DO CHILDREN WITH MULTIPLE PATTERNS OF PROBLEM BEHAVIOR IMPROVE? THE EFFECTIVENESS OF AN INTENSIVE BIO-BEHAVIORALLY ORIENTED SCHOOL-BASED BEHAVIORAL HEALTH PROGRAM

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Over the last thirty years, children's behavioral health services in the school have witnessed drastic progress. Over this time, medications for mental health problems have improved. In addition, empirically validated treatments, most of which have come from behavioral psychology, have made their way into Best Practice guidelines for the treatment of children with emotional and behavioral disorders. In 1999, the U.S. Surgeon General reported on many of these practices and suggested their use to enhance treatment outcomes for children. The President's New Freedom Commission on Mental Health (2003) suggested the need for evidence-based practices to become a regular part of behavioral health care practice and suggested setting up and evaluating the effectiveness of such practices in demonstration projects. In addition, in the 2003-year school year, Children Crisis Treatment Center participated in a new school based program, which focused on the treatment of children with emotional and behavioral disorders in the school. Twenty-four children entered into the program over the course of the first year. Each child received a functional behavioral assessment and an individualized behavioral intervention plan. The treatments in these plans represented evidence based, best practices such as contingency management procedures like token systems with response cost, behavioral skills training, and problem solving training. The system functioned as a revolving entry program providing behavioral consultation to teachers, behavior therapy to children and direct care support to implement non-technical behavioral interventions. Of the eleven staff in the program, three had a masters' degree in counseling or a related field, who served as both behavior therapists and behavioral consultants to the teachers. Seven staff had bachelors degree in psychology related fields and one-year experience. Bachelor level staff provided direct care to the children on a rotating basis across the children's school day. The program never had more than twenty-two children at any one time. The pre-post scores represent the scores at the child's entrance and exits from the program, or entrance to the end of the school year. The average length of time represented in these scores for a child in the program was approximately 6 months. Of the original group, 18 received pre-post scores on the Achenbach: Teacher Report Form. One child's pre-post scoring pattern was in the normal range for both instruments, so we excluded his scores from the analysis. This paper represents an outcome analysis of the effectiveness of this program. Using the Jacobson and Truax's (1997) reliable change index score, we rated large behavioral response classes (or what some would refer to as psychiatric symptoms) to determine if clinically significant improvement resulted from the program. Using these measures, enhanced functioning occurred for twelve out of seventeen scores or 70% of the children. In addition, five out of the 17 or approximately 30% showed enough improvement to score as partially recovered.

INTRODUCTION

The last thirty years have witnessed incredible gains for children with emotional and behavioral disorders in both medical and psychosocial interventions (Department of Health and Human Services, 1999). Science has led the change in revolutionizing intervention practices. This work officially culminated with the release of the Surgeon General's report in 1999 (U.S. Department of Health and Human Services, 1999). This document reviewed state of the science advances in the understanding and treatment of a host of behavioral health issues and had an implied offer of an age in which new treatments would revolutionize clinical practice. It drew on the work began by the clinical psychology division of the American Psychological Association (Chamberless, Baker, Baucom, Beutler, Calhoun, Crits-Christoph, et al., 1998). Unfortunately, many children with behavioral health problems still wait for the day for these interventions to arrive (Chamberless & Ollendick, 2001; Wang, Demler, & Kessler, 2002).

In 2003, the President's New Freedom Commission on Mental Health issued a report. One of its five major goal areas is to increase the movement of evidence-based practices into mental health practices. Thus, the call for a movement from efficacy studies to effectiveness studies. Efficacy studies evaluate interventions in controlled research and effectiveness studies where researcher and practioners design the intervention to the practice settings and evaluate the programs effects on particular children (Kratochwill & Stiober, 2002). The New Freedom Commission suggests using demonstration projects to

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help facilitate this course of action. Unfortunately, field studies often cannot adhere to most methodological standards, which serve as the core of clinical efficacy research (Peterson & Bell-Dolan, 1995).

At the same time the report emerged, we were completing our first year of a demonstration project in children's behavioral health. The program was developed at the request of Community Behavioral Health, the count manage care agency and in collaboration with the local school system. The program was designed for children with emotional and behavioral disorders and its focus was to help reduce behavioral problems in these children. The program was an intensive behavioral intervention program, which utilized functional behavioral assessment information (DuPaul & Ervin, 1996; Reitmand & Hupp, 2003; Skinner, 1953; Wacker, Berg, Cooper, Derby, Steege, Northup, & Sasso, 1994; Individual's with Disability Education Act, 1997) to guide the use of empirically based practices for children with behavioral disorders (Walker, 1997, Walker, Colvin, & Ramsey, 1995).

We had previously decided that all children in the program would be assessed using the Teacher Report Form of the Achenbach (Achenbach & Rescorla, 2001). Such behavioral rating scale information is often very helpful in conducting a thorough functional behavioral assessment because it tracks the movement of large response classes of behavior (Alberto & Troutman, 1996; Merrell, 2000). The author decided to look at the data to determine the overall program effectiveness and wanted to determine the importance of the intervention to each individual client (Kendall, 1999). The basic question to be answered for the author in nonprofessional terms "Do children with multiple psychiatric problems in a real world setting improve?"

While direct assessment is preferred for most behavioral interventions, especially due to the situational specificity of behavior (Kazdin, 1979), indirect measures such as rating scales can be useful in tracking large response classes. Rating scales allowed us to track overall response classes to determine if more than one area of the child's patterns of behavior was improving. This coupled with the improved validity and reliability of rating scales has made rating scales one of the most popular methods of assessing children with emotional and behavioral disorders (Wilson & Reschly, 1996). While rating scales certainly do not represent "objective" measures of a child's behavior problems (McConaughy & Ritter, 1997), Kratochwill, Elliot, and Rotto (1997) suggested rating scales as a best practice way to determine the effects of consultation practice.

Once we had the scores, the issue became how to determine if progress indicated meaningful improvement in the client's life. The answer to that was provided by Neil Jacobson and colleagues (Jacobson & Truax, 1991; Jacobson, Follette & Revenstorf, 1984) and had been used previously to assess the effectiveness of behavioral parent training programs (see Ruma, Burke, & Thompson, 1996). Accordingly, what Jacobson and colleagues termed clinical significance, or what behavior analyst's would refer to as enhanced functioning (Alberto & Troutman, 1996), could be determined by taking the pre standard score on the Teacher Report Form and subtracting the posttest standard score. Next, divide the scores by the standard error for the measure. Jacobson and his colleagues call this statistic the reliable change index (Christensen & Mendoza, 1986; Jacobson, Roberts, Berns, & McGlinchey, 1999). Next, the research compares number to the standard cut-off of 1.97, which represents greater than 95% confidence that the score is not by chance. If it is greater then the number, then clinically significant change has occurred (Jacobson, Roberts, Berns, & McGlinchey, 1999).

Jacobson and colleagues (1999) suggested that five outcomes are possible. These outcomes are defined as:

(1) Recovered- the reliable chance score passes the 1.97 cut-off and the overall score drops below clinical range;

(2) Improved- the reliable chance score is greater than the 1.97, but the overall score did not pass out of the clinical range;

(3) Unchanged- the code if neither criterion is met;

(4) Regressed- when the reliable change score is passed in the opposite direction; and

(5) Unchanged- the client passes the cut off but does not show reliable change.

The reliable change index measures meaningful change. This change is more than would be expected under normal passage of time or life experiences (Jacobson, et al. 1991). In addition, this change is directly attributable to the interventions (Kratochwill, Elliot, & Rotto, 1997). However, research on reliable change scores tends to be scarce. Blackstead, Hatch, Lambert, Eggertt, Goates, and Vermeersch, (2003) demonstrated that the construct of clinical significance has merit and does have predictive validity. McGlinchey, Atkins, & Jacobson (2002) found that those in the recovered category were less likely to relapse into depression two years after the treatment. Still, more research needs to be done to demonstrate the empirical validity of these categories. We used the category of reliable change as improved in our study and as suggested by the Achenbach scoring manual applied to not just the externalizing and internalizing scale but to all the empirically derived subscales. We believe that this gives a more complete picture of the child's overall behavioral functioning, especially when they have several core psychiatric problems.

METHODS

Staff:

The staff consisted of three master-level personnel and seven bachelor-level personnel. Of the three master-level-personnel, one had a degree in counseling, the second in social work and the last in family therapy. All were involved in a certification program to sit for the certification exam in behavior analysis offered through a criminal justice department at a local University. At the time of the study, the first two master level personnel had completed two of the four courses needed to sit for the exam and the last had completed one course. By the end of the study, the first two had completed all four courses and the last had completed three of the four courses. All master-level personnel had at least three years working with children and two of the years were post-masters. All the bachelor staff had at least one year working with children and a psychology related degree. All staff had a thirty-hour agency orientation, which had at least four to six hours focused on behavior management principles such as setting up token systems and social skills training. In addition, staff had eight hours of training focused on crisis prevention and intervention.

Subjects:

Of the initial twenty-four subjects, only eighteen had both pre and post assessments on the TRF. Thus, we excluded the results of six for no pre-post assessment. Of the eighteen, one subject scored in the normal range for both the pre-post assessment. Thus, we decided to exclude his scores also. A licensed psychologist assessed and diagnosed all children entering into the program. On average children in the school-based program received 2-4 hours/week of master level contact and 7-9 hours/week of bachelor level contact. This left a total of 17 subjects described below:

SUBJECT 1 is a 9-years-old male. Subject 1 is African American with normal cognitive functioning. The difference in scoring of the TFR represents 2 months. Diagnosis on admission to the program was Attention Deficit Hyperactivity Disorder, Oppositional Defiant Disorder, History of Sexual Abuse, as well as a history of high lead levels. In the previous year of school, the district suspended Subject 1 over a dozen times and he missed between 40-50 days of the school year. Child was in outpatient therapy for three years prior to this intervention and continued in outpatient therapy through the time in the school-based program. At entry into the program, he was physically aggressive to peers between four-six times/day and verbally aggressive 12-15x/day.

SUBJECT 2 is an 8-year-old African American female. Subject 2 is an A & B student. The difference in scoring on the TRF represents a span of 8 months. She was diagnosed with Oppositional Defiant Disorder, Intermittent Explosive Anger Disorder, and a rule out for Bipolar Disorder. In addition, she suffered from asthma. Five weeks prior to the entry into the school-based program, child was placed on Tenex, which was increased during the course of the program to 1 mg and Resperidol .5 mg for the first time. Resperidol was increased to .5 mg b.i.d. during a hospitalization in February. At entry into the program child was on average disruptive in class 3-5 times/day in which she would knock over books, walk around the room, and break things. The duration of her outbursts were considerable long on observation from 30 minutes to 90 minutes per episode.

SUBJECT 3 is an African 12-year-old male. The difference in scoring on the TRF represents a span of 5 months. Subject 3 in the previous year was involved in a hospitalization and partial

hospitalization program. In addition, in the previous school year he was suspended on three separate occasions. His diagnosis at entry into the program was Depressive Disorder, NOS and Oppositional Defiant Disorder. In addition, the evaluation stated that psychotic features characterized his depression in the past. At entry, he was taking Paxil and Resperidol, which parent discontinued shortly after his discharge from the hospital and entry into the program. He was having 6-8 bouts of physical aggression on average/day, which lasted for three to five minutes or until broken up by others. It was noted that the child rarely completed any school assignments and that he would often walk off from school activities and wander the halls.

SUBJECT 4 is a 10-year-old African American male. Overall scoring on the TRF represents 6 months. Prior to the entry into the program, he was placed on Ritalin 5 mg 3x/day and for four years received mobile therapy, behavioral consultation in the school and a direct bachelor level staff person of more than 35 hours/week to work with him. On entry into the program, the child was having three physical fights/week at school, which was rated as moderate in intensity. He was actively stealing at home at least 2x/month. He was caught frequently lying and throwing temper tantrums 2-4x/week. He engaged the teacher in bickering and cursing from 4-6x/school day. He was diagnosed as having Attention Deficit Hyperactivity Disorder and Oppositional Defiant Disorder.

SUBJECT 5 is a 7-year-old African American male. Prior to entering into the program, his father was incarcerated. His difficulties prior to entering the program were disruptive behavior, fighting, and threatening other students in kindergarten and first grade. In addition, he had difficulty with comprehending teacher instruction. He was diagnosed as having Disruptive Disorder, NOS, Severe Attention Deficit Hyperactivity Disorder, and a rule out for an early mood disorder. When he entered the program, he was repeating first grade. Prior to entering the program, he was on Ritalin but while in the program, he was switched to Adderall 5 mg t.i.d. Baseline data collected on entry into the program showed an average of 16 acts of physical aggression/day, which included shoving, pushing, spitting, hitting, kicking, and biting. Verbally aggressive behavior included taunting and teasing other children as well as verbal threats occurred at a rate of 5-10x/day. This behavior if left unchecked could continue for 15-20 minutes. Calling out and general classroom disruptive behavior occurred from 11-33x/day with an average rate of 22x/day. Overall scoring on the TRF represents 4 months.

SUBJECT 6 is an 11-year-old African American male. He was diagnosed with Oppositional Defiant Disorder with a rule out for Conduct Disorder and Attention Deficit Hyperactivity Disorder combined type. He began having behavioral problems in kindergarten, which he was retained in due to behavioral difficulties. SUBJECT 6 had previously attacked his brother with a weapon and considered himself, a "bully." The year prior to entering the school based program, he was suspended twice for fighting and "disrespectful behavior to teachers." Subject 6 was not on medication at any point prior to or after entering the program. Overall scoring on the TRF represents 6 months.

SUBJECT 7 is a10-year-old African American male. Overall scoring on the TRF represents 8 months. SUBJECT 7 is diagnosed with Depression, NOS, Attention Deficit Hyperactivity Disorder, and Post Traumatic Stress Disorder with a rule out for psychotic thought disorder. Subject 7 had a long history of migraine headaches. Subject 7 was on Ritalin 10 mg b.i.d, when entering in the program, starting five months prior, and remained on through the program. During the previous school year, Subject 7 was suspended several times for fighting, being disrespectful, and throwing chairs. He was placed in the school accommodation room during the previous year at least 2x/week. He was frequently caught bullying other children in the previous year. At entry, he was physically aggressive 4-6x/week toward other children.

SUBJECT 8 is a 9-year-old African American male, whose father during the time he was in program was incarcerated. Overall scoring on the TRF represents 5 months. Full scale IQ measured by Weschler Abbreviated Scale of Intelligence was 109 (Average range). His diagnoses on entry were: Attention Deficit Hyperactivity Disorder combined type, Oppositional Defiant Disorder, and a rule out for Conduct Disorder. In addition, child suffers from severe asthma. SUBJECT 8 was a frequent fire starter. Prior to entry into the program child had frequent hospitalizations (3) and partial hospitalization (2). He had out patient therapy for two

years, family therapy for one year, and received a behavior specialist consultant (master level person to design a treatment plan) and therapeutic support staff person (to execute the treatment plan) for one year prior to entering into the school-based program. Just prior to starting in the program, the school suspended the child for his fourth time that school year. In the previous year, the school suspended him over ten times. When he started the program, he was on 30 mgs of Adderall XR. The psychiatrist continued the medication through his time in the school-based program. His aggressive behavior was occurring at a rate of 3 episodes of physical aggression per day (slapping, hitting) and 6 episodes of verbal aggression/day. He also engaged in 5-7 episodes of classroom disruption/day.

SUBJECT 9 is an 11-year-old African American male. On entering the program, he was diagnosed with an Adjustment Disorder with mixed disturbance of emotions and conduct, Oppositional Defiant Disorder, rule out for Depressive Disorder, NOS and a rule out for a Learning Disorder, NOS. Overall scoring on the TRF represents 7 months. SUBJECT 9 a long history of behavioral problems dating back to the first grade in the school and during the previous year was suspended on five different occasions and made frequent trips to the schools accommodation room. Just prior to entering the program, Subject 9 was suspended twice. Initial data collection indicated that Subject 9 talked back to his teacher 7-10x/day, rarely followed directions prior to being told 4-5x, and threw tantrums in school 2x/month. SUBJECT 9 was not on medication before or during the study.

SUBJECT 10 is a 6-year-old African American female. He was diagnosed as having an Adjustment Disorder with Mixed Disturbance of Emotions and Conduct and Parent-Child Relation Problems. In addition to the school based behavioral health program, this child received three hours/week of mobile therapy in the home. Child was not on any medication before or during the program. At the time of admission, baseline data was defiant to teacher's directions 18-20 times per day. SUBJECT 10 had approximately 1-2 tantrums/day, which were recorded as lasting from fifteen minutes to one hour. When in conversation or playing games, SUBJECT 10 did not wait her turn and did not allow others to take their turn 4-6times/day. Overall scoring on the TRF represents 2 months.

SUBJECT 11 is a 12-year-old African American male. He was diagnosed with Oppositional Defiant Disorder, Post Traumatic Stress Disorder, Learning Disorder, NOS, Attention Deficit Hyperactivity Disorder, and Childhood Antisocial Behavior. SUBJECT 11 had a history of being placed on Ritalin but adoptive parent "weaned" him off. SUBJECT 11 was not on any medication at the start of the program, nor was he placed on medication any time during the course of the program. SUBJECT 11 was an adopted child who had a history of his foster parent dying under mysterious circumstances. Prior to entry into the program, he had received multiple suspensions including carrying weapons to school. SUBJECT 11 was hospitalized several times prior to entry to the program; the most recent was for aggression in 1997. SUBJECT 11 had a history of probation for fire setting but did not engage in such behavior while in the program. At time of entry into program, SUBJECT 11 was recorded as having 1-2 acts of fighting/day, 3-5 acts of pushing and shoving other children/day, 6-8 episodes of disruptive behavior/hour, mostly calling out in class, getting out of seat, or teasing other children. Bullying was occurring at the rate of 5-6 times/day. Overall scoring on the TRF represents 6 months.

SUBJECT 12 is a 6-year-old African American male. His full Scale IQ as measured by the WISC III was measured at 94. The verbal I.Q. was measured at 100 and the Performance IQ was measured at 89. Child was diagnosed with Oppositional Defiant Disorder, Attention Deficit Hyperactivity Disorder and Learning Disorder, NOS. He also received a rule out for Depressive Disorder. SUBJECT 12 received both outpatient psychotherapy and intensive case management both prior to entry in the school based program and throughout the school based program. Prior to entering program child was receiving a behavior specialist consultant to consult both at home to parent on child management and at school to consult to teacher. In addition, he received individualized home and school behavioral support in the form of a bachelor level support staff person for fifty hours/week. In addition, he received an in home family therapist for three hours/week who was discontinued when he entered the school based program. Parent attended a psychiatric evaluation for medication but declined placing child on medicine for depression. Overall scoring on the TRF represents 8 months.

SUBJECT 13 is a 7-year-old African American male. Prior to entry into the program, the child was involved with a partial hospitalization program for two years for disruptive behavior. Just prior to entry into the program, SUBJECT 13 was receiving services in the form of behavior specialist consultation at two hours/week and mobile therapy at a rate of three hours/week. SUBJECT 13 was receiving Concerta 18 mg in the morning both prior to and during the course of the school-based program. On entry into the program, he was diagnosed with Attention Deficit Hyperactivity Disorder, combined type, Oppositional Defiant Disorder, and Mixed Receptive-Expressive Language Disorder with a rule out for Mild Mental Retardation. Baseline rates of behavior were 3-4 acts of aggressive behavior/day, usually this took the form of pushing peers, which tended to last from 2-5 minutes. Another behavior of interest was his disruptive behavior, which lasted 1-2 minutes and occurred about 10-15 times/day. The final behavior of interest was verbal aggressive behavior, which occurred 40-50 times/day. Overall scoring on the TRF represents 4 months.

SUBJECT 14 - is a 10-year-old African American male. SUBJECT 14 had behavioral problems dating back to his time in head start and continuing through first and second grade. In the previous year, teachers reported him as being very disrespectful to teachers and often talking back to them. He engaged in many oppositional and disruptive behaviors in the classroom. On entry into the program he was diagnosed as having Attention Deficit Hyperactivity Disorder and Oppositional Defiant Disorder. Baseline data at entry indicated that SUBJECT 14 was defiant of teacher requests 5-6x/day and out of his classroom 3-4 times/day. Overall scoring on the TRF represents 8 months

SUBJECT 15 is a 9-year-old African American male. SUBJECT 15 was diagnosed with Oppositional Defiant Disorder with a rule out for Mixed Receptive and Expressive Language Disorder and a rule out for Learning Disorder, NOS. At nine, SUBJECT 15 was still only in the second grade and struggling. Child entered school late and then repeated the first grade. He had no previous behavioral health treatment. In the previous year, he was suspended several times for fighting and was in the principal's office almost every day in the beginning of the school year. Initial baseline data at entry indicated SUBJECT 15 was exhibiting 3 to 4 acts of aggression/day, which varied in form but included mostly hitting and pushing, some biting and kicking were also noted. Aggressive behavior was usually brief only lasting less than 1 minute. SUBJECT 15 exhibited 10-12 acts of disruption/day, which could last as brief as 1-2 minute but occasionally, would erupt to bouts that would be 30 minutes or longer. SUBJECT 15 also engaged in bullying of other children. On baseline, the bullying occurred at least 3x/day but was difficult to track because it would occur when staff was not around. Episodes that were noted lasted two to five minutes. Overall scoring on the TRF represents 6 months.

SUBJECT 16 is an 8-year-old African American male. SUBJECT 16 had over ten suspensions in the previous school year. In addition, he was seen for psychiatric problems on twelve separate occasions at Einstein Crisis Center. SUBJECT 16 just prior to entry in the program was tried on a Ritalin 10 mg in morning and 5 mg at noon. A few days after starting the medicine, SUBJECT 16 wound up back at the crisis center after an attempt to choke his mother. SUBJECT 16 His Ritalin was increased to 10 mg in morning and 5 mg at noon and 5 mg at 4 p.m. Prior to entry into the program, he received behavior specialist consulting services to the school and a direct full time one on one staff support person to execute interventions designed by the behavior specialist. At entry, he was diagnosed with Disruptive Disorder, NOS and Attention Deficit Hyperactivity Disorder. Baseline data at entry showed SUBJECT 16 as having 4-6 acts of physical aggression per day. Most of these acts were brief punching and hitting episodes of other children. Another targeted behavior at entry was blaming others for his mistakes, which varied widely but on average occurred 8 times / school day. The final behavior judged at baseline was cursing which occurred approximately 2-4x/day. Overall scoring on the TRF represents 6 months.

SUBJECT 17 is an 8-year-old Latino male. Prior to entry in school based SUBJECT 17 was involved in several outpatient and partial hospitalization programs for disruptive behavior. He was prescribed Adderall and Dexidrine prior to entering the program but was taken off the medication shortly before his admission to the program. Reason for removal of the medication was not stated. On entry he was diagnosed with Oppositional Defiant Disorder and Attention Deficit Hyperactivity Disorder. Overall scoring on the TRF represents 5 months.

Descriptive statistics: 14 out of 17 male = 82% male, 18% female. The average length of time in program was 5.9 months. Average age of children of child was 9 years old. Sixteen, of seventeen (94%), of the subjects in this study were African American and one child was Latino.

INTERVENTIONS BY SUBJECT

All children received a functional behavioral assessment, which was develop by interview of the primary teacher using the problem identification and analysis format from Bergan and Kratochwill's behavioral consultation model (1990) and direct observation of the child to determine setting, antecedents and consequences for misbehavior. Goals for intervention were set in collaboration with the teacher and parent. All goals met best practice guideline of having a person, target behavior, condition, criterion, and target date (see Alberto & Troutman, 1996;Bergan & Kratochwill, 1990). In addition, goals all listed the behavior to reduce and an alternative competing behavior to increase. All bachelor-level personnel and master-level personnel received daily peer supervision in a team format on each case. De-escalation procedures were created based on an individualized analysis of the child's behavior chains, which result in escalation as outlined in Walker, Colvin, and Ramsey (1995). Many subjects were on some form of medication, which was continued through the program. All children on medication received regular psychiatric evaluations and medication management. Detailed descriptions of the subject's interventions are listed below:

SUBJECT 1 was begun on medication in early October. He was receiving Adderall 5 mg 2x/day then he was increased two weeks later to 10 mg in morning, 5 mg at noon and 2.5 mg in the evening. He was assessed for the school-based program on the TRF on Oct 23rd. At that point, it was reported that medication was yielding a slight but not significant improvement but often children with history of high lead levels are slow to improve on stimulants. Functional behavioral assessment identified unstructured environments such as the lunchroom as triggering much of his out of seat and off task behavior and transitions from classroom to classroom triggered much of his fighting. The assessment also revealed that out-of-seat behavior, sexual gestures, and off-task behavior was maintained by peer attention, while fighting and cursing were maintained by escape from transitioning with peers. Interventions included an individualized de-escalation procedure based on a task analysis of Subject 1's escalation cycle, change in seating to reduce access to peer attention for inappropriate behavior, social skills training group and a contingency management procedure, which combined praise and tangible rewards for appropriate discussion with peers with a response cost for sexual statements and physical aggression. Response cost mainly took the form of "Owed Time" in which H.H lost five minutes of valued time such as recess. Teacher received ongoing behavioral consultation from the master level staff on praising child for cooperation and task completion, sticking with the owed time and token program, and discussion on ways prompt child to use social skills. Behavioral consultation also lead to the development of a "daily report" being sent home and the use of the teacher giving the child greater amounts of positive attention.

SUBJECT 2 was briefly hospitalized for one week while in program in early February. After which she attended a partial hospitalization program for three and one half weeks. During hospitalization, the dosage of Resperidol was increased. Functional behavioral assessment determined that one trigger for SUBJECT 2's behavior was when her teacher was absent from school. Another trigger for aggressive behavior occurred when peers did not ask SUBJECT 2 to play with her friends in the schoolyard. Both of these often triggered aggressive behavior, hitting, and biting. Another trigger when the teacher gave her a command or request. This often triggered both aggression and noncompliance. Settings that were most likely to cause problems were gym class and the lunchroom. Function of behavior was determined to escape from tasks that produced frustration and from adult commands. Disruption in the classroom often served the function of engaging the teacher and getting teacher attention. Interventions included and individualized de-escalation procedure for SUBJECT 2. Master level person began weekly behavioral consultation to the teacher to help her problem solve using information from the functional behavioral assessment to create strategies to lessen SUBJECT 2's aggressive behavior and increase her social skills. Master level person engaged in weekly home phone calls to parent of SUBJECT 2. In addition, bachelor level personnel directly trained SUBJECT 2, through coaching and feedback, to ask other children if she can play and other social skills to initiate interaction with other children. The bachelor level person helped child to create a list of the positive behaviors that she

did that day to report to others, so that she could get attention for speaking positively about herself to teacher and staff. The bachelor level person trained her in behavioral coping skills (such as relaxation and distracting herself) and to reward her for skill use when she occurred, through a token reward system. The bachelor level person gave particular assistance in the lunchroom with praise for appropriate behavior, 0-4 point system with the loss of two points for misbehavior but the opportunity to earn one point back quickly if she accepted the consequences "well." Bachelor level person constructed a daily log to send home every day. Teacher used a group reward in the classroom and verbal praise for improvements in SUBJECT 2's behavior. Teacher also set up the opportunity for SUBJECT 2 to engage in more interaction with her peers that was appropriate such as playgroups and set work groups. SUBJECT 2's teacher also used a response cost of loss of recess for physically or verbally aggressive behavior, which was tailored during consultation. All staff executed an individualized de-escalation procedure based on a behavior chain analysis of the SUBJECT 2's escalation cycle.

SUBJECT 3 prescribed but not taking Paxil and Resperidol prior to program entry into the program. His compliance with this medication was poor after his hospital stay. The psychiatrist changed his medication, while he was in the program to Cylert 10 mg 1x/day. Subject 3's functional behavioral assessment results indicated that he was more likely to occur during recess and during transitional times for aggressive behavior. Off task behavior occurred during more difficult instructional times for him such as math and reading classes as well as during independent seatwork time. This would often lead to child leaving the classroom and wandering the hallways. The function of aggression appeared to be to get an intimidation reaction from peers immediately and after to get peer compliance and tangibles. The function of being off task and wandering the halls started as escape behavior but then when he entered the halls, the behavior achieved sensory reinforcement. The team tried multiple interventions including behavioral consultation with the teacher on methods to manage and modify child behavior in the classroom based on functional assessment results. In addition, master level personnel conducted individual sessions 1x/week, which focused on problem solving and emotional support. The bachelor level personnel engaged in prompting assignment completion. In addition, the bachelor level personnel made frequent interactions with the subject to increase stimulation. A response cost program was instituted which focused on after school detention for failure to complete assignments. Subject 3 also attended a social skills group 1x/week with the bachelor level staff. Both teacher and bachelor level staff were to help child to participate in small groups and gradually increased the group size until Subject 3 was back involved with the whole class. Teacher assessed the child against the curriculum and arranged for the child to receive additional assistance in class (peer tutoring). Teacher also had a class-wide token system in place and did not want an individual token system running concurrently. However, during the course of the program, she agreed to try this point system and Subject 3 began to receive computer time as a reward meeting the point requirement. In addition, the team developed and executed an individualized de-escalation procedure for Subject 3 based on a behavior chain analysis of Subject 3's escalation cycle to prevent events such as destroying school property and assaults on peers. Parents inconsistently gave the medication at home.

SUBJECT 4 was receiving Ritalin prior to entering the program and continued through the program on Ritalin at the same dose. He was also receiving for 4 years a behavior specialist consultant, individual support and mobile therapy. These services were reduced upon entry into the program to only render interventions in the non-school environment. Information obtained from the functional behavioral assessment revealed that SUBJECT 4 occurred when given task assignments, or when the teacher requested that he start to work, which lead to noncompliance, bickering, and classroom disruption. In addition, he would become disruptive mostly in the form of pushing and arguing during transitions to other activities. The function in the classroom for disruption, bickering, and noncompliance was escape, while the function during transitions was mainly to get and maintain peer attention. The team conducted interventions for these problems at multiple levels. At the master level, the clinician consulted with the classroom teacher using a behavioral consultation model which designed interventions based on functional assessment material. In addition, master level personnel helped mother to set up home rules for child and expectations in the home. Finally, master level personnel conducted 1 individual behavior therapy session/week focused on problem solving skills. Bachelor level personnel at the beginning of the school day rehearsed with SUBJECT

4 the classroom rules, prompted him to stop and count to ten and set up reward system to reward child for ignoring others. Bachelor level personnel also had child participate in weekly skills training group focused on role-play with modeling and feedback on appropriate social skills such as methods for resolving conflict. Teacher delivered the tangible rewards to the child. Teacher prompted child to use indoor voice if he became loud and rewarded him for practicing self-control. Teacher also used an in class time-out procedure for disruptive behavior. Finally, the staff created and executed an individualized de-escalation procedure, based on an individualized behavioral chain model of SUBJECT 4's escalation cycle.

SUBJECT 5's psychiatrist changed his medication from Ritalin while in the program. The psychiatrist started him on and continued him on Adderall through out the program. Subject 5's functional behavioral assessment revealed that aggressive behavior occurred mostly when external stimuli such as outside noise and peers fighting distracted him. In addition, he occurred when he transitioned or when peers engaged in "horseplay" such as pushing, which would quickly turn into serious fighting. His aggressive behavior appeared to serve several functions including escape from sensory stimulation, access to peer attention and teacher attention, and his lack of communicative behavior to express being upset. Disruptive behavior and calling out occurred when by teacher lessons, in which he had little interest, low structured classroom activities or at shifts of classroom activities or times where noise level in classroom was high. The function of the calling out seemed to be to get teacher attention or make peers laugh. The function was also to escape stimulation of classroom noise. Verbally aggressive behavior seemed to occur through the day, mostly when the teacher was not monitoring and another student, who he did not like, was present. The function of the verbal aggression was to gain peer compliance and to get emotional reactions from peers. Master level personnel conducted weekly consultation sessions with the teacher. Bachelor level staff conducted weekly social skills training groups. Bachelor level personnel set up daily morning debriefing of the child when he arrived at school at the end of which a daily goal were set and a behavioral contract for reward contingent on meeting goals. Response cost in the form of "owed time" which included loss of free time for minor misbehaviors and in-school detention for more serious misbehavior such as fighting. In addition, the team removed SUBJECT 5 from lunch due to his difficulty handling unstructured environment. Bachelor level staff rendered praise contingent on cooperation and high rates of attention delivered non-contingently. Bachelor level staff accompanied child during transition to restrooms and other destinations. Bachelor level staff allowed child to move to back of classroom if he became overstimulated and Subject 5 requested to move. Master level staff coached the Bachelor level staff on using "broken record technique," which staff would continuously restate consequences and what the child should be doing. The Bachelor level staff trained Subject 5 on relaxation exercises and rehearsed (1) counting to ten, then counting backwards to one (2) taking a deep breath (3) positive self-statements (4) requesting and going to away time (5) using deep muscle relaxation (6) techniques such as stop, think, and plan. Bachelor level created and executed a reward system to reward the use of such techniques in the natural environment and a daily report to send home to parents. Finally, bachelor level personnel provided redirection in the form of verbal prompting. Teacher would use proximal control techniques, prompt child to apologize when he says offensive statements to other children, and gave child ongoing feedback for his behavior. All staff executed an individualized de-escalation procedure based on a behavior chain analysis of the escalation SUBJECT 5's cycle.

SUBJECT 6's functional behavioral assessment data revealed the following triggers (1) not getting his way or something that he wanted which triggered disruptive behavior (2) when he was teased by others, which triggered aggression and (3) when adults gave him a directive, which triggered noncompliance. Disruption appeared to serve the function of gaining access or a tangible. Both noncompliance and aggressive behavior appeared allow Subject 6 to escape. He received the following intervention from the master level personnel (1) behavioral consultation to his teacher to establish strategies to manage his behavior (2) individual support sessions to help him to adjust to classroom stress and support his learning and using of social skills. The bachelor level interventions included redirection, participating in social skills group. The bachelor level personnel used praise for compliance. In addition the bachelor level person helped to create an activity schedule of enjoyable activities that the client could intersperse through his day to help make it more "enjoyable" and lessen stress. Bachelor level person also created and sent home a daily report.

Parent gave rewards based on daily report. All staff executed an individualized de-escalation procedure based on a behavioral chain analysis of his acting escalation cycle. Teacher avoided placing Subject 6 into competitions because SUBJECT 6 discouraged quickly. Teacher praised Subject 6 for his involvement in activities.

SUBJECT 7's functional assessment stated that his bullying and aggressive behavior occurred when by transitions and being unmonitored for extended periods of time. SUBJECT 7's noncompliance and oppositional behavior occurred when by teacher commands. Function of bullying behavior was to get items from peers and get peers to submit (give up). Oppositional and noncompliant behaviors appeared to function to escape teacher commands. Finally, making strange comments functioned to get teacher and peer attention. Interventions included individual social skills sessions 1x/week by master level personnel, who engaged in role-plays with coaching and feedback. Bachelor level interventions included prompting child to use social skills and setting up token system to reward skill use. Bachelor level created a daily chart to send home to parent. Teacher would interact with child frequently through out the day, this gave more attention and increased monitoring of SUBJECT 7 Teacher made commands within 3 feet of SUBJECT 7 Teacher made eye contact with Subject 7 when giving a command. She gave more start commands and less stop commands. In addition, she began to give more alpha commands and less beta commands. Teacher also implemented antecedent control strategies such as moving Subject 7 to front of classroom, clearing away distractions from SUBJECT 7. The teacher scheduled frequent breaks in routine for Subject 7. Bachelor level person used a daily behavioral contract, which took the points from token system to reward compliance and response cost procedure for noncompliance and placed them for a prearranged choice of rewards. Bachelor level also engaged client in direct behavioral skills training such as study skills, which focused on clearing distractions from work.

SUBJECT 8's functional behavioral assessment revealed that the SUBJECT 8 was having considerable difficulty in both the schoolyard and in the classroom. One trigger for aggressive behavior and vulgar expression was when the teacher was not present monitoring the child or the child was out of the teachers hearing range. The function of the behavior appeared to get peers to show behaviors characteristic of fear. Subject 8 attacked smaller peers when others are not present. The function of the behavior appeared to gain control over peers. Interventions consisted of weekly behavioral consultation sessions with the teacher from the master level clinician to use behavioral principles to modify child's behavior problems in the classroom. Bachelor level staff used contingency management procedures such as daily behavioral contract, daily point system, and daily reward for a host of behaviors including non-aggressive conflict resolution. In addition, the staff placed child on "owed time" response cost system, where misbehavior lead to the loss of time with peers. The bachelor level personnel also engaged the child in social skills and social problem solving training to teach child alternative ways to get peer attention and to find alternative solutions to problems. Staff directly trained the behavior using instruction, feedback and coaching, and then the team placed the behavior on the child's daily point system. The teacher used a classroom token system, which led to a daily report was sent home. Teacher increased monitoring of the child's behavior. Teacher praised child when he displayed no aggressive behavior in the schoolyard and put a token system in the classroom in place, which she reviewed, in behavioral consultation with the master level clinician. All staff executed an individualized de-escalation procedure based on a behavior chain analysis of Subject 8's escalation cycle.

SUBJECT 9 functional behavioral assessment data revealed that the settings most likely to cause problems were the school playground and hallways for physical aggression. In addition, noncompliance and classroom disruption were most likely to occur when Subject 9's assignments were changed. Finally, daydreaming/off task behaviors were most likely to occur in the morning when teacher was giving assignments. The function of the aggression was to escape teasing and to get "his way". The function of arguing with teacher, off tasks, daydreaming, noncompliance and classroom disruption was to avoid tasks. Interventions included the master level personnel providing weekly teacher consultation and individual support sessions for the child 1x/week. The later sessions focused on support and social skills enhancement. The bachelor level interventions consisted of listening to SUBJECT 9, when his concerns were genuine and ignoring him when the concerns were not. SUBJECT 9 attended weekly social skills group with the bachelor level staff.

Bachelor level staff sent home daily behavioral report. SUBJECT 9 received points on token system for being on task in morning classes and rewards in morning if he was on task for the majority of the ten-minute intervals. Staff executed individualized crisis de-escalation procedure based on a behavior chain analysis of SUBJECT 9's escalation cycle. Teacher established clear classroom rules and praised SUBJECT 9 for completing assignments. When child could not complete assignments, teacher praised child for raising his hand and asking for help. Parent agreed to rendered daily rewards for good behavior and punished child for misbehavior in the home but the team was skeptical as to whether the parent followed through with delivering the rewards.

SUBJECT 10 received mobile psychotherapy prior to and during the receiving of the school-based program. The mobile therapy occurred by a non-school based person, who was a master level therapist, for three hours per week in the home and focused on the parent child relationship. SUBJECT 10's functional behavioral assessment showed that noncompliance occurred in morning hours and when given a directive by teacher. The function of this behavior appeared to be securing longer amounts of teacher's attention. Tantrums were most likely to occur in her main classroom and the function was to escape tasks. The trigger for skipping turns of others appeared to be during games when loosing or the game slowed and during group interactions especially on the playground. The function appeared to be to secure more time or get an extra turn or to secure adult attention. Master level intervention was on going consultation to the classroom teacher. Bachelor level personnel interacted with SUBJECT 10 to ensure that she understood directions, rehearse rules of games, and reward compliance. Staff was to intervene early when SUBJECT 10 experienced problems rendering "hurdle help" to prevent problem from escalating. The bachelor level person also instituted a time-out for non-compliance and failing to turn take. Teacher was careful to provide clear directions. Teacher would use peers to demonstrate and model how to behave or get teacher attention. Teacher provided a predetermined signal to help child to focus before giving directions. All staff executed an individualized de-escalation procedure based on a behavior chain analysis of the SUBJECT 10's escalation cycle

SUBJECT 11's functional behavioral assessment results indicated aggression largely occurred in unstructured setting such as when the teacher was helping another child or during transitions such as lunch or in the hallways. Subject 11 largely directed aggressive behavior toward female peers. Aggression appeared to be multifunctional: to get a reaction from female peers; sensory in that SUBJECT 11 liked hitting other children; gain access to older peer groups; and it got peer attention. Disruptive behavior occurred by lessons, which were either "slow" or above his level. Another trigger for his disruptive behavior was his peer group becoming disruptive. The function of disruptive behavior appeared to be escape from tasks or the learning environment. Interventions from the master level personnel involved bi-weekly consultation with the teacher, monthly family meetings, and bi-weekly individual sessions to build problem solving and perspective taking skills. Bachelor level personnel engaged in weekly social skills training groups with the child; however, given SUBJECT 11's level of disruption in the group, the team later discontinued this intervention. Bachelor level personnel implemented a response cost program "Owed Time," which deducted minutes from recess for disruptive behavior. Master level staff trained Bachelor level personnel to be assertive with child and not back down from giving consequences. If child argued with staff, they would restate consequences. Bachelor level staff placed SUBJECT 11 on a token system, which awarded points on appropriate behavior and verbal praise for staying on task and not acting aggressively. The staff felt that the child's difficulty with transitioning should lead to his removal from transition times with others. He would transition with the bachelor level personnel. Since this was restrictive, he would earn his way back to transitioning with others, through his token system. Bachelor level personnel sent home daily report to adoptive family. All staff executed an individualized de-escalation procedure based on a behavior chain analysis of SUBJECT 11's escalation cycle. Teacher gave child on going feedback about his behavior in class and engaged in a program of contingent praise for appropriate behavior. Teacher engaged in a modified token system with a response cost. She also engaged in cuing SUBJECT 11 when he engaged in inappropriate behavior. Parent reviewed daily report and discussed the "advantages" and "disadvantages" of his behavior in school.

SUBJECT 12's functional behavioral assessment revealed that trigger for noncompliance was that the teacher made a request. The function of

the noncompliance was to get teacher attention. The trigger for off task and disruptive behavior was the teacher giving independent work assignments. The function of the off task and disruptive behavior appeared to be task avoidance and a sense of power that he was able to "defeat" teacher and sensory of seeing teacher's reaction. Several factors maintained poor social skills; SUBJECT 12's parent did not allow him to interact with other children after school from his neighborhood because he lived in a rough neighborhood. Thus, Subject 12 did not have much experience outside of the school with building peer groups. SUBJECT 12's mother and grandmother had difficulty following through with daily consequences. At several points in the therapy, mother and grandmother seemed to present rewards non-contingent on the child's behavior. Master level interventions included monthly consultation with the teacher regarding the execution of the treatment plan. Bachelor level and teacher strategies included working on precision requests, which involved giving specific commands that were not vague, using the child's name, and being within three feet of the child. In addition, teacher gave more "do" than "don't" commands. Child earned red tickets for compliance and bachelor level person prepared and sent home a daily report. Parent was to deliver home reward based on daily report and offer coaching and support for improving performance at school. Child attended weekly social skills training group with the bachelor level personnel. All staff used an individualized de-escalation procedure based on a behavior chain analysis of SUBJECT 12's escalation cycle.

SUBJECT 13 was receiving a behavioral consultant and mobile therapist prior to entering the program. He continued to receive these services while in the program. SUBJECT 13's functional behavioral assessment revealed that aggressive behavior occurred mostly in unsupervised and unstructured setting such as lunch, transition from class to class and recess. In addition, he was also more likely to fight if in "play fighting" episodes, where other children began playing around with taunting and fighting but would quickly escalate into physical fights. Fighting appeared to function to get attentions and if the child was hurt during play episodes (response to pain). In addition, disruptive behavior seemed to occur when the lesson was one that he did not find interesting or if other peers were engaged in disruptive behaviors. The function of the behavior appeared to be escape or sensory stimulation. Master level interventions included consultation with the classroom teacher and occasional contact and meetings with the parent. Bachelor level person instituted a token system with a response cost mechanism and the child attended a weekly social skills group with the bachelor level person. Bachelor level staff would not allow the child to get involved with "play fighting" and rendered a response cost program if the child walked toward such games. Bachelor level person conducted a task analysis of transitioning and spent time training child in steps to transition after school. If SUBJECT 13 forgot a step or part of the process, staff held him after school for refresher training. Teacher engaged in greater monitoring of the child. She instituted an in school detention for misbehavior and increased the amount of general praise that she gave the child during the course of the day. Teacher created and sent home a daily report every day of SUBJECT 13's behavior. All staff practiced an individualized de-escalation procedure based on a behavior chain analysis of Subject 13's escalation cycle.

SUBJECT 14 functional behavioral assessment data revealed that a trigger for disruptive behavior was SUBJECT 14 having completed an assignment. In addition, the stage was set for this as a trigger if he previously displayed a lot of off task behavior when he was working on the assignment. Disruptive behavior appeared to function to get teacher and peer attention. Master level interventions included behavioral consultation to teacher in an on gong basis and the development of a teacher monitoring system for compliance. Bachelor level interventions included a social skills group and a group to identify stressors and triggers that would set him off during the day. Bachelor level person also used praise for following directions and tangible rewards for compliance with tasks. Teacher monitored child's noncompliance and sent home a daily report to parents. Teacher developed a system for increasing the precisions in her commands. She began to give more stat commands and less stop commands. She increased the amount of alpha as opposed to beta commands. Teacher also reduced the amount of attention that she gave the child for engaging in defiance or other classroom disruption. All staff practiced an individualized de-escalation procedure based on a behavior chain analysis of SUBJECT 14's escalation cycle.

SUBJECT 15's functional behavioral assessment revealed that unstructured activities and transition times were most likely to produce instances

of aggressive behavior. Subject 16's aggressive behavior functioned to get attention from peers. In addition, it may have been the only behavior that the child had witnessed for handling conflicts and lacked conflict resolution skills. Disruptive behavior was likely to occur if the lesson was difficult for SUBJECT 15 or he became bored during the lesson and another student was near by him. Another trigger for disruptive behavior is if he spent greater than five minutes in line during a transition without moving. SUBJECT 15 was most likely to engage in bullying when he did not get something that he wanted from another child. Master level interventions involved on going consultation with the teacher and other school staff. Bachelor level staff executed multiple interventions. These interventions included: executing a token system with response cost rewarding positive and appropriate behavior and loss of points for inappropriate behaviors; creating a daily report to send home; removal from groups if he engaged in inappropriate behavior during transitions and having to earn his way back to work with the group; and both social skills and social problem solving training in conflict resolution skills in a weekly group. If SUBJECT 15 broke rules, bachelor level person would restate the rule and the consequences for breaking the rules. Aggressive behavior led to in-house detention. Teacher interventions included using a star system to allow SUBJECT 15 to earn points, which he could exchange for rewards and execution of a response cost program where the child lost free time for disruptive behavior and received detention for aggressive behavior. Teacher responded to all disruptive and aggressive behavior consistently and praised the child frequently for handling situations without disruptive behavior. All staff practiced an individualized de-escalation procedure based on a behavior chain analysis of SUBJECT 15's escalation cycle.

SUBJECT 16 continued on medication through the program but often medication was delivered inconsistently and in March a period of time passed where he had no medication. Results from SUBJECT 16's functional behavioral assessment indicated that aggressive behavior occurred in most environments and several multiple functions including escape from class, to get peers to comply and to get teacher attention. Aggressive behavior towards adults functioned to escape from class. The triggers for blaming others for his mistakes mostly occurred in the halls, when it was difficult to ascertain the person responsible and the function of this behavior appeared to be to escape any negative consequences for his behavior. The triggers for disruptive behavior and calling out in class appeared to be when he had the answer to a question and was not called on for greater than 5 seconds. Subject 16's behavior occurred in the hallway, where things are louder and more disorganized. The function was always to gain peer or teacher attention. Interventions for the master level personnel were to conduct weekly consultation with the teacher. In addition, SUBJECT 16 received 2-3 individual sessions/week from the master level profession, which reviewed rules and expectations, focused on building problem solving skills, building perspective-taking skills, and challenging thinking about different situation. Bachelor level personnel conducted a weekly social skills group for the child, initiated a verbal correction procedure for misbehavior, created and executed an individualized token economy procedure in which tokens were paired with praise, and initiated a time out procedure if child was disruptive in hallway to get peer attention. Bachelor level personnel also initiated an anger management program for the child, which the child learned to stop, count to ten or say the alphabet when he was in the hallway. Bachelor level personnel provided support and encouragement as needed and created a daily behavioral chart for the child to take home. Teacher responded consistently to disruption with a response cost program, in which the child lost free time. She increased supervision of the child by moving him closer to her and gave him additional responsibilities in the classroom such as chores and running errands. All staff practiced an individualized de-escalation procedure based on a behavior chain analysis of SUBJECT 16's escalation cycle.

SUBJECT 17's functional behavioral assessment results highlighted that off task behavior was more likely to occur in the afternoon. In addition, SUBJECT 17's endurance in most areas was problem. He would frequently start and not finish things. This behavior appeared to function for escape but the therapist also noted that a true assessment was difficult due to the child coming off his medication. Another behavior of interest was throwing papers and calling other students names. These behaviors were also more often likely to occur in afternoon and seemed to occur when he was not engaged in a task such as when teacher gave him was independent work. A final behavior of interest was SUBJECT 17's not following directions. This behavior appeared to function to both escape work and to get the

attention of peers. Master level interventions included teacher consultation and a once/week individual session, which offered support and problem-solving training. Bachelor level intervention included weekly social skills training group, a token system to reward appropriate behavior and a response cost program for misbehavior. Teacher worked to shorten tasks and limit the amount of extraneous stimuli in the classroom. All staff practiced an individualized de-escalation procedure based on a behavior chain analysis of SUBJECT 17's escalation cycle.

Treatment integrity checks

To check treatment integrity, 60 notes were drawn and reviewed at random, all the notes mentioned the treatment goal, which the note form prompted, and 52 out of the sixty, made reference to at least one of the interventions mentioned in the treatment plan.

Table 1 Results

Name (age)	TRF dates	T- Scale scores Improved	T-Scale Scores stayed same	T-Scale scores gotten worse	Standard Error of measure	Clinically significant change? (Reliable change Index Score >1.97)	How counted
1. Subject 1 9 year old male	10/23/02 to 4/22/03 6 mo.	Thought Problems (68-B, 64- N) Attention Problems (66-B, 62-N) Rule Breaking (65-B, 50 N) Aggressive (78-C, 65-B) Total Problems (67-C, 62-B) Externalizing Problems (73-C, 62-B)			Thought Problems 1.5 Attention Problems 2.6 Rule Breaking 1.3 Aggressive Behavior 3.5 Total Problems 7.2 Externalizing Problems 4.1	Thought Problems Y Attention Problems N Rule Breaking Y Aggressive behavior Y Total Problems Y Externalizing Y	Clinically significant outcome for effectiveness
Subject 2. 8 year old female	10/10/02 & 6/17/03 8 mo.	Thought Problems (70-C, 63-N) Attention Problems (75-C, 64-N) Rule-Breaking (76-C, 71-C) Aggression (96-C, 77-C) Total Problems (78-C, 71-C) Externalizing (88-C, 76-C)	Social Problems (67-B)	Anxious/Depressed (59-N, 69-B) Internalizing Problems (60-B, 68, C)	Thought Problem 1.2 Attention Problems 2.7 Rule Breaking 1.1 Aggressive Behavior 3.1 Total Problems 4.3 Externalizing Problems 3.6	Thought Problems Y Attention Problems Y Rule Breaking Y Aggressive Behavior Y Total Problems Y Externalizing Problems Y	Clinically significant outcome for effectiveness
Subject 3. 12 year old male	11/2/02 & 4/12/03 5 mo.	Aggressive Behavior (85-C, 73-C) Externalizing (78-C, 74-C)	Attention Problems (81-C, 79-C)	Withdrawn (63-N, 81-C) Social Problems (68-B, 72-C) Thought Problems (57-N, 77-C) Rule Breaking (70-C, 74-C) Total Problems (77-C, 80-C) Internalizing (59-N, 70-C)			Over all got worse
Subject	10/31/02 to	Attention Problems (81-	Aggressive	Social Problems	Attention Problem 2.6	Attention Problem	Clinically

Name (age)	TRF dates	T- Scale scores Improved	T-Scale Scores stayed same	T-Scale scores gotten worse	Standard Error of measure	Clinically significant change? (Reliable change Index Score >1.97)	How counted
4. 10 year old male	4/28/03 6 mo.	C, 69-B) Rule Breaking (70-C, 67-B) Externalizing Problems (73-C, 70-C) Total Problems (72-C, 69-C)	Behavior (70-C, 70-C)	(59-N, 67-B)	 Rule-Breaking 1.3 Externalizing Problems 4.1 Total Problems 7.2	Y Rule Breaking Y Externalizing Problems N Total Problems N	significant outcome for effectiveness
Subject 5. 7 year old male	2/14/03 & 6/17/03 4 mo.	Anxious/Depressed (66-b, 61-N) Withdrawn (66-B, 64-N) Thought Problems (81-C, 68-B) Total Problems (80-C, 78-C) Internalizing (67-C, 64-C)	Social Problems (74-C, 74-C) Attention Problems (67-B, 68-B) Rule Breaking (76-C, 76-C)	Aggressive Behavior (90-C, 95-C)	Anxious/Dep. 1.8 Withdrawn 2.0 Thought Problems 1.5 Total Problems 7.2 Internalizing Problems 3.1	Anxious/Dep Y Withdrawn N Thought Problems Y Total Problems N Internalizing Problems N	Clinically significant outcome for effectiveness
Subject 6 11 year old male	10/23/02 & 4/28/03 6 mo.	Thought Problems (81-C, 50-N)		Withdrawn/Depressed (53-N, 66-B) Social Problems (62-N, 74-C) Rule-Breaking (634-N, 82-C) Aggressive Behavior (65-B, 68-C)			Client got worse
Subject 7 10 year old male	10/23/02 & 6/17/03 8 mo.	Attention Problems (68-B, 60-N) Aggression (80-C, 76-C) Externalizing (74-C, 70-C) Total problems (72-C, 68-C)	Withdrawn 68-B. 68-B) Internalizing (65-C, 65-C)	Somatic Complaints (62-N, 65-B)	Attention Problems 2.6 Aggressive Behavior 3.5 Externalizing Problems 4.1 Total Problems 7.2	Attention Problems Y Aggressive Behavior N Externalizing Problems N Total Problems N	Clinically significant outcome for effectiveness
Subject 8. 9 year old male	11/01/02 & 4/24/03 5 mo.	Anxious/Depressed (66-B, 55-N) Withdrawn/Depressed (74-C, 66-B) Social Problems (72-C, 65-B) Thought Problems (77-C, 66-B) Attention Problems (94-C, 66-B) Rule-Breaking (82-C, 72-C) Aggressive behavior (100-C, 78-C Internalizing Problems (70-C, 65-C) Externalizing Problems			Anxious/Dep. 1.8 Withdrawn/Dep. 2.0 Social Problem 0.90 Thought Problems 1.5 Attention Problems 2.6 Rule Breaking 1.3 Internalizing Behavior Problems 3.1 Externalizing Behavior Problems 4.1	Anxious/Dep2.78- Y Withdrawn/ Dep. Y Social Problems Y Thought Problems Y Attention Problems Y Rule Breaking Y Internalizing Behavior Problems N Externalizing Behavior Problems Y	Clinically significant outcome for effectiveness

Name (age)	TRF dates	T- Scale scores Improved	T-Scale Scores stayed same	T-Scale scores gotten worse	Standard Error of measure	Clinically significant change? (Reliable change Index Score >1.97)	How counted
		(89-C, 76-C) Total problems (86-C, 72-C)			Total Problems 7.2	 Total Problems N	
Subject 9. 11 year old male	10/23/02 & 6/4/03 7 mo.	Thought Problems (71-C, 63-N) Attention Problems (75-C, 62-N) Rule Breaking (71-C, 62-N) Aggressive Behavior (97-C, 58-N) Externalizing Problems (80-C, 63-N) Total Problems (75-C, 63-C)	Withdrawn/ Depressed (68-B, 66-B)	Somatic Complaints (54-N, 74-C) Internalizing (63-B, 68-C)	Thought Problems 1.5 Attention Problems 2.6 Rule breaking 1.3 Aggressive Behavior 3.5 Externalizing Problems 4.1 Total Problems 7.2	Thought Problems Y Attention Problems Y Rule Breaking Y Aggressive Behavior Y Externalizing Problems Y Total Problems N	Clinically significant outcome for effectiveness
Subject 10. 6 year old female	2/24/03 & 4/28/03 2 mo.	Social Problems (80-C, 71-C) Attention Problems (65-B, 61-N) Aggressive behavior (86-C, 67-B) Externalizing Problems (81-C, 69-C) Total Problems (73-C, 68-C)	Rule Breaking (71-C, 71-C)	Anxious/Depressed (61-N, 68-B) Thought Problems (72-C, 78-C0 Internalizing Problems (62-C, 67-C)	Social Problems .9 Attention Problems 2.6 Aggressive Behavior 3.1 Externalizing Problems 3.6 Total Problems 7.0	Social Problems Y Attention Problems Y Aggressive Behavior Y Externalizing Problems Y Total Problems N	Clinically significant outcome for effectiveness
Subject 11. 12 year old male	12/16/02 & 6/17/03 6 mo.	Social Problems (65-B, 59-N) Rule Breaking (66-B, 62-N) Total Problems (65-C, 61-B)	Aggressive Behavior (71-C, 70-C) Externalizing (70-C, 69-C)		Social Problems .8 Rule Breaking 1.8 Total Problems 7.4	Social Problems Y Rule Breaking Y Total Problems N	Clinically significant outcome for effectiveness
Subject 12- 6 year old male	10/2/02 & 6/17/03 8 mo.			Thought Problems (50-N, 66-B) Rule Breaking (56-N, 66-B) Total Problems (53-N, 60-B) Externalizing Problems (54-N, 64-C)			Client got worse
Subject 13- 7 year old male	12/10/02 & 4/24/03 4 mo.	Aggressive Behavior (77-C, 66-B)	Rule Breaking (C-72, C-&0) Attention Problems (64-N, 66-B)	Anxious / depressed (51-N, 66-B) Social Problems (67-B, 72-C) Thought Problems (57-N, 66-B) Externalizing Problems (72-C, 75-C)			Client got worse

Name (age)	TRF dates	T- Scale scores Improved	T-Scale Scores stayed same	T-Scale scores gotten worse	Standard Error of measure	Clinically significant change? (Reliable change Index Score >1.97)	How counted
				Total Problems (65-C, 72-C)			
Subject 14- 10 year old male	10/7/002 To 6/17/03 8 mo.	Withdrawn/Depressed (73-C, 66-B) Thought Problems (65-B, 50-N) Attention Problems (69-B, 61-N) Internalizing Problems (65-C, 62-B) Total Problems (69-C, 64-C)	Rule Breaking (66-B, 66-B) Aggressive Behavior- (68-B, 67-B) Externalizing Problems (69-C, 68-C)		Withdrawn/Dep. 2.0 Thought Problems 1.5 Attention Problems 2.6 Internalizing Problems 3.1 Total Problems 7.2	Withdrawn/ Depressed Y Thought Problems Y Attention Problems Y Internalizing Problems N Total Problems N	Clinically significant outcome for effectiveness
Subject 15- 9 year old female	10/2/02 & 4/23/03 6 mo.	Social Problems (70-C, 64-N) Rule Breaking (70-C, 60-B) Aggressive behavior (74-C, 68-B) Externalizing Problems (74-C, 68-B)	Total Problems (68-C, 68-C)	Anxious/Depressed (55-N, 66-B) Thought Problems (66-B, 72-C) Internalizing Problems (55-N, 62-B)	Social Problems .9 Rule Breaking1.3 Aggressive Behavior 3.5 Externalizing Problems 4.1	Social Problems Y Rule-Breaking Y Aggressive Behavior N Externalizing Problems N	Clinically significant outcome for effectiveness
Subject 16- 8 year old male	10/2/02 to 4/11/03 6 mo.	Anxious/Depressed (66-B, 59-N) Withdrawn/Depressed (69-B, 57-N) Social Problems (67-B, 64-N) Thought Problems (68-B, 50-N) Attention Problems (68-B, 61-N) Aggressive Behavior (98-C, 78-C) Internalizing Problems (68-C, 58-N) Externalizing Problems (85-C, 75-C) Total Problems (79-C, 67-C)	Rule-Breaking (72-C, 69-B)		Anxious Depressed 1.3 Withdrawn/ Depressed 2.0 Social Problems .9 Thought Problems 1.5 2.6 Rule Breaking 1.3 Aggressive Behavior 3.5 Internalizing Problems 3.1 Externalizing Problems 4.1 Total Problems 7.2	Anxious/Dep Y Withdrawn/ Depressed Y Social Problems Y Thought Problems Y Attention Problems- Y Rule Breaking Y Aggressive Behavior Y Internalizing Problems Y Externalizing Problems Y Total Problems N	Clinically significant outcome for effectiveness
Subject 17.-8 year old male	11/19/02 to 4/30/03 5 mo.	Total Problems (60-B, 57-N)	Rule Breaking (66-B, 64-N) Externalizing Problems (62-B, 62-B)		Total Problems 7.2	Total Problems N	Not a clinically significant outcome for effectiveness

Children Making Good Progress: 1. Children had more scales improve then got worse 2. At least one scale score set needed to reach reliable change
Children no improvement: 1. No scale scores making reliable change and 2. No scale scores getting significantly worse
Children getting worse: 1. More scale scores getting worse then improving Number of children making good progress: 12 out of 17 or 70%

RESULTS

Discussion

Staff delivered all interventions in the program to children in a regular public school within a large urban school district. Most but not all of the children involved in this program had received multiple mental health treatments prior to entry. Some had been in the mental health system for years. The majority of children were on at least one type of medication for mental health problems. All children on entry had at least one diagnosis, with the majority having two or more. Most children were on some form of medication and continued on that medication throughout the program.

Researchers evaluate behavior analytic procedures in the natural environment with different populations; however, researchers have evaluated most of these procedures using single subject designs, which while excellent for determining if change occurred, make it difficult to track the overall comparison to non-referred or normal peers of the subject. On the other hand, behavior analytic procedures evaluated in group-designs, fail to estimate the practical consequences of treatment for the individual consumer (Kendall, 1999; Saunders, Howard, & Newman, 1988). We believe that this study overcomes some of the questions for overall effectiveness. We believe that it would be good for future studies, which incorporate single subject designs to give reference group measures such as using standardized behavioral assessment instruments or in education criterion referenced tests such as achievement tests.

The major contribution of this study is that it takes treatments, which have withstood empirical scrutiny in both single subject and group subject designs, and looked at the effects those treatments had to determine their overall effectiveness with a heterogeneous population in reducing the large response classes of problem behavior to make them more like their peers. Even though this was the first year of the program, the results were impressive. Overall, 70% of the children in the program made clinically significant (i.e., meaningful change), as rated by the primary person who interact with the children through out the school day: their classroom teacher. We believe that these are very strong results but still some factors buffer drawing optimistic conclusions. For example, the staff hospitalized of child during the course of her treatment in the program. After that she was moved to a partial hospital program for three weeks. While her results showed significant improvement, the effects of the hospitalization remain important and unaccounted for in the analysis. In addition, no child received results consistent with a complete recovery but five received good enough results (approximately 30%) to be titled a partial recovery (clinical significant results with no subscales significantly increasing and at least two subscales recovering).

Our effectiveness results appear in line with the overall effectiveness of behavioral interventions. For example, behavioral parent training has not only received empirical validation, but has received support as the treatment of choice for children with Disruptive Disorder (e.g., Brestan & Eyberg, 1998). Conservative estimates for behavioral parent training have stated that anywhere between of 50-66% of children with disruptive behavior patterns function in the normal range at the termination of treatment (Dishion & Patterson, 1992; Taylor, Schmidt, Pepler, & Hodgins, 1998). While school based interventions in this study does not appear as efficient as behavioral parent training (see Ruma, Burke, & Thompson, 1996), the severity of problem behaviors may be a factor in requiring the extended need for treatment. Indeed, severity of problem behaviors was one factor identified by Ruma and colleagues (1996) that mediated treatment effects.

In addition, the school rather than home focus may be the reason for a lower effectiveness. While behavioral interventions in schools for disruptive behavior do constitute best practices in management and remediation (e.g., Walker, 1997; Walker, Colvin, & Ramsey, 1995) and do incorporate a home component (as ours did with a daily home report for most children), Walker and colleagues (1995) have acknowledged that these programs often take longer than one year to achieve their results and some have questioned their relative efficiency compared to parent training programs (see Patterson & Yoeger, 2002). In this light, our program seems well on its way to echoing the length of time and the results that

these more structured interventions have determined are important.

While the results are generally consistent with behavioral interventions for children, the unique contribution of this study is that it suggests that severe behavioral problems can be addressed through behavioral and bio-behavioral treatments in the natural setting. Of course, this as with all studies has limitations. The first is that we had no control group to isolate behavior that changed because of treatment in comparison to their effects such as the intensity of the service or other miscellaneous factors. We do note that for years many of the children receive a host of other treatments, which failed to produce meaningful change. Another problem was that since this was the first year of the program, no follow up data are available, so it is impossible to speak to long term factors such as did the changes maintain. While use of a single measure is typical for this design (see Ruma et al., 1996), we acknowledge that it is a limitation of a study to use of a single measure of outcome and its subscales: the TRF.

Use of the TRF, can be open to problems due to the bias of the rater (Zeanah, Smyke, & Dumitrescu, 2002). Often three forms of bias are discussed, overrating or creating a more negative look of the child, underrating which creates a more positive bias of the child and a shifting pattern of rating from either overrating to under rating or underrating to overrating. Neither overrating nor underrating in it would be a problem for the study. If the teacher consistently overrates or consistently underrates, this would not be a problem, because it is the observed change measured (Martin, Hooper, & Snow, 1986). On the other hand if the bias shifts, then the scale is of limited utility (Smyke, Dumitrescus, & Zeanah, 2002). We found little evidence in this study of a shifting bias.

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