therapies (Kazdin et al., 1990; Kendall & Morris, 1991) noted a number of problems in past research. We attempted to address these past deficiencies by using a clinic-referred sample of ADHD adolescents whose degree of deviance was comparable to that likely to be seen in general clinical practice, by monitoring and maintaining the integrity of the treatment approaches, by selecting assessment instruments that evaluated both treatment outcome (e.g., reduced conflicts, altered beliefs, better communication, and better problem-solving skills used in conflict resolution) and family characteristics that might moderate treatment success (e.g., family cooperation and satisfaction, teen locus of control), by using a 3-month follow-up assessment, by examining the utility of predictors of treatment response, and by statistically assessing clinically significant change and recovery in each treatment group.

Method

Subjects

A group of 64 adolescents with ADHD and their mothers were admitted into this study. All adolescents were 12–17 years of age, had IQ estimates greater than 80 on the Peabody Picture Vocabulary Test—Revised (Dunn & Dunn, 1981), were either the biological offspring of these mothers or were adopted by them shortly after birth, and had no evidence of major physical or psychotic problems. Participants signed informed consent.

To be considered eligible, the adolescents had to (a) be referred to the ADHD Clinic and diagnosed as ADHD; (b) have parent or teacher complaints of inattention, poor impulse control, and overactivity as established through the parental interview; (c) have at least 8 of the 14 symptoms of ADHD (American Psychiatric Association, 1987); (d) have a duration of these symptoms of at least 12 months; (e) have an age of onset of these symptoms by 7 years; (f) have a *T* score greater than 65 on the hyperactivity scale of the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983) as completed by the mother; (g) if currently receiving psychoactive medication, be willing to remain on this medication during the active phase of treatment (8–10 weekly sessions); (h) agree not to seek out any other form of psychiatric or psychological treatment during the course of active treatment in the project; and (i) have no immediately ongoing legal proceedings against them for criminal or status offenses by the local juvenile authorities.

Adolescents and their parents were randomly assigned within sex to one of three possible treatment conditions: BMT, PSCT, and SFT. Of the 64 families entering therapy, 61 completed

at least eight sessions and received their posttreatment and follow-up evaluations. Two dropouts occurred in BMT, none in PSCT, and 1 in SFT, leaving the final sample sizes as 20, 21, and 20, respectively. All subjects were White.

Procedures

Subjects and their mothers completed structured interviews, rating scales of behavioral adjustment and family conflicts, and parental self-report measures of psychological adjustment. The mothers and their teenagers were then videotaped while they discussed a neutral topic for at least 10 min and then discussed a list of five current significant conflicts with each other for another 10 min. Arrangements were made with prescribing physicians for the few subjects taking stimulant medication to discontinue this medication 48 hr before each of the evaluations. Families were then assigned to a treatment condition provided by one of two therapists, and treatment began within approximately 3 weeks following this initial evaluation. Half of the families in each treatment condition were treated by each of two therapists to control for therapist effects.

Treatment conditions

Two licensed clinical psychologists with doctoral degrees were the family therapists. Each was trained in the three treatments by an expert in that approach (see *Treatment integrity* below). Both parents were not required to attend therapy, but mothers had to be consistently involved in all sessions. If both parents began therapy, both were required to remain in therapy until its completion. The adolescent attended all sessions of PSCT and SFT but did not attend any in BMT.

To ensure equivalent expectations about treatment, parents, and teens where present, were told during the first session that each treatment was effective in addressing their conflicts. Furthermore, there was no reason to believe that any one treatment was relatively more beneficial than the others. The remainder of this session was used to review the major activities that would take place in therapy, the scheduling of subsequent sessions, and the restrictions placed on the family by the project. Also, to guarantee that each family received the same information about ADHD, each family reviewed a 1½-hr videotape (developed by Russell A. Barkley) between the first and second sessions of treatment. The content of the tape was discussed at the beginning of the second session. All families received 8–10 weekly 1-hr sessions.

The *behavior management training* (BMT) approach followed the manual published by Barkley (1987) with several exceptions. The session on developing parental positive attention was modified slightly for adolescents, and the session on time-out was altered such that brief intervals of grounding (isolation to the home) were substituted for time-out in a chair for rule violations. Sessions dealt with the use of positive parental attention, point systems or token reinforcement, daily home–school report cards linked with the home token system, brief periods of grounding for unacceptable behavior, and instruction to parents on how to anticipate impending problem situations and establish plans in advance to deal with them. Homework assignments were an integral part of most sessions.

The *problem-solving and communication training* (PSCT) approach followed the manual published by Robin and Foster (1989). This program contains three major components for changing parent–adolescent conflict: (a) training in a 5-step problem-solving approach; (b) altering ineffective communication styles and developing more effective communication during family conflicts; and (c) detecting and restructuring irrational, extreme, or rigid beliefs held by parents or teens about their own or the other's conduct. Homework assignments were given in later sessions involving practice of the PSCT skills at home during a conflict discussion and audiotaping that discussion for later review by the therapist.

The *structural family therapy* (SFT) approach followed the principles set forth by Minnuchin (1974) as described by Aponte and Van Deusen (1981) in helping families to identify and alter maladaptive family systems or interaction processes, such as transgenerational coalitions, scapegoating, triangulations, and so forth. The techniques used by the therapist focused on creating transactions, joining with the family's transactions, and helping to restructure maladaptive transactions (i.e., system recomposition, system refocusing, structural modifications). The concepts of family boundaries, alignment, and power were used by the therapists to analyze family dynamics and propose possible changes to the current family system and structure. Homework assignments were less structured than in BMT or PSCT and typically involved instructions to replace ineffective family transactions with novel strategies (e.g., empowering a parent weak in authority).

Treatment integrity

Numerous steps were taken to ensure integrity. Each therapy had a session-by-session manual and an associated text that was read by the therapist and reviewed during training (Barkley, 1987, for BMT; Aponte & Van Deusen, 1981, for SFT; Robin & Foster, 1989, for PSCT). Each therapist also received 6–8 hr of didactic training in the respective treatment program by clinical psychologists highly experienced with that approach. In addition, each therapist undertook at least two pilot families under weekly supervision.

During delivery of the therapy, only one treatment was in process at a time so that all families being treated by the two therapists were all within the same type of treatment. The sequence of treatments over the course of the project was randomized. During each treatment phase, the therapists met weekly for supervision with the trainer. For SFT and BMT, these meetings were face-to-face with the trainers, whereas for PSCT weekly teleconference calls were held. Once treatment began, all sessions were audiotaped, and 20% of these tapes were randomly selected for review by the trainers for adherence to the program. Each tape was rated using a scale assessing the major principles important to that therapy approach and whether or not the therapist had adhered to these principles. Feedback was provided to the therapist within 1–2 weeks following that session. At no time during these tape reviews was any session of therapy found by the trainer to be in violation of the principles of that treatment approach or to be contaminated by the major principles of the other two approaches.

Screening Measures

Parental interview

A structured interview was constructed specifically for this project. It consisted of questions pertaining to the current status of the family; demographic data; and the academic, social,

medical, and mental health histories of the teenagers and information on the symptoms of the disruptive behavior disorder diagnoses in the *DSM-III-R*.

Hollingshead Four Factor Index of Social Status (Hollingshead, 1975)

This index was used to assess mothers' and fathers' socioeconomic status separately.

Peabody Picture Vocabulary Test—Revised (PPVT-R; Dunn & Dunn, 1981)

The PPVT-R was used to obtain an estimate of the teen's verbal IQ.

Life Stress Scale (Abidin, 1986)

The 21 yes/no items from the Life Events scale of the Parenting Stress Index were used to evaluate major life events that occurred within the past 12 months. The score was the number of stressful life events endorsed by the mother.

Symptom Checklist-90—Revised (SCL-90-R; Derogatis, 1986)

The SCL-90-R was completed by mothers concerning a variety of symptoms of adult psychological maladjustment using 90 items, each rated on a 5-point scale. The Global Severity Index served as the measure.

Multidimensional Measure of Children's Perceptions of Control (MMCP; Connell, 1980, 1985)

The MMCP was completed by the teenagers. It contains 24 items involving causal attributions that pertain to internal, external, and unknown sources of control in life events. Each item is rated on a 4-point response, and half of the items pertain to successes and half to failures. The Internal, External Other, and External Unknown summary scores were used.

Dependent Measures

Most of the following measures were taken at the initial pretreatment evaluation, immediately after the final session of family therapy, and approximately 3 months following the termination of treatment. The exceptions were the Family Beliefs Inventory (Vincent-Roehling & Robin, 1986) given at pre- and posttreatment, a measure of consumer satisfaction taken at the end of treatment, and a therapist rating of family cooperation taken at the end of each session.

Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983)

This scale yields T scores for Social Competence scales (Activities, Social, School) and for two broad-band scales of psychopathology (Internalizing and Externalizing).

Child Behavior Checklist—Youth Self-Report (CBCL-YSR; Achenbach & Edelbrock, 1987)

This scale is comparable to the CBCL in its item format except that items are worded in the first person. T scores can be obtained for two Social Competence scales (Activities and Social) and for two broad-band dimensions of psychopathology (Internalizing and Externalizing).

Conflict Behavior Questionnaire (CBO; Robin & Foster, 1989)

This is a 20-item rating scale assessing communication and conflict in parent-adolescent interactions. Each item is scored true or false. Both parent and adolescent complete the scale, and a single score is obtained for each respondent. Higher scores represent more negative

communications in the interactions. Mothers and teenagers completed this scale. Adolescents also completed a scale about their relationships with their fathers where present in the family.

Issues Checklist (Robin & Foster, 1989)

This is a list of 44 topics about which parents and teens may disagree. It requires each person to indicate whether the conflict topic has been discussed within the past 2 weeks, and, if so, approximately how many times and with what degree or intensity of anger (5-point scale). Three scores are obtained separately for the parent and adolescent: number of conflicts, mean anger intensity, and weighted frequency/intensity (WF/I). The WF/I score reflects the anger intensity weighted by the frequency with which that conflict discussion occurred in the past 2 weeks. Scoring, reliability, and validity are discussed in the text by Robin and Foster (1989). Mothers and adolescents completed a scale about each other, and adolescents completed one about their fathers where present in the family.

Locke-Wallace Marital Adjustment Test (LWMAT; Locke & Wallace, 1959)

The LWMAT is a brief 15-item scale of marital satisfaction.

Beck Depression Inventory (Beck, Steer, & Garbin, 1988)

This 22-item scale was completed by mothers for evaluating sadness and depression. Each item was rated on a 4-point scale (0–3), and items were summed to yield a single score. The scale has excellent reliability and validity.

Family Beliefs Inventory (FBI; Vincent-Roehling & Robin, 1986)

This questionnaire was used to assess distorted cognitions and unreasonable beliefs in parent–adolescent conflicts. The scale assesses 10 types of unreasonable beliefs, 6 for the parents and 4 for the teenagers. For the parents, these are ruination, obedience, perfectionism, approval, self-blame, and malicious intent. For the adolescents, these are ruination, autonomy, approval, and unfairness. The FBI presents 10 vignettes describing typical parent–adolescent conflicts, such as choice of friends, allowance, curfew, and so forth. After each vignette, a series of statements is provided, one for each type of unreasonable belief noted above. Each belief is rated on a 7-point Likert scale reflecting how much the respondent agrees with this belief. Two responses that reflect more rational, less extreme beliefs are intermingled with the other beliefs to reduce response bias, but these are not scored. Scores for each belief are obtained by summing the responses across all 10 vignettes (range 10–70). Higher scores indicate more extreme beliefs. The mother and teen each completed one scale before treatment and at posttreatment but not at follow-up. Fathers did not complete this scale.

Parent–Adolescent Interaction Coding System—Revised (PAICS–R; Robin & Foster, 1989)

Parents and teens were placed in a clinic room with one-way observation mirror and intercom and participated in two types of discussions, which were videotaped. The neutral discussion (plan a vacation given unlimited funds) lasted approximately 10 min. The next situation, the conflict discussion, required the mother and adolescent to discuss for 10–15 min the five most angry conflicts the mother had reported on the Issues Checklist, described above.

All utterances by the dyads were transcribed and coded into six behavior categories separately for each participant using the definitions and codes from the PAICS–R. These categories were

commands/ put downs, defends/complains, problem solves, facilitates, defines/evaluates, and talks. Definitions for these categories are found in the text by Robin and Foster (1989). Separate scores were obtained for the percentage occurrence of each category for each participant. The coder was extensively trained by one of the developers (Robin) of this coding system to a level of reliability of 0.80. Thereafter, the coder met weekly with one of the investigators, also trained in this system, for further training, problem-solving discussions, and periodic informal intercoder reliability checks. The coder was blind to treatment membership of the subjects.

Interrater reliability was conducted on 15 randomly chosen videotapes and their transcripts by using a second coder trained in this system for a separate study of hyperactive teenagers at a different site. The first coder was unaware of which tapes were selected for these checks. This second coder was blind to group membership. Reliability was calculated as the number of agreements divided by the total number of interactions coded (agreements plus disagreements). Overall reliability across all six coding categories was 73.8%. For each category, reliability was 69.5% for commands/put downs, 74.4% for defends/complains, 85.3% for problem solves, 77.8% for facilitates, 67.6% for defines/evaluates, and 64.9% for talks. The kappa coefficient for all coded interactions ($n = 3,498$) was 0.68, $z = 74.47$, $p < .001$.

A separate study of the 2-week test–retest reliability of this measure (Barkley, Guevremont, Anastopoulos, & Fletcher, 1990) using 8 normal and 8 ADHD adolescents and their mothers found the correlations to be low for all codes and nonsignificant for some, particularly during the conflict discussion. However, the stability of group means over time, as assessed by t tests, did not change significantly over this time period.

Therapist rating of family cooperation

A rating scale of five items assessing family cooperation using a 1 (*low*) to 7 (*high*) rating for each item was completed following each session. The items were acceptance of therapist, quality of communication in therapy, quality of effort in problem solving, completion of homework, and achievement of session goals. A mean score was calculated across all items and then across all sessions.

Consumer satisfaction survey

A 5-item consumer satisfaction survey was given to the parents to complete at the end of treatment and then returned to the principal investigator (R.A.B.), who did not serve as a therapist. Parents were told their responses would not be shared with the therapist. A total score was derived by summing the ratings across these items.

Results

Subject Selection and Treatment-Related Variables

The results from the initial subject selection measures for subjects completing treatment and 3-month follow-up assessments are shown in Table 1. The groups were compared using one-way (groups) analyses of variance (ANOVAs), the results of which are shown in Table 1. Where the ANOVA was significant, Tukey's HSD test was used for pairwise contrasts. The groups did not differ in any important demographic or screening characteristics. The only exception was that fathers in the SFT group were older than those in the other two groups.

Table 1
Means and Standard Deviations for the Demographic Information and Initial Subject Characteristics by Treatment Group

Measure	BMT			PSCT			SFT			F	χ^2	Contrast ^b
	M	SD	%	M	SD	%	M	SD	%			
Teen												
Age (years)	13.8	1.4		13.6	1.4		14.2	1.3		<1.00		
IQ (PPVT-R)	102.6	12.7		103.6	12.5		106.2	20.4		<1.00		
% male			90.0			90.5			95.0		0.41	
Mother												
Age (years)	39.3	6.5		39.1	4.5		41.2	5.2		1.23		
Education (years)	13.2	2.1		13.5	2.3		14.2	2.1		1.07		
SES	40.5	25.2		44.3	26.8		51.0	21.5		<1.00		
Father												
Age (years)	39.9	6.0		39.7	3.8		44.3	6.4		4.43*		3 > 1, 2
Education (years)	13.2	2.7		13.9	2.4		14.9	2.6		2.29		
SES	56.3	23.4		47.1	21.3		54.5	23.4		<1.00		
% mothers married			75.0			76.2			90.0		5.32	
No. of other children	2.1	1.8		2.0	0.9		2.4	1.4		<1.00		
ADHD												
No. of symptoms	10.1	1.3		10.1	2.2		10.8	1.5		1.19		
Onset (years)	4.3	1.6		3.7	2.1		4.4	2.5		<1.00		
ODD												
Symptoms	5.4	2.4		4.2	2.1		4.0	2.3		2.04		
%			95.0			76.2			65.0		5.48	
CD												
No. of symptoms	1.6	1.4		0.9	1.0		1.1	1.1		1.93		
%			55.0			38.1			45.0		1.19	
CBCL Hyperactive scale (T score)	79.7	8.3		77.1	9.8		78.8	8.0		<1.00		
Teen MMCP:												
Internal	14.5	2.4		14.9	2.2		14.9	3.8		<1.00		
External other	21.7	3.9		22.9	3.8		22.7	3.8		<1.00		
External unknown	21.0	5.4		23.1	4.2		23.2	3.3		<1.00		
BDI, mother	9.9	7.3		7.0	6.0		9.1	9.7		<1.00		
Locke-Wallace MAT	96.4	24.4		97.4	25.9		100.6	35.0		<1.00		
SCL-90-R GSI	55.1	11.2		53.9	8.7		53.3	9.0		<1.00		
Stress events	3.5	2.1		3.3	2.2		3.4	2.7		<1.00		
No. of treatment sessions	8.9	0.9		8.9	0.9		8.5	0.6		1.52		
% fathers attending ^a			40.0			62.5			94.0		11.48**	3 > 1, 2
Family cooperation	5.9	0.6		5.2	0.8		5.7	1.0		4.14*		2 < 1, 3
Consumer satisfaction	15.3	1.1		15.2	1.1		15.0	1.1		<1.00		

Note. BMT = Behavior Modification Training; PSCT = Problem Solving and Communication Training; SFT = Structural Family Therapy; F/χ^2 = results for the one-way (treatments) analyses of variance or chi-square for measures using categorical data (percent); p = statistical probability of the F test or chi-square if significant ($p < .05$). PPVT-R = Peabody Picture Vocabulary Test—Revised; SES = socioeconomic status determined by the Hollingshead Two-Factor Index of Social Position; ADHD = attention-deficit hyperactivity disorder; ODD = oppositional defiant disorder; CD = conduct disorder; CBCL = Child Behavior Checklist (Parent Report); MMCP = Multidimensional Measure of Children's Perceptions of Control; BDI = Beck Depression Inventory; MAT = Marital Adjustment Test; GSI = Global Severity Index from the SCL-90-R.

^a Percentage of fathers living with the teen who were available to attend therapy and attended at least one or more therapy sessions; for BMT this was 6/15, for PSCT 10/16, and for SFT 17/18. ^b Significant results ($p < .05$) of the pairwise contrasts for any significant main effects using Tukey's honestly significant difference test: 1 = BMT, 2 = PSCT, 3 = SFT.

* $p < .02$. ** $p < .01$.

Table 1 also displays several important variables related to treatment participation. The groups were significantly different on the therapist ratings of cooperation with treatment. The PSCT group received significantly lower ratings than BMT ($p < .01$) or SFT ($p < .05$). The latter two groups did not differ from each other. The groups also differed in the number of available fathers who attended at least one or more sessions, with SFT having significantly more fathers attending therapy than BMT or PSCT, which did not differ significantly from each other.

Treatment Response Measures

Measures were clustered into empirically or conceptually based sets (e.g., parent ratings, youth ratings) for multivariate analysis. These sets of measures were then analyzed using two-way (Treatment Groups \times Occasions of Assessment) multivariate analyses of variance (MANOVA) with repeated measures on the second factor. Where significant, these main effects or

interactions were further analyzed using univariate two-way ANOVAs with repeated measures on the second factor. Significant main and interaction effects were then analyzed using pairwise comparisons.

The results for the parent ratings on the CBCL are shown in Table 2. The MANOVA for the three scores from the CBCL Social Competence profile was significant for the main effect for assessment, $F(6, 35) = 2.61, p = .034$, as was that for the Internalizing and Externalizing scales, $F(4, 55) = 13.41, p < .001$. The School Adjustment scale changed significantly between pretreatment and posttreatment, as did the Externalizing scale. The Internalizing scale similarly decreased between pretreatment and posttreatment ($p < .001$) and between posttreatment and follow-up.

Table 2
Child Behavior Checklist Scales (Parent Form) for Each Treatment Group at Each Occasion of Assessment

Measure (T scores)	BMT		PSCT		SFT		Effect ^a	Contrast ^b
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Activities								
Pretreatment	45.0	8.2	45.6	8.7	44.1	8.1		
Posttreatment	47.2	8.1	46.1	9.3	45.4	7.7		
Follow-up	46.8	7.0	45.8	7.8	46.3	9.7		
Social competence								
Pretreatment	33.1	12.4	35.7	14.4	37.6	10.3		
Posttreatment	35.6	10.5	39.0	12.0	38.1	9.6		
Follow-up	37.5	9.6	39.8	10.9	40.7	10.2		
School adjustment								
Pretreatment	28.6	10.9	30.2	10.3	30.2	7.4	A	2 > 1
Posttreatment	32.2	8.4	33.4	9.1	30.1	10.5		
Follow-up	31.1	10.8	32.4	7.5	33.8	11.0		
Internalizing scale								
Pretreatment	65.8	6.8	68.2	7.2	67.4	6.9	A	2 < 1, 3 < 2
Posttreatment	61.7	7.6	62.1	6.7	62.5	6.6		
Follow-up	59.9	7.5	62.3	7.2	58.9	9.6		
Externalizing scale								
Pretreatment	71.9	7.5	70.1	7.2	71.2	5.6	A	2 < 1
Posttreatment	67.9	8.0	64.8	6.4	67.7	7.8		
Follow-up	66.4	7.6	66.4	6.5	65.3	9.0		

Note. BMT = Behavior Modification Training; PSCT = Problem Solving and Communication Training; SFT = Structural Family Therapy; A = main effect for assessments.

^a Results for the two-way (Treatments[T] × Assessments[A]) analyses of variance with repeated measures on the second factor. T indicates a statistically significant ($p < .01$) main effect for treatment; A indicates a significant main effect for time of assessment, and T × A a significant interaction of Treatment × Time of Assessment.

^b Significant results ($p < .05$) of the pairwise comparisons for any significant main effects: 1 = pretreatment, 2 = posttreatment, 3 = follow-up.

Only the MANOVA for the adolescent self-reported Internalizing and Externalizing scales was significant for assessment, $F(4, 52) = 5.58, p < .001$. Both scales were found to decrease from pre- to posttreatment but only the Internalizing scale decreased from posttreatment to follow-up.

The results for the family conflict and parent self-report scales are shown in Table 3. Both the mothers' and adolescents' CBQs had significant main effects for assessment, $F(2, 57) = 14.96, p < .001$, and $F(4, 55) = 4.52, p < .003$, respectively. Significant declines from pre- to posttreatment occurred on the mothers' ratings and the teens' ratings of the mothers. A further

decline from posttreatment to follow-up also occurred on the teens' CBQ ratings of their mothers. However, the teens' ratings of their fathers declined only from posttreatment to follow-up.

Table 3
Family Conflict and Parental Adjustment Rating Scales for Each Treatment Group

Measure	BMT		PSCT		SFT		Effect ^a	Contrast ^b
	M	SD	M	SD	M	SD		
Conflict Behavior Questionnaire								
Mother about teen							A	2 < 1
Pretreatment	13.0	4.5	12.3	4.1	12.1	4.9		
Posttreatment	10.6	6.4	10.0	5.4	8.8	6.1		
Follow-up	9.0	5.4	9.8	5.3	9.0	6.0	A	2 < 1
Teen about mother								3 < 2
Pretreatment	8.0	5.2	7.7	5.5	6.2	4.8		
Posttreatment	5.6	6.4	7.9	5.7	6.1	5.3		
Follow-up	4.8	4.6	7.0	6.5	3.8	2.9		
Teen about father							A	2 < 1
Pretreatment	7.1	5.1	6.5	4.6	5.6	5.9		3 < 2
Posttreatment	8.6	4.9	6.9	5.3	5.2	4.9		
Follow-up	6.1	4.0	6.2	5.3	4.3	4.3		
Issues Checklist—Mother								
No. of conflicts							A	2 < 1
Pretreatment	22.5	6.1	23.1	7.1	23.1	6.0		
Posttreatment	18.0	7.7	17.2	8.2	19.1	5.3		
Follow-up	16.9	7.8	16.6	8.3	16.9	7.6		
Mean intensity							A	2 < 1
Pretreatment	2.2	0.7	2.4	0.7	2.4	0.5		
Posttreatment	1.9	0.5	1.8	0.7	2.1	0.6		
Follow-up	1.8	0.5	1.9	0.7	1.9	0.5		
Weighted intensity							A	2 < 1
Pretreatment	2.3	0.8	2.7	0.8	2.6	0.5		
Posttreatment	2.1	0.7	2.0	0.8	2.3	0.6		
Follow-up	2.0	0.6	2.1	0.9	2.1	0.5		
Issues Checklist—Teen about mother								
No. of conflicts							A	2 < 1
Pretreatment	16.5	9.3	15.0	8.0	15.3	6.8		
Posttreatment	11.4	8.9	9.9	4.9	11.3	6.4		
Follow-up	11.1	9.1	6.5	4.8	10.7	7.4		
Mean intensity								
Pretreatment	2.2	0.8	2.2	0.5	2.0	0.6		
Posttreatment	2.0	0.8	2.3	0.7	2.2	0.8		
Follow-up	2.0	0.9	1.9	1.0	1.9	0.6		
Weighted intensity							A	3 < 2
Pretreatment	2.4	0.8	2.3	0.7	2.1	0.6		
Posttreatment	2.3	1.1	2.4	0.7	2.3	0.9		
Follow-up	2.1	0.9	2.0	1.1	2.0	0.7		
Issues Checklist—Teen about father								
No. of conflicts							A	2 < 1
Pretreatment	6.5	7.3	10.2	7.9	12.2	5.5		
Posttreatment	3.9	6.3	6.1	5.0	7.6	8.1		
Follow-up	3.5	5.1	4.1	4.3	8.7	7.3		
Mean intensity							A	2 < 1
Pretreatment	1.3	1.3	1.9	1.2	2.2	0.8		
Posttreatment	0.9	1.2	1.7	1.2	1.8	1.4		
Follow-up	1.0	1.2	1.6	1.3	1.8	1.0		
Weighted intensity							A	2 < 1
Pretreatment	1.5	1.5	2.0	1.3	2.3	0.9		
Posttreatment	1.0	1.4	1.7	1.2	1.8	1.4		
Follow-up	1.1	1.3	1.7	1.4	1.8	1.0		
Beck Depression Inventory								
Pretreatment	9.9	7.3	7.0	6.0	9.1	9.7	A	2 < 1
Posttreatment	8.6	6.6	4.8	5.2	6.1	6.5		
Follow-up	7.1	5.9	4.8	7.6	5.0	6.2		
Locke-Wallace MAT								
Pretreatment	96.4	24.4	97.4	25.9	100.6	35.0		
Posttreatment	97.5	28.3	105.4	29.8	95.8	35.8		
Follow-up	98.9	24.4	101.7	34.0	96.5	33.5		

Note. BMT = Behavior Modification Training; PSCT = Problem Solving and Communication Training; SFT = Structural Family Therapy; MAT = Marital Adjustment Test; A = main effect for assessments.

^a Results for the two-way (Treatments [T] × Assessments [A]) analyses of variance with repeated measures on the second factor. T indicates a statistically significant ($p < .01$) main effect for treatment; A indicates a significant main effect for time of assessment, and T × A a significant interaction of Treatment × Time of Assessment.

^b Significant results ($p < .05$) of the pairwise comparisons for any significant main effects: 1 = pretreatment, 2 = posttreatment, 3 = follow-up.

The mothers' ratings on the IC found only the main effect for assessment being significant, $F(4, 55) = 24.65, p < .001$. All three scores declined significantly from pre- to posttreatment.

The teens' ratings about their mothers and fathers on the IC, again, showed only the main effect for assessment was significant, $F(8, 51) = 4.72, p < .001$. The number of conflicts between the teens and their mothers declined significantly only from pre- to posttreatment. The WF/I scores for teen–mother dyads decreased significantly only from posttreatment to follow-up. The teens' ratings of their fathers declined significantly on all three scores only between pre- and posttreatment.

The parental adjustment scales were analyzed using two-way ANOVAs. Only the main effect for assessment for the BDI was significant, $F(2, 57) = 8.28, p < .01$, declining only from pre- to posttreatment.

The teens' and mothers' FBI ratings are shown in Table 4. The mothers' ratings were significant only for the interaction of treatment type with assessment, $F(12, 106) = 2.10, p < .03$, and only for ratings on the perfection, obedience, and total scores. Beliefs about parental perfectionism and obedience in the BMT and SFT groups did not change significantly between pre- and posttreatment. However, these beliefs increased (worsened) significantly in the PSCT group between pre- and posttreatment. Consequently, the pattern for the total score was identical. However, at neither pre- nor posttreatment did the three treatment groups differ significantly on these three scales.

Table 4
Family Beliefs Ratings by Parents for Each Treatment Group

Measure	BMT		PSCT		SFT		Effect ^a	Contrast ^b
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Family Beliefs Inventory—Mother								
Ruination								
Pretreatment	35.9	8.2	31.4	10.4	33.9	10.5		
Posttreatment	34.4	11.2	32.1	10.4	30.4	8.9		
Perfection								
Pretreatment	47.1	8.7	42.1	10.5	46.5	5.2	T × A	B2 > B1
Posttreatment	44.8	10.2	44.7	10.0	45.7	6.5		
Approval								
Pretreatment	17.6	4.9	16.7	4.9	14.9	6.2		
Posttreatment	17.7	5.3	16.0	4.7	15.8	4.4		
Obedience								
Pretreatment	43.0	8.2	38.9	10.6	39.9	9.6	T × A	B2 > B1
Posttreatment	39.8	9.2	43.9	9.5	40.3	7.0		
Self-blame								
Pretreatment	21.2	6.8	21.1	8.0	19.9	7.7		
Posttreatment	20.4	7.3	22.1	7.3	18.4	6.8		
Malicious intent								
Pretreatment	20.8	7.9	19.1	6.1	18.7	6.5		
Posttreatment	19.5	7.3	19.6	7.0	18.7	6.4		
Total score								
Pretreatment	185.5	26.7	169.3	38.8	173.6	30.2	T × A	B2 > B1
Posttreatment	176.5	39.0	178.3	34.8	169.3	28.6		

BMT = Behavior Modification Training; PSCT = Problem Solving and Communication Training; SFT = Structural Family Therapy; T × A = Treatment Group × Assessment interaction.

^a Results for the two-way (Treatments × Assessments) analyses of variance with repeated measures on the second factor. T indicates a statistically significant ($p < .01$) main effect for treatment; A indicates a significant main effect for time of assessment; and T × A a significant interaction of treatment by time of assessment.

^b Significant results ($p < .05$) of the pairwise comparisons for any significant main effects: 1 = pretreatment, 2 = posttreatment; A = BMT, B = PSCT, C = SFT.

Results for the mother–adolescent interactions during the neutral discussion are shown in Table 5.² The mother categories had a significant main effect of assessment, $F(12, 43) = 3.66, p < .001$. A significant decrease occurred in the use of Problem Solves and an increase in Talks only between pre- and posttreatment. The use of Facilitates by the mothers increased significantly only from posttreatment to follow-up, whereas the use of Defines/Evaluates significantly decreased over this time.

Table 5
Direct Observations of Parent-Adolescent Interactions
During Neutral Discussions for Each Treatment Group

Measure	BMT		PSCT		SFT		Effect ^a	Contrast ^b
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Mother categories								
Put down/commands								
Pretreatment	4.5	6.4	5.7	7.0	4.6	8.3		
Posttreatment	8.2	13.5	4.3	7.6	8.7	17.8		
Follow-up	6.4	9.2	6.3	11.2	9.8	11.7		
Defends/complains								
Pretreatment	0.7	1.2	1.8	4.2	1.8	2.0		
Posttreatment	1.5	3.4	2.5	5.5	4.0	4.6		
Follow-up	0.9	1.6	2.7	4.3	1.7	2.4		
Problem solves								
Pretreatment	25.5	9.4	25.3	7.5	24.8	8.0	A	2 < 1
Posttreatment	19.7	8.4	18.6	11.0	17.6	10.3		
Follow-up	18.7	13.5	17.5	8.7	13.7	8.7		
Defines/evaluates								
Pretreatment	13.0	10.9	7.2	5.2	12.4	6.2	A	3 < 2
Posttreatment	13.5	8.5	11.0	10.9	14.0	9.1		
Follow-up	9.4	6.2	8.8	6.8	8.4	6.6		
Facilitates								
Pretreatment	42.3	11.8	41.3	12.2	44.4	10.1	A	3 > 2
Posttreatment	39.9	12.2	43.5	13.7	36.0	14.3		
Follow-up	48.2	18.3	46.8	14.4	45.0	14.7		
Talks								
Pretreatment	14.1	8.7	18.8	9.4	12.0	7.0	A	2 > 1
Posttreatment	22.6	13.3	20.2	10.7	19.7	10.6		
Follow-up	16.3	13.6	17.8	8.6	21.6	14.7		
Adolescent categories								
Put down/commands								
Pretreatment	3.0	3.2	3.2	5.0	3.1	6.7		
Posttreatment	3.1	7.8	0.9	1.9	5.6	6.3		
Follow-up	2.0	3.8	4.0	4.8	3.8	3.9	A	2 > 1
Defends/complains								
Pretreatment	10.4	13.1	8.0	8.3	10.9	19.0		
Posttreatment	12.8	19.1	16.2	21.9	14.8	17.0		
Follow-up	15.0	18.7	15.8	18.4	17.0	17.4	A	2 < 1
Problem solves								
Pretreatment	31.5	11.6	26.2	10.3	30.6	12.2		
Posttreatment	21.3	8.8	19.5	9.8	19.1	13.4		
Follow-up	19.9	12.4	16.2	8.7	13.7	10.0	A	2 > 1
Defines/evaluates								
Pretreatment	14.3	10.0	11.1	7.9	15.0	10.7		
Posttreatment	24.0	12.7	23.0	10.6	19.4	12.8		
Follow-up	17.3	13.4	22.0	11.8	21.0	9.7		
Facilitates								
Pretreatment	21.4	11.5	23.4	11.2	21.1	11.1	A	2 < 1
Posttreatment	16.2	9.4	19.1	11.3	18.6	12.1		
Follow-up	15.9	9.6	18.7	11.4	16.2	7.1		
Talks								
Pretreatment	19.4	7.8	28.1	9.9	19.3	11.2	A	3 > 2
Posttreatment	22.6	13.3	21.3	10.1	22.5	11.5		
Follow-up	29.9	14.2	23.3	11.8	28.4	13.1		

Note. BMT = Behavior Modification Training; PSCT = Problem Solving and Communication Training; SFT = Structural Family Therapy; A = main effect for assessments.

^a Results for the two-way (Treatments × Assessments) analyses of variance with repeated measures on the second factor. T indicates a statistically significant ($p < .01$) main effect for treatment; A indicates a significant main effect for time of assessment, and T × A a significant interaction of treatment by time of assessment.

^b Significant results ($p < .05$) of the pairwise comparisons for any significant main effects: 1 = pretreatment, 2 = posttreatment, 3 = follow-up.

The MANOVA for teen categories found the main effect of assessment to be significant, $F(12, 43) = 5.88, p < .001$. A significant increase in both Defends/Complains and Defines/Evaluates occurred between pre- and posttreatment, whereas Problem Solves and Facilitates decreased significantly over this time. Talks increased significantly only between posttreatment and follow-up.

The mother behavior categories from the PAICS–R for the conflict discussion are shown in Table 6. The MANOVA for the interaction of Treatment Type \times Assessment was significant, $F(24, 88) = 2.27, p < .003$. A significant interaction effect was noted on two mother behavior categories, Facilitates and Talks. For the category of Facilitates, only the mothers in the SFT group declined significantly during treatment. At pretreatment, the SFT group displayed significantly more of this behavior than the PSCT group, whereas the BMT group did not differ from either of these groups. At posttreatment, the groups were no longer different, and this remained so at 3-month follow-up.

Table 6
Direct Observations for Mothers' Interactions During Conflict Discussions for Each Treatment Group

Measure	BMT		PSCT		SFT		Effect ^a	Contrast ^b
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Put down/commands							$T \times A (p < .06)$	
Pretreatment	21.0	15.7	24.3	18.4	20.7	14.8		
Posttreatment	18.8	12.6	21.7	11.5	27.0	11.5		
Follow-up	20.7	16.8	21.3	11.8	27.4	16.0		
Defends/complains							$T \times A (p < .06)$	
Pretreatment	3.8	6.1	12.6	12.1	9.2	8.6		
Posttreatment	8.1	7.2	15.8	9.4	11.6	10.3		
Follow-up	11.8	12.3	10.8	7.4	14.3	11.7		
Problem solves								
Pretreatment	9.3	7.0	10.4	7.3	7.3	6.0		
Posttreatment	14.7	7.7	10.8	5.7	7.5	5.5		
Follow-up	11.8	8.2	10.6	6.8	7.7	6.7		
Defines/evaluates								
Pretreatment	15.8	12.9	10.1	9.9	14.2	10.8		
Posttreatment	13.8	5.9	11.2	7.0	12.8	8.7		
Follow-up	14.8	6.0	12.4	6.8	11.8	8.5		
Facilitates							$T \times A$	$C2 < C1$ $C1 > B1$
Pretreatment	33.6	16.1	23.9	13.5	35.9	15.7		
Posttreatment	28.7	11.6	27.9	13.6	23.3	10.9		
Follow-up	30.0	17.1	27.1	14.6	23.1	13.2		
Talks							$T \times A$	$A3 < A2$ $B3 < B2$ $B3 > A3$
Pretreatment	16.5	11.6	18.7	11.3	12.7	9.9		
Posttreatment	15.9	10.1	12.6	5.8	17.8	10.5		
Follow-up	10.9	6.5	17.6	10.1	15.8	7.7		

Note. BMT = Behavior Modification Training; PSCT = Problem Solving and Communication Training; SFT = Structural Family Therapy; $T \times A$ = Treatment Group \times Assessment interaction.

^a Results for the two-way (Treatments \times Assessments) analyses of variance with repeated measures on the second factor. T indicates a statistically significant ($p < .01$) main effect for treatment; A indicates a significant main effect for time of assessment; and $T \times A$ a significant interaction of Treatment \times Time of Assessment.

^b Significant results ($p < .05$) of the pairwise comparisons for any significant main effects: 1 = pretreatment, 2 = posttreatment, 3 = follow-up; A = BMT, B = PSCT, C = SFT.

For the Talks category, the BMT and PSCT groups significantly decreased between posttreatment and follow-up. The treatment groups did not differ significantly at either pre- or posttreatment but did differ significantly at follow-up. At follow-up, the PSCT group showed

significantly more of this behavior than the BMT group, whereas the SFT group did not differ from the other groups. The MANOVA for the ten categories during this discussion was not significant.

Predicting Response to Treatment

Because all treatments were associated with significant improvements, groups were collapsed for assessing pretreatment predictors of response to treatment on the family conflict ratings. The measure of treatment success was a composite score (summation) of two posttreatment scores: the Number of Conflicts and the Weighted Frequency/Anger Intensity scores from the IC. Pretreatment composite scores were forced into each equation before allowing predictor variables to enter freely, using stepwise regression (Cohen & Cohen, 1983). The predictors were mothers' BDI total, LWMAT, SCL-90-R Global Severity Index, teens' number of ODD symptoms, and teens' MMCPC scores. None were significantly predictive of the mothers' or teens' reported outcomes. We then examined the relationship of several demographic and screening measures to treatment outcome, as measured above. Again, the pretreatment composite score from the IC was forced into the equation first. The predictors were: adolescent age and IQ, mother education, and father socioeconomic status. None were significantly related to outcome for teens' or mothers' reports.

Analyses of Clinically Significant Change

Jacobson and Truax (1991) recommended statistical procedures for estimating clinically significant change in subjects participating in treatment. The index of Reliable Change (RC) determines whether the magnitude of change in each case is statistically reliable. A Recovery Index (RI) determines which clients have moved within the range of normal variation as a consequence of treatment. One or more dependent measures believed to best represent the type of change sought from therapy is selected for these analyses. For this study, the number of conflicts and the weighted anger/intensity score from the mothers' IC were chosen. The RC index was computed for each subject by subtracting the posttreatment ratings from the pretreatment ratings and then dividing this difference by the standard error of the difference. All RC indexes that exceed +1.96 are considered to reflect significant improvement. The RI for each subject was calculated by selecting a cutoff point midway between normal ratings on these two measures and ratings of mothers of ADHD teenagers (Approach *c* in Jacobson & Truax, 1991). ADHD teens whose ratings fell below this midpoint at posttreatment were defined as recovered following treatment. The ratings for normal mother-teen dyads were taken from a separate study (Barkley et al., in press-b).

On the basis of the RC index, the percentage of subjects showing clinically significant improvement by group was 10% for BMT, 24% for PSCT, and 10% for SFT on the measure of number of conflicts. No subjects showed significant deterioration due to treatment ($RC = -1.96$) on this measure. The percentage of subjects defined as recovered by the RI on this measure was 5% for BMT, 19% for PSCT, and 10% in SFT. Using the RC index for the weighted anger frequency/intensity score, clinically significant improvement rates were 20% in BMT, 29% in PSCT, and 5% in SFT. Clinical deterioration occurred in 10% of subjects in BMT but not in PSCT or SFT on this measure. Clinical recovery rates using the RI by group on this measure were 20% for BMT, 19% for PSCT, and 5% for SFT. These rates did not differ significantly among the groups.

Discussion

Our study suggests that all three treatment approaches produced significant improvements in parent–adolescent communication, number of conflicts, and anger intensity during conflict discussions at home as reported separately by both mothers and ADHD adolescents. All three treatments also resulted in significant improvements in parent-reported school adjustment, and the broad-band dimensions of both internalizing (anxiety, depression, withdrawal) and externalizing (aggression, delinquency) symptoms as reported by parents and adolescents. Mothers, moreover, rated themselves as less depressed following treatment in all three approaches. All improvements were maintained at a 3-month follow-up, and a few continued to improve significantly after treatment termination (e.g., internalizing symptoms). Families in all three treatments rated themselves as highly and equally satisfied with these treatments. Despite these self-reports of positive changes, changes in direct observations of problem-solving behaviors were not uniformly positive, nor could useful predictors of treatment response be identified.

Examining the degree of clinically significant change and clinical recovery is a stringent approach to describing treatment outcomes (Jacobson & Truax, 1991). When the approach is applied to the present study, the percentage of subjects showing clinical improvement ranged from 5 to 30% across the groups and did not differ significantly among the groups. Similarly, the percentage considered clinically recovered ranged from 5 to 20% and, again, did not differ as a result of type of treatment. Such sobering statistics indicate that most ADHD adolescents (70–95%) undergoing these types of family-based treatments show no clinically significant change in their number of family conflicts or the anger frequency/intensity of these conflicts, with 80–95% remaining deviant after treatment. These findings are consistent with follow-up studies of hyperactive children into adolescence and intervention studies with hyperactive and aggressive children, which find their disorders quite resistant to most short-term psychologically based single-treatment approaches (Barkley, 1990; Barkley, Fischer, Edelbrock, & Smallish, 1990; Weiss & Hechtman, 1986). Calls for multimodal, long-term, joint pharmacological–psychological interventions as a more appropriate approach to treating ADHD/ODD (Barkley, 1990; Satterfield, Satterfield, & Cantwell, 1981) seem well founded given the present results. Treatments such as those tested here may still have value if only in assisting parents in coping with the problems inherent in raising ADHD children and adolescents (Barkley, 1990).

Successful therapy with such families, like those with mentally retarded or autistic children, may not be measured only by the reduction of their children's disabilities but also by the degree to which they prepare parents to understand, cope with, and raise such children while decreasing parental and family distress in the process. That this may well have been achieved in this study is intimated in the uniformly and consistently high consumer satisfaction ratings achieved by each therapy and the significant decreases noted in parental ratings of their own distress and depression. Future studies would do well to include more specific measures of such parent and family outcomes than were used here to evaluate the veracity of this hypothesis.

Very few differences in the effects of the treatment approaches were noted, but some seem to require comment. One was that families in PSCT were rated by the therapists as less cooperative with treatment than those in BMT and SFT. Although this may suggest that motivation to

participate in therapy may have been lower in the PSCT group, there is little support in the results for this interpretation. Instead, PSCT makes heavier demands on families than the other two treatments. Specifically it requires more practice of new skills in the sessions, more diverse skills that must be acquired, more homework assignments, and more cooperation from the teen with the skills being taught. For these reasons, perhaps families in PSCT found it more demanding and appeared less cooperative.

Mothers undergoing PSCT also appeared to worsen in their ratings of their degree of unreasonable or extreme beliefs about their teenagers' conduct. PSCT parents showed greater extremism in their beliefs about teen obedience and perfectionism after treatment than before therapy began. Families in BMT and SFT showed no change. This finding was surprising given that PSCT is the only treatment that purports to specifically address more rigid or extreme family beliefs as part of its treatment package. On the surface, such a result suggests an adverse reaction or side effect of PSCT. A recent study (Alexander, Waldron, Barton, & Mas, 1989) supports such a view. It found that therapies such as PSCT that focus initially and heavily on family conflicts and negative attributions made by family members to each other may actually exacerbate these attributions rather than improve them. More time may be needed in such treatments to deal with these attributions, and such treatments must focus on positive attributions and healthy aspects of family functioning as well. A competing interpretation of these results, however, might be that clients enter therapy unaware of their irrational beliefs and that such awareness increases as a result of treatment (Kendall & Korgeski, 1979). Rather than reflecting a hardening of extreme beliefs, these findings might suggest that only in the PSCT group did parents become aware of such beliefs. In any case, the results remain an enigma, require replication, and are not consistent with those of Nayar (1985), who found the FBI ratings to improve after PSCT.

Several limitations of this study affect the interpretation of its findings. First, the lack of a no-treatment, waiting-list, or attention-placebo control condition leaves open to question the degree to which these changes in family functioning are directly the result of treatment or are instead the result of time, therapist attention, or measurement artifact (e.g., practice effects). Our design, unfortunately, cannot rule out such competing explanations of treatment-associated change, particularly on the self-report measures. However, each of these approaches has been previously compared with no-treatment or waiting-list control groups and found to be significantly better than these control conditions and, in the case of PSCT and SFT, on measures identical or very similar to those used here (Pisterman et al., 1989; Robin & Foster, 1989; Szapocznik et al., 1989). Also, most treatment effects were limited to the time active treatment was under way (pre- to posttreatment changes). There were few changes that were significant between the posttreatment and follow-up period despite the families remaining quite deviant from normal in their ratings at posttreatment. Furthermore, in a related study, most of these measures did not show significant declines over a 2–3 week test–retest period (Barkley, Guevremont, Anastopoulos, & Fletcher, 1990). Finally, our findings of changes on the direct observation measures seem to mitigate against social desirability biases solely accounting for these findings. Second, the relatively small sample sizes ($n = 20$ per group) restricted the statistical power of our design to detect subtle treatment by assessment interactions (power $< .25$ for the interaction terms in the present study). Our finding of trends for significant interactions between treatment

type and assessment implies that with a larger sample these interactions might have been significant, as might several of the predictors of treatment response on which trends were noted.

Footnotes

¹ The institutional review board expressed concern that the use of a no-treatment or waiting-list control group might not be ethical in view of the urgent requests by clinic-referred families for treatment of their teenagers, the relatively immediate availability of such treatments for their teens, and the fact that all treatments had previously demonstrated effectiveness relative to a no-treatment control group or an alternative therapy. Nevertheless, conflicting opinions on the matter were expressed by many board members. The two reviewers of this article also disagreed as to the advisability of a no-treatment group.

² The behavioral observation measures were submitted to an arcsine transformation to reduce the large variation in these measures and then reanalyzed using these same procedures. Because the results were identical to those using the raw data, the raw data are reported here.

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