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PREDICTORS OF OUTCOME
FOR COGNITIVE-BEHAVIORAL TREATMENT
WITH IMPULSIVE CHILDREN

By

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ABSTRACT

PREDICTORS OF OUTCOME FOR COGNITIVE-BEHAVIORAL TREATMENT WITH IMPULSIVE CHILDREN

By

Gregory Scott Greenberg

The present study investigated whether variables of self-concept, aggression, locus of control, learning problems, chronological age, and familial socioeconomic status help predict which impulsive children benefit from cognitive-behavioral training (CBT). It was hypothesized that those impulsive children who possess a greater self-concept, lower aggressiveness, greater internal locus of control, lower external and unknown locus of control, fewer learning problems, and are older in age would be most responsive to CBT. This investigation also examined whether CBT helps impulsive children to develop a greater sense of control over and understanding of why outcomes occur in their own environment. It was hypothesized that CBT would increase impulsive children's locus of control. Cognitive-behavioral treatment was provided for 33 male and 8 female children, ages 7 to 11 years old, who were referred for special education services because of emotional impairment with the primary problems being that

of impulsivity and acting-out. Pre- and posttest measures were administered to the child participants and their parents and teachers before the intervention started and after it ended. Results suggest that the predictor variables did not, in general, help predict improvement in behavioral ratings. The reason for this failure to predict is that very few of the children significantly improved on any of the criterion variables. However, anecdotal reports of decreased behavioral difficulties within treatment groups suggest that observed behavioral improvements may not have generalized from the treatment setting to the classroom or home settings. Possible explanations were offered for why the CBT failed to achieve better treatment effectiveness. The results also suggest that external locus of control decreased from pre- to posttreatment. Limitations of the current investigation and suggestions for future investigations were discussed.

To my family--Max, Joan, Jeff, Jill, and Sarah--for their loving support and encouragement

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I would like to express special thanks to all of the children, parents, school psychologists, and teachers who

participated in this study. Without their eager participation this project would not have been possible.

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CHAPTER I

STATEMENT OF THE PROBLEM

The behavioral disorder, hyperactivity, is the most commonly referred problem to child guidance clinics in the United States (Safer & Allen, 1976; Stewart, Pitts, Craig, & Dieruf, 1966). Hyperactive children are frequently described as impulsive, inattentive, overactive, difficult to discipline, and incapable of restraining their activity to situational requirements (Cantwell, 1975; Ross & Ross, 1976; Routh, 1978; Safer & Allen, 1976). Quite often, hyperactive children have difficulties in getting along with their peers, completing academic work, and following directions of teachers and parents (Stewart et al., 1966). Thus, they are more likely than normal children to have a number of academic and social problems.

Difficulties with alcohol abuse, depression, obeying the law, and truancy often occur as they grow older (Cantwell, 1978; Minde et al., 1971; Ross & Ross, 1976; Weiss, Minde, Werry, Douglas, & Nemeth, 1971). The prognosis for hyperactive children in adulthood is

frequently described as poor (Barkley, 1977a; Mash & Dalby, 1979; Routh, 1978; Weiss et al., 1971). In short, "they constitute a group of children plagued with conduct and reactive emotional problems throughout most of their lives" (Barkley, 1981a; p.127).

The most common treatment for hyperactivity is, and has been for some time now, psychostimulant medication. In his review of more than 110 studies regarding the effects of stimulant drugs on approximately 4200 children, Barkley (1977a) reported that about 75% of the hyperactive children taking stimulant medication seem to be judged as improved while about 25% stay unchanged or are worsened by the drugs. In addition, although stimulant drug therapy has been shown to have short-term behavioral or cognitive effects such as increased concentration or attention span, decreased impulsivity in responding and decreased activity level, follow-up studies have reported little change with respect to long-term social, academic or psychological adjustment of hyperactive children (e.g., Huessy, Metoyer, & Townsend, 1974; Mendelson, Johnson, & Stewart, 1971; Minde, Weiss, & Mendelson, 1972; Quinn & Rapoport, 1975; Riddle & Rapoport, 1976; Weiss, Kruger, Danielson, & Elman, 1975). It appears that the psychostimulant medication treatment is helpful for short-term control of

hyperactivity but is not helpful for long-term outcomes. In other words, stimulant medication seems to be effective for management of hyperactive children but does not improve long-term social and academic adaptation. In addition, many parents reject stimulant medication as a treatment for their child(ren) while other parents discontinue treatment prematurely (Brown, Borden, & Clingerman, 1984; Firestone, 1982). Consequently, another treatment that has been attempted with hyperactive children in order to deal with the lack of long-term effects of psychostimulant medication, as well as the variability in responsivity to the drugs and in willingness of parents to allow their children to receive the drugs, has been cognitive-behavioral therapy.

Cognitive-behavioral therapy (CBT) is designed to teach a general strategy for controlling behavior under various circumstances. CBT is based on the assumption that the teaching of cognitive skills may result in behavior change that can be maintained over time and generalize across a variety of situations. A number of training methods are utilized in teaching cognitive responses. These methods include the presentation of problem-solving strategies and self-control techniques, and exemplification through cognitive modeling.

In addition to pharmacotherapy issues, Whalen, Henker, and Hinshaw (1985) stress that there are some other reasons that CBT appears to warrant trial for hyperactive children. These children are often regarded as impulsive; incompetent at regulating their attentional, motoric, and social behaviors; and deficient in age-appropriate self-regulation skills. Since the emphasis in CBT is on self-guidance and problem-solving strategies, CBT may more directly address the main problems of hyperactivity. Furthermore, child therapists' concerns with maintenance and generalization of treatment enhancements have been growing with the increasing realization that hyperactivity is a heterogeneous disorder with a lengthy and possibly even lifelong course (Ross & Ross, 1982; Weiss, 1983; Whalen, 1983). Thus, "with its emphasis on teaching portable coping strategies that are intended to transfer across behaviors and contexts, CBT promised to produce gains that were at once durable and generalizable" (Whalen, et al., 1985; p.392).

Although cognitive-behavioral therapy has been shown to be helpful, it is not helpful in all cases (e.g., Billings & Wasik, 1985; Cohen, Sullivan, Minde, Novak, & Helwig, 1981; Cohen, Sullivan, Minde, Novak, & Keens, 1983; Eastman & Rasbury, 1981; Ellis, 1976; Friedling & O'Leary,

1979). Therefore, it is important to study why CBT is effective with some hyperactive children and not with others. In other words, there may exist a number of child variables such as self-concept, aggression, locus of control, learning problems, chronological age, and familial socioeconomic status that may allow prediction of which hyperactive children respond best to cognitive-behavioral therapy. However, with the exception of Horn, Ialongo, Popovich, and Peradotto (in press), there have been no studies that have examined factors which may predict responsiveness to CBT treatment. Thus, the primary purpose of the current study is to find out whether the variables mentioned above help predict whether hyperactive children will benefit from cognitive-behavioral training. If it becomes possible to predict apriori which hyperactive children will benefit from CBT, then those children can receive this treatment; alternative treatments will need to be found for those hyperactive children not able to benefit from CBT.

In addition, Whalen et al. (1985) suggest that attributions stemming from pharmacotherapy may be "counter-therapeutic" if such unintentional effects are not addressed during treatment. For example, in interviews with hyperactive children, Whalen et al. (1985) found that

these children reported:

> the pills get them more friends, keep them from being mean to their pets, allow them to loan things to peers, keep their legs from kicking, make the teacher like them, prevent fights, keep them from spending all of their money in one day, keep them from breaking things, and make them like themselves (p.403).

Hence, hyperactive children may come to suppose that they are not expected to modulate their own behavior, while their peers are learning to take increasing responsibility for their own actions.

In contrast, a major hypothesis underlying CBT is that it fosters internalization of control. Whalen et al. (1985) state, "...to the extent that it communicates an expectation of volitional control, CBT may serve as an antidote, helping to neutralize undesirable emanative effects of externalizing treatments" (p.403). Consequently, a second purpose of the present investigation is to examine whether cognitive-behavioral therapy helps hyperactive children to develop a greater sense of control over and understanding of why outcomes occur in their own environment.

CHAPTER II

REVIEW OF THE LITERATURE

Prevalence

Hyperactivity is thought to include from 2% to 20% of the United States school-age population (Safer & Allen, 1976; Sroufe & Stewart, 1973; Stewart et al., 1966; Wender, 1971). The most common estimate of prevalence utilized by most investigators is 4% to 5% of school-age children, or approximately one child in every school classroom. In addition, according to Barkely (1981a), it was originally thought that hyperactivity was mainly an American problem because of the very low incidence rates reported in other countries (Rutter, Graham, & Yule, 1970; Stewart, 1970); however, more recent studies indicate that between 4% and 10% of the childhood population of nearly all countries are afflicted with this behavioral disorder (Trites, Dugas, Lynch, & Ferguson, 1979) but that it is often categorized in other countries under a different diagnosis, such as conduct disorder (Sandberg, Rutter, & Taylor, 1978). Also, it is well accepted that hyperactivity occurs more in boys than in girls, with ratios ranging from 3:1 to 9:1 (Safer & Allen, 1976; Trites et al., 1979).

Defining Characteristics and Associated Problems

One of the primary symptoms of hyperactivity is inattentiveness. According to Barkley (1981b), many hyperactive children are believed to have their greatest difficulties in sustaining attention to task-pertinent stimuli while inhibiting their responding to stimuli not pertinent to the task (i.e., controlling impulses). In fact, in 1980 the American Psychiatric Association renamed the disorder in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM III; 1980) as Attention Deficit Disorder (ADD), with or without hyperactivity. Barkley (1981b) notes,

> In the home, these difficulties with sustained attention often appear in a child's failure to complete assigned chores, to listen to directions when given, to complete homework assignments, to play for prolonged periods of time without supervision or attention from others, or to watch television for prolonged periods...At school, problems with attending to the teacher during class lectures and completing assignments during individual work time are also reflections of the child's attentional difficulties. Often, the child is distracted by more interesting items in the class or outside the window, or by what other children may be doing (p.12).

In addition, some research (e.g., Barkley, 1977b; Pope, 1970) suggests that hyperactive children are more active than normal children across many settings, while other research (e.g., Barkley & Ullman, 1975; Kenny et al., 1971; Shaffer, McNamara, & Pincus, 1974) suggests that

hyperactive children are not more active than other children in all situations. It appears that the more circumscribed the environment and the more concentration required by the given tasks, the more probable it is that differences in activity level will be found, usually in seat restlessness and task-irrelevant types of activity.

Impulsivity, or a failure to inhibit responding, has also been noted to be a primary problem with hyperactive children (Douglas, 1972, 1976; Meichenbaum, 1976, 1978; Ross & Ross, 1976; Schleifer et al., 1975). For example, hyperactive children often do not stop to think about the consequences of their behavior before acting, and they tend to make more mistakes in the classroom environment, put themselves in more precarious situations, and fail to follow instructions. They are also apt to respond in both a verbally and physically aggressive manner when they are frustrated or emotionally hurt by others, without thinking about the consequences of their statements or actions.

Although inattention, overactivity, and poor impulse control are the most commonly cited primary characteristics in hyperactive children, Barkley and Cunningham (1980) have suggested that noncompliance is also a primary problem. For instance, this research has revealed that the most commonly utilized parent rating scales of hyperactivity

correlate quite highly with noncompliance in their completion of these scales.

There are a number of other problems that appear to coexist with hyperactivity, although they do not occur in all hyperactive children. For instance, Safer and Allen (1976) found that 70% to 80% of hyperactive children have at least one particular learning disability; yet, this finding is not always substantiated (Cantwell & Satterfield, 1978). These children are also noted to be awkward and clumsy and to possess fine and gross motor difficulties (Ross & Ross, 1976). In addition, there often appear to be problems with academic achievement (Cantwell & Satterfield, 1978; Dykman, Peters, & Ackerman, 1973; Weiss et al., 1975), immature emotional control (Weiss et al., 1971), poor peer relationships (Ross & Ross, 1976), and aggression (Patterson, 1976).

The present study utilizes an intervention which primarily focuses on treating children with impulse control problems. As noted in the above literature, children with impulse control problems are often labelled as being hyperactive or as having Attention Deficit Disorder (ADD). Since there does not exist a diagnostic label for children with self control/impulse control problems, the two most commonly used labels referring to children with such

difficulties (i.e., hyperactivity and ADD) will be used interchangeably in the current study.

Treatment of Hyperactivity

There are a variety of treatments or interventions that are currently utilized in aiding hyperactive children and their families. The most widely used treatments are: (1) drug treatment for the hyperactive child, (2) parent training which focuses on teaching and discussing child management techniques, and (3) child therapy which focuses on teaching self-control techniques and problem-solving strategies. Each of these treatments will be briefly discussed here.

Psychostimulant Medication. Presently, psychostimulant drugs are the most commonly utilized treatment for hyperactive children (Barkley, 1976, 1977a, 1981a; Cantwell & Carlson, 1978; Sroufe, 1975). A review of the literature suggests that the main effects of the psychostimulant medication (e.g., methylphenidate, pemoline, and d-amphetamine) are decreased impulsivity, increased concentration, and in some settings, a decrease in activity level. Barkley (1981b) notes that other changes in behavior, such as increased compliance to commands (Barkley & Cunningham, 1979a) and occasionally reported improvements in intellectual and academic tests

(Barkley, 1977a), are associated with the improvements in attention. However, psychostimulant drugs which have been administered for as long as 3 to 5 years during childhood have not been found to alter the long-term psychosocial outcome of hyperactive children (Barkley, 1977a; Weiss et al., 1971). In brief, psychostimulant medication appears to be helpful for short-term behavior management; yet, it has not been found to alter the long-term academic or behavioral difficulties that most of these children manifest.

Parent Training. In order to overcome many of the difficulties of psychostimulant medication as a sole treatment for hyperactivity (e.g., mentioned above), parent training has been suggested as a viable alternative. Barkley (1981a) presents a summary of the parent training that he has utilized. The first step involves providing the parents of the hyperactive children with information on the nature of the disorder in order to mitigate any misconceptions that parents have about hyperactivity. Secondly, the parent is taught to become a prominent dispenser of social attention and rewards to their child. This second step of training is based on the research of Patterson (1976) and Wahler (1976) indicating that the social attention and praise often given by parents of

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oppositional children have less reinforcement value to the child than that dispensed by other people. Thirdly, the parent is taught to utilize their positive attention contingently for compliance to commands. This involves teaching the parent to provide clear, unambiguous rules aimed at the child's language level. In addition, parents can be trained how to use a variety of ways to acceptably punish their children, such as time-out, removal of social attention, loss of privileges, and in certain cases, mild spanking made contingent upon noncompliance.

Barkley (1981b) reports that parent training utilized with hyperactive children has proven effective by reducing problem behaviors and increasing compliance. In addition, Barkley (1981b), as well as Patterson (1976) and Forehand et al., (1979), have reported improvements in the behavior of the hyperactive children's siblings with the aid of parent training programs. However, it is important to note that although there is strong evidence that behavioral parent training has been shown to be an effective procedure for altering deviant child behavior, results with respect to the generalization of treatment effects have been less compelling (e.g., see Forehand & Atkeson, 1977; Moreland, Schwebel, Beck, & Wells, 1982).

Cognitive-Behavioral Self-Control Therapy. In reaction to the problems of pharmacotherapy and parent training (mentioned above), cognitive-behavioral therapy has been posited as an alternative treatment for hyperactive children. Cognitive-behavioral therapy stresses the teaching of self-control techniques and problem-solving strategies directly to the hyperactive child. Cognitive process differences have been found between hyperactive/impulsive and normal children (Camp, 1977; Drake, 1970; Finch & Montgomery, 1973; Kendall, 1976; Meichenbaum, 1979; Ollendick & Finch, 1973; Siegelman, 1969; Spivack & Shure, 1974), suggesting that cognitive mediation strategies may be an appropriate element for treatment. For instance, Camp (1977) showed that aggressive, impulsive boys typically use immature and inappropriate private speech, and evidence fast reaction times, inhibition errors, and short response latencies as compared to normal boys. Camp posits that these children often do not utilize verbal mediation strategies. Moreover, even when they do, covert mediation does not attain effective control over behavior. Camp postulates that impulsive, aggressive boys have an ineffective linguistic control system.

Meador and Ollendick (1984) note that theoretically,

inhibition of impulsive responding is associated with internalization of language (White, 1965). The internalization process entails a variety of stages. For example, the associative stage possesses inhibition deficits and an absence of verbal mediation, and is ultimately replaced by adultlike cognitive processes in which behavior is controlled by verbal mediation. Meador and Ollendick (1984) further mention that this process resembles development of internalized controls, as suggested by Luria (1961) and Vygotsky (1962). Theoretically, hyperactive/impulsive children are operating at the associative stage.

Thus, since hyperactive children likely have deficits in self-speech and problem-solving skills, these deficits are a focus in teaching rule-governed behavior. For instance, hyperactive children have difficulties in asking themselves questions which one usually asks oneself when posed with a problematic situation. Thus, teaching hyperactive children problem-solving skills is a focus of treatment that accompanies the teaching of self-speech or self-instruction. For example, Barkley (1981a) discusses how one might treat hyperactive children using these methods. The child is trained to (1) delay responding upon entering a situation; (2) ask himself or herself what

behavior is expected in that situation or what is appropriate; (3) have him or her describe the appropriate behavior; (4) state the appropriate rules if the child's statements are inaccurate and then require him or her to repeat them aloud; (5) have the child implement the correct responses; (6) provide positive social attention during steps 1 through 5; and (7) have the child evaluate his or her own behavior aloud when leaving the problem situation. As the child has much practice with these strategies in the problem situation, he or she can use less and less external self-speech, with more importance placed upon "internal" self-speech to direct behavior (Meichenbaum, 1978). Early reports (Barkley, Copeland, & Sivage, 1980; Douglas, 1976; Meichenbaum, 1978) found that this method is quite easy to teach to hyperactive children and helpful in environments where it is trained or with those persons who are training the children.

Kendall and Braswell (1985) suggest that incentive manipulation and the use of contingencies is an integral part of this cognitive-behavioral training. First, self-rewards and social rewards are utilized for appropriate responses. For instance, the child is taught to stop and give themself a self-reward for successfully completing a task (e.g., the child might be taught to say to himself

"I'm doing a good job; I must be using my plan"). Hopefully, this reward will foster an increased self-esteem. The social rewards can include a therapist smiling or a verbal message to the child that he/she is doing well. Second, a response-cost contingency is used to help the child to remember to stop and think before responding. For instance, if the child does not comply with the self-instructions (e.g., forgets one of the steps or impulsively utters the wrong step), then a reward token that was previously given to the child may be taken away. Third, self-evaluation is utilized to help the child maintain their self-instruction behavior in an environment in which the behavioral contingencies no longer exist (i.e., the therapist's office). Kendall and Braswell suggest a "How I Did Today" chart to aid the child in teaching self-evaluation skills. Basically, this is a method that provides the child with feedback on how well he/she performed the self-instructions for the day. Lastly, homework assignments are utilized as part of the training. If completed appropriately and if they worked hard on it, as evidenced by its difficulty level, then the child earns a reward (e.g., a token to be traded in for a material reinforcer). Kendall and Braswell posit that these rewarded homework assignments are aimed at helping the

child to stop and think outside the therapy session as opposed to solely inside the therapy session.

According to Kendall and Braswell (1985), modeling can be used to teach problem-solving strategies and self-instructions to children. Modeling includes exposing the child to another person (or persons) who shows or displays the behaviors which are to be learned by the child. For example, the therapist may model for a hyperactive child ways in which to cope with failure to solve a problem (e.g., "That solution didn't work, I'll have to try another one"). In addition, Meichenbaum (1971) has found that modeling of coping strategies in dealing with a problem situation is most effective when it is performed while talking out loud.

Another integral element of the cognitive-behavioral intervention suggested by Kendall and Braswell (1985) is teaching the hyperactive child to better identify and describe his/her own emotions in addition to others' emotions. For instance, the child may be asked to identify and respond to emotions that are related to a variety of facial expressions, body postures, or difficult problem situations. Kendall and Braswell note that this method is aimed at helping children to improve their interpersonal problem solving.

Lastly, Kendall and Braswell (1985) suggest that role playing exercises allow the hyperactive child to act out a problem situation in an effort to solve a problem. For example, the child may be required to act out a problem situation in which he/she is engaged in an argument with a friend over the use of a toy. In addition to hypothetical situations being acted out, real problem situations which the child has encountered or will encounter can also be role played. The therapist can help the child to act out the self-instructions necessary to solve the problem; this can be accomplished by cuing the child to attend to certain alternatives or steps in their problem-solving plan.

Whalen et al. (1985), however, questioned the initial optimism of this intervention by reporting that the efficacy of Child Behavior Therapy (CBT) has only been shown for certain circumscribed behavioral settings, for short time periods, and mostly with nonclinical samples of children possessing inadequate self-control skills. With respect to children clinically diagnosed as ADD these authors note that the results of CBT are somewhat weak, inconsistent, difficult to replicate, and disconcerting. In short, delimited short-term gains have been evidenced in a number of investigations; but, positive findings are neither as predictable nor as extensive as once expected.

Whalen et al. (1985) also report that no evidence has been found to support the facilitation of long-term maintenance of behavioral gains with CBT. For instance, Abikoff and Gittelman (1984) report that behavioral degeneration after the discontinuance of CBT was grave enough during a one-month follow-up period to require medication for virtually all cases, whether the children had received CBT plus medication or medication alone during the intervention phase. Only a few investigations have appraised persistence of changes over periods greater than one to two months, and these investigations exhibit only limited maintenance (e.g., Kendall & Braswell, 1982).

However, Whalen et al. (1985) posit that more information is available concerning generalization than about maintenance of CBT, and that some positive results have emerged. The most consistent evidence involves assessment of attention and cognition. For instance, generalization to academic performance or achievement rarely occurs, yet it has been reported (Brown, Wynne, & Medenis, 1985; Douglas, Parry, Marton, & Garson, 1976). In addition, Whalen et al. (1985) mention that generalization from cognitive task performance to social-adaptive behavior is usually not reported (Brown et al., 1985; Douglas et al., 1976), although again, such generalization has been

found on occasion. For instance, Kendall and Braswell (1982) reported generalization from training sessions to classroom behaviors rated by teachers but not to home behaviors rated by parents. Thus, despite some promising results regarding potential effectiveness, the available literature on the effectiveness of cognitive-behavioral therapy for hyperactive children has yielded mixed results.

Single Predictor Variables for Cognitive-Behavioral Therapy With Hyperactive Children

Although child characteristics have not been empirically investigated as predictors of cognitive-behavioral treatment outcome, a number of them have been identified as potentially important predictors of outcome. A review of the literature revealed 43 studies that included cognitive-behavioral therapy either alone or in combination with psychostimulant medication and/or parent training. The outcome of these studies (Table 1) revealed a number of positive, negative, and mixed results for which there existed a variety of child characteristics that may have influenced these outcomes (Table 2).

For instance, out of 9 studies which included child participants in the age range of 4 to 6 years, 4 of those studies (44.4%) were reported to have positive outcomes, whereas the remaining 5 studies (55.6%) were reported to

Table 1

Outcome of Cognitive-Behavioral Intervention Studies of Hyperactive Children

Study and Outcome

Anderson et al., 1976--Token fading was efficacious in sustaining self-control in classroom situations not monitored by any contingency system and in the training classroom following termination of token rewards. While evidencing no such classroom generalization, behavioral rehearsal subjects learned to respond more efficaciously on tests measuring cognitive tasks. No treatment effect was found for the traditional therapy condition.

Arnold et al., 1978--Impulsivity errors decreased from pre- to posttest with self-control taining, response-cost treatment, and both treatments combined. The placebo condition, consisting of instructions, practice, and feedback, was effective in decreasing errors. Response-cost treatment increased performance on a classroom matching task only in the same situation in which it was implemented; self-control training did not result in changes in performance in situations different from the training setting.

Barabash, 1978--The most effective treatment for altering both cognitive and behavioral aspects of impulsivity was a combination of self-instruction and token fading. There was "considerable improvement" in behavioral impulsivity for subjects receiving self-instruction only. Token fading intervention was only "slightly more effective" than the control group in altering behavioral impulsivity.

Barkley et al., 1980--Self-control treatment improved misbehavior and attention to tasks during seat work but not during group instruction. Activity level was not modified by treatment. Changes in the schedule of self-monitoring in the class resulted in "increased variability" and some increase in misbehavior. Subjects of lower mental age appeared most affected by the schedule shift.

Bender, 1976--Strategy training increased latency, while self-verbalization training increased latency and reduced errors on visual discrimination matching tasks.

Table 1 (cont.)

Billings et al., 1985--Self-instructional training did not exhibit socially significant, persistent increases in either appropriate classroom behavior or changes in teacher ratings of behavior.

Bornstein et al., 1976--On-task behaviors increased at the same time that self-instruction procedures were implemented. Transfer of training effects from the experimental tasks to the classroom occurred.

Brown et al., 1982--Differential training strategies comparing training in attention to inhibitory control revealed that a combination of attentional and inhibitory control techniques was most effective in augmenting cognitive performance.

Brown et al., 1985--Children in stimulant drug therapy and cognitive training plus stimulant drug therapy conditions showed improvement in attentional deployment and behavioral ratings. In the cognitive therapy condition, there were changes only on measures of attentional deployment. No evidence suggested that the combined medication and cognitive therapy condition was more effective than the medication condition alone.

Bugental et al., 1977--Significant interactions were found between interventions of self-control speech instruction and contingent social reinforcement and (a) child attributions and (b) medication status. The self-control treatment yielded significantly greater decreases in Porteus Maze errors for (a) children with high perceived personal causality and (b) non-medicated children. The social-reinforcement intervention yielded trends in the direction of greater decreases in errors for (a) children with low perceived personal causality and (b) medicated children. No significant differences were found on teacher ratings.

Cameron et al., 1980--Self-instructional and self-management skills produced significant changes in math accuracy for all subjects, and two subjects evidenced significant increases in on-task behavior. Results suggesting generalization to untrained behaviors was shown by an increase in self-correction of oral reading for all subjects.

Table 1 (cont.)

Cohen et al., 1981--Analyses of psychological, rating scale observational, and interview data revealed that hyperactive children became less symptomatic over time. The data did not show that any of the treatments studied (cognitive-behavior modification, methylphenidate, and the two treatments combined) was more efficacious than any other or than no treatment at all.

Cohen et al., 1983--Mothers of hyperactive children provided more direction and control than mothers of normal children. Mother-child interaction was not differentially affected by treatments of methylphenidate and cognitive-behavior modification, used alone and in combination.

Douglas et al., 1976--Modeling, self-verbalization, and self-reinforcement strategies impacted hyperactive children in becoming more effective and less impulsive on a number of cognitive tasks, academic problems, and social situations.

Epstein et al., 1981--Following cognitive self-instruction training, there were no significant increases in on-task behavior or in academic performance within the context of a group design.

Copland et al., 1974--Two groups, one trained to improve search strategies on match-to-sample visual discrimination exercises and the other trained to delay responses using the same materials, evidenced significant increases in response time and decreases in errors on the Matching Familiar Figures Test administered after training. The group trained to delay responses evidenced an increase in errors on a delayed posttest 2 months after training, while the other group continued to maintain a low level of response errors. Both groups showed improvement on a vocabulary subtest, and the group trained to improve search strategies also evidenced improvement on a comprehension subtest.

Ellis, 1976--Training in covert self-instructions did not reduce aggressive behavior in impulsive-aggressive boys.

Friedling et al., 1979--Self-instructional procedures did not generally produce changes in either academic or on-task behavior; however, on-task behavior was shown to be "susceptible to modification" by a token intervention.

Table 1 (cont.)

Genshaft et al., 1979—Although the results do not provide clear support for the effectiveness of modeling and self-instruction, they do show selective alterations in impulsivity based upon racial similarities of models and subjects.

Glenwick et al., 1979—The most consistent improvements for groups in which verbal self-regulation procedures were taught to children and their parents and teachers were in academic achievement, especially reading. Only small improvements were evidenced in cognitive and intellectual abilities, except for the Matching Familiar Figures Test. No classroom behavior alterations were reported, yet parent participants perceived improvements in home behavior.

Hinshaw et al., 1984a (Study #1 & #2)—Methylphenidate reduced the intensity of behavior but did not significantly increase either global or specific measures of self-control. Cognitive-behavioral intervention, when compared to control training, was more effective in increasing both general self-control and the utilization of coping strategies. There was no superiority for the combination of methylphenidate plus cognitive-behavioral treatment.

Hinshaw et al., 1984b—Both methylphenidate and cognitive-behavioral reinforced self-evaluation were more effective than treatments of placebo and extrinsic reinforcement alone, respectively. When the effects of the four treatment conditions were rank ordered, medication plus cognitive-behavioral self-evaluation was superior; placebo plus reinforcement alone was significantly worse than all other conditions. Also, medication increased the accuracy of the subjects' self-evaluation.

Horn et al., 1983—A combination of Dexadrine and self-control training was more efficacious than either Dexadrine alone or self-control training plus placebo in increasing on-task behavior in the classroom and decreasing teacher's reports of hyperactivity and distractability. Also, Dexadrine, but not self-control training, was efficacious in increasing attention and decreasing impulsive responding on the Continuous Performance Test. Yet, only direct reinforcement for correct responses was evidenced to improve performance on measures of spelling and math performance and performance on the Matching Familiar Figures Test.

Table 1 (cont.)

Horn et al., in press—No significant additive effects were found for the treatments of behavioral parent training and self-control instruction. All treatment groups (i.e., parent training alone, self-control instruction alone, and a combination of the two) evidenced significant improvements over time; however, the only treatment group by time interaction showed a greater decrease in hyperactivity scores at follow-up for children in the self-control-only group compared to the other two interventions. In addition, there was no generalization of treatment effects to the classroom. Also, mothers who perceived more extra-familial and community social support, and children who were better at reflecting on problems, acknowledged greater self-control difficulties, and had a greater locus of control showed greatest behavioral improvements.

Kendall et al., 1982—Cognitive-behavioral treatment enhanced teachers' blind ratings of self-control, and both cognitive-behavioral and behavioral treatments enhanced teachers' blind ratings of hyperactivity. Parent ratings did not demonstrate that intervention evidenced improvement. A number of performance measures (cognitive style, academic achievement) evidenced improvements for the cognitive-behavioral and behavioral treatments; yet, only the cognitive-behavioral intervention improved children's self-reported self-concept. Also, treatment efficacy was suggested by decreased off-task verbal and off-task physical behaviors. Ten-week follow-up provided more evidence for the effectiveness of the cognitive-behavioral treatment; however, a 1-year follow-up did not evidence significant differences across conditions.

Kendall et al., 1976—A combination of verbal self-instructions and response-cost produced positive changes at posttreatment and 6-month follow-up in target behaviors of topics, games, and rules, and in response latencies and errors on the Matching Familiar Figures Test.

Kendall et al., 1979—Cognitive-behavioral intervention did not produce treatment effects, as illustrated by two self-report measures and teacher and staff ratings of locus of conflict; however, positive effects of treatment were evidenced at posttest and follow-up by an increase in latency and a decrease in error measures on the Matching Familiar Figures Test and improved teacher ratings of impulsive classroom behavior.

Table 1 (cont.)

Kendall et al., 1981a—Cognitive-behavioral intervention produced reductions in target behaviors such as off-task, verbal offensive, and out-of-seat behaviors, and improved cognitive performances. These changes were maintained at 1-year follow-up.

Kendall et al., 1980—Cognitive-behavioral treatment effects were stronger for the conceptual-approach (pertaining only to the task at hand) training group than for the concrete-approach (pertinent to any problem-solving situation) training group.

Kendall et al., 1981b—Improvements occurred for conditions of cognitive-behavioral self-control training at the individual treatment level, group treatment level, and nonspecific group treatment level (control). However, only the individual and group cognitive-behavioral intervention conditions showed improvements on blind teacher ratings of self-control at posttest and perspective taking at follow-up.

Meichenbaum et al., 1971 (Study #1)—Cognitive self-instructional training produced significant improvements relative to attentional and assessment control groups on the Porteus Maze test, Performance IQ on the WISC, and on a measure of cognitive impulsivity. Improvements were sustained at 1-month follow-up.

Meichenbaum et al., 1971 (Study #2)—Cognitive modeling alone was adequate to slow down response time for initial selection on Kagan's measure of cognitive impulsivity; yet, only with the addition of self-instructional training was there a significant decrease in errors.

Nelson et al., 1978—The combination of self-instruction and self-reinforcement was more effective than self-instruction alone, attention controls, or assessment controls in significantly reducing errors and increasing latencies on Kagan's Matching Familiar Figures Test.

Orbach et al., 1977—Two groups trained to increase response accuracy (i.e., strategies of visual detailing and visual discrimination) on the Matching Familiar Figures Test displayed a significant decrease in errors, in addition to an increase in response latency. The "visual discrimination" group showed a significantly shorter

Table 1 (cont.)

response latency than the "visual detailing" group. Subjects trained only to increase response latency (i.e., modeling and instructions) did evidence a significant increase in latency; but, no decrease in errors occurred.

Palkes et al., 1971--Verbalization of self-directed commands was more effective in altering maze performance than silent reading of the same commands.

Palkes et al., 1968--Self-directed verbal command training was effective in altering hyperactive impulsive behavior on the Porteus Maze test.

Pelham et al., 1980--The results revealed that the combination of psychostimulant medication and behavior therapy appears to be more effective in the short-term than either treatment alone in school settings. Also, parent ratings and clinic observation of parent-child interactions showed that children had improved in the home environment.

Schleser et al., 1983--Despite the fact that subjects who received task-specific faded rehearsal self-instructions showed significant improvements on the task utilized during training (math problems), neither these subjects nor those in the didactic control group evidenced significant generalization of training effects. The directed discovery intervention produced the broadest range of generalization.

Sheoo et al., 1983--Operant techniques, either alone or in combination with a cognitive intervention, were superior to cognitive intervention alone in increasing on-task behavior. The combination of operant and cognitive strategies was not superior to operant techniques alone in increasing on-task behavior.

Varni et al., 1978--Self-monitoring, external reinforcement, and time-out were found to be effective at posttreatment and follow-up in decreasing the occurrence of facial tics in the clinic and facial and vocal tics at home.

Varni et al., 1979--Self-instructional training did not enhance academic performance in the absence of adult supervision, and self-monitoring strategies did not significantly affect responding (e.g., hyperactive behaviors). A combination of self-monitoring and self-

Table 1 (cont.)

reinforcement interventions, instituted first in the clinic and then in the school setting, produced improved academic performance and decreases in hyperactive behaviors.

Weithorn et al., 1979—Verbal mediation training resulted in significant gains on a perceptual matching test.

Table 2

Demographic Variables Described in Cognitive-Behavioral Intervention Studies of Hyperactive Children

Study	N	Age[1]	Sex	Race	SES
Anderson et al., 1976	18	12 to 15	18 Males	----------	----------
Arnold et al., 1978	32	4 to 5	----------	----------	low income
Barabash, 1978[2]	60	----------	----------	----------	----------
Barkley et al., 1980	6	7 to 10	6 Males	----------	----------
Bender, 1976	70	6 to 7	35 Males/ 35 Females	----------	----------
Billings et al., 1985	4	4	4 Males	3 black/ 1 caucasian	low income
Bornstein et al., 1976	3	4	3 Males	3 caucasian	lower to middle-class
Brown et al., 1982	48	$\bar{x}$=9-4	48 Males	----------	----------
Brown et al., 1985	30	$\bar{x}$=11.36	30 Males	----------	----------
Bugental et al., 1977	36	7 to 12	36 Males	33 caucasian/ 2 mexican-american 1 black	middle-class
Cameron et al., 1980	3	7 to 8	2 Males/ 1 Female	----------	----------

Table 2 (cont.)

Study	N	Age[1]	Sex	Race	SES
Cohen et al., 1981	24	5	21 Males/ 3 Females	----------	1.9--3 pt. Hollingshead/ Redlich Scales
Cohen et al., 1983	23	5	20 Males 3 Females	----------	2.0--3 pt. Hollingshead/ Redlich Scales
Douglas et al., 1976	18	$\bar{x}$=7-9	18 Males	----------	middle-class to upper-lower class
Eastman et al., 1981	11	6 to 7	----------	----------	----------
Egeland et al., 1974	72	6-10 to 8-1	40 Males/ 32 Females	----------	----------
Ellis, 1976[2]	8	8 to 12	8 Males	----------	----------
Friedling et al., 1979	8	$\bar{x}$=7-7	7 Males/ 1 Female	----------	----------
Genshaft et al., 1979	60	7 to 8	----------	30 black/ 30 caucasian	Class IV/V--Hollingshead 2 Factor Index
Glenwick et al., 1979	32	10 to 12	----------	----------	middle-class
Hinshaw et al., 1984a (Study#1)	21	8 to 13	21 Males	----------	----------
Hinshaw et al., 1984a (Study #2)	24	8 to 13	24 Males	----------	----------
Hinshaw et al., 1984b	24	8 to 13	24 Males	----------	----------

Table 2 (cont.)

Study	N	Age[1]	Sex	Race	SES
Horn et al., 1983	1	9	1 Male	1 black	----------
Horn et al., in press	24	7-0 to 11-6	----------	----------	----------
Kendall et al., 1982	27	$\bar{x}$=10.2	23 Males/ 4 Females	----------	----------
Kendall et al., 1976	1	9	1 Male	---------	----------
Kendall et al., 1978	20	$\bar{x}$=10.2	16 Males/ 4 Females	16 caucasian/ 4 black	----------
Kendall et al., 1981a	1	7	1 Female	1 caucasian	----------
Kendall et al., 1980	33	$\bar{x}$=10-5	25 Males/ 8 Females	----------	----------
Kendall et al., 1981b	30	$\bar{x}$=9-9	21 Males/ 9 Females	----------	----------
Meichenbaum et al., 1971 (Study #1)	15	$\bar{x}$=8-2	7 Males/ 8 Females	----------	----------
Meichenbaum et al., 1971 (Study #2)	15	5 to 7	8 Males/ 7 Females	----------	----------
Nelson et al., 1978	48	7 to 9	Male & Female	48 black	----------
Orbach et al., 1977	55	8 to 11	55 Males	----------	middle-class

Table 2 (cont.)

Study	N	Age[1]	Sex	Race	SES
Palkes et al., 1971	30	7 to 13	30 Males	30 caucasian	middle-class
Palkes et al., 1968	20	$\bar{x}$=9-6	20 Males	20 caucasian	middle-class
Pelham et al., 1980	8	$\bar{x}$=8.3	7 Males/ 1 Female	----------	----------
Schleser et al., 1983	48	$\bar{x}$=8.9	25 Males/ 23 Females	----------	----------
Shepp et al., 1983	1	7	1 Male	----------	----------
Varni et al., 1978	1	7	1 Male	----------	----------
Varni et al., 1979	3	$\bar{x}$=9.3	3 Males	----------	----------
Weithorn et al., 1979	94	5-11 to 7-1	----------	----------	----------

[1]Chronological age is calculated in years.

[2]Unpublished doctoral dissertation.

have mixed or negative outcomes. Also, out of 33 studies which included child participants in the age range of 7 to 15 years, 13 of those studies (39.4%) were reported to have positive outcomes, while the other 20 studies (60.6%) were reported to have mixed or negative outcomes. A chi-square test of significance for age range (e.g., 4 - 6 years vs. 7 - 15 years) and outcome of results (e.g., positive vs. mixed/negative) was not significant [X^2 (1) = .012, n.s.], and the difference in percentages between the positive results reported for the two age ranges suggests no trend about whether older or younger hyperactive children are more likely to respond to cognitive-behavioral therapy.

With respect to sex of child participants, out of 20 studies which included exclusively male subjects, 10 of those studies (50%) were reported to have positive outcomes, whereas the remaining 10 studies (50%) were reported to have mixed or negative outcomes. In addition, out of 15 studies which included both male and female participants, 5 of those studies (33.3%) were reported to have positive outcomes, while the remaining 10 studies (66.7%) were reported to have mixed or negative outcomes. Although a chi-square test of significance for sex (e.g., exclusively males vs. both males and females) and outcome of results (e.g., positive vs. mixed/negative) was not

significant [X^2 (1) = .972, n.s.], the difference in percentages of positive results reported between the two groups of subject sex inclusion (i.e., 16.7%) suggests that cognitive-behavioral treatment studies which include exclusively male subjects are more likely to report positive outcomes than cognitive-behavioral treatment studies which include both males and females. It is possible that the addition of female subjects to the cognitive-behavioral interventions somehow affected the outcome of these studies. Since boys are virtually always more likely to be identified than girls to have behavioral difficulties (Graham, 1979), perhaps the males in these studies possessed more behavioral problems than the females before treatment began, and thus the females did not show as much improvement as the males. If this is so, then the more positive outcomes might be reported in cognitive-behavioral treatment studies which include exclusively male child subjects than in cognitive-behavioral treatment studies which include both male and female child subjects.

Although few studies reported race and socioeconomic status of their child participants, the outcomes of those studies will be presented here. Out of 4 studies which included exclusively Caucasian child participants, all 4 studies (100%) were reported to have positive outcomes,

whereas no studies (0%) were reported to have mixed or negative outcomes. In addition, out of 2 studies which included exclusively black child participants, one study (50%) was reported to have positive outcomes, while one study (50%) was reported to have mixed or negative outcomes. Also, out of 4 studies which included more than one race in their sample, no study (0%) was reported to possess positive outcomes, whereas all 4 studies (100%) were reported to have mixed or negative outcomes. With respect to socioeconomic status, both studies in which socioeconomic status was indicated (100%) reported mixed or negative outcomes. Additionally, out of 7 studies which included child participants with exclusively middle class backgrounds, 2 of those studies (28.6%) were reported to have positive outcomes, and 5 of the remaining studies (71.4%) were reported to have mixed or negative outcomes. Also, out of 2 studies which included child subjects from both low and middle class backgrounds, both of those studies (100%) were reported to have positive outcomes, and none (0%) were reported to have mixed or negative outcomes. Although cell sizes for the variables of race and socioeconomic status were too small to calculate a chi-square statistic, the reported percentages above suggest that cognitive-behavioral treatment studies including

exclusively Caucasian child subjects are most likely to report positive outcomes. These studies, however, suggest no clear pattern of outcome as a function of socioeconomic status.

Hence, it appears from the observations obtained from Tables 1 and 2 that for outcome studies of cognitive-behavioral intervention with hyperactive children there may exist a number of child characteristics which influence the outcome of cognitive-behavioral treatment. Some of the above characteristics, as well as others, will be investigated in the current study as predictors of treatment outcome. These characteristics include: (1) self-concept; (2) aggression; (3) locus of control; (4) learning problems; (5) chronological age; and (6) socioeconomic status. Some of these subject characteristics have been reported in the literature (Table 3); yet, with the exception of Horn et al. (in press) no other investigators have addressed any of these variables as predictors of treatment outcome for hyperactive children.

Table 3

Subject Characteristics Described in Cognitive-Behavioral Intervention Studies of Hyperactive Children

Study	Self-Concept	Locus of Control	Aggression	Learning Problems	Age	SES
Anderson et al., 1976		X	X		X	
Arnold et al., 1978					X	X
Barkley et al., 1980					X	
Bender, 1976					X	
Billings et al., 1985			X		X	X
Bornstein et al., 1976					X	X
Brown et al., 1982					X	
Brown et al., 1985				X	X	
Bugental et al., 1977		X	X		X	X
Cameron et al., 1980					X	
Cohen et al., 1981	X	X			X	X
Cohen et al., 1983					X	X
Douglas et al., 1976				X	X	X

Table 3 (cont.)

Study	Self-Concept	Locus of Control	Aggression	Learning Problems	Age	SES
Eastman et al., 1981				X	X	
Egeland et al., 1974				X	X	
Ellis, 1976[1]			X		X	
Friedling et al., 1979				X	X	
Genshaft et al., 1979				X	X	
Glenwick et al., 1979			X	X	X	X
Hinshaw et al., 1984a (Study #1)					X	
Hinshaw et al., 1984a (Study #2)					X	
Hinshaw et al., 1984b				X	X	
Horn et al., 1983				X	X	
Horn et al., in press	X	X		X	X	
Kendall et al., 1982	X		X	X	X	
Kendall et al., 1976					X	
Kendall et al., 1978					X	
Kendall et al., 1981a					X	

Table 3 (cont.)

Study	Self-Concept	Locus of Control	Aggression	Learning Problems	Age	SES
Kendall et al., 1980					X	
Kendall et al., 1981b			X		X	
Meichenbaum et al., 1971					X	
Nelson et al., 1978					X	
Orbach et al., 1977					X	X
Palkes et al., 1971					X	X
Palkes et al., 1968					X	X
Pelham et al., 1980					X	
Schleser et al., 1983				X	X	
Shepp et al., 1983				X	X	
Varni et al., 1978				X		
Varni et al., 1979				X	X	
Weithorn et al., 1979					X	

[1]Unpublished doctoral dissertation.

Predictors of Treatment Outcome

As mentioned above, in order to plan and implement effective interventions such as cognitive-behavior therapy for individual children, attention must be paid to the factors which may affect the treatment. In other words, it is important to understand and predict which children will benefit from CBT so that they may be exposed to it, while those who are not predicted to benefit from the CBT may be offered alternative treatments. Although cognitive-behavioral therapy is currently being utilized to help treat hyperactive children, with the exception of Horn et al. (in press), no research has been conducted on the child predictors which may enhance the outcome of this type of therapy. In an evaluation of a multi-method treatment approach with hyperactive children, Horn and his co-workers utilized a randomized, experimental group design with repeated measures and a variety of outcome criteria. This design was used with 24 hyperactive children and their families comparing behavioral parent training alone, self-control instruction alone, and a combination of the two treatments. These interventions met for eight, 90-minute group sessions. All dependent measures were administered at pretest, posttest, and one-month follow-up. The investigators found that hyperactive children who can

think about problems, comprehend that they have problems, and realize that they can regulate or manage their problems evidence greater improvement than those who do not possess these characteristics. However, this study has a number of limitations, including a small sample size (i.e., 24 elementary school children). Consequently, the sampling error in this investigation is possibly large and generalization to other samples might be limited. In connection with Horn et al.'s (in press) line of study, there may exist a number of child variables such as self-concept, aggression, locus of control, learning problems, chronological age, and familial socioeconomic status that may allow prediction of which hyperactive children respond best to cognitive-behavioral therapy. Thus, variables such as those just mentioned may help predict whether hyperactive children will benefit from cognitive-behavioral training.

Self-Concept

A number of studies concerning social development and self-esteem of hyperactive adolescents indicate that as a group they have a poor self-concept (Hoy et al., 1978; Menkes et al., 1967; Stewart et al., 1973). Waddell (1984) reports that as adolescents hyperactive children are less socialized, have fewer interpersonal interactions, lack

self-discipline and confidence, and are less steadfast and resourceful than are their peers. Waddell also notes that their self-image is of an inadequate person; they are displeased with their own behavior, morality and relationships; and they exhibit more evidence of pathology. Since hyperactive children in adolescence appear to have many of the same difficulties they had as children (e.g., poor self-concept; Waddell, 1984), it is important to study how these difficulties may impact upon the therapy that the children receive.

Maladjusted preadolescents (e.g., hyperactive children possessing a poor self-concept) tend not to solve problems as well as their better adjusted peers (Gottman, Gonso, & Rasmussen, 1975; Ladd & Oden, 1979; Richard & Dodge, 1982; Shure & Spivack, 1972). Qualitative analyses of solution content suggest that the solutions of maladjusted preadolescents are often ineffective, unique, unsophisticated in their use of others, and primarily impulsive and aggressive. These results complement Asarnow and Callan's (1985) findings that fourth and sixth grade boys with negative peer status (children likely to possess poor self-concept) as compared to those boys with positive peer status (a) produced fewer solutions to hypothetical problems; (b) produced less mature prosocial, less

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assertive, and more intense aggressive solution strategies; (c) evaluated aggressive solutions more positively and prosocial strategies more negatively; and (d) evidenced less adaptive and more maladaptive planning. Therefore, since hyperactive children with a poor self-concept are likely to generate ineffective strategies and solutions to their problems, it is hypothesized in the present study that those hyperactive children who are better adjusted because of their greater self-concept will respond better to their cognitive-behavioral therapy than hyperactive children with a fairly poor self-concept. Hence, those hyperactive children with higher mean scores on Harter's What I Am Like (1983) and In the Classroom (1981) self-concept scales will evidence greater improvement on the hyperactivity indices of the Parent Achenbach Child Behavior Checklist (Achenbach, 1979; Achenbach & Edelbrock, 1983), Teacher Achenbach Child Behavior Checklist (Edelbrock & Achenbach, 1984), and ADD-H: Comprehensive Teacher Rating Scale (ACTeRS; Ullmann, Sleator, & Sprague, 1984) than will hyperactive children with lower mean scores on Harter's What I Am Like and In the Classroom self-concept scales.

Aggression

Although there is currently a fairly strong consensus concerning the diagnostic characteristics of hyperactivity, there exists an uncertainty about the role that aggression plays in the disorder. The relationship between childhood aggression (including verbally and physically aggressive behaviors aimed at other people or objects) and hyperactivity has not been determined. According to Prinz, Connor, and Wilson (1981), a number of possibilities exist. (1) Aggressive behavior might be present with some but not all hyperactive children; (2) Hyperactive and aggressive behaviors could covary; (3) Aggressive behavior may be caused by much frustration in school as a consequence of hyperactivity; (4) Assessment strategies for hyperactivity have confounded the hyperactive and aggressive behavioral dimensions so that the relationship between the domains is unclear.

In a study of 135 hyperactive boys, Loney, Langhorne, and Paternite (1978) report that hyperactivity and aggression factors were significantly correlated ($r = .27$). This finding suggests that some hyperactive children possess aggressive attributes, while others do not. Prinz et al. (1981) note that since hyperactive children vary to a large degree on the aggression dimension, it appears

useful to examine the different ways in which to subdivide the hyperactive group into separate diagnostic groups on the basis of aggression. In addition, since there appears to be variance in the concomitant characteristics of hyperactive children (e.g., aggression), predictors of outcome for treatment are vital to assess in order to determine which hyperactive children should receive which type(s) of intervention.

Group treatment based on cognitive-behavioral and social problem-solving strategies has been found to exhibit significant improvement in aggressive children (Forman, 1980; Hobbs, Moguin, Tyroler, & Lahey, 1980; Lochman, Nelson, & Sims, 1981). However, cognitive-behavioral interventions are not universally successful with all aggressive children, and little research has begun to identify client or treatment characteristics related to improvement for samples of aggressive children. In one treatment evaluation study by Lochman, Lampron, Burch, and Curry (1985), among boys who received cognitive-behavioral treatment, those boys who initially exhibited the highest rates of disruptive and aggressive off-task classroom behavior evidenced the greatest improvement on classroom behavior change scores after treatment was completed. In addition, the boys who demonstrated the greatest reductions

in parents' ratings of aggressive behavior following the cognitive-behavioral interventions were the children who initially had generated the fewest alternative solutions to social problems. The investigators posit that the major role of problem-solving skills in predicting the outcome of treatment suggests that cognitive-behavioral intervention successfully changed the behavior of those boys who were initially the poorest problem-solvers and most in need of treatment.

Despite the results from Lochman et al. (1985; mentioned above) suggesting that greater aggression in children before cognitive-behavioral treatment is associated with greater improvement in classroom behavior, aggression may often be a difficult problem behavior to treat given that the antisocial behaviors of childhood have been found to be a strikingly persistent set of behaviors. A number of studies have found developmental stability in aggression (Olweus, 1979). For instance, of all the behaviors observed in the Fels study (Kagan & Moss, 1962), aggression was the most persevering over time. In addition, Rutter, Tizard, Yule, Graham, and Whitmore (1976) found that very few boys with a conduct disorder, which often includes aggressive symptomatology, recovered from it over a five year period (i.e., from age 10 to 14), and

other investigators found that fighting, conflict with parents, and delinquency usually continued or became worse during this five year period (Gersten, Langner, Eisenberg, Simcha-Fagen, & McCarthy, 1976). Therefore, because of the tenacious persistence of aggressive symptomatology it is hypothesized in the present study that cognitive-behavioral therapy will not be as helpful for hyperactive children who present with aggressive problem behaviors as it will be for hyperactive children who do not present with aggressive problem behaviors. Consequently, hyperactive children with lower ACTeRS oppositional raw scores (Ullmann et al., 1984) and Parent and Teacher Achenbach Child Behavior Checklist aggression raw scores (Achenbach, 1979; Achenbach & Edelbrock, 1983; Edelbrock and Achenbach, 1984) will show greater improvement on the hyperactivity indices of the Parent Achenbach Child Behavior Checklist, Teacher Achenbach Child Behavior Checklist, and ACTeRS than will hyperactive children with higher ACTeRS oppositional raw scores and Parent and Teacher Achenbach Child Behavior Checklist aggression raw scores.

Locus of Control

Locus of control (Rotter, 1966) reflects the degree to which individuals perceive that they have control over events in their lives or a perceived internality of

personal causation. Usually, feelings of external control exhibited by young children become increasingly more internal as they mature (Nowicki & Strickland, 1973). In hyperactive children, however, it has been hypothesized that they maintain a more external locus of control than normal children. For instance, Linn and Hodge (1982) found that hyperactives were more external than control subjects. These investigators suggest that since hyperactive children are external with respect to locus of control, they may respond well in the short term to learning situations that are presented within a structured setting. However, in the long term, Linn and Hodge state that one must consider the impact that any therapeutic approach has upon the child's sense of internal or external control. Linn and Hodge further note that it appears sensible to assume that unless hyperactive children are given evidence that their behavior is connected to some environmental consequence, they might constantly view the world with an external locus of control. With respect to drug therapy, the authors suggest that use of psychostimulant medication alone may not help the hyperactive child to achieve an internal locus of control. They conclude,

> Because the child under stimulant treatment must rely upon a significant other to control the treatment and since, as stated by Whalen and Henker (1976), medication may make the child feel

> that he has no responsibility for his conduct, it is possible that exclusive reliance upon pharmacotherapy could contribute to feelings of external locus of control. Such a potential outcome of drug therapy indicates the value of appraising locus of control and other personality and social variables when treating the hyperactive child (p.593).

In addition to the importance placed upon external and internal control, development of a locus of sufficient cause or understanding why outcomes occur (e.g., unknown locus of control; Connell, 1985) may also impact upon the therapy which the hyperactive child may receive. For instance, hyperactive children with a lower unknown locus of control may respond more to therapy such as CBT since they may be more certain about the contingencies in their environment (e.g., they know why outcomes indicating success or failure occur). If these children know why outcomes occur then they should be able to utilize therapy such as CBT in order to be more effective in their interactions with others and in their own self-control. It is also possible that therapy such as CBT may help decrease high unknown locus of control possessed by certain hyperactive children, for this type of intervention helps teach children about the contingencies in their environment or about why success and failure oriented outcomes occur.

A reasonable expectation would be that children who believe that they have control over events in their lives,

or an internal locus of control, respond more to self-control training than children who think that causes of events are external to their actions (Kopel & Arkowitz, 1975). Only one study of cognitive self-instructional training has dealt specifically with this topic. Bugental et al. (1977) addressed the degree to which the initial expectancies held by impulsive and hyperactive children are related to the effectiveness of two different behavior-change interventions, one focusing on external monitoring and control (social reinforcement) and the other emphasizing internal monitoring and regulation (self-controlling speech). Bugental and her associates found that children who made somewhat high attributions to external causes were significantly more responsive to the reinforcement intervention than to the self-control treatment. The authors note that for these children external, contingent reinforcement may help to increase environmental consistency and suggest the possibility that they can affect outcomes by their own actions. In addition, children who made high attributions to effort evidenced improvement for either treatment but showed relatively stronger gains when shown ways to improve self-mastery skills. For these children, the self-control treatment was consistent with the expectation of high

personal control of outcomes. However, the investigators note that since separate analysis of this comparison did not achieve statistical significance, this observation can only be interpreted as suggestive.

Also, Bugental et al. (1977) found a psychostimulant medication X intervention interaction for hyperactive children. The children selected for the study were currently receiving methylphenidate, and the two separate interventions utilized for this study were instruction in self-controlling speech and contingent social reinforcement. The authors suggest that this interaction (i.e., for both interventions) is consistent with the hypothesis that psychostimulant medication taken for behavior change has strong and meaningful attributional consequences (Whalen & Henker, 1976). Further, they note that it is quite possible that many children receiving drug treatment are...

> learning to attribute behavioral improvement to causes beyond personal control and to devalue their own potential contributions to problem solutions. These children may, in other words, come to believe that they need external help to solve their difficulties. When such external input (e.g., social reinforcement) is forthcoming, improvement is more likely to occur than when responsibility for change is given to the child (e.g., self-regulation) (p.882).

In light of the investigations mentioned above (i.e.,

Amirkhan, 1982; Bugental et al., 1977; Linn & Hodge, 1982), it seems reasonable to agree with Kopel and Arkowitz's (1975) assertion that a child's feeling of personal control over his/her life might influence his/her responsiveness to any type of self-control intervention. Thus, since hyperactive children with an internal locus of control are likely to have a greater sense that they can exert control over their own behavior, it is hypothesized that they will be more responsive to cognitive-behavioral interventions than hyperactive children who maintain an external locus of control. Therefore, hyperactive children who evidence higher mean internal locus of control scores and lower mean external locus of control scores on Connell's Measure of Children's Perceptions of Control (1985) will show greater improvement on the hyperactive indices of the Parent and Teacher Achenbach Child Behavior Checklist (Achenbach, 1979; Achenbach & Edelbrock, 1983; Edelbrock & Achenbach, 1984), and ACTeRS (Ullmann et al., 1984) than will hyperactive children with lower mean internal locus of control scores and higher mean external locus of control scores. In addition, hyperactive children with a lower unknown locus of control will respond more to cognitive-behavioral therapy, for they are more certain about the contingencies in their environment (e.g., they know why

outcomes occur). Thus, those hyperactive children with lower mean unknown locus of control scores on Connell's Multidimensional Measure of Children's Perceptions of Control will show greater improvement on the hyperactivity indices of the Parent and Teacher Achenbach Child Behavior Checklist and ACTeRS than will hyperactive children with higher mean unknown locus of control scores.

Learning Problems

It is widely assumed that a large number of hyperactive children have learning difficulties in school (Keogh, 1971; Wender, 1971). It appears logical that children who present with problems of inattentiveness, impulsiveness, motoric restlessness, inappropriate and aggressive social responses typical of hyperactivity, may have learning difficulties or learning disabilities in school. A learning disability is characterized as a significant deficit compared to expected grade level in one or more areas of academic achievement, despite normal intelligence, adequate sensory capacities, absence of primary emotional disturbance and adequate educational opportunities. Some researchers have estimated that approximately 60% to 80% of hyperactive children may have learning problems. For example, Cantwell and Satterfield (1978) showed that 76% of their hyperactive child

participants were underachieving in at least two academic subjects.

The success of cognitive self-instructional training may well be impacted by a child's cognitive level or learning problems, which may be associated with or indicative of cognitive capacity difficulties. Children with higher IQs or mental ages have been found to respond better to cognitive self-instructional training than have less cognitively mature children (Barkley, Copeland, & Sivage, 1980). Barkley and his colleagues (1980) found that lower mental-age boys evidenced greater performance deterioration at the conclusion of the self-instructional program than did higher mental-age children.

Wasserman (1981) found that children at higher levels of cognitive development utilize cognitive coping statements better to delay gratification than children at lower levels of cognitive development. Wasserman (1984) suggests that it thus seems the Meichenbaum (1977, 1978) self-instructional technique, despite its simple cognitive-behavioral requirements of an individual, would be useful only in young children, age six and below, for training on very specific tasks. The ability to generalize from this training would not appear until much later. Wasserman notes that it may be that there are particular skills which

cognitive coping statements do not influence at all. These skills may be partly dependent on development for their attainment.

Cognitive-behavioral self-instructional training has also been utilized with learning-disabled children. In one study, Steele and Barling (1982) assessed the effects of self-instructional training on learning-disabled children's perceptual deficits. Significant treatment effects were found at post- and maintenance testing; however, there was no evidence of any generalization to academic performance or classroom behavior. In another study by Shepp and Jensen (1983) investigating the relative effectiveness of operant procedures, cognitive-behavior modification interventions, and a combined approach with a seven-year-old, moderately learning disabled boy, the cognitive approach initially resulted in a strong increase in on-task behavior; however, this behavior was not a lasting directional change. The investigators suggest that the cognitive-behavioral task may have been too difficult for this young learning disabled child, and that he was not utilizing the method efficaciously by the end of the training period.

It is reasonable to hypothesize that learning problems may hinder, in some manner, a hyperactive child from

learning the self-control techniques and problem-solving strategies that are taught in cognitive-behavioral therapy. For instance, Kendall (1977) has emphasized the importance of considering the cognitive capacity of the child when designing and utilizing a self-instructional intervention program. Since a child's learning problems may be associated with or indicative of cognitive capacity difficulties, it is possible that component skills of self-instruction such as remembering the self-instruction, knowing when and where to stop and think before responding, and understanding the relation of the self-instruction to behavior may be impeded in a hyperactive child who possesses learning problems. Therefore, in the present investigation, hyperactive children who are characterized as having learning problems are hypothesized to be less responsive to cognitive-behavioral interventions than hyperactive children who do not have learning problems. Hence, those hyperactive children with lower learning difficulty scores (i.e., higher school performance raw scores) on the Parent and Teacher Achenbach Child Behavior Checklist (Achenbach, 1979; Achenbach & Edelbrock, 1983; Edelbrock & Achenbach, 1984) will evidence greater improvement on the hyperactivity indices of the Parent and Teacher Achenbach Child Behavior Checklist and ACTeRS

(Ullmann et al., 1984) than will hyperactive children with higher learning difficulty scores (i.e., lower school performance raw scores).

Chronological Age

Chronological age may play some role in predicting outcome of cognitive-behavioral interventions with hyperactive children. Although cognitive self-instructional programs have been utilized effectively with children of a variety of ages from preschoolers (Arnold & Forehand, 1978; Bornstein & Quevillon, 1976) to adolescents (Snyder & White, 1979; Thorpe, Amatu, Blakey, & Burns, 1976; Williams & Akamatsu, 1978), most investigations have concentrated on elementary school-age children. Copeland (1981) suggests, "Developmental changes in cognitive level and self-regulation, even within this restricted age range, could be expected to affect responsiveness to different treatments" (p.521).

In fact, Copeland notes that there are a number of investigations which support the suggestion that age of child is an important consideration in planning cognitive self-instruction interventions. For instance, it seems that younger and older children differ with respect to whether they are able to construct their own self-control instructions. Overtly stated (Meichenbaum & Goodman,

1969), adult-demonstrated (Denney, 1975), and fully elaborated (Wolf, 1972) instructions seem to be especially helpful to young children; while older children might perform sufficiently with fewer structured directions. In fact, a number of studies have found that older children can spontaneously construct somewhat effective mediating self-instructions (i.e., verbalization strategies), whereas younger children seem to benefit more from self-instructional training when the verbalizations are more structured, detailed, and specific (Denney, 1975; Miller, Weinstein, & Karniol, 1978; Toner & Smith, 1977). Bornstein (1985) notes that older children appear to be capable of generating their own effective verbalization strategies. In addition, Copeland (1981) asserts that older children can, and probably should be urged to create their own moderately effective self-control strategies. Therefore, since older children are reportedly more adept than younger children at constructing self-control instructions, it is hypothesized in the current study that older hyperactive children will respond better to cognitive-behavioral therapy than will younger hyperactive children. Therefore, older hyperactive children will show greater improvement on the hyperactivity indices of the Parent and Teacher Achenbach Child Behavior Checklist

(Achenbach, 1979; Achenbach & Edelbrock, 1983; Edelbrock & Achenbach, 1984) and ACTeRS (Ullmann et al., 1984) than will younger hyperactive children.

Socioeconomic Status

Socioeconomic status (SES) variables seem to have been pertinent in predicting outcome in a few investigations. For instance, cognitive self-instructional intervention (Monohan & O'Leary, 1971) and posing as a model for other children (Toner, Moore, & Kidder, 1977) were helpful in augmenting self-control for rural Midwestern, white or middle-class children but not urban, Northern, black or "disadvantaged" children, respectively. However, Braswell, Kendall, and Urbain (1982) found that children of different SES groups responded in a similar manner to cognitive-behavioral interventions. Thus, with the little research that has occurred so far, it appears premature to hypothesize whether hyperactive children of differential SES will respond better or worse to cognitive-behavioral therapy. However, this variable will be examined to see whether it does have any impact upon the outcome of such an intervention.

Cognitive-Behavioral Treatment Influences on Locus of Control

As mentioned above, cognitive-behavioral therapy may help hyperactive children to develop a greater sense of control over their own environment by conveying a message of personal efficacy. With this type of therapy, hyperactive children may come to suppose that they are expected to regulate their own behavior and take responsibility for their own actions. In short, since cognitive-behavioral therapy is designed to promote internalization of credit and responsibility for problem solutions (Whalen et al., 1985), it is hypothesized in the current study that cognitive-behavioral therapy will increase hyperactive children's locus of control or the degree to which they perceive that they have control over events in their lives (i.e., an increase in perceived internality of personal causation). Thus, hyperactive children's mean internal locus of control scores will increase and their mean external locus of control scores will decrease as measured by Connell's Multidimensional Measure of Children's Perceptions of Control (1985) from before the cognitive-behavioral treatment begins until after it has been completed. In addition, since cognitive-behavioral therapy is designed to promote knowledge about

why success and failure oriented outcomes occur in one's environment, it is hypothesized that cognitive-behavioral therapy will decrease the hyperactive children's unknown locus of control. Therefore, the hyperactive children's mean unknown locus of control scores will decrease as measured by Connell's Multidimensional Measure of Children's Perceptions of Control (1985) from before the cognitive-behavioral treatment begins until after it has been completed. If these children perceive that they have control over events in their lives and if they understand why success and failure oriented outcomes occur, then it is possible that they will try harder to delay impulsive responding, increase attention, decrease activity, and be more effective in their interactions with others.

CHAPTER III

OVERVIEW AND STATEMENT OF HYPOTHESES

The Hyperactivity Project is a treatment/evaluation program for hyperactive children. Measures of behavioral, developmental, and cognitive functioning were administered to 41 children, ages 7 to 11, over a one year period. The children were referred to school psychologists in Michigan because of behavior problems at school indicative of emotional impairment. The current investigation examines the predictors of outcome for cognitive-behavioral therapy with hyperactive children, and the effect of cognitive-behavioral therapy on hyperactive children's locus of control. The following hypotheses were addressed:

Hypothesis I: Since hyperactive children with a poor self-concept are likely to generate ineffective strategies and solutions to their problems, those hyperactive children who are better adjusted because of their greater self-concept will respond better to their cognitive-behavioral therapy than hyperactive children with a fairly poor self-concept. Hence, those hyperactive children with higher mean scores on Harter's What I Am Like (1983) and In the Classroom (1981) self-concept scales will evidence greater improvement on the hyperactivity indices of the Parent Achenbach Child Behavior Checklist (Achenbach, 1979;

Achenbach & Edelbrock, 1983), Teacher Achenbach Child Behavior Checklist (Edelbrock & Achenbach, 1984), and ADD-H: Comprehensive Teacher Rating Scale (ACTeRS; Ullmann et al., 1984) than will hyperactive children with lower mean scores on Harter's What I Am Like and In the Classroom self-concept scales.

Hypothesis II: Since aggressiveness comprises a persistent class of behaviors over time, cognitive-behavioral therapy will not be as helpful for hyperactive children who present with aggressive problem behaviors. Consequently, hyperactive children with lower ACTeRS oppositional raw scores (Ullmann et al., 1984) and Parent and Teacher Achenbach Child Behavior Checklist aggression raw scores (Achenbach, 1979; Achenbach & Edelbrock, 1983; Edelbrock & Achenbach, 1984) will show greater improvement on the hyperactivity indices of the Parent Achenbach Child Behavior Checklist, Teacher Achenbach Child Behavior Checklist, and ACTeRS than will hyperactive children with higher ACTeRS oppositional raw scores and Parent and Teacher Achenbach Child Behavior Checklist aggression raw scores.

Hypothesis III: Since hyperactive children with an internal locus of control are likely to have a greater sense that they can exert control over their own behavior,

they are expected to respond more to cognitive-behavioral interventions than hyperactive children who maintain an external locus of control. Therefore, hyperactive children who evidence higher mean internal locus of control scores and lower mean external locus of control scores on Connell's Measure of Children's Perceptions of Control (1985) will show greater improvement on the hyperactive indices of the Parent and Teacher Achenbach Child Behavior Checklist (Achenbach, 1979; Achenbach & Edelbrock, 1983; Edelbrock & Achenbach, 1984), and ACTeRS (Ullmann et al., 1984) than will hyperactive children with lower mean internal locus of control scores and higher mean external locus of control scores. In addition, hyperactive children with a lower unknown locus of control will respond more to cognitive-behavioral therapy, for they are more certain about the contingencies in their environment (e.g., they know why success and failure oriented outcomes occur). Thus, those hyperactive children with lower mean unknown locus of control scores on Connell's Multidimensional Measure of Children's Perceptions of Control will show greater improvement on the hyperactivity indices of the Parent and Teacher Achenbach Child Behavior Checklist and ACTeRS than will hyperactive children with higher mean unknown locus of control scores.

Hypothesis IV: Since learning difficulties may hinder a hyperactive child from learning self-control techniques and problem-solving strategies, hyperactive children with learning problems will be less responsive to cognitive-behavioral treatment than hyperactive children who do not have learning problems. Hence, those hyperactive children with lower learning difficulty scores (i.e., higher school performance raw scores) on the Parent and Teacher Achenbach Child Behavior Checklist (Achenbach, 1979; Achenbach & Edelbrock, 1983; Edelbrock & Achenbach, 1984) will evidence greater improvement on the hyperactivity indices of the Parent and Teacher Achenbach Child Behavior Checklist and ACTeRS (Ullmann et al., 1984) than will hyperactive children with higher learning difficulty scores (i.e., lower school performance raw scores).

Hypothesis V: Since older children are reportedly more adept at constructing self-control instructions than younger children, older hyperactive children will respond better to cognitive-behavioral therapy than will younger hyperactive children. Therefore, older hyperactive children will show greater improvement on the hyperactivity indices of the Parent and Teacher Achenbach Child Behavior Checklist (Achenbach, 1979; Achenbach & Edelbrock, 1983; Edelbrock & Achenbach, 1984) and ACTeRS (Ullmann et al.,

1984) than will younger hyperactive children.

In conclusion, it is hypothesized that self-concept, locus of control, aggressiveness, learning difficulties, chronological age, and socioeconomic status will all help predict whether hyperactive children will be responsive to cognitive-behavioral treatment.

Hypothesis VI: Since cognitive-behavioral therapy is designed to promote internalization of credit and responsibility for problem solutions, cognitive-behavioral therapy will increase hyperactive children's locus of control or the degree to which they perceive that they have control over events in their lives (i.e., an increase in perceived internality of personal causation). Thus, hyperactive children's mean internal locus of control scores will increase and their mean external locus of control scores will decrease as measured by Connell's Multidimensional Measure of Children's Perceptions of Control (1985) from before the cognitive-behavioral treatment begins until after it has been completed. In addition, since cognitive-behavioral therapy is designed to promote awareness of accurate contingencies in one's environment, cognitive-behavioral therapy will decrease hyperactive children's unknown locus of control (i.e., increase knowledge of why success and failure oriented

outcomes occur in their environment). Therefore, the hyperactive children's mean unknown locus of control scores will decrease as measured by Connell's Multidimensional Measure of Children's Perceptions of Control (1985) from before the cognitive-behavioral treatment begins until after it has been completed.

CHAPTER IV

METHOD

Subjects

Forty-nine children (41 males and 8 females), ages 7 to 11 years old (mean age 9.1 years; mean grade = 3rd), were referred for inclusion in the present treatment study. These children were referred for special education services in Michigan by the children's school teachers for emotional impairment with the primary problems being that of impulsivity and acting-out (externalizing problems). The emotionally impaired children consisted of children diagnosed as E.I. by the guidelines of the Michigan State Board of Education (1982). These guidelines require one or more of the following characteristics: (1) inability to build or maintain satisfactory interpersonal relationships within the school environment; (2) inappropriate types of behavior or feelings under normal circumstances; (3) general pervasive mood of unhappiness or depression; (4) tendency to develop physical symptoms or fears associated with personal or school problems. In addition, schizophrenic, autistic, and other comparably disordered children are considered E.I. The diagnosis of E.I. does not include children whose behaviors are primarily the result of intellectual, sensory, or health factors. The

determination of E.I. must be made by both a psychologist or psychiatrist and a school social worker.

In order to ensure that the subjects possessed impulsivity-control problems, only those children who evidenced significant elevations on the ACTeRS (Ullmann et al., 1984) clinical scales measuring impulsivity and control problems were included in the current study. Eight children (all males) did not meet this inclusion criteria and were not included in any subsequent analyses. Demographic information on the final group of child participants is reported in Table 4. These data show that the sample consisted of Caucasian children whose mean family social prestige score of 32.8 (Mueller & Parcel, 1981) indicated occupational statuses that are skilled blue collar and lower level white collar positions.

General Design Statement

Cognitive-behavioral treatment was provided for 41 children who were referred for special education services because of emotional impairment with the primary problems being that of impulsivity and acting-out. The present study was a pretest and posttest design. The child participants took part in an 8 - 11 week, 22-session group intervention during which problem-solving skills and self-control techniques were taught and practiced.

Table 4

Demographic Information on Child Participants as Reported by Their Primary Caretakers (N = 41)

	Child Participants
Males	33
Females	8
Mean Age (in years)	9.0
Age Range (in years)	7.0 - 11.6
Mean Grade	3rd
Grade Range	Kindergarten - 6th
Race (percent of children)	
Caucasian[1]	100
Mean Family Social Prestige Index[2]	32.8 (S.D. = 18.1)

[1] One child participant was Caucasian/Indian.

[2] Mean family social prestige index is based upon Duncan TSEI2 (1980) index (Mueller & Parcel, 1981); a score of 33 is indicative of skilled blue collar occupations (e.g., tool and die maker, fireman) and lower level white collar occupations (e.g., dental lab technician, cafeteria manager).

In order to determine which child characteristics predict optimal responsivity to cognitive-behavioral therapy, and whether cognitive-behavioral therapy increases locus of control and decreases unknown locus of control, pre- and posttest measures were administered to the child participants and their parents and teachers before treatment started and after it was completed. The children's mother typically completed the parent questionnaires; however, one father and two grandparents completed the parent questionnaires since they were the immediate caretakers. The school psychologists who provided the cognitive-behavioral treatment administered the child measures to the child participants; however, these psychologists were blind to all experimental hypotheses.

The measures utilized in the study are (1) the Parent Achenbach Child Behavior Checklist (CBCL; Achenbach, 1979; Achenbach & Edelbrock, 1983), (2) the Child Behavior Checklist--Teacher's Report Form (TRF; Edelbrock & Achenbach, 1984), (3) the ADD-H: Comprehensive Teacher Rating Scale (ACTeRS; Ullmann et al., 1984), (4) the Self-Perception Profile for Children (What I Am Like scale; Harter, 1983), (5) the Intrinsic Versus Extrinsic Orientation in the Classroom (In the Classroom scale;

Harter, 1981), and (6) the Multidimensional Measure of Children's Perceptions of Control (Connell, 1985). These instruments, which are further described below, were intended to measure the children's self-concept, locus of control, aggressiveness, learning difficulties, chronological age, and socioeconomic status. Pretest measures were utilized to predict treatment outcome. The pretest independent variables which served as predictors were the Parent and Teacher Achenbach Child Behavior Checklist aggression and learning problem scales, Connell's Multidimensional Measure of Children's Perceptions of Control, Harter's What I Am Like and In the Classroom self-concept scales, chronological age, and socioeconomic status. The posttest dependent measures which served as criterion variables were Parent and Teacher Achenbach Hyperactivity Indices and ACTeRS scores. Pretest measures of the Parent and Teacher Achenbach Hyperactivity Indices and ACTeRS served as covariates to control for initial scores.

Procedures

Ten school psychologists attended a workshop which was designed to offer training in behavioral and cognitive-behavioral intervention strategies with impulsive and attention deficit disordered children and their families.

The workshop was instructed by a licensed doctoral-level clinical psychologist and an advanced-level clinical psychology graduate student. Training consisted of an introductory lecture on cognitive-behavioral approaches, a review of the empirical literature with respect to the diagnosis and treatment of attention deficit disorders, and the presentation of a school-based, problem-solving intervention program for use with impulsive and Attention Deficit Disorder (ADD) children (Horn, unpublished manuscript). The emphasis of this workshop was placed on skill building, and training consisted of lectures and discussion. In addition, the workshop participants were required to read Cognitive-Behavior Modification by Donald Meichenbaum (1977). Following training, each participant was required to implement the problem-solving training program with a minimum of 2 - 3 students, as well as administer a variety of program evaluation measures. All participants were blind to the experimental hypotheses.

This training workshop was offered through the Michigan Association for School Psychologists and served as a continuing education course for the school psychologists who attended. The eight female and two male school psychologists who participated in this workshop possessed a variety of degrees including 1 M.A. degree in education, 1

M.A. degree in clinical psychology and divinity/ counseling, 2 M.A. degrees in counseling, 1 M.A. degree of specialization in working with visually handicapped individuals, 1 Ed.S. degree in education, 2 Ed.S. degrees in education and psychology, 1 Ed.D. degree in education, and 3 S.P.A. degrees in educational psychology (1 person possessed an M.A. and an S.P.A. degree, and 1 person possessed an M.A. and an Ed.S. degree). This sample of school psychologists worked in the school psychology profession for an average of 13.8 years (range = 8 - 25 years), and had a mean age of 43.9 years (range = 31 - 57 years). The prior experience of these school psychologists included academic testing, evaluation and counseling.

Setting

All treatment groups took place in the referred children's school, outside of their regular classroom.

Self-Control Training

Children involved in the current study's treatment met 2 - 3 times per week for 22 sessions with a duration range of 8 - 11 weeks. The treatment groups consisted of three to six children. This treatment included instruction in the self-control techniques described by Camp and Bash (1981), Meichenbaum (1977), and Spivack and Shure (1974). Each child was taught a "Problem-Solving Plan" which

included the following self-instructional steps: (1) Am I having a problem? Take a deep breath and think "calm...relax"; (2) What is my problem?; (3) How many solutions can I think of?; (4) How good is each solution?; (5) Pick the best solution and try it; and (6) How did my solution work? In addition, systematic relaxation techniques combining imagery, muscle tension/relaxation, and breathing exercises were taught to the children. Training consisted of didactic presentations, and the utilization of games to prompt the in vivo practice of the self-control techniques. Role play exercises (including modeling by the group therapists, and guided practice) were utilized during training. For example, a child who typically fights at school might have been asked by the therapist to act out a problem in which (s)he is accidentally pushed in a lunch line by another child. Also, a token reinforcement system was used as a means to control the children's behavior in the group sessions. (See Appendix A for summary of the Self-Control Training Activities). In order to deal with any difficulties in the implementation of the above treatment, the licensed doctoral-level psychologist and the advanced-level graduate student who were the instructors at the school psychologists' workshop made themselves available via

telephone for any questions that arose or any consultation that was needed.

Measures

The following instruments were completed by the children's parents and teachers, and administered by school psychologists to each child participant before treatment began and after treatment ended. All testers were blind as to the experimental hypotheses of this study.

Parent Report Measures. (1) The Achenbach Child Behavior Checklist (CBCL; Achenbach, 1979; Achenbach & Edelbrock, 1983) is a 113-item parent report measure. Parts I-VII contain questions concerning children's social and athletic activities and home responsibilities. These first seven parts consist of three scales concerning social competence (e.g., activities, social behavior, and school behavior) and Part VIII consists of nine scales concerning particular childhood diagnostic categories (e.g., schizophrenia, depression, non-communication, obsession-compulsion, somatic complaints, social withdrawal, hyperactivity, aggression, and delinquency). The items in Part VIII are all responded to with scores of 0 ("not true"), 1 ("somewhat true"), or 2 ("very true") points. This instrument has been expanded from use with 6- to 11-year-old children to 4- to 16-year-old children. The CBCL

was utilized in the present study to provide a measure of hyperactivity, learning difficulties, aggression, and demographic information for all child participants.

Factor analyses have generally provided two broad band factors of Internalizing and Externalizing. Narrow band factors have been differentiated by sex and chronological age. For boys 6 to 11 years old, the Internalizing factor consists of Somatic Complaints, Schizoid, Uncommunicative, Depressed, and Obsessive-Compulsive. Social Withdrawal loads on a Mixed factor. The Externalizing factor consists of Delinquent, Aggressive, and Hyperactive. The Internalizing factor for girls 6 to 11 years old consists of Somatic Complaints, Schizoid-Obsessive, Depressed, and Social Withdrawal. Sex Problems, Delinquent, Hyperactive, Aggressive, and Cruel, all load highly on the Externalizing factor. The CBCL has been found to significantly differentiate between normal and clinical populations (Achenbach, 1978; Achenbach & Edelbrock, 1979).

Achenbach (1978) has reported 8-day period test-retest reliability ranging from .72 to .97 (mean = .89) for overall scores for boys 6 to 11 years old. Also, test-retest reliability for a 14.8-month average period was found to be .63. For the 6- to 11-year-old-girls during a 7.3-day period, test-retest reliability was found to be .88

for overall scores. In addition, a mean correlation of .55 was found for test-retest reliability after a 17-month average period. (See Appendix B for complete description of the Achenbach Child Behavior Checklist.)

Teacher Report Measures

(1) The Child Behavior Checklist--Teacher's Report Form (TRF; Edelbrock & Achenbach, 1984) is a four-page questionnaire designed to obtain teachers' ratings of academic performance, positive adaptive characteristics, behavioral difficulties in the school environment, and many of the same behavioral difficulties rated by parents on the CBCL. Page 1 of the TRF consists of demographic information, information on the setting in which the teacher knows the child, previous special services, repetition of grades, and ratings of academic performance. Page 2 is designed to obtain teachers' ratings on four general adaptive characteristics, in addition to standardized test data and other information teachers can provide. Pages 3 and 4 of the TRF list behavior problem items in the same manner as that utilized on the Child Behavior Checklist. However, teachers are requested to estimate their ratings from the previous 2 months, rather than the 6-month rating period indicated on the CBCL. The TRF was utilized in the present study to provide a measure

of hyperactivity, learning difficulties, aggression, and demographic information for all child participants.

The significant differences reported by Edelbrock and Achenbach (1984) between referred and nonreferred boys on the scales support the discriminative validity of the Teacher Profile. Additional support for the validity of the Teacher Profile has been obtained in other studies (e.g., Edelbrock & Reed, 1983b; Reed & Edelbrock, 1983). With respect to school performance and adaptive functioning, Edelbrock and Achenbach (1984) reported one-week test-retest reliability of .93 for teachers' ratings of school performance and .86 for total adaptive functioning scores. For individual adaptive functioning items, correlations were .76, .84, .90, and .63 for Working Hard, Behaving Appropriately, Learning, and Happy, respectively. One-week test-retest correlations for the behavior problems scales averaged .89 (range: .74 - .96). Two-month stabilities averaged .77 (range: .63 - .88), whereas 4-month stabilities averaged .64 (range: .25 - .82). (See Appendix C for complete description of the Teacher's Report Form of the Child Behavior Checklist.)

(2) The ADD-H: Comprehensive Teacher Rating Scale (ACTeRS; Ullmann et al., 1984) was designed to aid clinicians in appropriately considering the role of

attention in diagnosing Attention Deficit Disorder (ADD) and monitoring of treatment effects, and to illustrate individual differences, before and after intervention, in the behavior of children who exhibit attentional difficulties. This rating scale consists of 24 items representing classroom behavior on four factors: Attention, Hyperactivity, Social Skills, and Oppositional behavior. The items are scored on a scale of 1 (Almost Never) to 5 (Almost Always). Two other items concern peer acceptance of the child, and two other items concern teacher attention required by the child. The measure's items were factor analyzed using a large sample of 1,347 normal, Midwestern children (694 boys and 653 girls, kindergarten through 5th grade) in which four factors were found. The following alpha coefficients for internal consistency were found for the four factors: Attention--.96, Hyperactivity--.93, Social--.93, Oppositional--.97. In addition, test-retest reliability over a two week period using 55 ADD-H children ranged from .68 (Hyperactivity) to .78 (Social Skills) with all correlations being statistically significant. The ACTeRS was utilized in the current study as a measure of hyperactivity and aggression. (See Appendix D for complete description of the ADD-H: Comprehensive Teacher Rating Scale.)

Child Report Measures. (1) Harter's (1983) Self-Perception Profile for Children (originally named the Perceived Competence Scale for Children, 1982), was constructed with the assumption that a domain-specific measure had certain advantages over those existing instruments which provide only a single self-concept score (e.g., the Coopersmith Self-Esteem Inventory, 1967; the Piers-Harris Self-Concept Scale, 1969). Harter initially sought to identify three major competence domains in the lives of children: (1) cognitive or scholastic competence, (2) social competence, and (3) physical or athletic competence. Harter wanted to obtain a profile of the child's perceived competencies across these three areas, as represented by separate scores for each domain. Such a profile, according to Harter, would provide a richer and more differentiated picture of the child's self-perceptions than would the single score provided by those measures mentioned above. Harter has recently revised the instrument which now contains six separate subscales: (1) scholastic competence, (2) social acceptance, (3) athletic competence, (4) physical appearance, (5) behavior/conduct, and (6) self-worth. Factor analyses for a large group of 6th and 7th graders indicate that the subscales form very clear and discrete factors. The factor loadings range from

.41 to .78, with no systematic cross-loadings. Moreover, their internal consistency is acceptable (i.e., ranging from .72 to .84). The intercorrelations among subscales for 6th and 7th grade samples combined range from .10 to .64.

The actual questionnaire which the child fills out, entitled What I Am Like, consists of 36 items, 6 items for each subscale. The child's task on each item is to first decide whether he or she is more like the kids described on the left of each statement or more like those described on the right. After deciding, the child then checks whether that statement is just "Sort of True for Me" or "Really True for Me." This measure was utilized in the current investigation to measure the children's self-concept.

(2) Another instrument designed by Harter (1981) which was utilized in the current investigation is entitled, Intrinsic Versus Extrinsic Orientation in the Classroom, or the In the Classroom scale. For this measure, classroom learning was chosen as a situational context in which the motivational orientation of the child would be especially pertinent. Harter (1981) notes that in designing the instrument the following question was approached:

> To what degree is a child's motivation for classroom learning determined by his or her intrinsic interest in learning and mastery,

> curiosity, preference for challenge in contrast to a more extrinsic orientation in which the child is motivated to obtain teacher approval and/or grades, and is very dependent on the teacher for guidance (p.5)?

Five dimensions of classroom learning are characterized as having both an intrinsic and extrinsic motivational pole: (1) Preference for Challenge (intrinsic) vs. Preference for Easy Work Assigned (extrinsic); (2) Curiosity/Interest (intrinsic) vs. Pleasing the Teacher/Getting Grades (extrinsic); (3) Independent Mastery (intrinsic) vs. Dependence on the Teacher (extrinsic); (4) Independent Judgment (intrinsic) vs. Reliance on Teacher's Judgment (extrinsic); (5) Internal Criteria (intrinsic) vs. External Criteria (extrinsic). Each of the five subscales contains six items. Harter (1981) posits that the factor pattern clearly shows that a five-factor solution, reflecting the five subscales that were identified, is appropriate. The average loadings for items on their designated factors is between .46 and .53, and no items systematically cross-load on other factors. Also, the internal consistency of each subscale across three separate samples from New York, California, and Colorado ranged from .78 to .84, .68 to .82, .70 to .78, .72 to .81, and .75 to .83, for Challenge, Independent Mastery, Curiosity, Judgment, and Criteria

subscales, respectively. The intercorrelations for two separate samples from New York and California among Curiosity, Challenge, and Independent Mastery are moderate to high (range .04 to .61). Independent Judgment and Internal Criteria bear a moderate relationship to each other (range .38 to .39), but do not correlate as highly with the other three subscales (range .07 to .33).

In addition, the question format utilized for this instrument is the same as that mentioned above for Harter's What I Am Like scale. For instance, an example item is "Some kids know when they've made a mistake without checking with the teacher---But---Other kids need to check with the teacher to know if they've made a mistake." The respondent is first asked to decide which kind of child is most like him or her, and then asked whether this is only sort of true or really true of him or her. Each item is scored on an ordinal scale from 1 to 4 where a score of 1 is indicative of the utmost extrinsic orientation, and a score of 4 is indicative of the utmost intrinsic orientation. (See Appendix E for complete description of the Harter self-concept measures.)

(3) The Multidimensional Measure of Children's Perceptions of Control (Connell, 1985) is a 48-item self-report instrument. Items include information about the

perceived source of control (internal, powerful others, or unknown), the behavioral outcome (success or failure), and the behavioral domain (cognitive, social, physical, or general). No two consecutive items depict the same source of control, and the other elements of the measure (domain and outcome) are randomly ordered because of this restraint.

For each item, the child is shown a statement and then asked to circle one out of four responses. An example item is: "If I want to do well in school, it's up to me to do it" (very true/sort of true/not very true/not at all true). Each item is scored from 1 to 4, with a score of 4 (i.e., a "very true" response) indicating high endorsement of the source of control presented in the statement, in this instance, internal control. This instrument was used in the present study to measure children's locus of control.

Internal consistency estimates for 9 of the 12 four-item subscales were greater than .6, with a range of .43 - .70 in an elementary school sample; internal consistency estimates for eight of the 12 four-item subscales were greater than .55 with a range of .39 - .67 in a junior high school sample. The four-item internal, powerful others, and unknown subscales within each of the four domains evidenced significant but moderate correlations over time

for 9-month test-retest (r = .34; range .30 - .48) and significant low to moderate correlations in the 17-month test-retest (r = .32; range .25 - .50). (See Appendix F for complete description of the Multidimensional Measure of Children's Perceptions of Control.)

CHAPTER V

RESULTS

Descriptive Statistics for the Independent and Dependent Variables

The mean scores, standard deviations, and score ranges for each of the predictor and criterion measures are shown in Table 5. This table also provides, where available, normative data and clinical cutoff scores for each of these measures. Clinical cutoff scores depend upon the construction of each measure; thus, for some measures a low score is indicative of problem behavior, while for other measures a high score is indicative of problem behavior. The mean raw scores on the ACTeRS Attention, Hyperactivity, and Oppositional subscales at pretest for subjects in the present sample were in the problem range meeting clinical criteria. Although the present sample was rated overall by teachers on the ACTeRS to have problems with attention and hyperactivity, these problems were only at borderline problem levels on the Teacher Achenbach Child Behavior Checklist (Teacher CBCL); the mean scores on the Teacher CBCL were slightly outside the problem range for attention and hyperactivity problems, thereby not meeting clinical criteria. There is no clinical cutoff score on the Teacher CBCL delineating a problem range for school performance and

learning abilities; however, the sample as a whole evidenced school performance and learning abilities at approximately the 11th and 16th percentiles, respectively, compared to other children their age.

With respect to parent ratings on the Achenbach Child Behavior Checklist at pretest, the current sample was found to be above the cutoff score for clinical significance on the Hyperactivity and Aggression subscales, and in the borderline range on the School Performance subscale. That is, the mean scores on the Parent CBCL Hyperactivity and Aggression subscales at pretest were within the problem range meeting clinical criteria, and the mean scores on the Parent CBCL School Performance subscale at pretest were in the borderline problem range slightly below clinical criteria. Hence, the teacher and parent reports before treatment suggest that the child participants had problem behaviors indicative of attentional difficulties, hyperactivity, aggressiveness, and school performance/learning difficulties.

Although no cutoff problem range has been determined for the Harter's self-concept measures, comparisons between the current sample and normative samples can be made. For instance, the present sample evidenced overall mean scores that were slightly below the normative sample scores.

Table 5

Subject Characteristics of Child Participants

	Subjects' $\bar{X}$	Subjects' S.D.	Subjects' Range	Cutoff Problem Score	Normative $\bar{X}$	Normative S.D.
ACTeRS Attention Raw Score (n=41)[1]	13.8	3.90	7-23	<16		
ACTeRS Hyperactivity Raw Score (n=41)[1]	17.8	4.69	6-25	>16		
ACTeRS Oppositional Raw Score (n=41)[1]	18.6	5.10	7-30	>14		
Teacher Achenbach Inattentive T Score (n=39)[2]	65.1	7.79	55-93	>70	57.3	
Teacher Achenbach Aggression T Score (n=39)[2]	68.8	8.70	55-92	>70	57.2	
Teacher Achenbach School Performance T Score (n=40)[3]	37.0	10.1	29-69		53.6	
Teacher Achenbach Learning T Score (n=41)[3]	40.4	7.84	29-52		54.7	
Parent Achenbach Hyperactivity Raw Score (n=31)	10.0	3.95	2-19	>10	3.20	2.90
Parent Achenbach Aggression Raw Score (n=31)	20.2	10.0	7-48	>19	7.30	5.70

Table 5 (cont.)

	Subjects' $\bar{X}$	Subjects' S.D.	Subjects' Range	Cutoff Problem Score	Normative $\bar{X}$	Normative S.D.
Parent Achenbach School Performance Raw Score (n=33)	2.60	1.24	0.3-6	<2.5	4.90	1.00
Harter's "What I am Like" Self-Concept Raw Score (n=22)[4]	2.78	0.43	1.9-3.7		3.04	0.63
Harter's "In the Classroom" Self-Concept Raw Score (n=21)[4]	2.34	0.49	1.7-3.3		2.66	0.63
Connell's Internal Locus of Control Raw Score (n=29)[4]	3.21	0.43	2.3-3.9		3.22	0.51
Connell's External Locus of Control Raw Score (n=29)[4]	2.67	0.70	1.5-3.9		2.70	0.69
Connell's Unknown Locus of Control Raw Score (n=29)[4]	2.60	0.64	1.3-4.0		2.63	0.72

[1]Normative means and standard deviations are not available.

[2]Normative standard deviations are not available.

[3]Cutoff problem scores and normative standard deviations are not available.

[4]Cutoff problem scores are not available.

However, these mean scores were not more than one standard deviation below the normative mean scores, indicating that this study's sample possessed a self-concept that is tantamount to Harter's (1980; 1983) normative sample. In addition, the current sample's mean locus of control scores were virtually the same as the normative sample's mean scores reported by Connell (1985). Therefore, at pretest the present sample possessed an internal, external, and unknown locus of control that are similar to the mean of Connell's normative sample.

Analysis of Sex Differences

Initially, a series of univariate t-tests were computed using sex of subject as the independent variable and each of the pretest and posttest measures as the dependent variables. These analyses were computed in order to determine whether subsequent analyses should be computed separately for males and females, or together as a total sample. As shown in Table 6, out of 22 variables, only one significant difference was found between male and female participants at $p<.05$ (i.e., posttest for unknown locus of control). Since only one significant difference between sexes was evident, it is quite probable that this finding is a result of chance. Therefore, due to the lack of significant differences between sexes on the study's

variables, all further analyses were computed by combining the male and female samples.

Intercorrelations Among the Independent and Dependent Variables

In order to determine whether the study's variables represented independent dimensions for the total sample, intercorrelations among the predictor and criterion variables were computed. These analyses show that out of 78 correlations from the 13 independent (predictor) variables (Table 7), only 4 intercorrelations were found to be above r = .50.

In two instances, variables which purport to measure the same construct and were completed by the same rater were found to be above the r = .50 criteria. First, two variables measuring teacher rated school performance, the Teacher Achenbach School Performance and Teacher Achenbach Learning scales, were found to have an intercorrelation of .62. Consequently, the Teacher Achenbach School Performance scale was arbitrarily chosen for further analyses. Second, two variables measuring teacher rated aggression, the ACTeRS Oppositional and Teacher Achenbach Aggression scales, were found to have an intercorrelation of .75. The ACTeRS Oppositional scale was arbitrarily chosen for further analyses.

Table 6

Mean Raw Scores of Independent (Predictor) Variables, Dependent (Criterion) Variables, and Covariates

Variable	Sex	n	Mean	p-level
Chronological Age[1]	females	8	110.3	
	males	32	107.7	ns
Grade Level	females	8	3.00	
	males	32	2.84	ns
Socioeconomic Status[2]	females	7	29.2	
	males	29	33.7	ns
ACTeRS Attention-- pretest	females	8	13.0	
	males	33	14.0	ns
ACTeRS Attention-- posttest	females	7	13.7	
	males	29	15.2	ns
ACTeRS Hyperactivity-- pretest	females	8	18.0	
	males	33	17.7	ns
ACTeRS Hyperactivity-- posttest	females	7	17.0	
	males	33	17.4	ns
ACTeRS Oppositional-- pretest	females	8	17.3	
	males	32	18.9	ns
ACTeRS Oppositional-- posttest	females	7	17.0	
	males	29	18.0	ns
Parent Achenbach Hyperactivity--pretest	females	7	12.0	
	males	24	9.46	ns
Parent Achenbach Hyperactivity--posttest	females	6	9.50	
	males	17	8.47	ns
Parent Achenbach Aggression--pretest	females	7	26.3	
	males	24	18.4	ns
Parent Achenbach School Performance--pretest	females	7	2.49	
	males	26	2.64	ns

Table 6 (cont.)

Variable	Sex	n	Mean	p-level
Teacher Achenbach School Performance--pretest	females	7	2.24	
	males	33	2.28	ns
Harter's "What I Am Like" Self-Concept--pretest	females	5	2.76	
	males	17	2.79	ns
Harter's "In the Classroom"--pretest	females	5	2.22	
	males	16	2.38	ns
Internal Locus of Control--pretest	females	7	3.18	
	males	22	3.22	ns
Internal Locus of Control--posttest	females	7	3.18	
	males	25	3.09	ns
External Locus of Control--pretest	females	7	2.94	
	males	22	2.58	ns
External Locus of Control--posttest	females	7	2.60	
	males	25	2.41	ns
Unknown Locus of Control--pretest	females	7	2.88	
	males	22	2.51	ns
Unknown Locus of Control--posttest	females	7	2.91	
	males	25	2.50	<.05

Note. Two-tailed t-tests were computed for these data, and ns = nonsignificant.

1 Chronological age is calculated in months.

2 Socioeconomic status is based upon Duncan TSEI2 (1980) index (Mueller & Parcel, 1981).

Table 7

Pearson Correlations of Independent (Predictor) Variables[1]

	Internal Locus of Control	External Locus of Control	Unknown Locus of Control	Self-Concept "What I Am Like"	Self-Concept "In the Classroom"	ACTeRS Oppositional	Parent Achenbach Aggression	Teacher Achenbach Aggression	Parent Achenbach School Performance	Teacher Achenbach School Performance	Teacher Achenbach Learning	Age	SES
Internal Locus of Control													
External Locus of Control	.430** (29)												
Unknown Locus of Control	.301 (29)	.740*** (29)											
Self-Concept "What I Am Like"	.127 (20)	.051 (20)	-.275 (20)										
Self-Concept "In the Classroom"	-.105 (21)	-.356 (21)	-.249 (21)	.274 (18)									
ACTeRS Oppositional	.210 (28)	.297 (28)	.303 (28)	.158 (21)	-.011 (21)								
Parent Achenbach Aggression	-.342 (24)	.085 (24)	.181 (24)	.105 (16)	-.207 (16)	.291 (30)							
Teacher Achenbach Aggression	.150 (27)	.176 (27)	.082 (27)	.474* (20)	.047 (20)	.748*** (39)	.282 (29)						
Parent Achenbach School Performance	.209 (23)	-.214 (23)	-.257 (23)	.056 (16)	.171 (15)	.110 (32)	.068 (30)	.096 (31)					
Teacher Achenbach School Performance	.130 (28)	.143 (28)	.122 (28)	.203 (21)	.205 (20)	.155 (39)	.331* (30)	.169 (38)	.540*** (32)				
Teacher Achenbach Learning	.141 (29)	.152 (29)	.041 (29)	.118 (22)	-.232 (21)	.048 (40)	.298 (31)	-.089 (39)	.267 (33)	.620*** (40)			
Age	-.007 (28)	-.404* (28)	-.341* (28)	.377* (21)	.218 (20)	-.163 (39)	-.214 (31)	-.208 (38)	-.275 (33)	-.273* (39)	-.105 (40)		
SES	.293 (27)	-.204 (27)	-.063 (27)	.239 (20)	.212 (19)	-.065 (35)	-.180 (30)	-.045 (34)	.099 (31)	.262 (35)	.152 (36)	.196 (35)	

[1]The number of subjects ranged from 15 to 40 and are included in parentheses below each correlation.

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

Although parents and teachers were in agreement about the child participants' school performance as evidenced by an intercorrelation of .54 between the Teacher Achenbach School Performance measure and the Parent Achenbach School Performance measure, the variables of parent and teacher rated school performance were both utilized as predictors in further analyses since they represent ratings from both the children's home and school. In addition, external and unknown locus of control variables were highly intercorrelated ($r = .74$), but were utilized as separate predictor variables since they are presumed to measure different dimensions of children's locus of control. Also, out of 10 correlations among the five dependent (criterion) variables, no correlation was found to be above the $r = .50$ cutoff criteria (Table 8). Out of 10 correlations from the covariates for the dependent (criterion) variables, only one intercorrelation was found to be above the $r = .50$ cutoff criteria (Table 9). That is, an intercorrelation of $-.59$ was found between the ACTeRS Attention and Teacher Achenbach Attention measures. Consequently, the ACTeRS Attention score was arbitrarily chosen to be utilized for further analyses instead of the Teacher Achenbach Attention score. The fact that so few of the study's variables were highly intercorrelated (e.g., above $r = .50$) suggests that

these variables are measuring relatively independent dimensions.

General Statistical Plan

The primary method utilized for testing the present study's major hypotheses was a series of hierarchical regression analyses. In each of the analyses an independent pretest variable was utilized to predict outcome of a dependent posttest (criterion) variable, while pretest measures of the criterion variables served as covariates in order to control for initial scores. One-tailed analyses were computed and reported for those hypotheses which were predicted in a particular direction. It should also be noted that because there were far fewer parent rated measures available for the present analyses compared to teacher rated measures, separate analyses were computed using the teacher report and parent report variables in order to maximize the amount of data available for the analyses.

Hypothesis I: Self-Concept

Hypothesis I predicts that since impulsive children with a poor self-concept are likely to generate ineffective strategies and solutions to their problems, those impulsive children who are better adjusted because of their greater self-concept will respond better to their

Table 9

Pearson Correlations of Covariates for Dependent (Criterion) Variables[1]

	ACTeRS Hyperactivity	ACTeRS Attention	ACTeRS Oppositional	Parent Achenbach Hyperactivity	Teacher Achenbach Attention
ACTeRS Hyperactivity					
ACTeRS Attention	.198 (41)				
ACTeRS Oppositional	.355* (40)	.130 (40)			
Parent Achenbach Hyperactivity	-.143 (31)	.016 (31)	.048 (30)		
Teacher Achenbach Attention	-.101 (39)	-.593** (39)	-.132 (39)	.285 (29)	

[1]The number of subjects ranged from 29 to 41 and are included in parentheses below each correlation.

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

cognitive-behavioral therapy than impulsive children with a fairly poor self-concept. This hypothesis was tested with a series of hierarchical regression analyses using Harter's What I Am Like and In the Classroom self-concept scores as separate predictor variables, while post-treatment ACTeRS Hyperactivity, Attention and Oppositional indices, and Parent Achenbach Hyperactivity Index served as separate criterion variables. The pretest measures of these criterion variables served as covariates in each of the analyses in order to control for initial scores.

An examination of Table 10 shows that when initial scores of criterion variables are controlled for, Harter's What I Am Like self-concept scores do not significantly predict outcome on measures of ACTeRS Hyperactivity (Beta = .096, F = 1.02, ns), ACTeRS Attention (Beta = .255, F = 1.55, ns), ACTeRS Oppositional (Beta = .236, F = 1.58, ns), or Parent Achenbach Hyperactivity (Beta = -.325, F = 1.38, ns). In addition, an examination of Table 11 reveals that when initial scores of criterion variables are controlled for, Harter's In the Classroom self-concept scores do not significantly predict outcome on measures of ACTeRS Hyperactivity (Beta = .029, F = .066, ns), ACTeRS Oppositional (Beta = .155, F = .672, ns) or Parent Achenbach Hyperactivity (Beta = .120, F = .213, ns).

However, the result of Harter's In the Classroom self-concept scores predicting ACTeRS Attention is marginally significant (Beta = .253, F = 1.86, $p<.09$) indicating that children with greater self-concepts, as measured by Harter's In the Classroom scale, evidence greater gains on teacher rated attentional problems. Hence, the hypothesis that impulsive children with a greater self-concept respond better to cognitive-behavioral therapy than impulsive children with a fairly poor self-concept was supported only for teacher rated attentional problems.

Hypothesis II: Aggression

Hypothesis II predicts that since aggressiveness comprises a persistent class of behaviors over time, cognitive-behavioral therapy will not be as helpful for impulsive children who present with aggressive problem behaviors as it will be for impulsive children who do not present with aggressive problem behaviors. This hypothesis was tested with a series of hierarchical regression analyses using Parent Achenbach Aggression and ACTeRS Oppositional as separate predictor variables, while post-treatment ACTeRS Hyperactivity, Attention and Oppositional indices, and Parent Achenbach Hyperactivity Index served as separate criterion variables. The pretest measures of these criterion variables served as covariates in the

Table 10

Regression Analysis Predicting Posttreatment Hyperactivity, Attention, and Oppositional Indices from Pretest Self-Concept Measure of Harter's "What I Am Like"

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest ACTeRS Hyper-activity	Pretest ACTeRS Hyper-activity	19	89.7	<.0001	.906	.848	.921	
	Self-Concept	19	1.02	ns	.096	.009	.241	.245
Overall: F (2,16) = 48.1, p<.0001, R = .926, Adj.R^2 =.840								
Posttest ACTeRS Attention	Pretest ACTeRS Attention	19	6.89	<.05	.537	.436	.660	
	Self-Concept	19	1.55	ns	.255	.050	.514	.298
Overall: F (2,16) = 7.55, p<.01, R = .697, Adj.R^2 = .421								
Posttest ACTeRS Opposi-tional	Pretest ACTeRS Opposi-tional	19	9.91	<.01	.590	.405	.636	
	Self-Concept	19	1.58	ns	.236	.053	.351	.300
Overall: F (2,16) = 6.77, p<.01, R = .677, Adj.R^2 = .391								

Table 10 (cont.)

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest Parent Achenbach Hyper-activity	Pretest Parent Achenbach Hyper-activity	12	3.39	ns	.510	.218	.467	
	Self-Concept	12	1.38	ns	-.325	.104	-.257	-.364
Overall: $F(2,9) = 2.13$, ns, $R = .567$, Adj.$R^2 = .171$								

Note. One-tailed analyses were computed for the self-concept scores, whereas two-tailed analyses were computed for the ACTeRS and Achenbach scores; ns = nonsignificant.

Table 11

Regression Analysis Predicting Posttreatment Hyperactivity, Attention, and Oppositional Indices from Pretest Self-Concept Measure of Harter's "In the Classroom"

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest ACTeRS Hyper-activity	Pretest ACTeRS Hyper-activity	20	60.6	<.0001	.887	.781	.884	
	Self-Concept	20	.066	ns	.029	.001	-.065	.062
Overall: F (2,17) = 30.4, p<.0001, R = .884, Adj.R^2 =.756								
Posttest ACTeRS Attention	Pretest ACTeRS Attention	20	10.8	<.01	.612	.351	.593	
	Self-Concept	20	1.86	<.09	.253	.064	.206	.314
Overall: F (2,17) = .603, p<.01, R = .644, Adj.R^2 = .346								
Posttest ACTeRS Opposi-tional	Pretest ACTeRS Opposi-tional	20	10.0	<.01	.600	.366	.605	
	Self-Concept	20	.672	ns	.155	.024	.172	.195
Overall: F (2,17) = 5.43, p<.01, R = 6.24, Adj.R^2 = .318								

Table 11 (cont.)

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest Parent Achenbach Hyper-activity	Pretest Parent Achenbach Hyper-activity	12	5.60	<.05	.615	.378	.614	
	Self-Concept	12	.213	ns	.120	.014	.116	.152
Overall: $F(2,9) = 2.90$, ns, $R = .626$, $Adj.R^2 = .257$								

Note. One-tailed analyses were computed for the self-concept scores, whereas two-tailed analyses were computed for the ACTeRS and Achenbach scores; ns = nonsignificant.

analyses in order to control for initial scores.

Table 12 reveals that when initial scores of the criterion variables are controlled for, Parent Achenbach Aggression scores do not significantly predict outcome on measures of ACTeRS Hyperactivity (Beta = .048, F = .120, ns), ACTeRS Attention (Beta = .071, F = .196, ns), ACTeRS Oppositional (Beta = -.095, F = .247, ns), or Parent Achenbach Hyperactivity (Beta = -.208, F = .613, ns). In addition, Table 13 reveals that when initial scores of criterion variables are controlled for, ACTeRS Oppositional scores do not significantly predict outcome on measures of ACTeRS Attention (Beta = .047, F = .134, ns) and Parent Achenbach Hyperactivity (Beta = -.179, F = .946, ns). However, ACTeRS Oppositional scores predict ACTeRS Hyperactivity at a marginally significant level (Beta = .167, F = 1.65, $p<.10$) indicating that children who are less aggressive, as measured by the ACTeRS Oppositional subscale, evidence greater gains on teacher rated hyperactivity problems. Therefore, the hypothesis that cognitive-behavioral therapy will not be as helpful for impulsive children who present with aggressive problem behaviors as it will be for impulsive children who do not present with aggressive problem behaviors was supported only for teacher rated hyperactivity problems.

Table 12

Regression Analysis Predicting Posttreatment Hyperactivity, Attention, and Oppositional Indices from Pretest Aggression Measure of Achenbach's Parent Form of the Child Behavior Checklist

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest ACTeRS Hyper-activity	Pretest ACTeRS Hyper-activity	26	28.9	<.0001	.746	.568	.754	
	Aggres-sion	26	.120	ns	.048	.002	.174	.072
Overall: F (2,23) = 15.3, p<.0001, R = .755, Adj.R^2 =.533								
Posttest ACTeRS Attention	Pretest ACTeRS Attention	26	17.4	<.0001	.667	.477	.691	
	Aggres-sion	26	.196	ns	.071	.004	.298	.092
Overall: F (2,23) = 10.7, p<.001, R = .694, Adj.R^2 = .436								
Posttest ACTeRS Opposi-tional	Pretest ACTeRS Opposi-tional	26	6.84	<.05	.498	.222	.471	
	Aggres-sion	26	.247	ns	-.095	.008	.042	-.103
Overall: F (2,23) = 3.45, p<.05, R = .480, Adj.R^2 = .164								

Table 12 (cont.)

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest Parent Achenbach Hyper-activity	Pretest Parent Achenbach Hyper-activity	23	7.43	<.01	.724	.327	.571	
	Aggres-sion	23	.613	ns	-.208	.020	.322	-.172
Overall: $F(2,20) = 5.30$, $p<.01$, $R = .589$, $Adj.R^2 = .281$								

Note. One-tailed analyses were computed for the aggression scores, whereas two-tailed analyses were computed for the ACTeRS and Achenbach scores; ns = nonsignificant.

Table 13

Regression Analysis Predicting Posttreatment Hyperactivity and Attention Indices from Pretest ACTeRS Oppositional Measure

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest ACTeRS Hyper-activity	Pretest ACTeRS Hyper-activity	35	25.1	<.0001	.650	.500	.707	
	Oppositional	35	1.65	<.10	.167	.025	.390	.222
Overall: $F(2,32) = 17.6$, $p<.0001$, $R = .724$, $Adj.R^2 = .495$								
Posttest ACTeRS Attention	Pretest ACTeRS Attention	35	28.5	<.0001	.685	.476	.690	
	Oppositional	35	.134	ns	.047	.002	.117	.065
Overall: $F(2,32) = 14.6$, $p<.0001$, $R = .691$, $Adj.R^2 = .445$								
Posttest Parent Achenbach Hyper-activity	Pretest Parent Achenbach Hyper-activity	22	10.5	<.01	.596	.332	.576	
	Oppositional	22	.946	ns	-.179	.032	-.113	-.218
Overall: $F(2,19) = 5.43$, $p<.01$, $R = .603$, $Adj.R^2 = .297$								

Note. One-tailed analyses were computed for the oppositional scores, whereas two-tailed analyses were computed for the ACTeRS and Achenbach scores; ns = nonsignificant.

Hypothesis III: Locus of Control

Hypothesis III predicts that since impulsive children with an internal locus of control are likely to have a greater sense that they can exert control over their own behavior, they will respond more to cognitive-behavioral interventions than impulsive children who maintain an external locus of control. This hypothesis also predicts that impulsive children with a lower unknown locus of control will respond more to cognitive-behavioral therapy, for they are more certain about the contingencies in their environment (e.g., they know why success and failure oriented outcomes occur). This hypothesis was tested with a series of hierarchical regression analyses using Connell's Internal, External, and Unknown Locus of Control scores as separate predictor variables, while post-treatment ACTeRS Hyperactivity, Attention and Oppositional indices, and Parent Achenbach Hyperactivity Index served as separate criterion variables. The pretest measures of these criterion variables served as covariates in the analyses in order to control for initial scores.

An examination of Table 14 exhibits that when initial scores of criterion variables are controlled for, Connell's Internal Locus of Control scores do not significantly predict outcome on measures of ACTeRS Hyperactivity (Beta =

.019, F = .031, ns), ACTeRS Oppositional (Beta = .209, F = 1.40, ns), or Parent Achenbach Hyperactivity (Beta = -.173, F = .702, ns). However, the result of Connell's Internal Locus of Control predicting ACTeRS Attention approaches significance (Beta = .189, F = 1.91, p<.09) indicating that children who possess a more internal locus of control, as measured by Connell's Multidimensional Measure of Children's Perceptions of Control, evidence greater gains on teacher rated attention problems.

With respect to external locus of control, an examination of Table 15 reveals that when initial scores of criterion variables are controlled for, Connell's External Locus of Control scores do not significantly predict outcome on measures of ACTeRS Hyperactivity (Beta = -.033, F = .095, ns), ACTeRS Attention (Beta = .163, F = 1.39, ns), ACTeRS Oppositional (Beta = .003, F = .001, ns), or Parent Achenbach Hyperactivity Index (Beta = -.040, F = .033, ns). In addition, Table 16 reveals that when initial scores of criterion variables are controlled for, Connell's Unknown Locus of Control scores also do not significantly predict outcome on measures of ACTeRS Hyperactivity (Beta = -.100, F = .935, ns), ACTeRS Attention (Beta = .151, F = 1.13, ns), ACTeRS Oppositional (Beta = -.007, F = .001, ns), or Parent Achenbach Hyperactivity Index (Beta = .063,

Table 14

Regression Analysis Predicting Posttreatment Hyperactivity, Attention, and Oppositional Indices from Pretest Connell's Internal Locus of Control

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest ACTeRS Hyper-activity	Pretest ACTeRS Hyper-activity	27	64.1	<.0001	.853	.733	.856	
	Internal Locus of Control	27	.031	ns	.019	.0003	.153	.036
Overall: F (2,24) = 33.1, p<.0001, R = .857, Adj.R^2 = .712								
Posttest ACTeRS Attention	Pretest ACTeRS Attention	27	34.9	<.0001	.807	.561	.749	
	Internal Locus of Control	27	1.91	<.09	.189	.032	-.058	.271
Overall: F (2,24) = 17.5, p<.0001, R = .770, Adj.R^2 = .560								
Posttest ACTeRS Oppositional	Pretest ACTeRS Oppositional	27	6.70	<.05	.457	.260	.510	
	Internal Locus of Control	27	1.40	ns	.209	.041	.325	.235
Overall: F (2,24) = 5.16, p<.01, R = .548, Adj.R^2 = .242								

Table 14 (cont.)

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest Parent Achenbach Hyper-activity	Pretest Parent Achenbach Hyper-activity	19	6.45	<.05	.525	.314	.561	
	Internal Locus of Control	19	.702	ns	-.173	.029	-.280	-.205
Overall: $F(2,16) = 4.18$, $p<.05$, $R = .586$, $Adj.R^2 = .261$								

Note. One-tailed analyses were computed for the internal locus of control scores, whereas two-tailed analyses were computed for the ACTeRS and Achenbach scores; ns = nonsignificant.

F = .088, ns).

The conclusion with respect to the locus of control results is that the hypothesis that impulsive children with an internal locus of control will respond more to cognitive-behavioral interventions than impulsive children who maintain an external locus of control was supported only for teacher rated attention problems. Also, the hypothesis that impulsive children with a lower unknown locus of control will respond more to cognitive-behavioral therapy than impulsive children with a higher unknown locus of control was clearly refuted.

Hypothesis IV: Learning Problems

Hypothesis IV predicts that since learning difficulties may hinder an impulsive child from learning self-control techniques and problem-solving strategies, impulsive children with learning problems will be less responsive to cognitive-behavioral treatment than impulsive children who do not have learning problems. This hypothesis was tested with a series of hierarchical regression analyses using the teacher and parent forms of the Achenbach Child Behavior Checklist School Performance scores as separate predictor variables, while post-treatment ACTeRS Hyperactivity, Attention and Oppositional indices, and Parent Achenbach Hyperactivity Index served as

Table 15

Regression Analysis Predicting Posttreatment Hyperactivity, Attention, and Oppositional Indices from Pretest Connell's External Locus of Control

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest ACTeRS Hyper-activity	Pretest ACTeRS Hyper-activity	27	64.4	<.0001	.863	.733	.856	
	External Locus of Control	27	.095	ns	-.033	.001	.149	-.063
Overall: F (2,24) = 33.2, p<.0001, R = .857, Adj.R^2 = .712								
Posttest ACTeRS Attention	Pretest ACTeRS Attention	27	33.5	<.0001	.789	.561	.749	
	External Locus of Control	27	1.39	ns	.163	.024	-.079	.234
Overall: F (2,24) = 16.9, p<.0001, R = .765, Adj.R^2 = .551								
Posttest ACTeRS Oppositional	Pretest ACTeRS Oppositional	27	7.75	<.01	.509	.260	.510	
	External Locus of Control	27	.001	ns	.003	.0001	.144	.003
Overall: F (2,24) = 4.21, p<.05, R = .510, Adj.R^2 = .198								

Table 15 (cont.)

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest Parent Achenbach Hyper-activity	Pretest Parent Achenbach Hyper-activity	19	6.92	<.05	.573	.314	.561	
	External Locus of Control	19	.033	ns	-.040	.001	.140	-.046
Overall: $F(2,16) = 3.69$, $p<.05$, $R = .562$, $Adj.R^2 = .230$								

Note. One-tailed analyses were computed for the external locus of control scores, whereas two-tailed analyses were computed for the ACTeRS and Achenbach scores; ns = nonsignificant.

Table 16

Regression Analysis Predicting Posttreatment Hyperactivity, Attention, and Oppositional Indices from Pretest Connell's Unknown Locus of Control

Criterion	Predictor	n	F	p-level	Beta	R-Sq. Change	Simple r	Partial r
Posttest ACTeRS Hyper-activity	Pretest ACTeRS Hyper-activity	27	69.2	<.0001	.860	.733	.856	
	Unknown Locus of Control	27	.935	ns	-.100	.010	-.066	-.194
	Overall: $F(2,24) = 34.8$, $p<.0001$, $R = .862$, $Adj.R^2 = .722$							
Posttest ACTeRS Attention	Pretest ACTeRS Attention	27	32.1	<.0001	.804	.561	.749	
	Unknown Locus of Control	27	1.13	ns	.151	.020	-.143	.212
	Overall: $F(2,24) = 16.6$, $p<.0001$, $R = .762$, $Adj.R^2 = .546$							
Posttest ACTeRS Opposi-tional	Pretest ACTeRS Opposi-tional	27	7.81	<.01	.512	.260	.510	
	Unknown Locus of Control	27	.001	ns	-.007	.0001	.138	-.008
	Overall: $F(2,24) = 4.21$, $p<.05$, $R = .510$, $Adj.R^2 = .198$							

Table 16 (cont.)

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest Parent Achenbach Hyper-activity	Pretest Parent Achenbach Hyper-activity	19	6.48	<.05	.544	.314	.561	
	Unknown Locus of Control	19	.088	ns	.063	.004	.204	.074
Overall: $F(2,16) = 3.73$, $p<.05$, $R = .564$, Adj.$R^2 = .233$								

Note. One-tailed analyses were computed for the unknown locus of control scores, whereas two-tailed analyses were computed for the ACTeRS and Achenbach scores; ns = nonsignificant.

separate criterion variables. The pretest measures of these criterion variables served as covariates in the analyses in order to control for initial scores.

An examination of Table 17 shows that when initial scores of criterion variables are controlled for, the Teacher Achenbach School Performance scores do not significantly predict outcome on measures of ACTeRS Hyperactivity (Beta = .025, F = .038, ns), ACTeRS Attention (Beta = .090, F = .428, ns), ACTeRS Oppositional (Beta = .094, F = .416, ns), or Parent Achenbach Hyperactivity (Beta = -.161, F = .764, ns). In addition, an examination of Table 18 shows that when initial scores of criterion variables are controlled for, the Parent Achenbach School Performance scores do not significantly predict outcome on measures of ACTeRS Hyperactivity (Beta = -.008, F = .003, ns) or ACTeRS Attention (Beta = -.084, F = .363, ns). However, the results of the Parent Achenbach School Performance scores predicting Parent Achenbach Hyperactivity Index (Beta = -.379, F = 4.05, $p<.05$) and ACTeRS Oppositional (Beta = .313, F = 4.15, $p<.05$) are statistically significant. These results indicate that children who possess fewer learning problems, or exhibit greater school performance, evidence greater gains on parent rated hyperactivity problems but fewer gains on

teacher rated aggression. Therefore, the hypothesis that cognitive-behavioral therapy will not be as helpful for impulsive children who display learning difficulties as it will be for impulsive children who do not display learning difficulties was supported only for parent rated hyperactivity.

Hypothesis V: Chronological Age

Hypothesis V predicts that since older children are reportedly more adept at constructing self-control instructions than younger children, older impulsive children will respond better to cognitive-behavioral therapy than will younger impulsive children. This hypothesis was tested with a series of hierarchical regression analyses using the child participants' chronological age as a predictor variable, while post-treatment ACTeRS Hyperactivity, Attention and Oppositional indices, and Parent Achenbach Hyperactivity Index served as separate criterion variables. The pretest measures of these criterion variables served as covariates in the analyses in order to control for initial scores.

Table 19 shows that when initial scores of criterion variables are controlled for, chronological age significantly predicts outcome on the measure of ACTeRS Hyperactivity (Beta = -.211, $F = 2.68$, $p<.05$) indicating

Table 17

Regression Analysis Predicting Posttreatment Hyperactivity, Attention, and Oppositional Indices from Pretest School Performance Measure of Achenbach's Teacher Form of the Child Behavior Checklist

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest ACTeRS Hyper-activity	Pretest ACTeRS Hyper-activity	34	32.0	<.0001	.712	.508	.712	
	School Performance	34	.038	ns	.025	.001	.031	.035
Overall: F (2,31) = 16.0, p<.0001, R = .713, Adj.R^2 =.476								
Posttest ACTeRS Attention	Pretest ACTeRS Attention	34	23.0	<.0001	.659	.474	.689	
	School Performance	34	.428	ns	.090	.007	.310	.117
Overall: F (2,31) = 14.4, p<.0001, R = .694, Adj.R^2 =.448								
Posttest ACTeRS Oppositional	Pretest ACTeRS Oppositional	34	15.8	<.0001	.578	.352	.593	
	School Performance	34	.416	ns	.094	.009	.186	.115
Overall: F (2,31) = 8.73, p<.001, R = .600, Adj.R^2 = .319								

Table 17 (cont.)

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest Parent Achenbach Hyper-activity	Pretest Parent Achenbach Hyper-activity	22	10.7	<.01	.603	.338	.582	
	School Performance	22	.764	ns	-.161	.026	-.082	-.197
Overall: $F(2,19) = 5.43$, $p<.01$, $R = .603$, $Adj.R^2 = .297$								

Note. One-tailed analyses were computed for the school performance scores, whereas two-tailed analyses were computed for the ACTeRS and Achenbach scores; ns = nonsignificant.

Table 18

Regression Analysis Predicting Posttreatment Hyperactivity, Attention, and Oppositional Indices from Pretest School Performance Measure of Achenbach's Parent Form of the Child Behavior Checklist

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest ACTeRS Hyper-activity	Pretest ACTeRS Hyper-activity	28	19.4	<.0001	.664	.443	.665	
	School Performance	28	.003	ns	-.008	.0001	-.105	-.010
	Overall: F (2,25) = 9.93, p<.001, R = .665, Adj.R^2 =.398							
Posttest ACTeRS Attention	Pretest ACTeRS Attention	28	25.9	<.0001	.708	.517	.719	
	School Performance	28	.363	ns	-.084	.007	-.174	-.120
	Overall: F (2,25) = 13.7, p<.0001, R = .724, Adj.R^2 =.486							
Posttest ACTeRS Oppositional	Pretest ACTeRS Oppositional	28	12.0	<.01	.533	.317	.563	
	School Performance	28	4.15	<.05	.313	.097	.365	.377
	Overall: F (2,25) = 8.84, p<.001, R = .644, Adj.R^2 = .367							

Table 18 (cont.)

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest Parent Achenbach Hyper-activity	Pretest Parent Achenbach Hyper-activity	22	4.27	<.05	.389	.214	.463	
	School Performance	22	4.05	<.05	-.379	.138	-.455	-.419
Overall: $F(2,19) = 5.17$, $p<.05$, $R = .594$, Adj.$R^2 = .284$								

Note. One-tailed analyses were computed for the school performance scores, whereas two-tailed analyses were computed for the ACTeRS and Achenbach scores; ns = nonsignificant.

that older children, within the 7- to 11-year-old age range, evidence greater gains on teacher rated hyperactivity problems. Yet, chronological age does not significantly predict outcome on measures of ACTeRS Attention (Beta = -.052, F = .150, ns), ACTeRS Oppositional (Beta = -.041, F = .080, ns), or Parent Achenbach Hyperactivity Index (Beta = -.159, F = .778, ns). Thus, the hypothesis that older impulsive children respond better to cognitive-behavioral therapy than younger impulsive children was supported only when the ACTeRS Hyperactivity score was used as the criterion variable.

Socioeconomic Status

Since there is little support in the literature to suggest that impulsive children from either higher or lower socioeconomic status backgrounds would respond better to cognitive-behavioral therapy, no hypothesis of responsivity to treatment was offered. Hence, a two-tailed test of significance was employed in evaluating the usefulness of socioeconomic status as a predictor of treatment outcome. A series of hierarchical regression analyses were carried out using socioeconomic status as a predictor variable, while posttreatment ACTeRS Hyperactivity, Attention and Oppositional indices, and Parent Achenbach Hyperactivity Index served as separate criterion variables.

Table 19

Regression Analysis Predicting Posttreatment Hyperactivity, Attention, and Oppositional Indices from Chronological Age

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest ACTeRS Hyper-activity	Pretest ACTeRS Hyper-activity	34	24.4	<.0001	.637	.495	.704	
	Age	34	2.68	<.05	-.211	.040	-.411	-.282
Overall: $F(2,31) = 17.9$, $p<.0001$, $R = .732$, $Adj.R^2 = .505$								
Posttest ACTeRS Attention	Pretest ACTeRS Attention	34	27.6	<.0001	.702	.476	.690	
	Age	34	.150	ns	-.052	.003	.116	-.069
Overall: $F(2,31) = 14.2$, $p<.0001$, $R = .691$, $Adj.R^2 = .444$								
Posttest ACTeRS Oppositional	Pretest ACTeRS Oppositional	34	16.5	<.0001	.589	.351	.592	
	Age	34	.080	ns	-.041	.002	-.089	-.051
Overall: $F(2,31) = 8.43$, $p<.001$, $R = .593$, $Adj.R^2 = .310$								

Table 19 (cont.)

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest Parent Achenbach Hyper-activity	Pretest Parent Achenbach Hyper-activity	23	9.86	<.01	.566	.327	.571	
	Age	23	.778	ns	-.159	.025	-.179	-.194
Overall: $F(2,20) = 5.43$, $p<.01$, $R = .593$, $Adj.R^2 = .287$								

Note. One-tailed analyses were computed for the chronological age variable, whereas two-tailed analyses were computed for the ACTeRS and Achenbach scores; ns = nonsignificant.

An examination of Table 20 exhibits that when initial scores of criterion variables are controlled for, socioeconomic status does not significantly predict outcome on measures of ACTeRS Hyperactivity (Beta = .053, F = .201, ns), ACTeRS Attention (Beta = -.029, F = .043, ns), or Parent Achenbach Hyperactivity Index (Beta = -.024, F = .017, ns). However, the result of socioeconomic status predicting ACTeRS Oppositional is marginally significant (Beta = .243, F = 2.88, p<.10), indicating that children from lower socioecomomic backgrounds evidence greater gains on teacher rated aggression.

Overall Prediction of Treatment Outcome

In summary, the results of the hierarchical regression analyses reported above, as displayed in Table 21, suggest that treatment outcome was predicted by a number of independent variables. More specifically, (1) "In the Classroom" self-concept scores predicted improvement in teacher rated attention; (2) teacher rated aggression predicted improvement in teacher rated hyperactivity; (3) internal locus of control predicted improvement in teacher rated attention; (4) chronological age predicted improvement in teacher rated hyperactivity; (5) parent rated learning problems predicted improvement in parent rated hyperactivity and worsening of teacher rated

Table 20

Regression Analysis Predicting Posttreatment Hyperactivity, Attention, and Oppositional Indices from Socioeconomic Status

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest ACTeRS Hyper-activity	Pretest ACTeRS Hyper-activity	31	42.9	<.0001	.780	.602	.776	
	Socio-economic Status	31	.201	ns	.053	.003	-.002	.084
Overall: F (2,28) = 21.4, p<.0001, R = .778, Adj.R^2 =.577								
Posttest ACTeRS Attention	Pretest ACTeRS Attention	31	24.9	<.0001	.691	.472	.687	
	Socio-economic Status	31	.043	ns	-.029	.001	.064	-.039
Overall: F (2,28) = 12.5, p<.0001, R = .687, Adj.R^2 =.435								
Posttest ACTeRS Oppositional	Pretest ACTeRS Oppositional	31	18.7	<.0001	.618	.369	.608	
	Socio-economic Status	31	2.88	<.10	.243	.059	.217	.305
Overall: F (2,28) = 10.5, p<.0001, R = .654, Adj.R^2 =.387								

Table 20 (cont.)

Criterion	Predictor	n	F	p-level	Beta	R-sq. Change	Simple r	Partial r
Posttest Parent Achenbach Hyper-activity	Pretest Parent Achenbach Hyper-activity	22	9.31	<.01	.574	.332	.576	
	Socio-economic Status	22	.017	ns	-.024	.001	-.074	-.030
Overall: $F(2,19) = 4.73$, $p<.05$, $R = .577$, $Adj.R^2 = .262$								

Note. One-tailed analyses were computed for the socioeconomic status variable, whereas two-tailed analyses were computed for the ACTeRS and Achenbach scores; ns = nonsignificant.

aggression; and (6) socioeconomic status predicted improvement in teacher rated aggression. In addition, a stepwise regression procedure was utilized to evaluate the relative importance and amount of separate variance accounted for by each of the predictor variables. For these analyses, pretest measures of the criterion (dependent) variables served as covariates in order to control for initial scores. In order to increase the sample size for these analyses, it was necessary to delete the self-concept variable. The missing data from the self-concept measures caused the sample size for these particular analyses to be substantially decreased. Consequently, the scores from the self-concept measures were not included in these regression analyses.

Stepwise regression analyses show that there exists a very small subset of pretest variables which provide maximum prediction of posttest variables. The results, as displayed in Tables 22 - 25, show that no pretest variables significantly add to the prediction of either posttest ACTeRS Hyperactivity scores or posttest ACTeRS Attention scores once the covariates are entered into the equation. Hence, none of the study's predictor variables significantly predicts improvement in these scores. However, for both the ACTeRS Oppositional and Parent

Table 21

Variables Found to Predict Cognitive-Behavioral Treatment Outcome

Predictor Variable	Criterion Variable: Teacher Rated Hyperactivity	Teacher Rated Attention	Teacher Rated Aggression	Parent Rated Hyperactivity
"What I Am Like"	No	No	No	No
"In the Classroom"	No	Yes	No	No
Parent Rated Aggression	No	No	No	No
Teacher Rated Aggression	Yes	No	No[1]	No
Internal Locus of Control	No	Yes	No	No
External Locus of Control	No	No	No	No
Unknown Locus of Control	No	No	No	No
Teacher Rated Learning Problems	No	No	No	No
Parent Rated Learning Problems	No	No	Yes	Yes
Age	Yes	No	No	No
SES	No	No	Yes	No

[1] Teacher rated aggression pretest scores were not utilized to predict teacher rated aggression posttest scores.

Achenbach Hyperactivity scores, some pretest variables do add to the prediction of posttest scores even after the covariates are entered. The result of Parent Achenbach School Performance pretest scores adding to the prediction of posttest ACTeRS Oppositional scores is marginally significant ($p<.10$), even after the ACTeRS Oppositional pretest covariate is entered. Additionally, Parent Achenbach School Performance pretest scores significantly add to the prediction of posttest Parent Achenbach Hyperactivity scores ($p<.05$); the result of Internal Locus of Control pretest scores adding to the prediction of posttest Parent Achenbach Hyperactivity scores is marginally significant ($p<.10$). These latter two results occur even after the Parent Achenbach Hyperactivity pretest covariate is entered. Hence, the Parent Achenbach School Performance pretest variable predicts improvement in ACTeRS Oppositional scores, and Parent Achenbach School Performance and Internal Locus of Control pretest variables predict improvement in Parent Achenbach Hyperactivity scores.

Hypothesis VI: Changes in Locus of Control

Hypothesis VI predicts that since cognitive-behavioral therapy is designed to promote internalization of credit and responsibility for problem solutions, cognitive-

Table 22

Stepwise Multiple Regression Analysis Predicting Posttreatment ACTeRS Hyperactivity (n = 20)

Predictor Variable	Beta	Multiple R	R Square Change	p-level	Simple r
ACTeRS Hyperactivity[1]	.514	.839	.705	<.0001	.839
ACTeRS Oppositional	.311	.862	.038	ns	.631
Internal Locus of Control	.368	.878	.028	ns	.350
Parent Achenbach School Performance	-.194	.881	.006	ns	-.057
Chronological Age	-.254	.890	.015	ns	-.201
Parent Achenbach Aggression	.103	.892	.005	ns	.159
Socioeconomic Status	.066	.894	.003	ns	-.094
Teacher Achenbach School Performance	-.106	.896	.002	ns	-.008
External Locus of Control	-.127	.896	.001	ns	.201
Unknown Locus of Control	.118	.898	.004	ns	.025

[1] ACTeRS Hyperactivity pretest measure served as a covariate to control for initial scores.

Table 23

Stepwise Multiple Regression Analysis Predicting Posttreatment ACTeRS Attention (n = 20)

Predictor Variable	Beta	Multiple R	R Square Change	p-level	Simple r
ACTeRS Attention[1]	.337	.807	.651	<.0001	.807
ACTeRS Oppositional	.261	.822	.024	ns	.632
Unknown Locus of Control	-.394	.827	.009	ns	-.170
Parent Achenbach Aggression	.231	.835	.012	ns	.519
Teacher Achenbach School Performance	.293	.839	.008	ns	.444
Parent Achenbach School Performance	-.115	.847	.014	ns	.107
External Locus of Control	.227	.851	.007	ns	-.112
Chronological Age	.102	.854	.004	ns	.069
Socioeconomic Status	.075	.855	.002	ns	.083
Internal Locus of Control	-.080	.857	.002	ns	-.057

[1] ACTeRS Attention pretest measure served as a covariate to control for initial scores.

Table 24

Stepwise Multiple Regression Analysis Predicting Posttreatment ACTeRS Oppositional (n = 20)

Predictor Variable	Beta	Multiple R	R Square Change	p-level	Simple r
ACTeRS Oppositional[1]	.397	.473	.223	<.05	.473
Parent Achenbach School Performance	.586	.585	.119	<.10	.398
Internal Locus of Control	.160	.647	.076	ns	.393
Socioeconomic Status	.297	.662	.019	ns	.134
External Locus of Control	.348	.695	.046	ns	.140
Chronological Age	.168	.705	.013	ns	-.066
Teacher Achenbach School Performance	-.166	.712	.010	ns	.329
Parent Achenbach Aggression	.139	.720	.011	ns	.084

[1] ACTeRS Oppositional pretest measure served as a covariate to control for initial scores.

Table 25

Stepwise Multiple Regression Analysis Predicting Posttreatment Parent Achenbach Hyperactivity (n = 16)

Predictor Variable	Beta	Multiple R	R Square Change	p-level	Simple r
Parent Achenbach Hyperactivity[1]	.444	.446	.199	<.10	.446
Parent Achenbach School Performance	-.965	.656	.232	<.05	-.591
Internal Locus of Control	-.415	.744	.122	<.10	-.578
Unknown Locus of Control	-.306	.777	.051	ns	.239
Chronological Age	-.384	.800	.037	ns	.037
Parent Achenbach Aggression	-.476	.817	.027	ns	.234
Teacher Achenbach School Performance	.406	.829	.020	ns	-.254
Socioeconomic Status	-.296	.838	.015	ns	-.179
External Locus of Control	-.277	.851	.021	ns	.125

[1] Parent Achenbach Hyperactivity pretest measure served as a covariate to control for initial scores.

behavioral therapy will increase impulsive children's locus of control or the degree to which they perceive that they have control over events in their lives (i.e., an increase in perceived internality of personal causation). In addition, since cognitive-behavioral therapy is designed to promote awareness of accurate contingencies in one's environment, cognitive-behavioral therapy will decrease impulsive children's unknown locus of control (i.e., increase their knowledge of why success and failure oriented outcomes occur in their environment). These hypotheses were tested with one-tailed t-tests between pre- and posttreatment locus of control scores.

Table 26 shows that the overall indices of internal and unknown locus of control did not significantly change from before the cognitive-behavioral therapy began to after it was completed. However, marginally significant results suggest that the impulsive children's external locus of control decreased from pre- to posttreatment ($p<.06$). In addition, the impulsive children's social dimension of internal locus of control decreased from pre- to post-treatment ($p<.05$). This result contradicts the proposed hypothesis about change in internal locus of control over the course of treatment, and suggests that from pre- to posttreatment there is a decrease in the perceived

internality of personal causation with respect to peer relations. However, the results also exhibit a decrease in the impulsive children's physical dimension of external locus of control ($p<.05$). This result supports the proposed hypothesis about change in external locus of control over the course of treatment, and suggests that from pre- to posttreatment there is a decrease in the perceived externality of personal causation with respect to physical competence.

Success of Cognitive-Behavioral Treatment

In order to determine which child participants benefitted from the cognitive-behavioral intervention, criteria for success and failure outcomes were established. A liberal criteria was utilized in which success of outcome was defined by the movement out of the clinical range for at least one of three subscales (i.e., Attention, Hyperactivity, or Oppositional) on the ACTeRS scale, and failure of outcome was defined by no movement out of the clinical range for any of the three aforementioned ACTeRS subscales. With these criteria, it was determined that 10 child participants were considered to achieve success with the treatment, whereas 26 child participants were unsuccessful.

More conservative criteria were also examined in which

Table 26

Mean Pretest and Posttest Locus of Control Scores (n = 27)

Locus of Control Variable	Testing Period	Mean	p-level
Internal Locus of Control	pretest	3.21	
	posttest	3.08	ns
Internal-Cognitive Locus of Control	pretest	3.50	
	posttest	3.37	ns
Internal-Physical Locus of Control	pretest	3.15	
	posttest	3.24	ns
Internal-Social Locus of Control	pretest	3.27	
	posttest	2.97	<.05
External Locus of Control	pretest	2.62	
	posttest	2.45	<.06
External-Cognitive Locus of Control	pretest	2.36	
	posttest	2.18	ns
External-Physical Locus of Control	pretest	2.87	
	posttest	2.56	<.05
External-Social Locus of Control	pretest	2.19	
	posttest	2.20	ns
Unknown Locus of Control	pretest	2.57	
	posttest	2.54	ns
Unknown-Cognitive Locus of Control	pretest	2.44	
	posttest	2.62	ns
Unknown-Physical Locus of Control	pretest	2.53	
	posttest	2.51	ns
Unknown-Social Locus of Control	pretest	2.64	
	posttest	2.48	ns

Note. One-tailed t-tests were computed for these data, and ns = nonsignificant.

success of outcome was defined by movement out of the clinical range for all three subscales (i.e., Attention, Hyperactivity, and Oppositional) on the ACTeRS scale, and failure of outcome was defined by no movement out of the clinical range for all of the three aforementioned ACTeRS subscales. With these criteria there existed only 1 child participant who was considered to achieve success with the treatment, and 35 child participants for whom the treatment was unsuccessful. It seems with the liberal criteria and even more so for the most conservative criteria that the child participants as a whole did not have successful treatment outcomes. It is important to note, however, that parent rated hyperactivity problems and teacher rated attention, hyperactivity, and oppositional problems improved, albeit quite little, from pretreatment to post-treatment (Table 27).

Discriminant function analyses were computed in an attempt to predict success and failure of treatment outcome based on the set of variables used in the present investigation. The more liberal criteria (mentioned above) was utilized as an index of successful and unsuccessful treatment outcome because it allowed for a larger number of subjects in the successful outcome group necessary for these analyses. The scores from self-concept, aggression,

Table 27

Mean Raw Scores of Pretest and Posttest Criterion Variables

Criterion Variable	n	Pretest Mean	n	Posttest Mean
ACTeRS Attention	41	13.8	36	14.9
ACTeRS Hyperactivity	41	17.8	36	17.3
ACTeRS Oppositional	40	18.6	36	17.8
Parent Achenbach Hyperactivity	31	10.0	23	8.7

locus of control, learning problems, chronological age, and socioeconomic status measures were utilized as predictor variables in the discriminant function analyses. These are the discriminating variables that measure characteristics on which successful vs. unsuccessful outcome groups were expected to differ. The results reveal that for none of the 11 criterion variables was there significant discrimination for success and failure treatment outcome. Also, in an attempt to locate the best set of discriminating variables, a discriminant analysis using a stepwise selection method was performed. However, too few cases filled the predicted group membership cells. Efforts were made to increase the cell sizes by deleting variables with the most missing data cases (i.e., the Harter's self-concept variables and Parent Achenbach variables) from the stepwise discriminant analysis. Yet, too few cases still filled the predicted group membership cells; hence, the classification results were uninterpretable. Therefore, it appears that it is difficult to predict success or failure of treatment outcome based on the set of predictor variables and small sample size utilized in this study.

CHAPTER VI

DISCUSSION

The primary purpose of the present study was to determine if variables of self-concept, aggression, locus of control, learning problems, chronological age, and familial socioeconomic status help predict which impulsive children will benefit from cognitive-behavioral training (CBT). For this purpose, cognitive-behavioral treatment was provided for children who were referred for special education services because of emotional impairment with the primary problems being that of impulsivity and acting-out. Pre- and posttest measures were administered to the child participants and their parents and teachers before the intervention started and after it ended. A series of hierarchical regression analyses were conducted in order to determine whether pretest measures predict treatment outcome. In addition, a series of stepwise regression analyses were performed to determine the smallest subset of pretreatment variables which provide maximum prediction of posttreatment variables. Also, success of treatment was examined with criteria based upon movement out of the clinical range on the ACTeRS measure, and discriminant function analyses were computed in order to predict success and failure of treatment outcome based upon the set of

variables utilized in the present study. Lastly, one-tailed t-tests between pre- and posttreatment locus of control scores were computed in order to investigate whether cognitive-behavioral treatment increased impulsive children's perceived internality of personal causation.

The major finding of this study was that very few of the predictor variables were related to posttest scores once the pretest score for each criterion variable was entered into the regression equations. Indeed, in only seven of 43 multiple regression analyses did a predictor variable significantly add to the level of prediction already afforded by the pretest score of the criterion variable--and in four of these latter cases the relationship only tended toward statistical significance ($p<.10$ but $p>.05$). Hence, it appears that the variables included in the present study did not, in general, help predict improvement in parent or teacher ratings of hyperactive, inattentive, or aggressive behavior problems.

There are, however, a few predictor-criterion relationships worth noting. For example, children who are older and possess fewer learning problems evidenced greater gains on teacher and parent rated hyperactivity problems, respectively. Thus, CBT was more helpful for older impulsive children with fewer learning problems in reducing

ratings of hyperactivity. It is unclear why children who possess greater learning problems evidenced greater gains on teacher rated aggression; this could be due to random error given that it was the only finding among the significant or marginally significant findings contrary to the hypothesized direction. Bornstein (1985) suggests that older children seem to be capable of generating their own effective verbalization strategies. Perhaps this capability is necessary in order to achieve successful behavior change; younger children may not be cognitively mature enough to learn and effectively utilize CBT skills. Indeed, younger and older children appear to differ with respect to whether they are able to construct their own effective self-control instructions (e.g., Denney, 1975; Miller et al., 1978; Toner et al., 1977). Furthermore, the children with learning problems may have had difficulty learning the self-control techniques and problem-solving strategies that were taught to them. In fact, children with higher IQs or mental ages have been found to respond better to cognitive self-instructional training than have less cognitively mature children (Barkley, Copeland, & Sivage, 1980).

Another interesting finding is that children who are less aggressive, as measured by the ACTeRS Oppositional

subscale, evidenced greater gains on teacher rated hyperactivity problems. Therefore, cognitive-behavioral therapy was not as helpful for impulsive children who presented with aggressive problem behaviors in reducing teacher ratings of hyperactivity. Perhaps children who are aggressive (e.g., stubborn, defiant and/or hostile) may not believe they have problems. Indeed, denial of mistakes and blaming others for one's own problems are among the frequently found characteristics in conduct disordered children (e.g., Arnold & Smelzer, 1974; Dreger et al., 1964; Goyette, Conners, & Ulrich, 1978; Kupfer, Detre, & Koral, 1974). If these children are unwilling to admit they have problems, then they are unlikely to be motivated to change their problem behaviors in, and outside of, the cognitive-behavioral therapy. In fact, Horn et al. (in press) found that ADD children who recognize that they possess self-control problems are more likely to respond well to CBT than children who do not recognize that they possess problems.

Another finding worthy of mention is that improvement in aggression was predicted by SES with children from lower SES homes demonstrating greater improvement on teacher rated aggression compared to children from higher SES homes. What is particularly interesting about this finding

is that lower SES children improved most. This finding contradicts other research which generally shows low SES to predict resistance to improvement from parent training (e.g., Dumas & Whaler, 1983; Webster-Stratton, 1985). However, while studies by Dumas and Whaler (1983) and Webster-Stratton (1985) included welfare recipients (e.g., less than $5,000) and low income earners (e.g., $5,000 - $11,999) in their lowest SES categories, the present study's lowest income earners are representative of low-middle class status with such jobs as automobile assembler, construction worker, and rubbish collector. Therefore, it is difficult to make comparisons regarding SES between the previous work mentioned above and the current investigation. Although children from low-middle SES families displayed greater improvement in aggression than children from higher SES families, it is unclear why this result occurred in the present study. This remains an interesting question deserving further research.

Another interesting finding is that improvement in teacher rated attention was predicted by self-concept and internal locus of control. That is, children possessing greater intrinsic interest in learning and mastery, curiosity, and preference for challenge, as well as greater perceived internality of personal causation, demonstrated

greater improvement on teacher rated attention compared to children possessing an extrinsic orientation in which they are motivated to obtain teacher approval and/or grades, and are very dependent on the teacher for guidance, as well as perceived externality of personal causation. It is likely that those children who are very motivated to learn the CBT skills and possess the belief that they can effectively impact upon their environment with these new skills are able to appropriately improve some of their behavioral difficulties so that they will exhibit such behaviors as working well independently in the classroom and following teacher directions accurately.

In addition to examining single predictors, an overall multivariate prediction of outcome was performed. An evaluation of the relative importance and amount of separate variance accounted for by the predictor variables (excluding the self-concept variable because of missing data) suggests that variables which predicted improvement in parent rated hyperactivity were parent rated learning problems and internal locus of control. In addition, the variable which predicted improvement in teacher rated aggression was parent rated learning problems. These findings suggest that among the most important characteristics that enable these impulsive children to

benefit from the CBT are the ability to comprehend the skills and strategies which are taught, and the self-perception that one can alter his/her environment with these newly learned skills. In other words, the children must first be able to understand the concepts being taught and how they might be able to appropriately utilize them. They must also believe that they can impact upon their own environment by changing their previous maladaptive behaviors with their newly learned CBT skills. If the children are not capable of understanding the CBT material because of learning problems, and if they do not believe that they can control themselves better and solve problems more adequately so that they may get along well with others, then it is quite unlikely that they will be able to learn and/or utilize the CBT material in order to decrease behavioral problems such as hyperactivity or aggressiveness.

Since, however, prediction of group change scores may or may not be related to prediction of change on an individual case basis, another analysis attempted to first define successful versus unsuccessful cases. Then, discriminant function analysis was employed to determine whether any of the variables were able to successfully discriminate these successful from unsuccessful cases. The

results of these analyses, however, were hindered by the fact that so few cases could be categorized as successful. Indeed, in no instance did any discriminant function analysis accurately predict a case as a success. Rather, all discriminant analyses predicted every case to be a failure. Hence, once again, it appears that, in general, the predictor variables included in this study did not allow prediction of which children improved and which children did not improve as the result of CBT, and that the reason for this failure to predict is that very few of the children actually improved to a significant degree on any of the criterion variables.

The question, then, is why did the CBT program included in the present study fail to achieve better treatment effectiveness? One possible explanation is that the subjects in the current study may have been too severely disordered to benefit from the CBT. Perhaps CBT is more effective with mildly disordered children rather than children referred by school personnel or medical and mental health professionals for severe behavioral problems. In fact, many investigations that have reported positive outcomes for impulsive/hyperactive children treated with CBT included child participants which were neither from a clinic-referred population nor from families actively

seeking treatment. For example, Arnold and Forehand (1978) used children from a Head Start Program and a low-income housing preschool; Bornstein and Quevillon (1976) included children from a preschool Head Start Program; Bugental et al. (1977) utilized children from regular elementary school classrooms and classrooms for the educationally handicapped; Glenwick and Barocas (1979), Nelson and Birkimer (1978) and Waithorn and Kagen (1979) used children from regular elementary school classrooms; and Orbach (1977) included children from a Hebrew school.

Another possible explanation is that the school psychologists in the present study were not closely supervised in overseeing their progress with the children; the psychologists may not have learned the agenda well enough to communicate the self-control techniques and problem-solving strategies to the children. In future studies, perhaps therapists should receive closer training and supervision (e.g., weekly and in-person) to make sure that they learn how to communicate the agenda items to the children, and how to deal with problematic issues when they occur.

Another possible explanation for lack of treatment effectiveness may lie in the relative absence of concomitant interventions in either the home or the

classroom. Although the children may have learned the self-control strategies and problem-solving techniques, the behavioral contingencies in the classroom and home settings may have continued to maintain problem behaviors. That is, a child may have learned the self-control strategies and problem-solving techniques, but prominent others in the child's environment may not have known how to prompt or reinforce the utilization of these new behavioral skills.

In the current investigation, teachers were encouraged to prompt, verbally reinforce, and model the children's overt use of CBT techniques and strategies. Yet, more teacher consultation in the classroom might be added to future studies involving CBT. Kendall and Braswell (1985) suggest that the therapist can offer some direct suggestions to a teacher for how they can enhance generalization of treatment effects. The therapist can suggest that the teacher allow and maybe even encourage the child's quiet self-talk if the child seems to be utilizing such verbalizations as a way of guiding and directing his/her own behavior in an appropriate manner. The teacher might also be advised to label attack strategies for solving academic problems. For example, Parsons (1972) found that if children were urged to both identify the operation required for a specific math problem (plus vs.

minus) and circle the sign of each problem as they start to solve it, their performance on these arithmetic problems was significantly improved. Kendall and Braswell (1985) also suggest that the therapist share with the teacher special problem areas the child has agreed to work on, or the therapist intends to have the child work on, so that the teacher can be especially aware of offering social praise and reinforcement for any positive behavior changes in those areas. Also, since the addition of behavioral contingencies to problem-solving training has been shown to increase treatment effectiveness (e.g., Barabash, 1978; Kendall & Braswell, 1982; Varni & Henker, 1979), the therapist might instruct the teacher on the use of token economies in the classroom in order to reinforce the children's newly learned CBT skills.

Similarly, parents might also receive training in how to appropriately prompt and reinforce the children's newly acquired CBT skills. Since CBT may not readily generalize to the home setting (e.g., Barkley & Cunningham, 1978; Horn, Ialongo, Greenberg, Packard, & Smith-Winberry, 1985), parent training for child management in efforts to reduce problem behaviors and increase compliance may be helpful in improving overall clinical efficacy (e.g., Forehand et al., 1979). Indeed, Horn et al. (1985) found a superiority with

respect to improvement in hyperactive behaviors for the combined treatment condition of self-control training and behavioral parent training compared to either treatment alone in attention deficit disorder with hyperactivity children. Horn et al. (in press) suggest,

> Such a combined approach might provide maximal benefit by altering those contingencies in the child's home which have previously helped maintain the child's maladaptive behavior patterns, while also helping the child develop more adaptive behavioral skills through instruction in self-control strategies.

The addition of a psychostimulant medication component may also enhance the effectiveness of CBT with ADD children. The addition of psychostimulant medications could help decrease impulsivity, decrease activity level, and help the children to focus their attention and concentration in the CBT groups so that they can better learn the presented material (see Barkely, 1981b; Pelham 1983). In fact, training in self-control techniques has been found to increase effectiveness of psychostimulant treatment (Hinshaw, Henker, & Whalen, 1984a; Horn, Chatoor, & Conners, 1983; Pelham et al., 1980; Wells, Conners, Imber, & Delamater, 1981).

Another purpose of the current study was to investigate whether CBT increased impulsive children's locus of control. An examination of pre- and post-

treatment locus of control scores revealed that there was a trend in the data supporting the hypothesis that the impulsive children's external locus of control would decrease from pre- to posttreatment. It was also found that these children's physical external locus of control decreased from pre- to posttreatment. These results suggest that there was a decrease in perceived externality of personal causation following CBT. It is plausible that CBT fostered the children's beliefs that events are not external to their actions. Since the children were taught strategies focusing on self-control and problem solving, they may have come to realize that others neither regulate their (the children's) behavior nor take responsibility for their actions.

However, the children's social dimension of internal locus of control also decreased over the course of treatment, suggesting that there was a decrease in the perceived internality of personal causation with respect to peer relations. One possible explanation for this contradictory finding is that the length of the cognitive-behavioral treatment program may have been too short of a time for the children to practice and adequately learn perspective taking and peer relation skills; consequently, they may have come to the conclusion at the end of 11 weeks

that changes in social relations are not based on one's own effortful actions to form adequate and fulfilling social relationships.

A number of limitations exist for the current investigation. Because of some missing data in the present study, the already small sample size was often decreased to below the original 41 subjects. Hence, the sampling error in this investigation is possibly large and generalization to other samples might be limited. In addition, the small sample size reflects a low degree of statistical power in the current study. That is, if the sample size was larger the study's predictor variables may have better predicted behavioral improvement as the result of CBT. Indeed, teacher and parent ratings improved in the predicted direction, but with small magnitude; furthermore, 8 out of 15 partial correlations greater than .20 (not accounting for partial correlations around 0 — i.e., -.19 to .19) between the predictor and criterion variables were in the hypothesized direction.

Although the current study was designed to determine predictors of outcome for cognitive-behavioral treatment, the addition of a control group to the pretest/posttest design which was utilized would have constituted a more powerful design in evaluating treatment effectiveness. For

instance, a control group consisting of a sample of impulsive children similar to (i.e., matched on child and family characteristics as closely as possible) the experimental group should not receive exposure to the CBT. Yet, both control and experimental groups should receive pre- and posttesting at the same points in time. Any differences between the two groups in terms of the dependent or criterion variables could likely be attributed to the independent variable on which they differ--that is, exposure or nonexposure to treatment.

Another limitation is a lack of observational data available at home and school that could have been helpful in identifying whether the children were appropriate for the CBT program, how the therapists taught the techniques and strategies to the children, and how the children were responding to the treatment. The utilization of a classroom observation code (e.g., Abikoff, Gittelman-Klein, and Klein, 1980) might help to assess and validate teacher and parental reports of hyperactivity, off-task behaviors, and disruptiveness. Thus, the children might be better identified as warranting CBT. Videotaping or direct observation of CBT sessions might also allow future investigators to examine whether the therapists are teaching the techniques and strategies correctly. If the

therapists are having difficulty presenting the CBT, then appropriate supervisory actions could occur. In addition, observation of children in both CBT sessions and in school activities might provide information regarding whether the children are appropriately using their newly learned skills, such as applying their self-control techniques to situations which require increased self-control. These observations would provide some information concerning the children's responsivity to the CBT.

There was also no control in the present study over therapist differences. One example of these differences is that the school psychologists who served as therapists varied in their degree of training. Some of these psychologists had clinical psychology experience while others had experience solely in the area of education. Also, the amount of experience in the area of school psychology varied with respect to experience, ranging from 8 to 25 years. This variability in therapist differences could have impacted upon the treatment which the children received such that the less experienced therapists may have had more difficulty in presenting and teaching the self-control techniques and problem-solving strategies. In other words, perhaps therapist variables are more, or equally, important in the prediction of treatment outcomes

as compared to client variables. If so, therapist variables such as degree of training may be important to investigate in future treatment outcome studies.

Future CBT investigations should also focus on child process variables which may help predict CBT outcome. For instance, the child's level of interaction or involvement during the CBT may be an important process variable to study. Braswell, Kendall, Braith, Carey, and Vye (1984b) examined this subject variable in an investigation in which the therapist's and child's verbal behaviors were rated during self-instructional training sessions. They found that the children who uttered the most suggestions concerning what should occur during the training sessions, and who might thus be perceived as the most active participants, were inclined to show the most improvement on the teacher ratings of classroom behavior. Of all the rated verbal behaviors, child involvement was the most accurate predictor of treatment gains.

Future studies might also attend to psychological adjustment characteristics of child subjects other than those examined in the current study. For instance, Spivak and Shure (1974) found that greatly inhibited children evidenced gains on ratings of concern for others after receiving interpersonal problem-solving training,

as compared to client variables. If so, therapist variables such as degree of training may be important to investigate in future treatment outcome studies.

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Future studies might also attend to psychological adjustment characteristics of child subjects other than those examined in the current study. For instance, Spivak and Shure (1974) found that greatly inhibited children evidenced gains on ratings of concern for others after receiving interpersonal problem-solving training,

whereas the impulsive and adjusted children did not evidence gains on this measure. In addition, Sarason and Ganzer (1973) found that delinquents diagnosed as neurotic or passive-dependent personality disorder evidenced behavioral gains after receiving a modeling treatment which emphasized role playing, and that those diagnosed as sociopathic or passive-aggressive personality disorder exhibited behavioral improvement after involvement in the discussion treatment group.

Other child characteristics which might be investigated involve amenability to CBT. For example, those children who believe they have problems may be more willing to learn and utilize CBT skills which are being taught to them. As noted above, Horn et al. (in press) found that hyperactive children who are better able to recognize that they do have significant self-control problems show greater behavioral improvement than those who do not recognize that they possess self-control problems. Motivation to change behavior might also be studied. If children are not motivated to alter their behavior by learning and appropriately using their new CBT skills, then it is unlikely that successful treatment outcome will occur. Perhaps children's motivation to change behavior could be assessed through an interview or questionnaire.

For instance, children could be asked if they like the way they get along with others, and if not, whether they would like to change their own behavior to make things go better for themselves.

Although the current investigation found little success with the cognitive-behavioral treatment, it is possible that the children benefitted in ways which were not measured. Many of the school psychologists anecdotally reported after treatment was completed that the children in their groups appeared to be exhibiting decreased behavioral difficulties. However, as has been found in previous investigations (e.g., Barkley & Cunningham, 1978; Bugental et al., 1977; Horn et al., 1985; Kendall & Braswell, 1982), in most cases this observed behavioral improvement in the therapy groups themselves did not appear to have generalized from the treatment setting to the classroom or home settings. In addition, two school psychologists reported that after the training was completed, their referred children sought them out much more for help with school related problems than they had done previously. Even though many of the children did not achieve success by criteria involving attentional, aggressive, and hyperactive behaviors, it is possible that they have at least learned to realize when they are having a problem and are able to

seek out help for these problems. If these children are reinforced for seeking help, they may eventually begin to internalize more of the problem-solving strategies and begin to show more overt behavioral improvement. Perhaps a long-term follow-up component in future studies could help get at these possible "sleeper effects".

Indeed, there is evidence in the literature for such "sleeper effects". For example, in a study concerning the impact of early childhood education experiences, Schweinhart and Weikart (1978; cited in Lazar & Darlington, 1982) found the positive effects of early education on achievement increasingly apparent over time. At grades one, two, and three there existed no significant positive effects of early education on California Achievement Test (CAT) scores; however, at grades four, five, and eight increasingly significant positive effects were found. At eighth grade, children with early education had significantly higher scores than control children on each of the three principal sections of the CAT: reading, language, and arithmetic. Thus, it seems that the early education experience had a long-lasting positive impact on children's achievement test performance.

In conclusion, the main results from the present investigation suggest that variables of self-concept,

aggression, locus of control, learning problems, chronological age and familial socioeconomic status do not, in general, predict improvement in parent or teacher ratings of hyperactive, inattentive, or aggressive behavior problems. The reason for the failure to predict improvement appears to be due to the ineffectiveness of the cognitive-behavioral therapy. Reasons for this lack of treatment effectiveness include issues regarding degree of subjects' psychopathology, adequacy of therpists' training and supervision, and problems with the training itself such as lack of prompting and reinforcement of learned skills in home and school environments. In addition to appropriately addressing and dealing with these issues just mentioned, future CBT predictor of outcome studies might improve overall treatment efficacy by adding parent training and psychostimulant medication.

APPENDIX A

Self-Control Training Activities

Self-Control Training Activities

Session 1--introduction of program, warm-up name exercise, generation of group rules, introduction of star chart and buddy systems;

Session 2--learn step 1 of problem-solving plan ("Do I have a problem?"--think, "Calm...relax");

Session 3--relaxation training;

Session 4--learn step 2 of problem-solving plan ("What is my problem?" and setting a goal);

Session 5--review first two steps of problem-solving plan, relaxation training;

Session 6--learn step 3 of problem-solving plan ("How many solutions can I think of to solve my problem?");

Session 7--review first three steps of problem-solving plan, relaxation training;

Session 8--learn step 4a of problem-solving plan ("What might happen next if...?");

Session 9--review previously learned steps of problem-solving plan, relaxation training;

Session 10--learn step 4b of problem-solving plan ("How might my solution make other people feel?");

Session 11--review previously learned steps of problem-solving plan, relaxation training;

Session 12--learn step 4c of problem-solving plan ("Is the solution fair?");

Session 13--review previously learned steps of problem-solving plan, relaxation training;

Session 14--learn step 5 of problem-solving plan (Pick the best solution and try it);

Session 15--review previously learned steps of problem-solving plan, relaxation training;

Session 16--learn step 6 of problem-solving plan ("How did my solution work?"), role plays using the steps in the problem-solving plan;

Session 17--review previously learned steps of problem-solving plan, relaxation training;

Session 18--role plays using the steps in the problem-solving plan;

Session 19--review the steps of the problem-solving plan, relaxation training;

Session 20--group puzzles, role plays using the problem-solving plan;

Session 21--review the problem-solving plan, relaxation training;

Session 22--role plays using the problem-solving plan, termination.

APPENDIX B

Achenbach Child Behavior Checklist

CHILD BEHAVIOR CHECKLIST FOR AGES 4-16

For office use only
ID #

CHILD'S NAME

SEX ☐ Boy ☐ Girl

AGE

RACE

TODAY'S DATE
Mo. _____ Day _____ Yr. _____

CHILD'S BIRTHDATE
Mo. _____ Day _____ Yr. _____

GRADE IN SCHOOL

PARENT'S TYPE OF WORK *(Please be specific—for example: auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant, even if parent does not live with child.)*

FATHER'S TYPE OF WORK: _____

MOTHER'S TYPE OF WORK: _____

THIS FORM FILLED OUT BY:
☐ Mother
☐ Father
☐ Other *(Specify)*:

I. Please list the sports your child most likes to take part in. For example: swimming, baseball, skating, skate boarding, bike riding, fishing, etc.

☐ None

	Compared to other children of the same age, about how much time does he/she spend in each?				Compared to other children of the same age, how well does he/she do each one?			
	Don't Know	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

II. Please list your child's favorite hobbies, activities, and games, other than sports. For example: stamps, dolls, books, piano, crafts, singing, etc. (Do not include T.V.)

☐ None

	Compared to other children of the same age, about how much time does he/she spend in each?				Compared to other children of the same age, how well does he/she do each one?			
	Don't Know	Less Than Average	Average	More Than Average	Don't Know	Below Average	Average	Above Average
a. _____	☐	☐	☐	☐	☐	☐	☐	☐
b. _____	☐	☐	☐	☐	☐	☐	☐	☐
c. _____	☐	☐	☐	☐	☐	☐	☐	☐

III. Please list any organizations, clubs, teams, or groups your child belongs to.

☐ None

	Compared to other children of the same age, how active is he/she in each?			
	Don't Know	Less Active	Average	More Active
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

IV. Please list any jobs or chores your child has. For example: paper route, babysitting, making bed, etc.

☐ None

	Compared to other children of the same age, how well does he/she carry them out?			
	Don't Know	Below Average	Average	Above Average
a. _____	☐	☐	☐	☐
b. _____	☐	☐	☐	☐
c. _____	☐	☐	☐	☐

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V. 1. About how many close friends does your child have? ☐ None ☐ 1 ☐ 2 or 3 ☐ 4 or more

2. About how many times a week does your child do things with them? ☐ less than 1 ☐ 1 or 2 ☐ 3 or more

VI. Compared to other children of his/her age, how well does your child:

	Worse	About the same	Better
a. Get along with his/her brothers & sisters?	☐	☐	☐
b. Get along with other children?	☐	☐	☐
c. Behave with his/her parents?	☐	☐	☐
d. Play and work by himself/herself?	☐	☐	☐

VII. 1. Current school performance—for children aged 6 and older:

☐ Does not go to school

	Failing	Below average	Average	Above average
a. Reading or English	☐	☐	☐	☐
b. Writing	☐	☐	☐	☐
c. Arithmetic or Math	☐	☐	☐	☐
d. Spelling	☐	☐	☐	☐
Other academic subjects—for example: history, science, foreign language, geography. e. _____	☐	☐	☐	☐
f. _____	☐	☐	☐	☐
g. _____	☐	☐	☐	☐

2. Is your child in a special class?

☐ No ☐ Yes—what kind?

3. Has your child ever repeated a grade?

☐ No ☐ Yes—grade and reason

4. Has your child had any academic or other problems in school?

☐ No ☐ Yes—please describe

When did these problems start?

Have these problems ended?

☐ No ☐ Yes—when?

VIII. Below is a list of items that describe children. For each item that describes your child now or within the past 6 months, please circle the 2 if the item is very true or often true of your child. Circle the 1 if the item is somewhat or sometimes true of your child. If the item is not true of your child, circle the 0. Please answer all items as well as you can, even if some do not seem to apply to your child.

0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

0 1 2 1. Acts too young for his/her age
0 1 2 2. Allergy (describe): _____
_____
0 1 2 3. Argues a lot
0 1 2 4. Asthma
0 1 2 5. Behaves like opposite sex
0 1 2 6. Bowel movements outside toilet
0 1 2 7. Bragging, boasting
0 1 2 8. Can't concentrate, can't pay attention for long
0 1 2 9. Can't get his/her mind off certain thoughts; obsessions (describe): _____
_____
0 1 2 10. Can't sit still, restless, or hyperactive
0 1 2 11. Clings to adults or too dependent
0 1 2 12. Complains of loneliness
0 1 2 13. Confused or seems to be in a fog
0 1 2 14. Cries a lot
0 1 2 15. Cruel to animals
0 1 2 16. Cruelty, bullying, or meanness to others
0 1 2 17. Day-dreams or gets lost in his/her thoughts
0 1 2 18. Deliberately harms self or attempts suicide
0 1 2 19. Demands a lot of attention
0 1 2 20. Destroys his/her own things
0 1 2 21. Destroys things belonging to his/her family or other children
0 1 2 22. Disobedient at home
0 1 2 23. Disobedient at school
0 1 2 24. Doesn't eat well
0 1 2 25. Doesn't get along with other children
0 1 2 26. Doesn't seem to feel guilty after misbehaving
0 1 2 27. Easily jealous
0 1 2 28. Eats or drinks things that are not food (describe): _____
_____
0 1 2 29. Fears certain animals, situations, or places, other than school (describe): _____
_____
0 1 2 30. Fears going to school
0 1 2 31. Fears he/she might think or do something bad
0 1 2 32. Feels he/she has to be perfect
0 1 2 33. Feels or complains that no one loves him/her
0 1 2 34. Feels others are out to get him/her
0 1 2 35. Feels worthless or inferior
0 1 2 36. Gets hurt a lot, accident-prone
0 1 2 37. Gets in many fights
0 1 2 38. Gets teased a lot
0 1 2 39. Hangs around with children who get in trouble
0 1 2 40. Hears things that aren't there (describe):
_____
_____
0 1 2 41. Impulsive or acts without thinking
0 1 2 42. Likes to be alone
0 1 2 43. Lying or cheating
0 1 2 44. Bites fingernails
0 1 2 45. Nervous, highstrung, or tense
0 1 2 46. Nervous movements or twitching (describe):
_____
_____
0 1 2 47. Nightmares
0 1 2 48. Not liked by other children
0 1 2 49. Constipated, doesn't move bowels
0 1 2 50. Too fearful or anxious
0 1 2 51. Feels dizzy
0 1 2 52. Feels too guilty
0 1 2 53. Overeating
0 1 2 54. Overtired
0 1 2 55. Overweight
56. Physical problems without known medical cause:
0 1 2 a. Aches or pains
0 1 2 b. Headaches
0 1 2 c. Nausea, feels sick
0 1 2 d. Problems with eyes (describe):
_____
0 1 2 e. Rashes or other skin problems
0 1 2 f. Stomachaches or cramps
0 1 2 g. Vomiting, throwing up
0 1 2 h. Other (describe): _____
_____

Please see other side

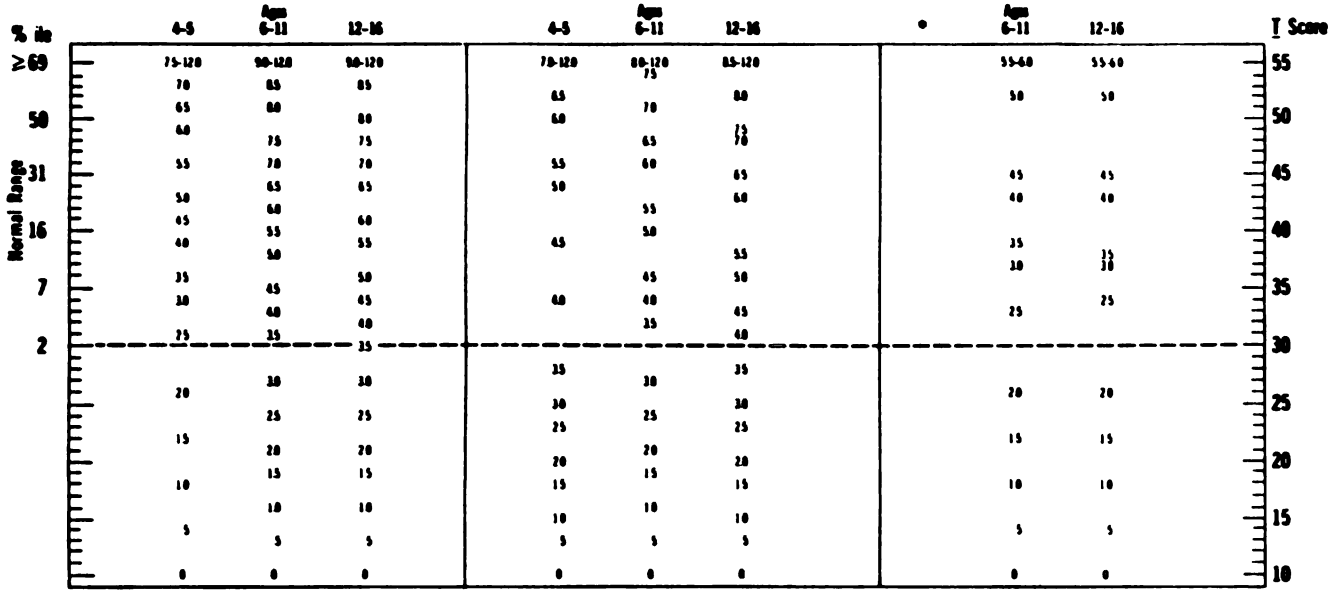
0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

0 1 2	57.	Physically attacks people		
0 1 2	58.	Picks nose, skin, or other parts of body (describe): _____		
		_____ 60		
0 1 2	59.	Plays with own sex parts in public 16		
0 1 2	60.	Plays with own sex parts too much		
0 1 2	61.	Poor school work		
0 1 2	62.	Poorly coordinated or clumsy		
0 1 2	63.	Prefers playing with older children 20		
0 1 2	64.	Prefers playing with younger children		
0 1 2	65.	Refuses to talk		
0 1 2	66.	Repeats certain acts over and over; compulsions (describe): _____		
		_____		
0 1 2	67.	Runs away from home		
0 1 2	68.	Screams a lot 25		
0 1 2	69.	Secretive, keeps things to self		
0 1 2	70.	Sees things that aren't there (describe):		
		_____		
		_____		
0 1 2	71.	Self-conscious or easily embarrassed		
0 1 2	72.	Sets fires		
0 1 2	73.	Sexual problems (describe):		
		_____		
		_____ 30		
0 1 2	74.	Showing off or clowning		
0 1 2	75.	Shy or timid		
0 1 2	76.	Sleeps less than most children		
0 1 2	77.	Sleeps more than most children during day and/or night (describe): _____		
		_____		
0 1 2	78.	Smears or plays with bowel movements 35		
0 1 2	79.	Speech problem (describe): _____		
		_____		
0 1 2	80.	Stares blankly		
0 1 2	81.	Steals at home		
0 1 2	82.	Steals outside the home		
0 1 2	83	Stores up things he/she doesn't need (describe)		
		_____ 40		
0 1 2	84.	Strange behavior (describe): _____		
		_____		
0 1 2	85.	Strange ideas (describe):		
		_____		
0 1 2	86.	Stubborn, sullen, or irritable		
0 1 2	87.	Sudden changes in mood or feelings		
0 1 2	88.	Sulks a lot 45		
0 1 2	89.	Suspicious		
0 1 2	90.	Swearing or obscene language		
0 1 2	91.	Talks about killing self		
0 1 2	92.	Talks or walks in sleep (describe):		
		_____		
0 1 2	93.	Talks too much 50		
0 1 2	94.	Teases a lot		
0 1 2	95.	Temper tantrums or hot temper		
0 1 2	96.	Thinks about sex too much		
0 1 2	97.	Threatens people		
0 1 2	98.	Thumb-sucking 55		
0 1 2	99.	Too concerned with neatness or cleanliness		
0 1 2	100.	Trouble sleeping (describe):		
		_____		
0 1 2	101.	Truancy, skips school		
0 1 2	102.	Underactive, slow moving, or lacks energy		
0 1 2	103.	Unhappy, sad, or depressed 60		
0 1 2	104.	Unusually loud		
0 1 2	105.	Uses alcohol or drugs (describe):		
		_____		
0 1 2	106.	Vandalism		
0 1 2	107.	Wets self during the day		
0 1 2	108.	Wets the bed 65		
0 1 2	109.	Whining		
0 1 2	110.	Wishes to be of opposite sex		
0 1 2	111.	Withdrawn, doesn't get involved with others		
0 1 2	112.	Worrying		
	113.	Please write in any problems your child has that were not listed above:		
0 1 2		_____ 70		
0 1 2		_____		
0 1 2		_____		

PLEASE BE SURE YOU HAVE ANSWERED ALL ITEMS

UNDERLINE ANY YOU ARE CONCERNED ABOUT

REVISED CHILD BEHAVIOR PROFILE
Social Competence—Boys Aged 4-5, 6-11, 12-16



Name _____

Case # _____

Age _____

Date CBCL filled out _____

CBCL filled out by _____

Sum of social competence scores _____

Sum $\underline{T}$ _____

ACTIVITIES

___ I. A. # of sports
___ B. Mean of participation and skill in sports
___ II A. # of nonsports activities
___ B. Mean of participation and skill in activities
___ IV A. # of jobs
___ B. Mean job quality
___ Total

SOCIAL

___ III. A. # of organizations
___ B. Mean of participation in organizations
___ V. 1. # of friends
___ 2. Frequency of contacts with friends
___ VI. A. Behavior with others
___ B Behavior alone
___ Total

SCHOOL

___ VII 1. Mean performance
___ 2 Special class
___ 3 Repeated grade
___ 4 School problems
___ Total

*Not scored for 4-5 year olds

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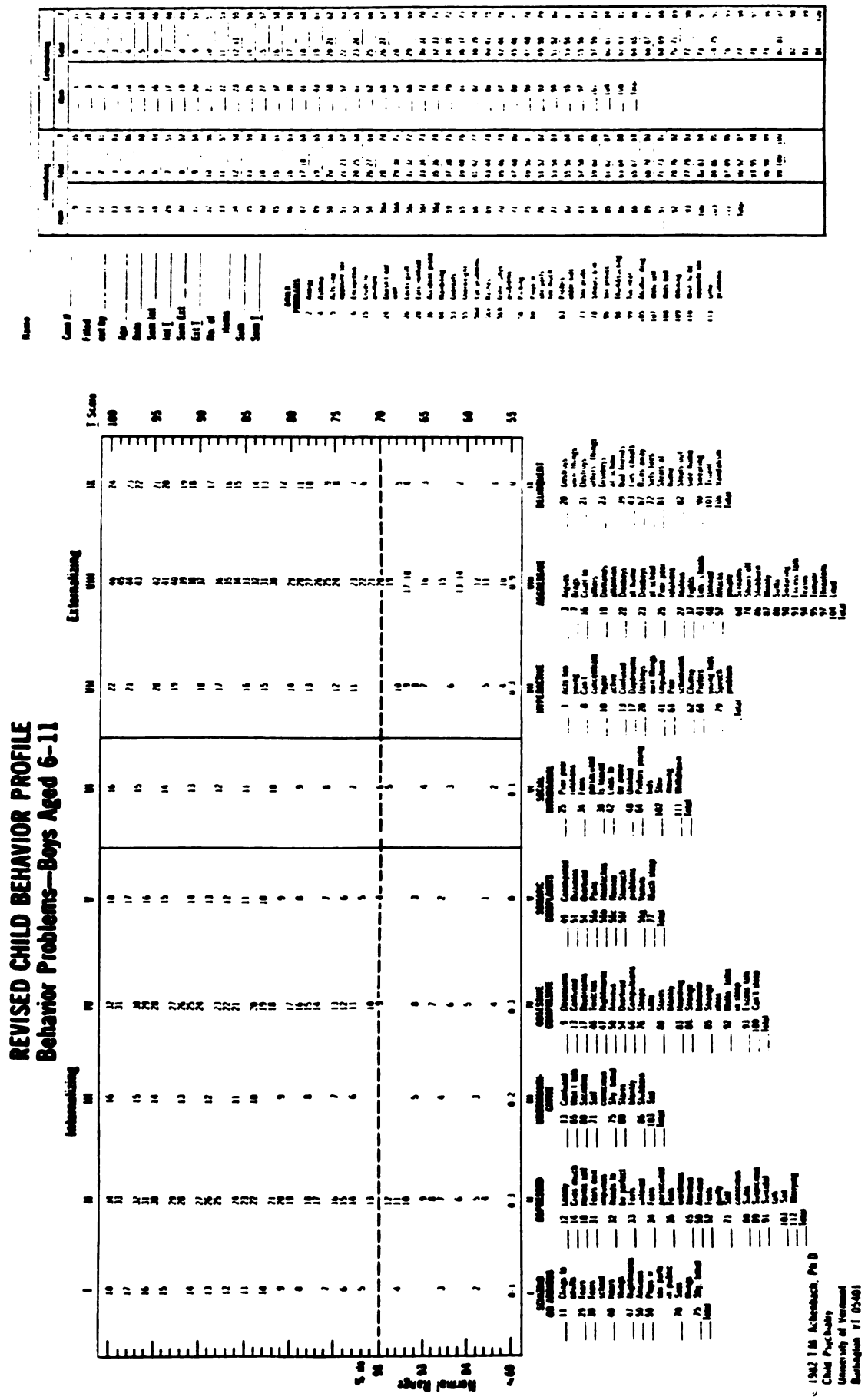
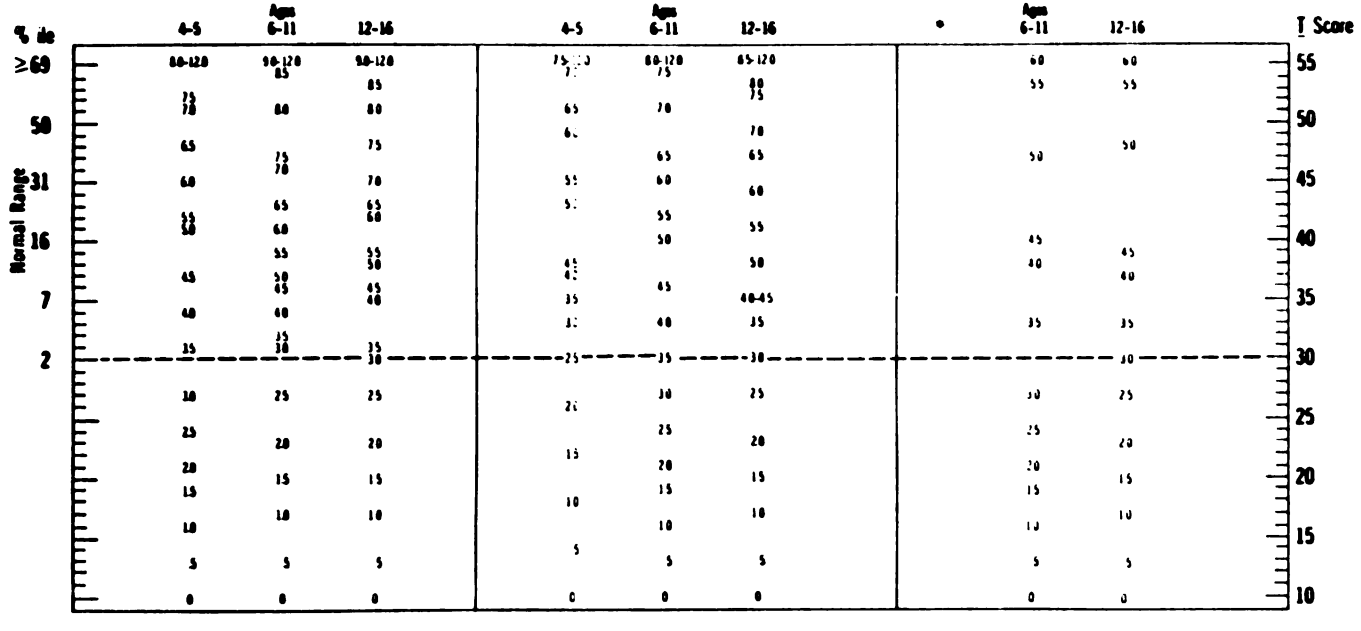
Child Psychiatry
University of Vermont
Burlington VT 05401


REVISED CHILD BEHAVIOR PROFILE
Behavior Problems—Boys Aged 6-11
Externalizing
Internalizing
Normal Range

REVISED CHILD BEHAVIOR PROFILE
Social Competence—Girls Aged 4-5, 6-11, 12-16



Name _____
Case # _____
Age _____
Date CBCL filled out _____
CBCL filled out by _____
Sum of social competence scores _____
Sum I _____

ACTIVITIES

___ I. A. # of sports
___ B. Mean of participation and skill in sports
___ II. A. # of nonsports activities
___ B. Mean of participation and skill in activities
___ IV. A. # of jobs
___ B. Mean job quality
___ Total

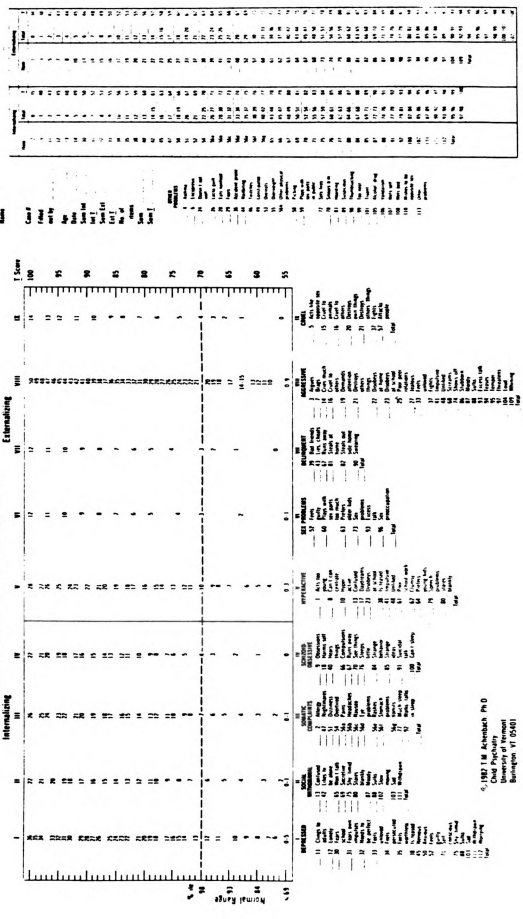
SOCIAL

___ III. A # of organizations
___ B Mean of participation in organizations
___ V. 1 # of friends
___ 2 Frequency of contacts with friends
___ VI. A. Behavior with others
___ B Behavior alone
___ Total

SCHOOL

___ VII 1 Mean performance
___ 2 Special class
___ 3 Repeated grade
___ 4 School problems
___ Total

*Not scored for 4-5 year-olds


REVISED CHILD BEHAVIOR PROFILE
Behavior Problems—Girls Aged 6–11
Internalizing
Externalizing
T Score
Normal Range
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Child Psychiatry
University of Vermont
Burlington, VT 05401

APPENDIX C

Teacher's Report Form of the Child Behavior Checklist

IDENTIFICATION #

CHILD BEHAVIOR CHECKLIST - TEACHER'S REPORT FORM

CHILD'S AGE	CHILD'S SEX ☐ Boy ☐ Girl	RACE	CHILD'S NAME
GRADE	THIS FORM FILLED OUT BY ☐ Teacher ☐ Counselor ☐ Other (specify)		SCHOOL
DATE			

PARENTS' TYPE OF WORK (Please be specific — for example, auto mechanic, high school teacher, homemaker, laborer, lathe operator, shoe salesman, army sergeant)

FATHER'S TYPE OF WORK _____ MOTHER'S TYPE OF WORK _____

I. **How long have you known this pupil?**

II. **How well do you know him/her?** ☐ Very Well ☐ Moderately Well ☐ Not Well

III. **How much time does he/she spend in your class per week?**

IV. **What kind of class is it (Please be specific, e.g., regular 5th grade, 7th grade math, etc.)**

V. **Has he/she ever been referred for special class placement, services, or tutoring?**

☐ No ☐ Don't Know ☐ Yes — what kind and when?

VI. **Has he/she ever repeated a grade?**

☐ No ☐ Don't Know ☐ Yes — grade and reason

VII. **Current school performance** — list academic subjects and check appropriate column

Academic subject	Far below grade	Somewhat below grade	At grade level	Somewhat above grade	Far above grade
1 _____	☐	☐	☐	☐	☐
2 _____	☐	☐	☐	☐	☐
3 _____	☐	☐	☐	☐	☐
4 _____	☐	☐	☐	☐	☐
5 _____	☐	☐	☐	☐	☐
_____	☐	☐	☐	☐	☐

3R Edn.

VIII. Compared to typical pupils of the same age:	Much less	Somewhat less	Slightly less	About average	Slightly more	Somewhat more	Much more
1. How hard is he/she working?	☐	☐	☐	☐	☐	☐	☐
2. How appropriately is he/she behaving?	☐	☐	☐	☐	☐	☐	☐
3. How much is he/she learning?	☐	☐	☐	☐	☐	☐	☐
4. How happy is he/she?	☐	☐	☐	☐	☐	☐	☐

IX. Most recent achievement test scores (If available)

Name of test	Subject	Date	Percentile or grade level obtained

X. IQ, readiness, or aptitude tests (If available)

Name of test	Date	IQ or equivalent scores

XI. Please feel free to write any comments about this pupil's work, behavior, or potential, using extra pages if necessary

Below is a list of items that describe pupils. For each item that describes the pupil now or within the past 2 months, please circle the 2 if the item is very true or often true of the pupil. Circle the 1 if the item is somewhat or sometimes true of the pupil. If the item is not true of the pupil, circle the 0.

0 = Not True (as far as you know) 1 = Somewhat or Sometimes True 2 = Very True or Often True

0	1	2	1	Acts too young for his/her age
0	1	2	2	Hums or makes other odd noises in class
0	1	2	3	Argues a lot
0	1	2	4	Fails to finish things he/she starts
0	1	2	5	Behaves like opposite sex
0	1	2	6	Defiant, talks back to staff
0	1	2	7	Bragging, boasting
0	1	2	8	Can't concentrate, can't pay attention for long
0	1	2	9	Can't get his/her mind off certain thoughts; obsessions (describe) _____
0	1	2	10	Can't sit still, restless, or hyperactive
0	1	2	11	Clings to adults or too dependent
0	1	2	12	Complains of loneliness
0	1	2	13	Confused or seems to be in a fog
0	1	2	14	Cries a lot
0	1	2	15	Fidgets
0	1	2	16	Cruelty, bullying, or meanness to others
0	1	2	17	Day-dreams or gets lost in his/her thoughts
0	1	2	18	Deliberately harms self or attempts suicide
0	1	2	19	Demands a lot of attention
0	1	2	20	Destroys his/her own things
0	1	2	21	Destroys property belonging to others
0	1	2	22	Difficulty following directions
0	1	2	23	Disobedient at school
0	1	2	24	Disturbs other pupils
0	1	2	25	Doesn't get along with other pupils
0	1	2	26	Doesn't seem to feel guilty after misbehaving
0	1	2	27	Easily jealous
0	1	2	28	Eats or drinks things that are not food (describe) _____
0	1	2	29	Fears certain animals, situations, or places other than school (describe) _____
0	1	2	30	Fears going to school
0	1	2	31	Fears he/she might think or do something ...
0	1	2	32	Feels he/she has to be perfect
0	1	2	33	Feels or complains that no one loves him/her
0	1	2	34	Feels others are out to get him/her
0	1	2	35	Feels worthless or inferior
0	1	2	36	Gets hurt a lot, accident-prone
0	1	2	37	Gets in many fights
0	1	2	38	Gets teased a lot
0	1	2	39	Hangs around with others who get in trouble
0	1	2	40	Hears things that aren't there (describe) _____
0	1	2	41	Impulsive or acts without thinking
0	1	2	42	Likes to be alone
0	1	2	43	Lying or cheating
0	1	2	44	Bites fingernails
0	1	2	45	Nervous, highstrung, or tense
0	1	2	46	Nervous movements or twitching (describe) _____
0	1	2	47	Overconforms to rules
0	1	2	48	Not liked by other pupils
0	1	2	49	Has difficulty learning
0	1	2	50	Too fearful or anxious
0	1	2	51	Feels dizzy
0	1	2	52	Feels too guilty
0	1	2	53	Talks out of turn
0	1	2	54	Overtired
0	1	2	55	Overweight
			56	Physical problems without known medical cause:
0	1	2		a Aches or pains
0	1	2		b Headaches
0	1	2		c Nausea, feels sick
0	1	2		d Problems with eyes (describe) _____
0	1	2		e Rashes or other skin problems
0	1	2		f Stomachaches or cramps
0	1	2		g Vomiting, throwing up
0	1	2		h Other (describe) _____

Please see ...

0 = Not True 1 = Somewhat or Sometimes True 2 = Very True or Often True

0 1 2 57 Physically attacks people
0 1 2 58 Picks nose, skin, or other parts of body (describe) _____
0 1 2 59 Sleeps in class
0 1 2 60 Apathetic or unmotivated
0 1 2 61 Poor school work
0 1 2 62 Poorly coordinated or clumsy
0 1 2 63 Prefers being with older children
0 1 2 64 Prefers being with younger children
0 1 2 65 Refuses to talk
0 1 2 66 Repeats certain acts over and over, compulsions (describe) _____
0 1 2 67 Disrupts class discipline
0 1 2 68 Screams a lot
0 1 2 69 Secretive, keeps things to self
0 1 2 70 Sees things that aren't there (describe) _____
0 1 2 71 Self-conscious or easily embarrassed
0 1 2 72 Messy work
0 1 2 73 Behaves irresponsibly (describe)
0 1 2 74 Showing off or clowning
0 1 2 75 Shy or timid
0 1 2 76 Explosive and unpredictable behavior
0 1 2 77 Demands must be met immediately, easily frustrated
0 1 2 78 Inattentive, easily distracted
0 1 2 79 Speech problem (describe) _____
0 1 2 80 Stares blankly
0 1 2 81 Feels hurt when criticized
0 1 2 82 Steals
0 1 2 83 Stores up things he/she doesn't need (describe) _____
0 1 2 84 Strange behavior (describe) _____
0 1 2 85 Strange ideas (describe) _____
0 1 2 86 Stubborn, sullen, or irritable
0 1 2 87 Sudden changes in mood or feelings
0 1 2 88 Sulks a lot
0 1 2 89 Suspicious
0 1 2 90 Swearing or obscene language
0 1 2 91 Talks about killing self
0 1 2 92 Underachieving, not working up to potential
0 1 2 93 Talks too much
0 1 2 94 Teases a lot
0 1 2 95 Temper tantrums or hot temper
0 1 2 96 Seems preoccupied with sex
0 1 2 97 Threatens people
0 1 2 98 Tardy to school or class
0 1 2 99 Too concerned with neatness or cleanliness
0 1 2 100 Fails to carry out assigned tasks
0 1 2 101 Truancy or unexplained absence
0 1 2 102 Underactive, slow moving, or lacks energy
0 1 2 103 Unhappy, sad, or depressed
0 1 2 104 Unusually loud
0 1 2 105 Uses alcohol or drugs (describe) _____
0 1 2 106 Overly anxious to please
0 1 2 107 Dislikes school
0 1 2 108 Is afraid of making mistakes
0 1 2 109 Whining
0 1 2 110 Unclean personal appearance
0 1 2 111 Withdrawn, doesn't get involved with others
0 1 2 112 Worrying

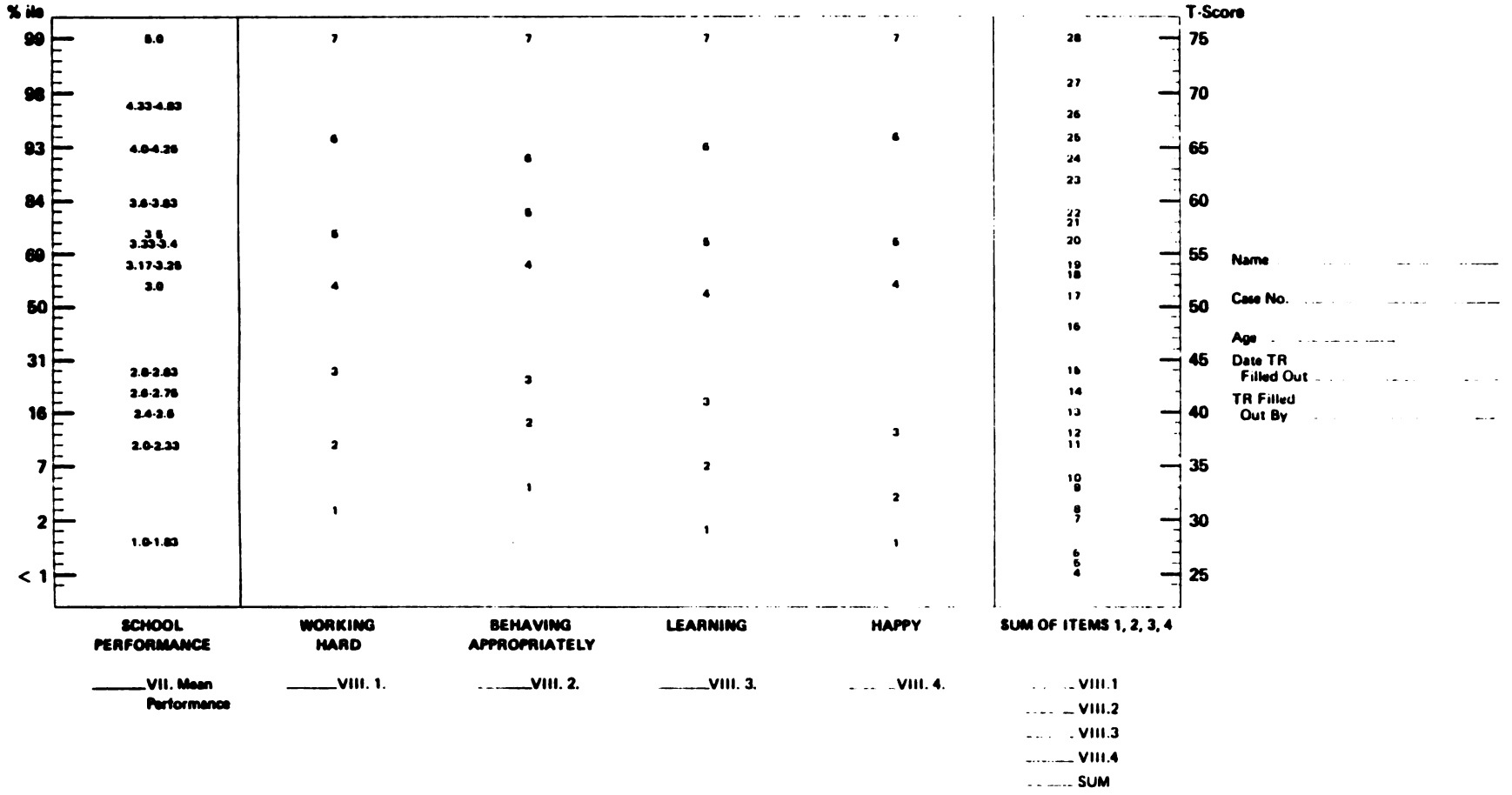
113 Please write in any problems the pupil has that were not listed above

0 1 2 _____
0 1 2 _____
0 1 2 _____

PLEASE BE SURE YOU HAVE ANSWERED ALL ITEMS

The Child Behavior Profile — Teacher's Report Version

Teacher-Reported Adaptive Functioning — Boys Aged 6-11



Name

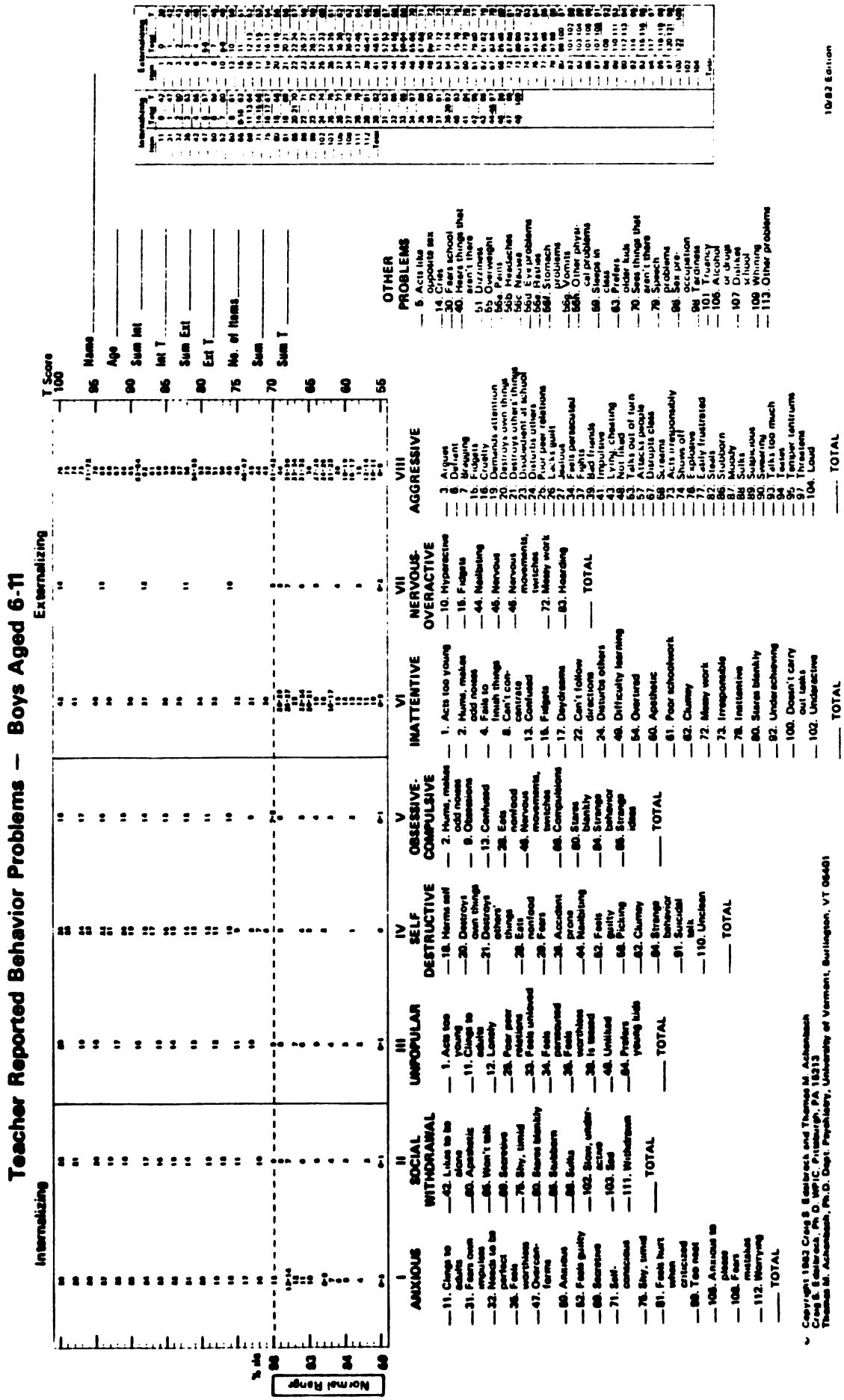
Case No.

Age

Date TR Filled Out

TR Filled Out By

10/82 Edition


Teacher Reported Behavior Problems — Boys Aged 6-11
Internalizing
Externalizing
T Score
Name
Age
Sum Int
Int T
Sum Ext
Ext T
No. of Items
Sum
Sum T
Normal Range
I ANXIOUS
II SOCIAL WITHDRAWAL
III UNPOPULAR
IV SELF DESTRUCTIVE
V OBSESSIVE-COMPULSIVE
VI INATTENTIVE
VII NERVOUS-OVERACTIVE
VIII AGGRESSIVE
OTHER PROBLEMS
TOTAL
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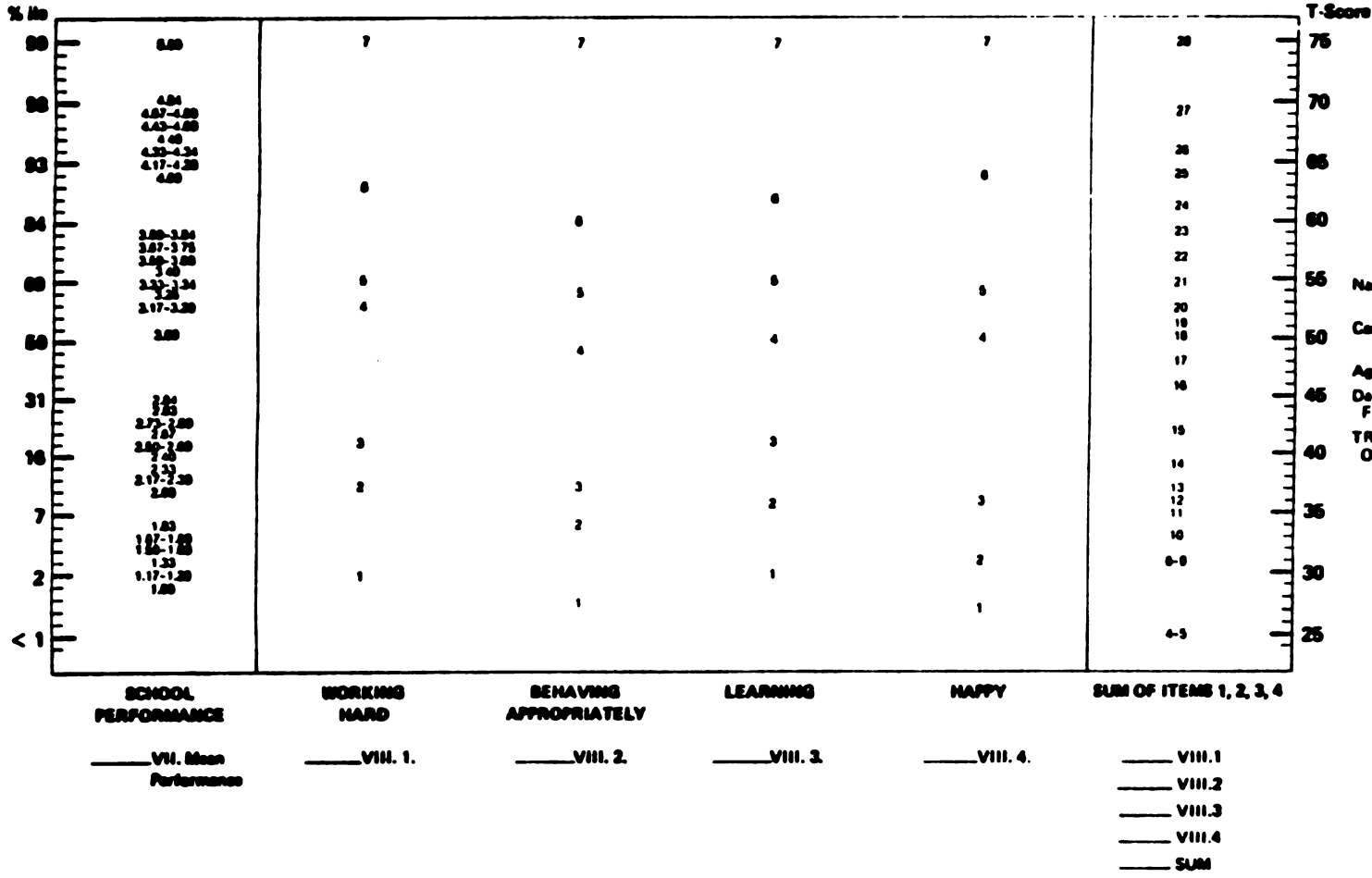
Craig S. Edelbrock, Ph.D. WPIC, Pittsburgh, PA 15213
Thomas M. Achenbach, Ph.D. Dept. Psychiatry, University of Vermont, Burlington, VT 05401
1983 Edition

The Child Behavior Profile—Teacher's Report Version

Teacher-Reported Adaptive Functioning—Girls Aged 6-11



Name _____

Case No. _____

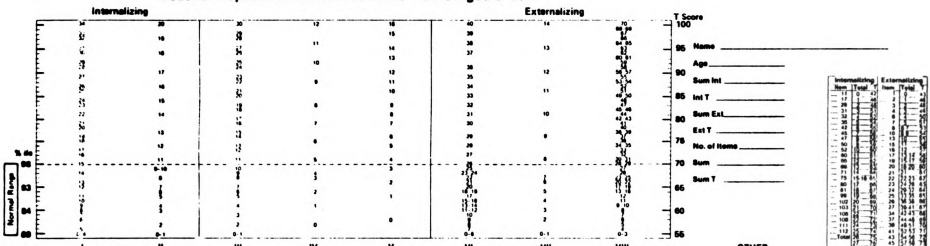
Age _____

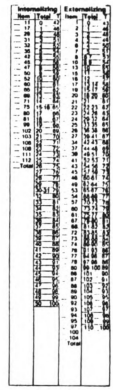
Date TR Filled Out _____

TR Filled Out By _____

1984 Edition

Teacher Reported Behavior Problems—Girls Aged 6-11





I ANXIOUS

- 11 Clings to adults
- 29 Fears
- 31 Fears own shortcomings
- 32 Needs to be perfect
- 35 Fears worthless
- 45 Nervous
- 47 Overcomes forms
- 50 Anxious
- 52 Fears guilty
- 71 Self conscious
- 75 Shy, timid
- 81 Feels hurt when criticized
- 99 Tense
- 103 Sad
- 105 Anxious to please
- 108 Fears mistakes
- 112 Worrying
- TOTAL

II SOCIAL WITHDRAWAL

- 17 Daydreams
- 42 Likes to be alone
- 60 Apathetic
- 65 Won't talk
- 69 Secretive
- 75 Shy, timid
- 80 Stares blankly
- 102 Slow, underactive
- 103 Sad
- 111 Withdrawn
- TOTAL

III DEPRESSED

- 11 Clings to adults
- 12 Lonely
- 16 Cries
- 27 Jealous
- 33 Feels unloved
- 34 Feels persecuted
- 35 Feels worthless
- 36 Accident prone
- 81 Feels hurt when criticized
- 87 Moody
- 88 Sulks
- 89 Suspicious
- 103 Sad
- 108 Whining
- 112 Worrying
- TOTAL

IV UNPOPULAR

- 25 Poor peer relations
- 34 Feels persecuted
- 37 Fights
- 38 Is teased
- 48 Unliked
- 110 Unclean
- TOTAL

V SELF-DESTRUCTIVE

- 2 Hums, makes odd noises
- 16 Harms self
- 20 Destroys own things
- 26 Eats nonfood
- 56a Eye problems
- 58 Picking
- 63 Hoarding
- 91 Suicidal talk
- TOTAL

VI INATTENTIVE

- 1 Acts too young
- 4 Fails to finish things
- 8 Can't concentrate
- 10 Hyperactive
- 13 Confused
- 15 Fidgets
- 17 Daydreams
- 18 Demands attention
- 22 Can't follow directions
- 49 Difficulty learning
- 54 Overtired
- 60 Apathetic
- 61 Poor schoolwork
- 72 Messy work
- 73 Irresponsible
- 78 Inattentive
- 80 Stares blankly
- 92 Underachieving
- 93 Talks too much
- 100 Doesn't carry out tasks
- TOTAL

VII NERVOUS-OVERACTIVE

- 2 Hums, makes odd noises
- 3 Argues
- 10 Hyperactive
- 15 Fidgets
- 41 Impulsive
- 46 Nervous
- 48 Nervous movements, twitches
- 93 Talks too much
- TOTAL

VIII AGGRESSIVE

- 2 Hums, makes odd noises
- 3 Argues
- 6 Defiant
- 7 Bragging
- 16 Cruelty
- 19 Demands attention
- 20 Destroys own things
- 21 Destroys others' things
- 23 Disobedient at school
- 24 Disturbs others
- 25 Poor peer relations
- 28 Lacks guilt
- 27 Jealous
- 34 Feels persecuted
- 37 Fights
- 39 Bad friends
- 41 Impulsive
- 43 Lying, cheating
- 53 Talks out of turn
- 57 Attacks people
- 67 Disrupts class
- 68 Screams
- 74 Shows off
- 76 Explosive
- 77 Easily frustrated
- 88 Stubborn
- 87 Moody
- 88 Sulks
- 89 Suspicious
- 90 Swearing
- 93 Talks too much
- 94 Teases
- 95 Temper tantrums
- 97 Threatens
- 104 Loud
- TOTAL

OTHER PROBLEMS

- 5 Acts like opposite sex
- 9 Obsessions
- 30 Fears school
- 40 Hears things that aren't there
- 44 Nail biting
- 51 Dizziness
- 55 Overweight
- 56a Pains
- 56b Headaches
- 56c Nausea
- 56e Rashes
- 56f Stomach problems
- 56g Vomits
- 56h Other physical problems
- 59 Sleeps in class
- 62 Clumsy
- 63 Prefers older children
- 64 Prefers younger children
- 66 Compulsions
- 70 Sees things that aren't there
- 79 Speech problems
- 82 Steals
- 84 Strange behavior
- 85 Strange ideas
- 86 Sex preoccupation
- 98 Tardiness
- 101 Truancy
- 106 Alcohol or drugs
- 107 Dislikes school
- 113 Other problems

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APPENDIX D

ADD-H: Comprehensive Teacher Rating Scale

ACTeRS

(ADD-H Comprehensive Teacher's Rating Scale)

Child's Name _____

ID _____

Rater _____

Date _____

Below are descriptions of children's behavior. Please read each item and compare this child's behavior with that of his/her classmates. Circle the numeral that most closely corresponds with your evaluation.

BEHAVIOR ITEM	Almost never				Almost always	
1. Works well independently	1	2	3	4	5	
2. Persists with task for reasonable amount of time	1	2	3	4	5	
3. Completes assigned task satisfactorily with little additional assistance	1	2	3	4	5	ATTENTION
4. Follows simple directions accurately	1	2	3	4	5	
5. Follows a sequence of instructions	1	2	3	4	5	
6. Functions well in the classroom	1	2	3	4	5	
ADD ALL NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE ---------- Score_____						
	never				always	
7. Extremely overactive (out of seat, "on the go")	1	2	3	4	5	
8. Overreacts	1	2	3	4	5	HYPERACTIVITY
9. Fidgety (hands always busy)	1	2	3	4	5	
10. Impulsive (acts or talks without thinking)	1	2	3	4	5	
11. Restless (squirms in seat)	1	2	3	4	5	
ADD ALL NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE ---------- Score_____						
	never				always	
12. Behaves positively with peers/classmates	1	2	3	4	5	
13. Verbal communication clear and "connected"	1	2	3	4	5	
14. Nonverbal communication accurate	1	2	3	4	5	
15. Follows group norms and social rules	1	2	3	4	5	SOCIAL SKILLS
16. Cites general rule when criticizing ("We aren't supposed to do that")	1	2	3	4	5	
17. Skillful at making new friends	1	2	3	4	5	
18. Approaches situations confidently	1	2	3	4	5	
ADD ALL NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE ---------- Score_____						
	never				always	
19. Tries to get others into trouble	1	2	3	4	5	
20. Starts fights over nothing	1	2	3	4	5	
21. Makes malicious fun of people	1	2	3	4	5	OPPOSITIONAL
22. Defies authority	1	2	3	4	5	
23. Picks on others	1	2	3	4	5	
24. Mean and cruel to other children	1	2	3	4	5	
ADD ALL NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE ---------- Score_____						

Please circle the numeral 1 through 5 that most closely describes the behavior of classmates and teacher toward the child.

This child	Almost never				Almost always	
is readily accepted by peers/classmates	1	2	3	4	5	
is in demand for group activities	1	2	3	4	5	
ADD NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE ---------- Score_____						
requires a great deal of teacher time for help with social or emotional problems	1	2	3	4	5	
requires a great deal of teacher time for help with academic problems	1	2	3	4	5	
ADD NUMBERS CIRCLED ABOVE AND PLACE TOTAL HERE ---------- Score_____						

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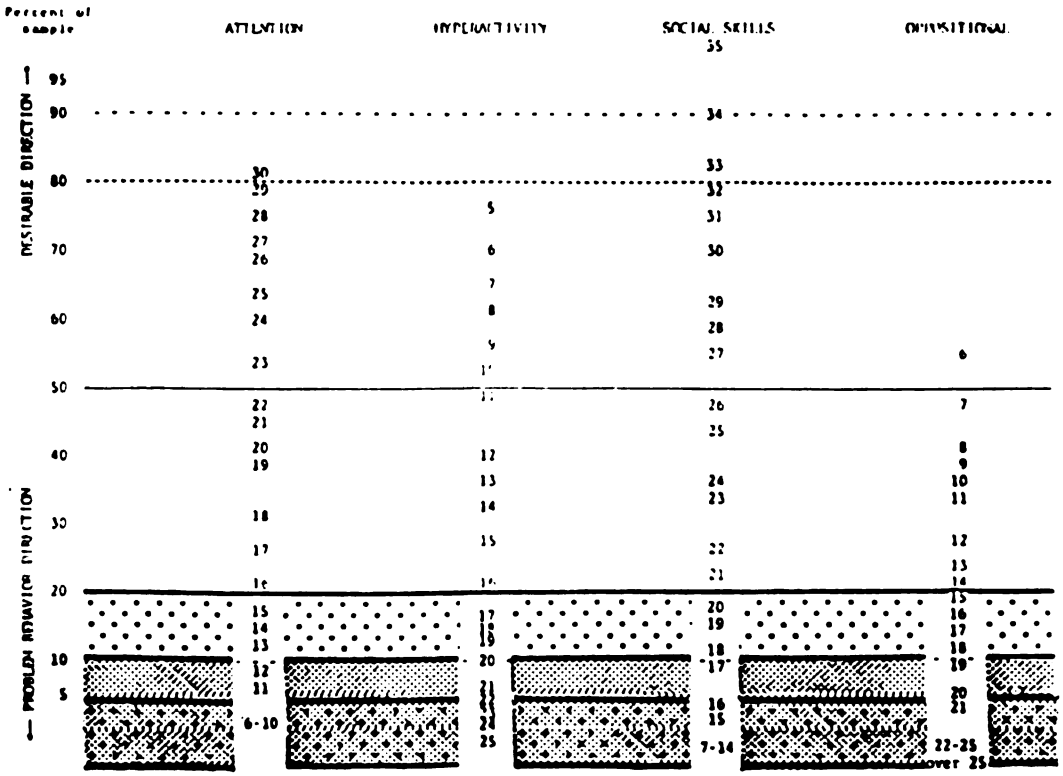
ACTeRS PROFILE for BOYS



Circle the raw scores in each of the four (factor) columns and determine percentiles in the leftmost column.

Some raw scores represent a range of percentile scores (e.g. for Oppositional behavior, the perfect score of 6 represents the range from the 55th percentile on up).

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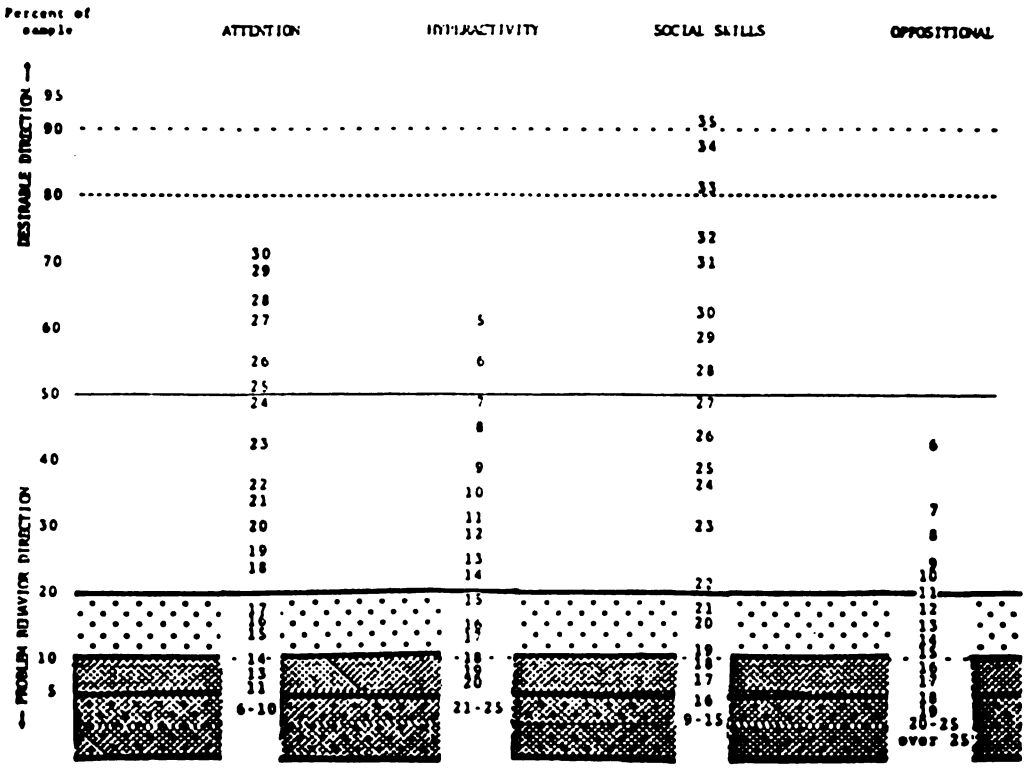
ACTeRS PROFILE for GIRLS



Circle the raw scores in each of the four (factor) columns and determine percentiles in the leftmost column.

Some raw scores represent a range of percentile scores (e.g. for Oppositional behavior, the perfect score of 6 represents the range from the 40th percentile on up).

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APPENDIX E

The Harter Self-Concept Measures

What I Am Like

NAME _____ BOY OR GIRL (circle which) AGE _____ BIRTHDAY_____ CLASS OR GROUP_____

SAMPLE SENTENCES

	REALLY TRUE for me	SORT OF TRUE for me				SORT OF TRUE for me	REALLY TRUE for me
a.	☐	☐	Some kids would rather play outdoors in their spare time	BUT	Other kids would rather watch T.V.	☐	☐
b.	☐	☐	Some kids never worry about anything	BUT	Other kids sometimes worry about certain things.	☐	☐
1.	☐	☐	Some kids feel that they are very good at their school work	BUT	Other kids worry about whether they can do the school work assigned to them.	☐	☐
2.	☐	☐	Some kids find it hard to make friends	BUT	For other kids it's pretty easy.	☐	☐
3.	☐	☐	Some kids do very well at all kinds of sports	BUT	Others don't feel that they are very good when it comes to sports.	☐	☐
4.	☐	☐	Some kids feel that there are alot of things about themselves that they would change if they could	BUT	Other kids would like to stay pretty much the same.	☐	☐
5.	☐	☐	Some kids feel like they are just as smart as other kids their age	BUT	Other kids aren't so sure and wonder if they are as smart.	☐	☐
6.	☐	☐	Some kids have alot of friends	BUT	Other kids don't have very many friends.	☐	☐

	REALLY TRUE for me	SORT OF TRUE for me				SORT OF TRUE for me	REALLY TRUE for me
7.	☐	☐	Some kids wish they could be alot better at sports	BUT	Other kids feel they are good enough.	☐	☐
8.	☐	☐	Some kids are pretty sure of themselves	BUT	Other kids are not very sure of themselves.	☐	☐
9.	☐	☐	Some kids are pretty slow in finishing their school work	BUT	Other kids can do their school work quickly.	☐	☐
10.	☐	☐	Some kids don't think they are a very important member of their class	BUT	Other kids think they are pretty important to their classmates.	☐	☐
11.	☐	☐	Some kids think they could do well at just about any new outdoor activity they haven't tried before	BUT	Other kids are afraid they might not do well at outdoor things they haven't ever tried.	☐	☐
12.	☐	☐	Some kids feel good about the way they act	BUT	Other kids wish they acted differently.	☐	☐
13.	☐	☐	Some kids often forget what they learn	BUT	Other kids can remember things easily.	☐	☐
14.	☐	☐	Some kids are always doing things with alot of kids	BUT	Other kids usually do things by themselves.	☐	☐
15	☐	☐	Some kids feel that they are better than others their age at sports	BUT	Other kids don't feel they can play as well.	☐	☐
16	☐	☐	Some kids think that maybe they are not a very good person	BUT	Other kids are pretty sure that they are a good person.	☐	☐

	REALLY TRUE for me	SORT OF TRUE for me				SORT OF TRUE for me	REALLY TRUE for me
17.	☐	☐	Some kids like school because they do well in class	BUT	Other kids don't like school because they aren't doing very well.	☐	☐
18.	☐	☐	Some kids wish that more kids liked them	BUT	Others feel that most kids do like them.	☐	☐
19.	☐	☐	In games and sports some kids usually watch instead of play	BUT	Other kids usually play rather than just watch.	☐	☐
20.	☐	☐	Some kids are very happy being the way they are	BUT	Other kids wish they were different.	☐	☐
21.	☐	☐	Some kids wish it was easier to understand what they read	BUT	Other kids don't have any trouble understanding what they read.	☐	☐
22.	☐	☐	Some kids are popular with others their age	BUT	Other kids are not very popular.	☐	☐
23.	☐	☐	Some kids don't do well at new outdoor games	BUT	Other kids are good at new games right away.	☐	☐
24.	☐	☐	Some kids aren't very happy with the way they do alot of things	BUT	Other kids think the way they do things is fine.	☐	☐
25.	☐	☐	Some kids have trouble figuring out the answers in school	BUT	Other kids almost always can figure out the answers.	☐	☐
26.	☐	☐	Some kids are really easy to like	BUT	Other kids are kind of hard to like.	☐	☐

	REALLY TRUE for me	SORT OF TRUE for me				SORT OF TRUE for me	REALLY TRUE for me
27.	☐	☐	Some kids are among the last to be chosen for games	BUT	Other kids are usually picked first.	☐	☐
28.	☐	☐	Some kids are usually sure that what they are doing is the right thing	BUT	Other kids aren't so sure whether or not they are doing the right thing.	☐	☐

In the Classroom

Pupil's Form

Name _____ Age _____ Birthday (Month) _____ (Day) _____

Grade _____ Teacher _____ Boy or Girl (circle which)

Sample Questions

	Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
(a)	☐	☐	Some kids would rather play outdoors in their spare time	BUT	Other kids would rather watch T.V.	☐	☐
(b)	☐	☐	Some kids like hamburgers better than hot dogs	BUT	Other kids like hot dogs better than hamburgers.	☐	☐
1.	☐	☐	Some kids like hard work because its a challenge	BUT	Other kids prefer easy work that they are sure they can do	☐	☐
2.	☐	☐	When some kids don't understand something right away they want the teacher to tell them the answer	BUT	Other kids would rather try and figure it out by themselves	☐	☐
3.	☐	☐	Some kids work on problems to learn how to solve them	BUT	Other kids work on problems because you're supposed to	☐	☐
4.	☐	☐	Some kids almost always think that what the teacher says is O.K	BUT	Other kids sometimes think their own ideas are better	☐	☐
5	☐	☐	Some kids know when they've made mistakes without checking with the teacher	BUT	Other kids need to check with the teacher to know if they've made a mistake	☐	☐
6	☐	☐	Some kids like difficult problems because they enjoy trying to figure them out	BUT	Other kids don't like to figure out difficult problems	☐	☐
7.	☐	☐	Some kids do their schoolwork because the teacher tells them to	BUT	Other kids do their schoolwork to find out about alot of things they've been wanting to know	☐	☐

	Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
8.	☐	☐	When some kids make a mistake they would rather figure out the right answer by themselves	BUT	Other kids would rather ask the teacher how to get the right answer	☐	☐
9.	☐	☐	Some kids know whether or not they're doing well in school without grades	BUT	Other kids need to have grades to know how well they are doing in school	☐	☐
10.	☐	☐	Some kids agree with the teacher because they think the teacher is right about most things	BUT	Other kids don't agree with the teacher sometimes and stick to their own opinion	☐	☐
11.	☐	☐	Some kids would rather just learn what they have to in school	BUT	Other kids would rather learn about as much as they can	☐	☐
12.	☐	☐	Some kids like to learn things on their own that interest them	BUT	Other kids think its better to do things that the teacher thinks they should be learning	☐	☐
13.	☐	☐	Some kids read things because they are interested in the subject	BUT	Other kids read things because the teacher wants them to	☐	☐
14.	☐	☐	Some kids need to get their report cards to tell how they are doing in school	BUT	Other kids know for themselves how they are doing even before they get their report card	☐	☐
15.	☐	☐	If some kids get stuck on a problem they ask the teacher for help	BUT	Other kids keep trying to figure out the problem on their own	☐	☐
16.	☐	☐	Some kids like to go on to new work that's at a more difficult level	BUT	Other kids would rather stick to the assignments which are pretty easy to do	☐	☐
17.	☐	☐	Some kids think that what the teacher thinks of their work is the most important thing	BUT	For other kids what *they* think of their work is the most important thing	☐	☐
18	☐	☐	Some kids ask questions in class because they want to learn new things	BUT	Other kids ask questions because they want the teacher to notice them	☐	☐
19	☐	☐	Some kids aren't really sure if they've done well on a test until they get their papers back with a mark on it	BUT	Other kids pretty much know how well they did even before they get their paper back	☐	☐

	Really True for Me	Sort of True for Me				Sort of True for Me	Really True for Me
20.	☐	☐	Some kids like the teacher to help them plan what to do next	BUT	Other kids like to make their own plans for what to do next	☐	☐
21.	☐	☐	Some kids think they should have a say in what work they do in school	BUT	Other kids think that the teacher should decide what work they should do	☐	☐
22.	☐	☐	Some kids like school subjects where its pretty easy to just learn the answers	BUT	Other kids like those school subjects that make them think pretty hard and figure things out	☐	☐
23.	☐	☐	Some kids aren't sure if their work is really good or not until the teacher tells them	BUT	Other kids know if its good or not before the teacher tells them	☐	☐
24.	☐	☐	Some kids like to try to figure out how to do school assignments on their own	BUT	Other kids would rather ask the teacher how it should be done	☐	☐
25.	☐	☐	Some kids do extra projects so they can get better grades	BUT	Other kids do extra projects because they learn about things that interest them	☐	☐
26.	☐	☐	Some kids think its best if they decide when to work on each school subject	BUT	Other kids think that the teacher is the best one to decide when to work on things	☐	☐
27.	☐	☐	Some kids know they didn't do their best on an assignment when they turn it in	BUT	Other kids have to wait til the teacher grades it to know that they didn't do as well as they could have	☐	☐
28.	☐	☐	Some kids don't like difficult schoolwork because they have to work too hard	BUT	Other kids like difficult schoolwork because they find it more interesting	☐	☐
29.	☐	☐	Some kids like to do their schoolwork without help	BUT	Other kids like to have the teacher help them do their schoolwork	☐	☐
30.	☐	☐	Some kids work really hard to get good grades	BUT	Other kids work hard because they really like to learn things	☐	☐

APPENDIX F

Multidimensional Measure of Children's Perceptions of Control

MPC1

Why Things Happen

Name _____ Age _____ Birthday (Month) _____ (Day) _____

Grade ___ Teacher _____ School _____ Boy or Girl (Circle one)

Sample Questions

(a) I like chocolate ice cream better than vanilla ice cream

very true sort of true not very true not at all true

(b) I really like spinach

very true sort of true not very true not at all true

---

1. When I win at a sport, a lot of times I can't figure out why I won.

very true sort of true not very true not at all true

2. When I am unsuccessful, it is usually my own fault.

very true sort of true not very true not at all true

3. The best way for me to get good grades is to get the teacher to like me.

very true sort of true not very true not at all true

4. If somebody doesn't like me, I usually can't figure out why.

very true sort of true not very true not at all true

5. I can be good at any sport if I try hard enough.

very true sort of true not very true not at all true

6. If an adult doesn't want me to do something I want to do, I probably won't be able to do it.

very true sort of true not very true not at all true

7. When I do well in school, I usually can't figure out why.

very true sort of true not very true not at all true

8. If somebody doesn't like me, it's usually because of something I did.

very true sort of true not very true not at all true

9. When I win at a sport, it's usually because the person I was playing against played badly.

very true sort of true not very true not at all true

10. When something goes wrong for me, I usually can't figure out why it happened.

very true sort of true not very true not at all true

11. If I want to do well in school, it's up to me to do it.

very true sort of true not very true not at all true

12. If my teacher doesn't like me, I probably won't be very popular with my classmates.

very true sort of true not very true not at all true

13. Many times I can't figure out why good things happen to me.

very true sort of true not very true not at all true

14. If I don't do well in school, it's my own fault.

very true sort of true not very true not at all true

15. If I want to be an important member of my class, I have to get the popular kids to like me.

very true sort of true not very true not at all true

16. Most of the time when I lose a game in athletics, I can't figure out why I lost.

very true sort of true not very true not at all true

17. I can pretty much control what will happen in my life.

very true sort of true not very true not at all true

18. If I have a bad teacher, I won't do well in school.

very true sort of true not very true not at all true

19. A lot of times I don't know why people like me.

very true sort of true not very true not at all true

20. If I try to catch a ball, and I don't, it is usually because I didn't try hard enough.

very true sort of true not very true not at all true

21. If there is something that I want to get, I usually have to please the people in charge to get it.

very true sort of true not very true not at all true

22. If I get a bad grade in school, I usually don't understand why I got it.

very true sort of true not very true not at all true

23. If somebody likes me, it is usually because of the way that I treat them.

very true sort of true not very true not at all true

24. When I lose in an outdoor game, it is usually because the kid I played against was much better at that game to begin with.

very true sort of true not very true not at all true

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