Adolescents with Attention Deficit Hyperactivity Disorder: Mother-Adolescent Interactions, Family Beliefs and Conflicts, and Maternal Psychopathology*

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

Barkley, R. A., Anastopoulos, A.D., Guevremont, D.C., & Fletcher, K.E. (1992). Adolescents with Attention Deficit Hyperactivity Disorder: Mother-adolescent interactions, family beliefs and conflicts, and maternal psychopathology. *Journal of Abnormal Child Psychology, 20*, 263-288.

Abstract:

A group of 83 adolescents with attention deficit hyperactivity disorder (ADHD) were subdivided into those with ADHD alone (n = 27) and those with ADHD and oppositional defiant disorder (ADHD/ODD, n = 56). They were compared to each other and a community control group (n = 77) on measures of family conflicts, family beliefs, maternal adjustment, and observations of mother-adolescent interactions during both a neutral and conflict discussion. Both ADHD groups had more topics on which there was conflict and more angry conflicts at home than control adolescents on parent reports. Only the ADHD/ODD adolescents reported more such conflicts, endorsed more extreme and unreasonable beliefs about their parent-teen relations, and demonstrated greater negative interactions during a neutral discussion than the control teenagers. Similarly, only mothers of the ADHD/ODD teens displayed greater negative interactions during a neutral discussion, more extreme and unreasonable beliefs about their parent-teen relations, greater personal distress, and less satisfaction in their marriages than the mothers in the control group. Most findings for the ADHD only group were between the control group and the group with mixed ADHDIODD but did not differ from either group. Results imply that it is the combination of ODD symptoms with those of ADHD that is associated with the greater-than-normal conflicts, anger, poor communications, unreasonable beliefs, and negative interactive styles seen in ADHD adolescents. These same characteristics typify their mothers' interactions as well such that both the adolescents' ODD symptoms and maternal psychological distress (hostility) make unique contributions to the degree of conflict and anger in the parent-teen relations of ADHD adolescents.

Article:

* This research was supported by NIMH grant 41583. We are grateful to Kathryn Robbins, Kevin Murphy, Ph.D., and Ellen Mintz-Lennick for their assistance with the subject assessments and data entry, and to Craig S. Edelbrock, Ph.D., for designing the data management programs. We also greatly appreciate the assistance of Arthur Robin, Ph.D., for his consulting with us and training our staff in the use of the family conflict rating scales and PAICS-R behavior coding system and for his comments on an earlier draft of this manuscript.

The family interaction patterns of hyperactive (now attention deficit hyperactivity disorder or ADHD) children have been the focus of a number of studies over the past 15 years. This research has explored the manner in which the inattention, impulsivity, and overactivity of these children affects the way they interact with their parents and how parents may respond to them. ADHD children are more noncompliant, are less able to main compliance over time, and solicit more parental encouragement and assistance during task performance than do normal or control groups of children (Campbell, 1973, 1975; Cohen, Sullivan, Minde, Novak, & Keens, 1983; Cunningham & Barkley, 1979). Parents respond with greater commands and directions, greater supervision and encouragement in completing tasks, and more reprimands and negative responses than those of controls (Barkley, Karlsson, & Pollard, 1985). These interaction conflicts occur most often in situations where tasks have been assigned to the child to perform as compared to free play or unstructured activities (Barkley et al., 1985; Barkley, Karlsson, Strzelecki, & Murphy, 1984). Some sex differences, albeit minor ones, between parents have been noted; mothers have greater difficulties obtaining compliance during task interactions than do fathers (Tallmadge & Barkley, 1983).

Possible developmental changes in these interactions have also been studied using cross-sectional designs. These studies have noted that the older ADHD children are less negative and noncompliant and are better able to sustain their compliance than the younger ones. Even so, at the older age groups studied (up to age 9 years) ADHD children have remained significantly deviant in their parent-child interactions (Barkley et al., 1985; Campbell, Breaux, Ewing, Szumowski, & Pierce, 1986; Mash & Johnston, 1982). The findings imply potential improvements in parent-child conflicts over development in both ADHD and control families but cannot confirm such changes given the limitations of a cross-sectional design.

The bulk of these findings have been interpreted by reviewers of this literature (Barkley, 1985; Danforth, Barkley, & Stokes, 1991; Fischer, 1990; Mash & Johnston, 1990) to suggest that it is the major behavioral hallmarks of ADHD (e.g., inattention, restlessness, etc.) which result in the noncompliance of ADHD children, reduced responsiveness to parental interactions, and excessive negativity. These, in turn, elicit from parents excessive controlling reactions, such as greater directives, reprimands, and punishment as well as reduced responsiveness to the children's social initiatives toward them (Bell & Harper, 1977; Campbell, 1973, 1975). An increased level of parental stress is believed to result from these transactions (Fischer, 1990; Mash & Johnston, 1990). However, past studies have not taken care to distinguish between children with ADHD alone and those with ADHD and aggressive behavior, or oppositional defiant disorder (ODD). ODD is known to occur as a co-morbid disorder in as many as 65% of ADHD children (Barkley, Fischer, Edelbrock, & Smallish, 1990; Loney & Milich, 1981) and is commonly identified as a major variable in accounting for the greater association of family dysfunction, social disadvantage, and longterm antisocial outcomes within the ADHD population (Lahey et al., 1987; Loeber, 1990; Weiss & Hechtman, 1986). Given that the very symptoms of ODD are argumentativeness, disobedience, and resistance to parental authority, it would seem sensible that much of the parent-child interaction conflicts observed in ADHD children may actually be attributable to their co-existing ODD rather than their ADHD. No studies, however, have examined this relationship when studying family interactions in ADHD children. A major purpose of this study was to evaluate the parent-child interactions of ADHD subjects,

subdividing them on the basis of co-existing ODD to evaluate which of these disorders most contributed to the observed parent-child interaction conflicts.

Studies of aggression in children indicate that it is closely associated with maternal depression and psychopathology as well as marital discord (Brody & Forehand, 1986; Patterson, 1982; Reid & Crisafulli, 1990; Webster-Stratton, 1988). Aggression in these studies is often defined by behaviors similar to that seen in ODD. Recent studies have also found an association between child aggression and parental psychopathology in specifically diagnosed ADHD children (August & Stewart, 1983; Biederman, Munk, & Knee, 1987; Lahey et al., 1988). These findings suggest that it is important not only to examine the degree to which aggression, or ODD, is associated with parent-child conflicts but also the extent to which parental psychopathology and marital problems are related to these conflicts. While ODD is often conceptualized in the clinical literature as a set of characteristics specific to the child (American Psychiatric Association, 1987), these studies of parental psychopathology imply that it may also be a reflection of parental behavioral disturbance or the pattern of parent- child interactions rather than being attributable only to the child (Patterson, 1982; Wahler, 1980). A second purpose of the study was to evaluate differences in psychiatric disturbance and use of conflict behavior in parents of ADHD children with and without ODD and to what extent these parental factors contributed to parent-teen conflict beyond that due to the teens' ODD symptoms.

Parent and teen conflict-related behaviors were studied by assessing both overt behavior as well as more covert attitudes toward family relations and communication. Past research has shown that these overt and covert variables form separate and empirically validated dimensions of family dysfunction (Robin & Foster, 1989). It was one intent of this study to determine not only whether the mixture of ODD with ADHD was associated with increased overt conflict, which would be expected from the symptoms of ODD, but also whether the ODD adolescents showed abnormal covert cognitive attributions and whether such distorted attributions occurred in the parents as well.

Finally, past research on parent-child interactions in ADHD children has almost exclusively involved children between 5 and 11 years of age. It is not clear to what degree these interaction conflicts exist in clinic-referred ADHD adolescents nor what the nature of these might be at this distinct developmental stage. It was, therefore, an additional purpose of this study to replicate the findings of our earlier research on ADHD children using an adolescent population of clinic-referred ADHD subjects. Separate papers report on the psychiatric and psychological status of these samples (Barkley, Guevremont, Anastopoulos, & Fletcher, 1991), as well as the response of a subgroup of these ADHD adolescents to three different types of family therapy (Barkley, Anastopoulos, Guevremont, & Fletcher, 1992).

METHOD

Subjects

Two groups of adolescents and their mothers were evaluated. All were between 12 and 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 serious sensory, motor, or emotional disorders.

The adolescents and their parents signed statements of informed consent. The project was reviewed and approved by the human research institutional review board of the university.

The first group consisted of 83 adolescents who were consecutive referrals to a clinic specializing in ADHD and who met the research criteria for ADHD. To be considered as ADHD, the adolescents had to have: (1) parent and/or teacher complaints of inattention, poor impulse control, and overactivity as established through a parental interview of all DSM-III-R disruptive behavior disorders (ADHD/ODD/Conduct Disorder); (2) have at least 8 of the 14 symptoms of ADHD as set forth in the DSM-III-R (APA, 1987); (3) have a duration of these symptoms of at least 12 months; (4) have an age of onset of these symptoms by 7 years; (5) 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; and (6) if currently receiving stimulant medication, have approval from their prescribing physicians to discontinue it 48 hours prior to being in this study.

After all subjects were tested, we then subdivided the ADHD sample into those who met criteria for a DSM-III-R diagnosis of ODD (APA, 1987) and those who did not. The resulting sample sizes were 27 ADHD without ODD (ADHD) and 56 ADHD with ODD (ADHD/ODD). Within the ADHD-only group, 24 were males (88.9%) and 3 were females (11.1%), two were adopted, and all were caucasian. A total of 74 percent of the mothers were married to the biological fathers at the time of their participation. In the ADHD/ODD group, 52 were males (91.2%) and 5 were females (8.8%), three were adopted, all were caucasian, and 77% of the mothers were married to the biological fathers at the point of participation.

Both the diagnosis of ADHD and that of ODD were established through a clinical interview with the mothers by an experienced child clinical psychologist. The chart was then reviewed by a highly experienced child clinical psychologist (R.A.B.). Only if this second reviewer agreed with the initial diagnosis of ADHD or ADHD with ODD was the subject permitted to enter the project. Thus, interjudge agreement on this stepwise diagnosis for these two disorders was essentially 100% for all subjects in the results reported here although such agreement clearly was not determined in a blinded fashion between the two judges.

The community control group consisted of 77 adolescents (63 males, 14 females) and their mothers who were recruited through newspaper advertisements in a regional newspaper and advertisements throughout the medical center. One of the adolescents in this group had been adopted and all but one were caucasian. A total of 77 percent of these mothers were married to the biological fathers at the time of their participation. These adolescents had to have: (1) no parent or teacher complaints of significant problems with inattention, impulsivity, or hyperactivity as established in the parental interview; (2) have fewer than 4 of 14 symptoms of ADHD from the DSM-III-R; and (3) have a T-score below 60 on the hyperactivity scale of the CBCL as completed by the mother. Again, a second chart reviewer had to agree that the subject met entry criteria for placement in this control group before the subject was permitted to enter the study.

Of the 77 control teenagers, 16 were learning-disabled (LD) and receiving some special educational support services through their school district although all were in regular education

classes. This subgroup of mild LD subjects was not excluded from the community control group as they were not ADHD nor did they have any other DSM-III-R diagnosis other than LD. They also may have provided a means of controlling for possible group differences that might emerge on the ratings and observations because of the significant percentage of ADHD adolescents who also have a co-morbid LD, estimated to be 15 to 30% (Barkley, DuPaul, & McMurray, 1990; Lambert & Sandoval, 1980). T-tests were used to compare the LD and control groups on these family interaction measures. No significant differences between them were noted and so these two groups were combined to form the community control group.

The three groups of subjects did not differ significantly in their percentage of males and females, adopted children, racial membership, or married mothers in each group. The groups were equated in age and IQ of the adolescents, and the age, education, and socio-economic status (SES) of the parents (Hollingshead Two-Factor Index of Social Position). The two ADHD groups did not differ significantly in their percentage of subjects who had previously been on stimulant medication (44.4% and 43.9%, respectively) but, of course, differed from the control group (1.3%) in this respect.

The demographic information and results for the initial subject selection measures are shown in Table I. Differences among the groups on these measures were analyzed using one-way (groups) analyses of variance (ANOVAs) and these results are also shown in Table I. Where the ANOVA was significant, Tukey's HSD test was used for pairwise contrasts. These results are also displayed in Table I. The attempts at equating groups were successful in that no significant differences between the groups were noted on any of the demographic or most other selection variables. As expected from the selection criteria, the two ADHD groups differed significantly from the control group in having a greater number of ADHD symptoms, an earlier age of onset of any of these ADHD symptoms, and a higher T-score on the hyperactivity scale of the CBCL. Importantly, the two ADHD groups did not differ from each other in the number of ADHD symptoms or age of onset of ADHD. They did differ significantly from each other in their CBCL Hyperactivity scores. This is not surprising in view of the high correlation between ratings of hyperactivity and those of

Table I. Demographic Information and Initial Subject Characteristics by Group[a]

Measure	Group means (standard deviations) ADHD		ADHD/ODD		Control		*F*	*p*	Cont.
Teen age (yrs.)	14.4	(1.5)	13.9	(1.4)	14.4	(1.9)	1.63	—	—
Teen IQ (PPVT-R)	105.8	(18.2)	102.3	(14.1)	107.8	(15.4)	2.12	—	—
Mother age (yrs.)	41.6	(5.5)	39.8	(5.6)	41.1	(5.1)	1.32	—	—
Mother education (yrs).	14.2	(2.7)	13.5	(2.3)	14.4	(2.1)	2.57	—	—
Mother SES	45.6	(26.5)	45.8	(24.3)	52.6	(24.3)	1.56	—	—
Father age (yrs.)	43.4	(6.0)	41.2	(5.7)	43.6	(5.9)	2.65	—	—
Father Education (yrs.)	15.0	(3.5)	13.9	(2.5)	14.8	(2.8)	2.10	—	—
Father SES	60.0	(23.3)	52.1	(22.7)	59.4	(23.3)	1.79	—	—
No. ADHD symptoms	9.9	(1.9)	10.4	(1.8)	0.9	(1.5)	609.28	.001	1 > 3, 2 > 3
ADHD onset (yrs.)	4.1	(1.7)	4.1	(2.1)	7.0	(1.4)	55.45	.001	1 < 3, 2 < 3
CBCL Hyperactive scale (*t*-score)	75.5	(7.5)	80.5	(8.7)	56.4	(2.9)	260.93	.001	2 > 1 > 3

[a]ADHD = attention deficit hyperactivity disorder without oppositional defiant disorder (n = 27); ADHD/ODD = ADHD with oppositional defiant disorder (n = 56); Control = community control group (n = 77). p < indicates the probability value for the F-test between groups if $p < .05$. Cont. = Contrasts; these are the results of the Tukey Honestly Significant Difference (HSD) pairwise comparisons, which were $p < .05$; in these contrasts 1 = ADHD, 2 = ADHD/ODD, 3 = control. PPVT-R = Peabody Picture Vocabulary Test—Revised; CBCL = Child Behavior Checklist (Parent Report); SES = Socioeconomic Status (Hollingshead Two-Factor Index of Social Position).

aggression, or oppositional behavior, and the formation of these two ADHD groups on the basis of degree of oppositional behavior.

Procedures

The subjects and their mothers completed interviews and rating scales of family conflicts. Mothers also completed 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, also for 10 min. These videotapes were then coded for a variety of categories of social interactions by the mother and teenager. Arrangements were made with prescribing physicians for the few subjects still taking stimulant medication to discontinue it 48 hours before the evaluation. All parents were provided with a $50 stipend for themselves and their adolescent for participating in this project.

Measures

Conflict Behavior Questionnaire (CBQ). This is a 20-item true/false rating scale assessing communication and conflict in parent-adolescent interactions. High scores represent more negative communications. The scale has excellent internal consistency (r = .90; Robin & Foster, 1989), satisfactory test-retest reliability, and significantly differentiates distressed from nondistressed parent-adolescent dyads (see Robin & Foster, 1989). Mothers and teenagers completed this scale about each other, and adolescents also completed a scale about their relationships with their fathers, where present in the family.

Issues Checklist. This scale lists 44 possible topics in which parents and adolescents may have disagreements. Each person indicates whether the conflict topic has been discussed within the past 2 weeks, and, if so, approximately how many times and with what intensity of anger (5-point scale). Three scores are obtained separately for the parents' and adolescents' reports: Number of Conflicts, Mean Anger Intensity, and a Weighted Frequency/Intensity score. The latter score reflects the anger intensity weighted by the frequency with which that conflict discussion occurred in the past 2 weeks. Information on scoring, reliability, and validity is con-

tained in Robin and Foster (1989). Test-retest reliability is satisfactory and the scale significantly differentiates distressed from nondistressed adolescents. Mothers and teens completed a scale about each other, and teens completed one about their fathers, where present in the family.

Family Beliefs Inventory (FBI). This questionnaire was developed by Foster and Robin (1988) to assess distorted cognitions and unreasonable beliefs in parent-adolescent conflicts, the covert dimension of family conflict noted earlier. The scale assesses 10 types of unreasonable beliefs, six for the parent and four for the teenagers. For the parents, these are ruination (i.e., to what extent acts of the teen will lead to serious social consequences), 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, etc. 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 to 70). Higher scores indicated more extreme beliefs.

The scale has satisfactory internal consistency within its belief scales (coefficients >.70) and discriminates distressed from nondistressed parent- adolescent dyads (Vincent-Roehling & Robin, 1986). The scores, however, do not correlate well with the other two rating scales used here to assess family conflicts, suggesting that this scale assesses a different dimension of parent-adolescent relationships than do the Issues Checklist or Conflict Behavior Questionnaire (Robin & Foster, 1989). The mother and teen each completed one scale. Because the study was exploratory in nature and no prior research examining family beliefs with ADHD teens could be located, scores for each of the 10 belief scales served as the dependent measures rather than a total summary score for the parent and teen scales. This permitted us to determine on which particular types of beliefs the groups might differ.

Parent Adolescent Interaction Coding System—Revised (PAICS-R). Parents and teens were placed in a furnished clinic room with one-way observation mirror and intercom and participated in two types of discussions which were videotaped. The first discussion was to plan a vacation given unlimited funds. It lasted approximately 10 min and served as the Neutral Discussion. The Conflict Discussion required the mother and adolescent to discuss and attempt to resolve the five most angry conflicts the mother reported on the Issues Checklist, above. This lasted 10 to 15 min.

All utterances by the mothers and adolescents were then transcribed from these videotapes and were coded into six behavior categories separately for each participant. These categories were: Put Downs/Commands, Defends/Complains, Problem Solves, Facilitates, Defines/Evaluates, and Talks. More detailed definitions for these categories are found in the text by Robin and Foster (1989). *Put Downs/Commands* refers to attacking statements which reflect the presence of anger, hostility, and negative affect and are imperatives, demands, or orders, in the case of commands, or derogatory, blaming, or sarcastic statements (Put Downs). *Defends/Complains* are statements reflecting attempts to avoid responsibility for one's actions or expressed feelings of being

deprived, wronged, or unfairly treated without explicitly blaming another person. *Problem Solves* refers to statements which reflect requested or proposed changes from another in a neutral or positive tone of voice. *Facilitates* comprises statements which attempt to facilitate discussion and which reflect empathy, agreement, acceptance of responsibility, humor, or paraphrasing. *Defines/Evaluates* consists of statements which clearly define problems or evaluate ideas, solutions, behaviors, or persons in a neutral to positive tone of voice. *Talks* specifies statements which reflect relatively meaningless talk, general descriptions, or elaboration of problems and is used only if a statement cannot be coded into any other category.

From the scored transcripts, it was possible to separately calculate the percent occurrence of each category for each participant. The coder was extensively trained by one of the developers (Robin) of this coding system (Robin & Foster, 1989) to a level of reliability of .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 not blind to group membership of the subjects as ADHDs or controls but was blind to the subgroupings of the ADHD subjects into ODD or not. Because the coder was not entirely blind to group membership, formal interrater reliability was conducted on 15 videotapes and their transcripts by a second coder trained in this system for a separate study of hyperactive teenagers at a different site. This second coder was entirely blind to group membership. Reliability was calculated as the number of agreements for each utterance divided by the total number of agreements plus disagreements. Overall reliability across all six coding categories was 73.8%. For each specific category, reliability was 69.5% for Put Downs/Commands, 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 .68, $z = 74.47$, $p < .001$.

Parent Self-Report Measures of Adjustment. These included the following:

1. *Locke-Wallace Marital Adjustment Test (LWMAT).* This is a brief, 15-item rating scale frequently used to assess marital satisfaction (Locke & Wallace, 1959). Higher scores reflect greater satisfaction.
2. *Beck Depression Inventory.* This is a 22-item rating scale completed by the mother and used here to evaluate the degree of sadness and depression. Each item is rated on a 4-point scale (0-3). A single summary score was used in this study. The scale has satisfactory psychometric properties (Beck, Steer, & Garbin, 1988).
3. *Symptom Checklist 90 Revised (SCL-90-R).* This parent self-report scale assesses a variety of symptoms of psychological maladjustment using 90 items, each rated on a 5-point scale. Scores for eight summary scales can be obtained (Anxious, Phobic, Paranoia, Depression, etc.) as well as a General Severity Index (Derogatis, 1986). Again, because the study was exploratory, all eight scale scores were used as measures rather than just the General Severity Index so as to evaluate on what particular scales, if any, group differences may have emerged.
4. *Life Stress Scale.* The 21 (yes/no) items from the Life Events scale of the Parenting Stress Index were used to evaluate major life events that had occurred within the past 12

months (see Abidin, 1986). The score was the number of stressful life events endorsed by the mother.

RESULTS

Multivariate analyses of variance (MANOVAs) were employed followed by univariate analyses of variance (ANOVAs) where the multivariate statistical test was significant. When a univariate test was significant, Tukey's Honestly Significant Difference (HSD) test was used for evaluating the pairwise contrasts between the three groups. Where data on adolescent ratings about fathers and maternal ratings about marriage were analyzed, the sample size was reduced to 128, representing those families in which the father was present.

Parent and Teen Ratings of Family Conflicts

The results for these rating scales are shown in Table II. The MA- NOVA for the mothers' CBQ scores was significant, Wilks's lambda = .85, $F = 6.54$, $p < .001$. The ANOVAs, shown in Table II, indicated significant group differences on all three scores. Mothers of both ADHD groups rated their communication with their adolescents as more negative than those of the control teenagers. However, the mothers of the ADHD/ODD group rated their communications as being even more negative than mothers of the ADHD-only adolescents.

Table II. Family Conflict Rating Scales Completed by Parents and Adolescents for Each Group[a]

Measure	Group means (standard deviations) ADHD	ADHD/ODD	Control	*F*	*p*	Cont.
Interaction Behavior Questionnaire						
Mom About Teen	8.2 (3.7)	13.4 (4.2)	4.4 (5.1)	63.98	.001	2 > 1 > 3
Teen About Mom	3.9 (4.8)	7.7 (4.7)	4.2 (4.7)	10.51	.001	2 > 1, 2 > 3
Teen About Dad	4.7 (4.8)	7.6 (5.4)	5.0 (4.8)	5.34	.005	2 > 1, 2 > 3
Issues Checklist—Mother						
No. of Conflicts	19.6 (7.3)	22.8 (6.7)	14.1 (6.1)	29.75	.001	1 > 3, 2 > 3
Mean Intensity	2.1 (0.5)	2.4 (0.7)	1.8 (0.6)	17.78	.001	1 > 3, 2 > 3
Weighted Intensity	2.4 (0.6)	2.7 (0.7)	1.9 (0.7)	19.49	.001	1 < 3, 2 > 3
Issues Checklist—Adolescent About Mother						
No. of Conflicts	12.8 (6.6)	15.9 (8.2)	11.6 (5.9)	6.37	.003	2 > 3
Mean Intensity	1.9 (0.6)	2.2 (0.7)	1.7 (0.7)	8.76	.001	2 > 3
Weighted Intensity	2.0 (0.7)	2.3 (0.8)	1.8 (0.8)	6.83	.002	2 > 3
Issues Checklist—Adolescent About Father						
No. of Conflicts	7.2 (7.3)	8.5 (7.1)	6.1 (5.6)	2.15	—	—
Mean Intensity	1.2 (1.1)	1.8 (1.3)	1.3 (1.0)	3.91	.02	2 > 3
Weighted Intensity	1.3 (1.1)	1.9 (1.4)	1.4 (1.1)	4.34	.01	2 > 3

Family Beliefs Inventory—Mother						
Ruination	31.5 (11.3)	35.6 (10.0)	31.5 (7.8)	3.47	.03	2 > 3
Perfection	43.0 (9.7)	46.2 (8.6)	47.3 (8.2)	2.47	—	—
Approval	14.7 (4.5)	16.9 (5.3)	16.1 (5.5)	1.70	—	—
Obedience	39.7 (8.0)	41.3 (10.3)	40.5 (8.5)	0.29	—	—
Self-Blame	20.0 (8.6)	20.3 (6.5)	19.9 (7.0)	0.06	—	—
Malicious Intent	16.8 (5.4)	20.2 (7.5)	17.8 (4.8)	3.93	.02	2 > 1
Family Beliefs Inventory—Adolescent						
Ruination	33.1 (8.0)	37.4 (9.6)	30.1 (11.1)	8.04	.001	2 > 3
Fairness	46.3 (8.0)	47.9 (10.6)	44.8 (9.6)	1.62	—	—
Approval	37.6 (7.0)	36.5 (8.1)	39.1 (8.6)	1.62	—	—
Autonomy	39.2 (8.1)	39.7 (10.8)	34.9 (11.5)	3.64	.03	2 > 3

[a]ADHD = attention deficit hyperactivity disorder without oppositional defiant disorder (n = 27); ADHD/ODD = ADHD with oppositional defiant disorder (n = 56); Control = community control group n = 77). p indicates the probability value for the F-test between groups if significant. Content. = Contrasts; these are the results of the Tukey Honestly Significant Difference (HSD) pairwise comparisons which reached a level of $p < .05$. In these contrasts 1 = ADHD, 2 = ADHD/ODD, 3 = control.

The MANOVA for the three scores from the mothers' Issues Checklist was significant, Wilks's lambda = .64, F = 9.29, $p < .001$, as were all three of the subsequent ANOVAs (see Table II). Both groups of ADHD adolescents were rated by their mothers as having significantly more conflicts, and more anger during their conflicts, than the normal adolescents. However, the two ADHD groups did not differ from each other in this respect.

The MANOVA for the three scores from the adolescents' ratings about their mothers and the three scores for their ratings of their fathers on the Issues Checklist was significant, Wilks's lambda = .84, F = 3.62, $p < .001$. Five of the six subsequent ANOVAS were significant. Only the ADHD/ODD adolescents rated themselves as having significantly more conflicts with their mothers and more anger in those conflicts than adolescents in the control group. The ratings for the ADHD-only group fell between these two extremes and was not significantly different from the control or mixed ADHD/ODD groups. Analyses of the adolescents' ratings about their fathers on the Issues Checklist did not find any differences between the groups in the number of issues on which they disagreed with each other. However, the teens in the ADHD/ODD group rated their conflict discussions with their fathers as significantly more angry or intense than teens in the control group. Again, the ADHD-only teenagers tended to fall between these two extreme groups but were not significantly different from the normal or ADHD/ODD teens.

The six FBI scores for the mothers were analyzed using a MANOVA which was significant, Wilks's lambda = .84, F = 2.23, $p < .01$. The subsequent ANOVAS were significant only for the beliefs of ruination and malicious intent. Mothers of the ADHD/ODD group held stronger or more unreasonable beliefs about their teen's possible ruination if the teens disobeyed their advice than did the mothers of the control teens. Once again, the ADHD-only group did not differ from the other two groups in this respect. The mothers of the ADHD/ODD groups also were found to attribute greater malicious intent to their teens' conduct than did mothers of the ADHD-only teenagers. Surprisingly, the control group did not differ from the other groups in this regard.

The four FBI scores for the adolescents were evaluated using a MA- NOVA which was significant, Wilks's lambda = .87, F = 2.66, $p < .008$. Two of the four subsequent ANOVAS were also significant. The ADHD/ODD adolescents held more extreme beliefs about their own

ruination and about their own autonomy compared to the teenagers in the control group. Again, the ADHD-only group did not differ from the other two groups on these two beliefs.

Direct Observations of Parent and Teen Interactions

These results are shown in Table III. The six behavior codes from the PAICS-R for the mothers recorded during the neutral discussion were analyzed using a one-way (groups) MANOVA which was significant, Wilks's lambda = .86, $F = 2.05$,$p < .02$. The subsequent ANOVA revealed significant effects for the grouping variable on the categories of Put Downs/Commands and Problem Solves but not on the remaining three behavior categories. Mothers of ADHD/ODD teens used significantly more put downs and commands with their teens and significantly less problem- solving suggestions than mothers of the control group teenagers. Mothers of the ADHD-only group did not differ from either the control group or mixed ADHD/ODD group in either respect.

The six adolescent behavior categories coded during the neutral discussions were then submitted to analysis by a one-way MANOVA which was significant, Wilks's lambda = .85, $F = 2.07$, $p < .02$. The ANOVAs were significant for three of these six measures. The adolescents in the combined ADHD/ODD group used significantly more put downs and commands, defensiveness and complaining, and less positive facilitating of the discussions with their mothers than did the teens in the control group. Once more, the ADHD-only teens placed between these two groups in their behavior and did not differ significantly from the control group in these respects.

The six categories of mothers' behavior during the conflict discussion period were then evaluated using a one-way MANOVA which was not significant, Wilks's lambda = 0.91, $F = 1.21$, $p = .27$. The six categories for adolescent behavior during this discussion were also analyzed using a one-way MANOVA, on which there was a tendency toward significance, Wilks's lambda = .88, $F = 1.65$, $p < .08$.

Maternal Self-Report Rating of Psychological Adjustment

The mean scores for these measures are shown in Table IV. A one- way MANOVA was used to evaluate the scores from the SCL-90-R, BDI, LWMAT, and Life Stress Scale. The result was significant, Wilks's lambda = 0.71, $F = 1.78$, $p < .02$. The subsequent ANOVAs indicated significant group differences on three of the scales from the SCL-90-R as well as on the BDI and the LWMAT. Mothers of the ADHD/ODD adolescents rated themselves as more obsessive-compulsive, anxious, and interpersonally hostile on the SCL-90-R, more depressed on the BDI, and less maritally satisfied than mothers of the control teenagers. With one exception, mothers

Table III. Direct Observations of Parent–Adolescent Interactions During Neutral and Conflict Discussions for Each Group[a]

Measure	Group means (standard deviations) ADHD	ADHD/ ODD	Control	F	p	Cont.
Neutral discussion						
Mother categories						
Put Downs/Commands	4.1 (6.8)	6.4 (11.7)	1.9 (0.7)	5.43	.005	2 > 3
Defends/Complains	2.1 (3.3)	1.2 (2.8)	1.3 (2.2)	1.21	—	
Defines/Evaluates	9.2 (5.5)	10.5 (8.5)	10.9 (6.1)	0.55	—	
Problem Solves	28.0 (9.6)	25.0 (8.9)	30.2 (10.3)	4.64	.011	3 > 2
Facilitates	39.3 (10.6)	42.3 (12.4)	40.1 (11.4)	0.80	—	
Talks	17.2 (8.1)	14.6 (8.9)	15.6 (8.7)	0.79	—	
Adolescent categories						
Put Downs/Commands	3.1 (4.2)	4.6 (9.4)	1.1 (2.0)	5.76	.004	2 > 3
Defends/Complains	6.7 (7.1)	10.5 (14.5)	4.6 (5.7)	5.79	.004	2 > 3
Defines/Evaluates	9.9 (5.2)	13.0 (10.2)	11.7 (8.5)	1.21	—	
Problem Solves	32.2 (10.5)	29.1 (12.9)	33.7 (11.8)	2.32	—	
Facilitates	23.7 (12.8)	21.5 (11.1)	27.0 (10.7)	5.59	.005	2 < 3
Talks	24.5 (9.7)	21.3 (10.1)	20.9 (9.9)	1.31	—	
Conflict discussion						
Mother categories						
Put Downs/Commands	20.7 (17.1)	22.3 (15.7)	19.4 (14.6)	0.55	—	
Defends/Complains	10.3 (11.9)	8.5 (9.6)	10.7 (9.1)	0.83	—	
Defines/Evaluates	10.2 (7.7)	13.7 (11.5)	13.6 (9.3)	1.37	—	
Problem Solves	8.5 (4.7)	9.2 (7.0)	10.2 (7.8)	0.61	—	
Facilitates	29.0 (15.3)	30.4 (15.7)	30.0 (14.8)	0.08	—	
Talks	21.3 (13.8)	16.0 (11.0)	16.2 (9.5)	2.56	—	
Adolescent categories						
Put Downs/Commands	6.9 (9.2)	10.2 (13.4)	6.8 (8.6)	1.67	—	
Defends/Complains	42.6 (20.6)	41.2 (19.3)	44.0 (17.8)	0.38	—	
Defines/Evaluates	8.1 (7.6)	10.4 (12.1)	7.7 (6.4)	1.55	—	
Problem Solves	6.6 (6.5)	5.8 (5.9)	5.7 (5.1)	0.21	—	
Facilitates	11.8 (7.3)	13.4 (9.5)	15.8 (10.2)	2.09	—	
Talks	24.0 (14.2)	19.2 (12.7)	20.0 (11.2)	1.46	—	

[a]ADHD = attention deficit hyperactivity disorder without oppositional defiant disorder (n = 27); ADHD/ODD = ADHD with oppositional defiant disorder (n = 56); Control = community control group (n = 77). p indicates the probability value for the F-test between groups if significant. Cont. = Contrasts for the results of the Tukey Honestly Significant Difference (HSD) pairwise comparisons, which reached the level of $p < .05$. 1 = ADHD, 2 = ADHD/ODD, 3 = control.

of the ADHD-only group did not differ significantly from mothers of the control group or the combined ADHD/ODD group but tended to fall between these two groups in their scores on these scales. The exception was

Table IV. Parent Self-Report Measures of Psychological Adjustment by Group[a]

Measure	Group means (standard deviations) ADHD		ADHD/ODD		Control		F	p	Cont.
Symptom Checklist 90—Revised: T-scores)									
Somatic Compl.	50.4	(9.5)	49.3	(10.7)	48.7	(7.5)	0.36	—	—
Obsess.-Comp.	55.0	(8.3)	54.8	(9.3)	50.4	(8.5)	3.56	.03	2 > 3
Interper. Sens.	53.1	(10.9)	55.9	(10.8)	52.5	(9.2)	1.50	—	—
Depression	52.5	(9.9)	55.2	(10.6)	50.7	(10.1)	2.62	—	—
Anxiety	51.3	(9.7)	52.7	(10.0)	47.7	(9.3)	3.64	.03	2 > 3
Hostile	54.5	(10.2)	56.6	(10.9)	50.4	(8.2)	6.62	.002	2 > 3
Phobic	48.7	(6.8)	47.5	(6.0)	47.0	(5.1)	0.90	—	—
Paranoid	50.2	(10.6)	51.9	(9.3)	48.8	(7.8)	2.32	—	—
Psychotic	51.8	(9.6)	52.5	(9.3)	50.6	(7.6)	0.58	—	—
Locke-Wallace MAT	113.1	(19.5)	94.2	(29.4)	112.1	(26.7)	6.60	.002	2 < 3, 2 < 1
BDI	6.2	(5.1)	8.7	(8.1)	5.2	(5.1)	3.26	.04	2 > 3
Life Stress Events	2.6	(1.9)	3.4	(2.3)	2.5	(2.0)	3.02	—	—

[a]ADHD = attention deficit hyperactivity disorder without oppositional defiant disorder (n = 27); ADHD/ODD = ADHD with oppositional defiant disorder (n = 56); Control = community control group (n = 77). p indicates the probability value for the F-test between groups if significant. Contrasts are for the results of the Tukey Honestly Significant Difference (HSD) pairwise comparisons, which reached the level of $p < .05$. 1 = ADHD, 2 = ADHD/ODD, 3 = control. Somatic Compl. = somatic complaints; Obsess.-Comp. = obsessive-compulsive; Interp. Sens. = interpersonal sensitivity; MAT = Marital Adjustment Test; BDI = Beck Depression Inventory.

that mothers of the ADHD/ODD group also rated their marriages as significantly less well-adjusted than mothers in the ADHD-only group.

Evaluating Predictors of Parent-Teen Conflicts

A hierarchical stepwise linear regression analysis was used to evaluate the extent to which the presence of teen ODD and parental psychological distress each separately contributed to the degree of parent-teen conflicts found in the ADHD groups. As noted earlier, ODD, or aggression, in ADHD teens may serve simply as a marker variable for parental psychopathology in its relationship to parent-teen conflicts or it may contribute unique variance beyond that due to such parental distress. The measure of family conflict chosen to be the dependent measure in these analyses was a composite (summation) of the Number of Issues and Weighted Anger/Intensity score from the Issues Checklist and the total score from the CBQ. Mothers' and teens' reports on these scales were used as separate dependent measures. To evaluate the degree to which maternal psychological distress contributed to family conflict beyond that accounted for by the presence of ODD in the ADHD teens, the following variables were entered into the regression equation for both the mothers' and the teens' reports in the following order: At Step 1, group membership of the ADHD teens (ADHD alone or mixed ADHD/ODD) were forced into the equation; at Step 2, ratings of marital satisfaction on the LWMAT were allowed to enter if significant; at Step 3, the maternal self-reports on the BDI scale and on the Obsessive-Compulsive, Anxiety, and Hostile scales of the SCL90-R were allowed to enter in order if significant.

The resulting equation for predicting mothers' ratings of parent-teen conflict was significant, F = 10.20, df = 2/63, $p < .0001$, and yielded a multiple R = .495, and R^2 = .245 with only the Hostile scale (beta = .359) contributing significantly ($p < .002$) to the equation beyond the variance accounted for by teen group membership (beta = .321, $p < .005$). This suggested that maternal self-reports of interpersonal hostility were making unique contributions to the degree of family

conflict, as reported by mothers, beyond that accounted for by the presence of ODD in the adolescent. Next the opposite order of entry was evaluated, that is, to what extent does the presence of ODD contribute to parent-teen conflict beyond that accounted for by maternal psychological distress. In this case, the LWMAT score was allowed to enter first, allowed by the BDI and SCL-90-R scores, as above, at Step 2, and finally the ADHD group variable (ADHD or ADHD/ODD) at Step 3. The equation was significant, $F = 10.20$, $df = 2/63$, $p < .001$, and yielded a multiple $R = .495$ and an $R^2 = .245$). The group variable was found to make a significant contribution (beta = .321, $p < .005$) beyond that contributed by the SCL-90-R Hostile scale (beta = .359, $p < .002$). The latter variable was, again, the only maternal variable to contribute significantly to this equation. Thus, it seems that a diagnosis of ODD in ADHD teens and the presence of maternal self-reported Hostility each contributes unique effects to the degree of parent-teen conflict found in families of ADHD adolescents as reported by their mothers.

To determine whether these relationships held true if teen reports of parent-teen conflict were used as the dependent measures, a separate pair of hierarchical regression equations were conducted. Again, the dependent measure was the summation of three scores from the parent-teen conflict- ratings used in the above equations except teen reports were used instead of mother reports this time. In the first equation, as above, the teen ADHD group variable was entered first followed by the LWMAT score followed by the three SCL-90-R scores. The equation was significant, $F = 8.25$, $df = 1/64$, $p < .006$, and resulted in a multiple $R = .338$ and and $R^2 = .114$. In this instance, only the ADHD teen group variable was significant (beta = .338,$p < .006$). In the analysis of the opposite order of entry, the equation was significant, $F = 8.25$, $df = 1/64$, $p < .006$, with a multiple $R = .338$ and $R^2 = .114$. Again, only the ADHD teen group variable was significant (beta = .338, $p < .006$). Thus, mothers' self-reports of psychological distress do not appear to make additional contributions to teen reports of parent- teen conflict beyond that contributed by the teens' diagnoses of ODD.

DISCUSSION

We found that mothers of adolescents referred for ADHD described their relationships with their teenagers as having more negative communication patterns, more issues in conflict with each other, and greater intensity of anger during those interaction conflicts than did mothers of adolescents in a community control group. These family communication and interaction problems were likely to be reported by mothers regardless of whether the ADHD adolescent also manifested a co-morbid ODD. This suggests that the presence of ADHD in an adolescent is associated with a more angry and conflicted pattern of family communications at this age than that encountered in normal families. Although causal statements cannot be supported by these correlational results, it can be speculated that it may be the inattentive, impulsive, and generally inmature self-regulatory behavior seen in ADHD that increases these disagreements between ADHD teens and their families.

Only adolescents with *both* ADHD and ODD, however, were likely to report greater communication problems, family conflicts, and anger during these conflicts, both with their mothers and fathers, than did the control adolescents. The combined ADHD/ODD group also was the only group that demonstrated greater use of negative behaviors during a neutral discussion period than did the control group of mother-adolescent dyads. It was also only in the dual-diagnosed ADHD/ODD group that more extreme and unreasonable beliefs about parent-

teen relations were held by the mothers about their teens and the teens about their parents than in the community group. Adolescents with ADHD alone were not more likely than control adolescents to report such communication problems, family conflicts, anger intensity, or unreasonable beliefs and were not more likely to display the negative interactive behaviors during a mother-teen discussion than was seen in the control group. This ADHD-only group placed between the control and ADHD/ODD groups in these respects, failing to differ significantly from either of these groups. Consequently, it appears that while some family conflict is associated with ADHD in adolescents, it is the presence of ODD which is associated with greater-than-normal risks of negative communication patterns, angry family exchanges and conflicts, and unreasonable, extreme family beliefs about parent-teen relations. Such factors may even be involved in the genesis or persistence of ODD (Patterson, 1982). These results confirm those of a recent adolescent followup study of parent-child interaction patterns of hyperactive children (Barkley, Fischer, Edelbrock, & Smallish, 1991) in establishing the important association of family interaction conflicts with ODD more than ADHD.

The finding of greater negative interactions between ADHD/ODD adolescents and their mothers during the neutral discussion is similar to the results of earlier studies on mother-child interactions in ADHD children, many of whom were also aggressive or oppositional (Barkley et al., 1985). However, many of the differences between normal and ADHD children in these earlier studies might have primarily been the result of the coexisting ODD in many members of the ADHD group. Further corroborating this conclusion are the recent findings (Tallmadge, Paternite, & Gordon, 1989) that ratings of aggression in ADHD children were more strongly related to observations of maternal commands and child noncompliance during mother-child interactions than were ratings of hyperactivity.

Surprisingly, no significant differences were noted between our groups in their mother-adolescent interaction patterns during the conflict discussion. This is particularly puzzling in that this situation was contrived in an attempt to elicit greater parent-teen negative interactions where they might exist; interactions we anticipated would be greater in the families of ADHD teens. Yet, the procedure itself achieved the goal of eliciting conflict quite admirably. Both groups demonstrated significant increases in negative interaction categories from the neutral to the conflict discussion. For instance, there was a 4- to 10-fold increase in levels of mother put downs/commands and a 5-fold increase in mothers' use of defending and complaining statements during the conflict discussion relative to the neutral discussion. Also, the adolescents in all three groups more than doubled their use of put downs/commands and showed a 4- to 10-fold increase in their defensive/complaining statements in the conflict discussion as compared to the neutral discussion. The findings, therefore, imply that where conflictual issues are being discussed between parents and teens, both ADHD and normal parent-teen dyads use similar types of behaviors; that is, they increase their use of negative categories of interaction to a relatively comparable degree.

These results are consistent with those of Alexander, Waldron, Barton, and Mas (1989), which showed that situational context is a powerful variable in accelerating the rates of negative family exchanges in *both* delinquent and nondelinquent families. When topics on which there is disagreement are raised for discussion by these families, both groups show dramatic increases in anger, insults, defensiveness, and other negative interactive behaviors as a result. Such

contextual variables may act, as perhaps they did in this study, to obscure differences in family interaction patterns between families of defiant and nondefinat adolescents. This implies that neutral or positive discussions may be better for studying those types of interactive behaviors that distinguish families of the groups studied here.

Despite similar patterns of overt behavior during a conflict discussion, the groups in our study differed in their family functioning in several important respects: ADHD teens, whether ODD or not, had a greater number of issues in their family lives over which there was contention with their parents, as reflected in the mothers' ratings on the Issues Checklist. They also demonstrated more anger intensity during these discussions relative to control teenagers. Furthermore, teenagers with both ADHD and ODD were more likely to engage in negative interactions with their mothers even during a discussion of a seemingly neutral, nonproblematic issue—a pattern of interaction not seen in the normal teens. This negative style of interaction even during discussions of nonproblematic issues is likely to have contributed even further to the pervasiveness of conflict exchanges throughout the daily family life of these mixed ADHD/ODD dyads. Perhaps compounding the problem still further in these ADHD/ODD families were the findings that both mothers and teens in this group alone held more extreme and unreasonable beliefs about the action of the other. Mothers attributed more ruinous outcomes and malicious intent to the conduct of their teens. The ADHD/ODD teens, for their part, attributed more ruinous outcomes for themselves based on the actions of their parents and more extreme attitudes toward their own autonomy from their parents. Thus, ADHD teens who also have ODD differ not only on the dimension of overt conflicts and problem-solving skills, as would be expected from the symptoms of ODD, but also along the empirically separate dimension of covert, cognitive beliefs about family functioning.

Families of ADHD/ODD teens may differ from normal teens not so much in the types of behavior displayed in their conflict discussions but more in the number of conflicts that serve as instigating events for these discussions, the anger intensity shown during them, and the extreme and unreasonable attributions they make concerning each others' actions. It is, therefore, noteworthy that ODD seems not simply to be a disorder affecting the clinic-referred ADHD/ODD adolescent but to reflect a more fundamental disturbance both in types of family interactive behaviors and the cognitive attributions of family members toward each other.

These results support the findings of other studies of childhood aggression and family interaction patterns which found increased negative behavior in both mothers and children in families with aggressive children, many of whom would likely now be considered ODD (Patterson, 1982; Wahler, 1980). This study also found that mothers of the combined ADHD/ODD group were much more likely to have greater personal psychological distress than were mothers in the control group, confirming similar findings by other investigators (August & Stewart, 1983; Lahey et al., 1988; Schachar & Wachsmuth, 1990). Patterson (1982), among others, has suggested that these parental psychological difficulties give rise to greater coercive interactions with the negative children, thereby increasing the children's aggressiveness. The results for the regression analyses lend some indirect, correlational support to this view in that maternal interpersonal hostility was found to make additional contributions to the degree of parent—teen conflicts beyond that attributable to aggression, or ODD, in the adolescents.

Similar to other studies of ADHD children (Befera & Barkley, 1985; Cunningham, Benness, & Siegel, 1988), this study of clinic-referred ADHD teenagers also found a greater degree of marital dissatisfaction in the mothers of ADHD teenagers than in those of the control group. Our finding of greater-than-normal marital discord among the parents in the ADHD adolescents, however, was again specific to only that group having a co-morbid diagnosis of ODD. Such findings have also been noted in hyperactive children assessed at adolescent followup (Barkley et al., 1991) and underscore the higher risks for marital discord as well as for more general family dysfunction which seem to accompany ODD when combined with ADHD. They are also consistent with the broader literature on the relationship of marital discord to childhood conduct problems (Bond & McMahon, 1984; Jouriles, Pfiffner & O'Leary, 1988; Patterson, 1982; Porter & O'Leary, 1980; Reid & Crisafulli, 1990; Webster-Stratton, 1988) and those seen in adolescents (Forehand et al., 1987), particularly in males. However, the results of our regression analyses suggest that marital dissatisfaction does not contribute significantly to parent-teen conflicts beyond those contributions made by the teens' ODD, or aggressiveness, and maternal interpersonal hostility. These results parallel those of Frick, Lahey, Hartdagen, and Hynd (1989) in showing that it is maternal personality disturbances which account for the relationship of marital distress to child conduct problems and extend these findings to teens specifically diagnosed as ADHD with ODD.

The present findings have several implications for planning family- based treatments with ADHD adolescents. Although these remain conjectural until our findings can be replicated, it seems that those families with mixed ADHD/ODD require considerably more elaborate, intense, and extended training in problem-solving and communication skills than those with ADHD-only teens. The ODD behaviors in these adolescents rather than their ADHD behaviors should be the direct initial targets of intervention if reducing family distress is the goal of therapy. In doing so, attempts to reduce the number of instigating events shown during these discussions are, perhaps, more likely to be of benefit than those which focus on the overt processes families use to discuss these conflicts. Beyond this, families with ADHD/ODD teens also appear to need training in anger control skills to lessen the intensity of affect in these exchanges over conflicts when they must take place. Such treatment might then need to be extended to the extreme and unreasonable beliefs which both parent and adolescent are likely to carry within these families of mixed ADHD/ODD teens. These seem to be a separate level of dysfunction beyond the more overt skills problems these families may have. Furthermore, the association of maternal psychological distress, marital discord, and perhaps parental antisocial behavior with parent-adolescent conflicts implies that family-based treatments must be expanded to address these parental difficulties. Otherwise the focus on specific parent-teen relations and problem-solving skills noted above is likely to be for naught. It also seems worth exploring to what extent the use of stimulant medication with the ADHD teens combined with these family-based interventions might further improve their family conflicts in view of our prior studies that found these medications to significantly reduce parent-child conflicts in hyperactive children (Barkley, 1989; Barkley et al., 1984).

REFERENCES

Abidin, R. R. (1986). *Parenting Stress Index.* Charlottesville, VA: Pcdiatric Psychology Press.

Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile.* Burlington, VT: Thomas Achenbach.

Alexander, J. F., Waldron, H. B., Barton, C., & Mas, C. H. (1989). The minimizing of blaming attributions of behaviors in delinquent families. *Journal of Consulting and Clinical Psychology,* 57, 19-24.
American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev.). Washington, DC: Author.
August, G. J., & Stewart, M. A. (1983). Family subtypes of childhood hypcractivity. *Journal of Nervous and Mental Disease, 171,* 362-368.
Barkley, R. A. (1985). The social interactions of hyperactive children: Developmental changes, drug effects, and situational variation. In R. McMahon & R. Peters (Eds.), *Childhood disorders: Behavioral-developmental approaches* (pp. 218-243). New York: Bruner/Mazel.
Barkley, R. A. (1989). Hyperactive girls and boys: Stimulant drug effccts on mother-child interactions. *Journal of Child Psychology and Psychiatry, 30,* 379-390.
Barkley, R. A., Anastopoulos, A., Guevrcmont, D., & Fletcher, K. (1992). A comparison of three family therapy programs for treating family conflicts in adolescents with attention dcficit hyperactivity disorder. *Journal of Consulting and Clinical Psychology, 60.*
Barkley, R. A., DuPaul, G., & McMurray, M. B. (1990). A comprchensivc evaluation of attention deficit disorder with and without hyperactivity as defined by rescarch critcria. *Journal of Consulting aná Clinical Psychology, 58,* 775-789.
Barkley, R. A., Fischer, M., Edelbrock, C. S., & Smallish, L. (1990). The adolescent outcome of hyperactive children diagnosed by research critcria, I: An 8-year prospective follow-up study. *Journal of the American Academy of Chilá and Adolescent Psychiatry, 29,* 546-557.
Barkley, R. A., Fischer, M., Edelbrock, C. S., & Smallish, L. (1991). Thc adolesccnt outcome of hyperactive children diagnosed by research criteria, I: Mother-child interactions, family confliets, and maternal psychopathology. *Journal of Child Psychology and Psychiatry, 32,* 233-255.
Barkley, R. A., Guevremont, D., Anastopoulos, A., & Fletcher, K. (1991). Adolescents with attention deficit hyperactivity disorder: Patterns of behavioral adjustment, academic functioning, and treatment utilization. *Journal of the American Academy of Child and Adolescent Psychiatry, 30,* 752-761.
Barkley, R. A., Karlsson, J., & Pollard, S. (1985). Effects of agc on the mother-child interactions of ADD-H and normal boys. *Journal of Abnormal Child Psychology, 13,* 631-637.
Barkley, R. A., Karlsson, J., Strzelecki, E., & Murphy, J. (1984). Effects of age and Ritalin dosagc on the mother-child interactions of hyperactive children. *Journal of Consulting and Clinical Psychology, 52,* 750-758.
Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8,* 77-100.
Befera, M., & Barkley, R. A. (1985). Hyperactive and normal girls and boys: Mother-child interactions, parent psychiatric status, and child psychopathology. *Journal of Child Psychology and Psychiatry, 26,* 439-452.
Bell, R. Q., & Harper, L. (1977). *Child effects on adults.* Hillsdale, NJ: Erlbaum. Biederman, J., Munir, K., & Knee, D. (1987). Conduct and oppositional disordcr in clinically referred children with attention deficit disorder: A controllcd family study. *Journal of the American Academy of Child and Adolescent Psychiatry, 26,* 724-727.
Bond, C. R., & McMahon, R. J. (1984). Relationship between marital distress and child behavior problems, maternal personal adjustment, maternal personality, and maternal parenting behavior. *Journal of Abnormal Psychology, 93,* 348-351.

Brody, G. H., & Forehand, R. (1986). Maternal perceptions of child maladjustment as a function of the combined influence of child behavior and maternal depression. *Journal of Consulting and Clinical Psychology, 54,* 237-240.
Campbell, S. B. (1973). Mother-child interaction in reflectivc, impulsive, and hyperactive childrcn. *Developmental Psychology, 8,* 341-349.
Campbcll, S. B. (1975). Mother-child interaction: A comparison of hyperactive, learning disablcd, and normal boys. *American Journal of Orthopsychiatry, 45,* 51-57.
Campbell, S. B., Breaux, A. M., Ewing, L. J., Szumowski, E. K., & Pierce, E. W. (1986). Parent-identified problem preschoolers: Mothcr-child intcraction during play at intake and 1 year follow-up. *Journal of Abnormal Child Psychology, 14,* 425-440.
Cohen, J. N., Sullivan, J., Minde, K., Novak, C., & Keens, S. (1983). Mothcr-child interaction in hyperactive and normal kindcrgarten-agcd children and the effcct of treatment. *Child Psychiatry and Human Development, 13,* 213-224.
Cunningham, C. E., & Barkley, R. A. (1979). The interactions of hyperactive and normal children with their mothers during frec play and structured task. *Child Development, 50,* 217-224.
Cunningham, C. E., Benness, B. B., & Siegel, L. S. (1988). Family functioning, time allocation, and parental depression in the families of normal and ADHD children. *Journal of Clinical Child Psychology, 17,* 169-177.
Danforth, J. S., Barklcy, R. A., & Stokcs, T. F. (1991). Observations of interactions betwcen parents and their hypcractive children: An analysis of reciprocal influencc. *Clinical Psychology Review, 11,* 703-727.
Derogatis, L. (1986). *Manual for the Symptom Checklist 90 Revised (SCL-90-R).* Baltimorc, MD: Author.
Dunn, L. M., & Dunn, L. M. (1981). *Peabody Picture Vocabulary Test-Revised.* Circle Pines, MN: American Guidance Serviee.
Fischer, M. (1990). Parenting stress and the child with attcntion deficit hyperactivity disorder. *Journal of Clinical Child Psychology, 19,* 337-346.
Forehand, R., Long, N., Faust, J., Brody, G. H., Burke, M., & Fauber, R. (1987). Physical and psychological health of of young adolescents: The relationship to gender and marital conflict. Journal of Pediatric Psychology, 12, 191-201.
Foster, S. L., & Robin, A. L. (1988). Family conflict and communication in adolescence. In E. J. Mash & L. G. Terdal (Eds.), *Behavioral assessment of childhood disorders* (2nd ed., pp. 717-775). New York: Guilford Press.
Frick, P. J., Lahey, B. B., Hartdagen, S., & Hynd, G. W. (1989). Conduct problems in boys: Relations of maternal personality, marital satisfaction, and socioeconomic status. *Journal of Clinical Child Psychology, 18,* 114-120.
Jourilcs, E. N., Pfiffner, L. J., & O'Leary, S. G. (1988). Marital conflict, parenting, and toddler conduct problcms. *Journal of Abnormal Child Psychology, 16,* 197-206.
Lahey, B. B., Piacentini, J. C., McBurnett, K., Stone, P., Hartdagen, S., & Hynd, G. (1988). Psychopathology in the parents of childrcn with conduct disordcr and hyperactivity. *Journal of the American Academy of Child and Adolescent Psychiatry,* 27, 163-170.
Lambcrt, N. M., & Sandoval, J. (1980). The prevalencc of learning disabilities in a sample of children considered hyperactive. *Journal of Abnormal Chid Psychology, 8,* 33-50.
Lockc, H. J., & Wallacc, K. M. (1959). Short marital adjustmcnt and prediction tests: Their reliability and validity. *Journal of Marriage and Family Living, 21,* 251-255.

Loeber, R. (1990). Developmcnt and risk factors of juvenile antisocial behavior and delinquency. *Clinical Psychology Review, 10,* 1-42.
Loney, J., & Milich, R. (1981). Hyperactivity, inattention, and aggression in clinical practice. In M. Wolraich & D. K. Routh (Eds.). *Advances in behavioral pediatrics* (Vol. 3, pp. 113-147). Grcenwich, CT: JAI Press.
Mash, E. J., & Johnston, C. (1982). A comparison of mother-child interactions of younger and older hyperactive and normal children. *Child Development,* 53, 1371-1381.
Mash, E. J., & Johnston, C. (1990). Determinants of parenting stress: Illustrations from families of hypcractive children and families of physically abused children. *Journal of Clinical Child Psychology, 19,* 313-328.
Patterson, G. R. (1982). *Coercive family process.* Eugene, OR: Castalia.
Porter, B, & O'Leary, K. D. (1980). Marital discord and child behavior problems. *Journal of Abnormal Child Psychology, 8,* 287-295.
Reid, W. J., & Crisafulli, A. (1990). Marital discord and child behavior problems: A mcta-analysis. *Journal of Abnormal Child Psychology, 18,* 105-117.
Robin, A. L., & Foster, S. (1989). *Negotiating parent-adolescent conflict.* New York: Guilford Press.
Schachar, R., & Wachsmuth, R. (1990). Hyperactivity and parental psychopathology. *Journal of Child Psychology and Psychiatry, 31,* 381-392.
Tallmadge, J., & Barkley, R. A. (1983). The interactions of hyperactive and normal boys with their mothers and fathers. Journal of Abnormal Child Psychology, 11, 565-579.
Tallmadge, J., Paternite, C., & Gordon, M. (1989, April). *Hyperactivity and aggression in parent-child interactions: Test of a two-factor theory.* Paper presented at the Society for Research in Child Development, Kansas City, MO.
Vincent-Rochling, P., & Robin, A. L. (1986). Development and validation of the Family Belicfs Inventory: A measure of unrealistic beliefs among parents and adolescents. *Journal of Consulting and Clinical Psychology,* 54, 693-697.
Wahler, R. (1980). The insular mother: Her problems in parent-child treatment. Journal of Applied Behavior Analysis, 13, 207-219.
Webster-Stratton, C. (1988). Mothers and fathers' perceptions of child deviance: Roles of parent and child behaviors and parent adjustment. *Journal of Consulting and Clinical Psychology, 56,* 909-915.
Weiss, G., & Hechtman, L. (1986). *Hyperactive children grown up.* New York: Guilford Press.