

Summer Treatment Program for Children with ADHD

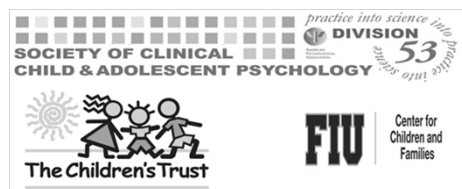
William E. Pelham, Jr.

Elizabeth M. Gnagy

Andrew R. Greiner

Center for Children and Families

Florida International University

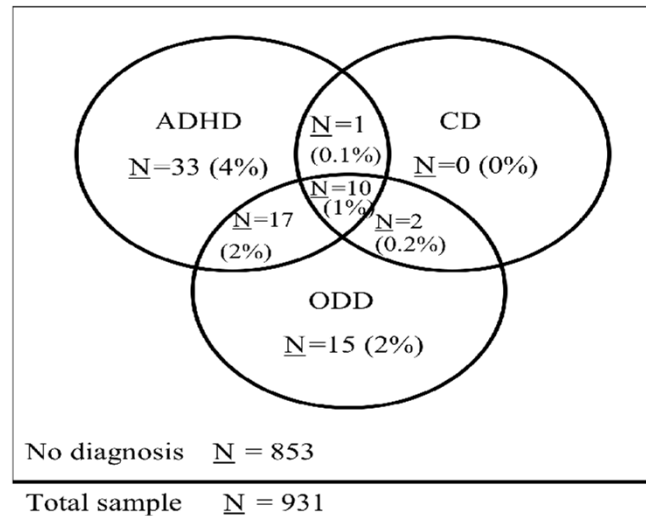


Disruptive Behavior Disorders

- Attention Deficit Hyperactivity Disorder (ADHD)
 - Inattention
 - Impulsivity
 - hyperactivity
- Oppositional Defiant Disorder (ODD)
 - Negative, hostile, argumentative behavior
- Conduct Disorder (CD)
 - Aggression to people or animals
 - Destruction of property
 - Deceitfulness or theft
 - Serious rule violations (e.g., running away)
- Higher levels than normal, serious levels, persistence over time

Distinct but Overlapping Disorders

(Pelham et al, 1992)



ADHD in Children: Importance to Professionals

- Prevalence: 9-12% of population--many more boys than girls
- Children dealt with by:
 - Health Care Professionals
 - Mental Health Professionals
 - Allied Health Professionals
 - Educators
 - Child welfare/foster care system
- Most common diagnoses in mental health clinics and behavioral referrals in primary care
- Most common diagnosis in special education
- Most common behavior problem in regular education classrooms

Developmental Progression of CP

Disruptive Behaviors (from Loeber et al, 1992)	Age
Cruel to others, stealing, running away	14
from home, truancy, breaking and entering,	13
assault	12
	11
	10
Lies, physical fights, bullies others,	9
Cruel to animals, breaks rules	8
	7
	6
Oppositional, defiant, stubborn, noncompliant,	5
temper tantrums	4
Hyperactive, Impulsive	3
	2
Difficult temperament	1

Why Is it Important to Treat ADHD in Childhood?

- Distress in children, families, schools, and communities
- Costs to society
 - Mental health and health
 - Schools
 - Justice system
 - Families
- Very poor long-term outcomes
 - School failure
 - Poor vocational adjustment
 - Interpersonal problems
 - Substance abuse
 - Criminal behavior

(Barkley, Murphy, & Fisher, 2008; Lee et al, 2011; Molina et al, 2009; Pelham, Foster, & Robb, Ambulatory Pediatrics, 2007; Robb et al, 2011)

Lifetime School Discipline Problems in ADHD

(PALS (Robb et al, in press))

- Discipline Problems (sent to principal, serious warnings, detention, suspension, expulsion) per Year:

	ADHD	Control
• None	20%	41%
• < Quarterly	34%	51%
• Quarterly	17%	7%
• Monthly	19%	1%
• Weekly	10%	0%

Annual Costs of Childhood/Adolescent ADHD

(Pelham, Foster & Robb, 2007)

• Health and Mental Health	\$7.9 billion
• Education	\$13.6 billion
• Crime and Delinquency	\$21.1 billion
• Parental work loss/other family costs	?
• Total (very low estimate based on incomplete data)	\$42.5 billion
• Range (lower to upper bounds based on currently available data)	\$36--\$52.4

Annual Cost of Other Disorders in U.S.

- Depression: \$44 billion
- Stroke: \$53.6 billion
- ADHD (child, adolescent, adult) \$80 billion
- Alzheimer's \$100 billion
- Alcohol abuse/dep \$180
- Drug abuse/dep \$180

(Pelham, Foster, & Robb, 2007)

Why is it Important to Use Peer-Relationship-Focused Treatments for Children with ADHD?

- We have long known that impaired peer relationships in children are the best predictors of negative adult outcomes (esp. criminality, SUD)
- Disruptive children (e.g, ADHD, CD, ODD) have seriously impaired peer relationships
- Disruptive children have the negative adult outcomes that are predicted by disturbances in peer relations
- Peer relationships arguably mediate disruptive children's adult outcomes
- Medication does not normalize this domain

(Pelham & Bender, 1982)

Peer Perceptions of ADHD Children

(Pelham & Bender, 1982)

- | Those who: (% named) | ADHD Boys | Non-ADHD Boys |
|---|-----------|---------------|
| • Try to get other people into trouble | 51 | 17 |
| • Play the clown and get others to laugh | 40 | 19 |
| • Tell other children what to do | 41 | 16 |
| • Are usually chosen last to join in group activities | 27 | 13 |
| • Start a fight over nothing | 48 | 19 |

Pupil Evaluation Inventory Items

Peer Perceptions of ADHD Children

(Pelham & Bender, 1982)

- | Those who: (% named) | ADHD Boys | Non-ADHD Boys |
|--|-----------|---------------|
| • Always mess around and get into trouble | 62 | 24 |
| • Bother people when they are trying to work | 45 | 20 |
| • Get mad when they don't get their way | 51 | 18 |
| • Don't pay attention to the teacher | 55 | 25 |
| • Are mean and cruel | 41 | 13 |

Pupil Evaluation Inventory Items

Treatment for Problems with Peers

- Social skills training (No evidence that weekly, clinic-based or school-based SST is effective)
 - Coaching
 - Role Playing and Practice
 - Modeling
 - Feedback and Reinforcement
- Problem solving training (e.g., Anger Coping)
- School-based peer interventions (e.g., peer mediation, bullying prevention, RECESS, PEERS)
- Group cooperative tasks

Treatment for Problems with Peers

- Teach competencies (e.g., sports) and improve self efficacy
- Promote reciprocal friendships (best friend)
- Delivery systems:
 - School-based programs (solid evidence)
 - One-to-one, clinic-based social skills training: **NOT !**
 - Clinic-based programs (e.g., social skills training groups concurrent with parent training groups--limited evidence)
 - Saturday treatment programs (limited evidence)
 - After school programs (limited evidence)
 - Summer treatment programs (solid evidence)

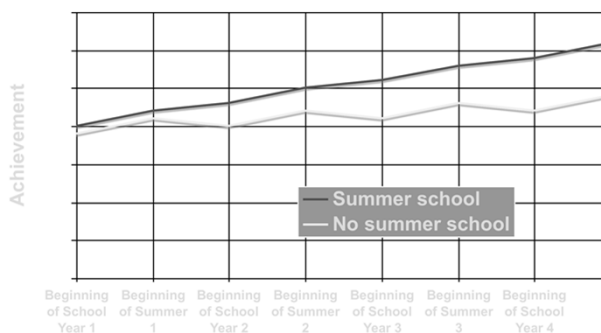
Why Treat ADHD in a Summer Setting?

- Work on peer relationships in an ecologically valid setting (e.g., playing common games in peer group settings)
- Teach sports skills and knowledge and team cooperation
- Build friendships with other ADHD children
- Minimize summer learning loss that characterizes low achieving children
- Teach compliance skills to child and parenting skills to parents
- Teach daily report card concept to child and parents

(Pelham et al., 2010)

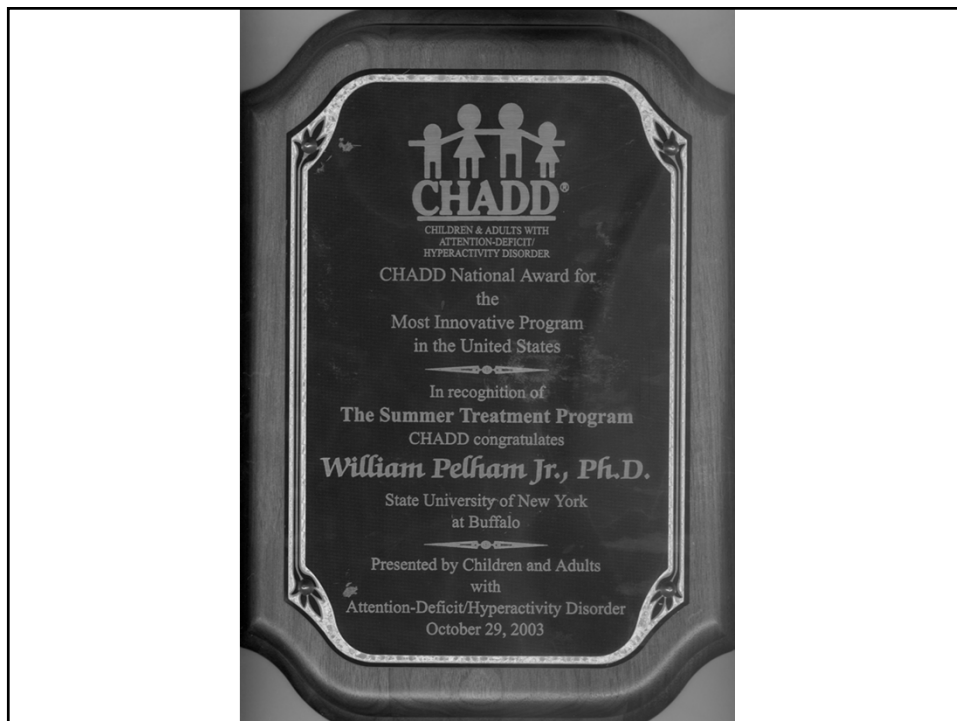
Hypothetical Changes in Achievement over Time for Low Achieving Children as a Function of Summer School

(Adapted from Cooper et al, SRCD Monograph 2000)



Comprehensive and Intensive Treatment for ADHD: Summer Treatment Program

- Named in 1993 as one of the country's model service delivery program for children and adolescents by the Section on Clinical Child Psychology of the American Psychological Association.
- Used successfully in clinical trials at NIMH, CMHS, and NIDA
- Innovative Program of the Year, 2003, CHADD
- SAMHSA list of Evidence Based Practices (NREPP), 2008



Summer Treatment Program Overview

- Children grouped by age into groups of 12-16
- Groups stay together throughout the day
- 4-5 paraprofessional counselors work with each group all day outside of the classroom
- One teacher and an aide staff the classroom for each group
- Treatment implemented in context of recreational and academic activities
- Focus on Impairment and teaching skills--not symptoms
- Parent training incorporated
- Medication is second line treatment

Typical STP Schedule

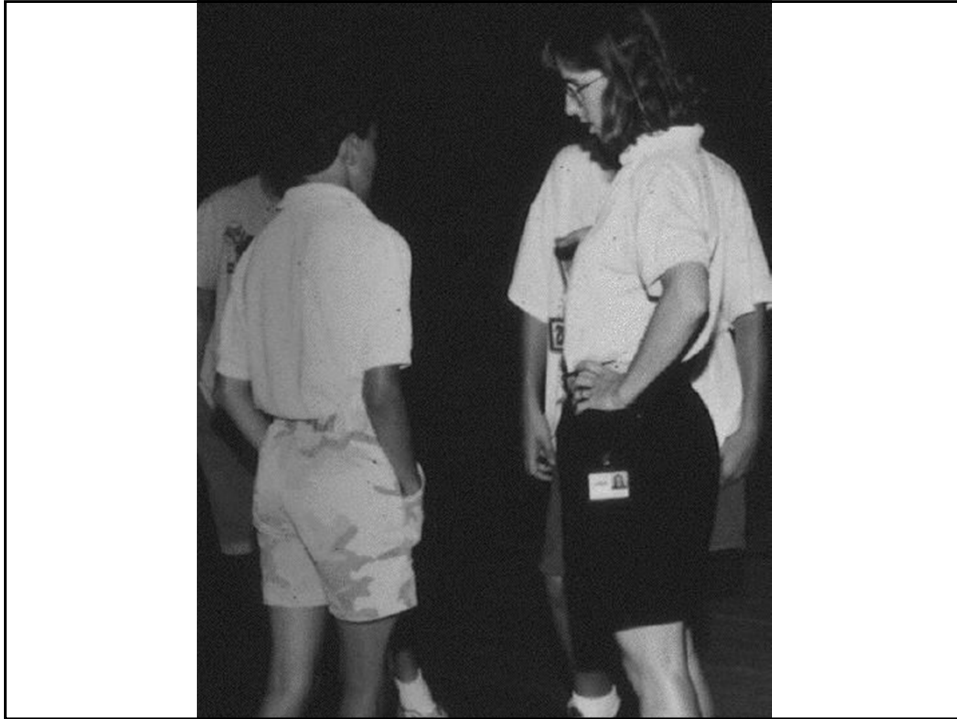
Time	Activity
7:30-8:00	Arrivals: Greetings, Daily goals review
8:00-8:15	Social Skills Training
8:15-9:00	Soccer Skills Training
9:15-10:15	Soccer Game
10:30-11:30	Art Learning Center
11:45-12:00	Lunch
12:00-12:15	Recess
12:15-1:15	Softball Game
1:30-3:30	Academic Learning Center
3:30-4:30	Swimming
4:45-5:00	Recess
5:00-5:30	Departures: parent-child feedback
6:30-8:30 (once weekly)	Parent Training/child care

Summer Treatment Program Overview

- Treatment Components:
 - Point System
 - Social Skills Training, Cooperative Tasks,
 - Team Membership, and Close Friendships
 - Group Problem Solving
 - Time out
 - Daily Report Cards
 - Sports Skills Training and Recreation

Summer Treatment Program Overview₂

- Treatment Components:
 - Positive Reinforcement & Appropriate Commands
 - Classrooms--Regular, Peer Tutoring, Computer, and Art
 - Individualized Programs
 - Parent Training
 - Medication Assessments
 - Adolescent Program



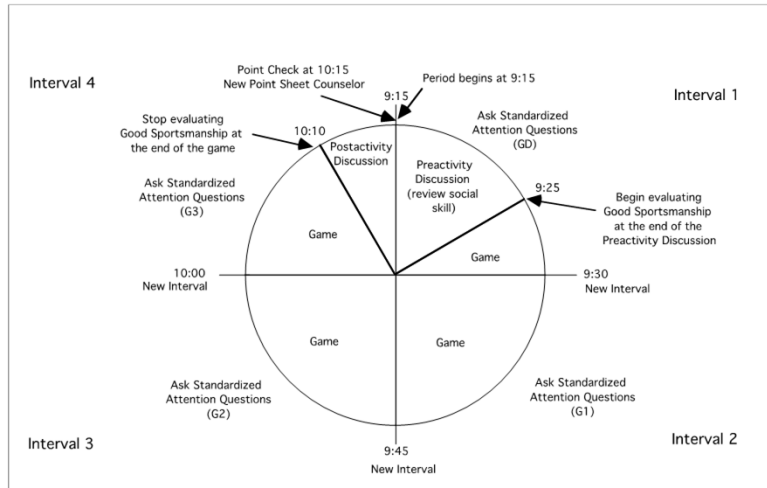
List of Point System Behaviors

NEGATIVE CATEGORIES	POINTS LOST
1. Intentional Aggression	50 points/TO
2. Unintentional Aggression	50 points
3. Intentional Destruction of Property	50 points/TO and reparation
4. Unintentional Destruction of Property	50 points and reparation
5. Noncompliance/Repeated Noncompliance	20 points;TO for Repeated
6. Stealing	50 points and reparation
7. Leaving the Activity Area Without Permission	50 points
8. Lying	20 points
9. Verbal Abuse to Staff	20 points
10. Name Calling/Teasing	20 points
11. Cursing/Swearing	20 points
12. Interruption	20 points
13. Complaining/Whining	20 points
14. Violating Activity Rules	10 points
15. Poor Sportsmanship	10 points

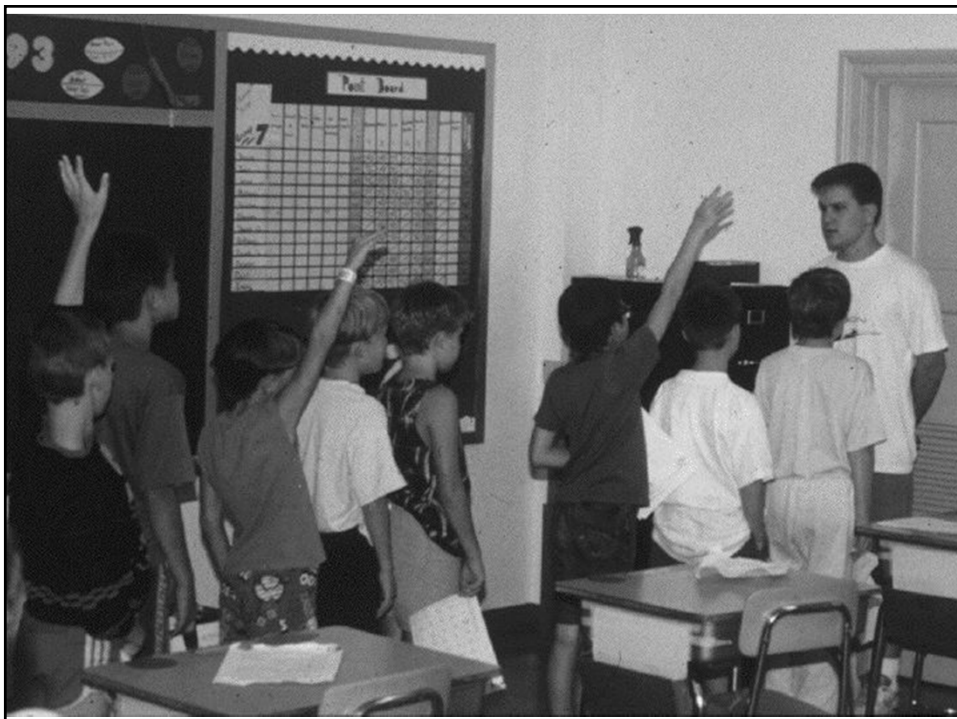
List of Point System Behaviors

POSITIVE CATEGORIES	POINTS EARNED
Interval Categories	
1. Following Activity Rules	50 points
2. Good Sportsmanship	25 points
3. Point Check Bonus	25 points
Frequency Categories	
4. Attention	10 points
5. Complying with a Command	10 points
6. Helping a Peer	10 points
7. Sharing with a Peer	10 points
8. Contributing to a Group Discussion	10 points
9. Ignoring a Negative Stimulus	25 points

STP Recreational Hour Format









Group Problem Solving

- On-line—that is, whenever group problems occur
- Five Steps:
 - Identifying problem
 - Brainstorming
 - Selecting solution
 - Contracting
 - Evaluation/Follow-up

Sample Daily Report Card

Attention Deficit Disorder Program Children's Summer Treatment Program Daily Report Card	Name: Date:	John Smith 6/29/95
	AM	PM
Follows classroom rules with fewer than 2 violations	Yes No NA	Yes No NA
Completes 3 assignments at 80% accuracy	Yes No NA	Yes No NA
Complains fewer than 4 times	Yes No NA	Yes No NA
Exhibits 5 or fewer occurrences of Noncompliance	Yes No NA	Yes No NA
Exhibits Intentional Aggression Toward a Peer fewer than 3 times	Yes No NA	Yes No NA

Program Development

• Many current and former STP staff members have contributed to the development and continuation of the STP, and the following individuals have been prominent among them (in approximately chronological order): Mary Bender, Marc Atkins, Charlotte Johnston, James Sturges, JoAnn Hoza, Debra Murphy, Douglas Nangle, Joseph Clinton, Andrew Greiner, Mary Vodde-Hamilton, Karen Greenslade, Elizabeth Gnagy, Jason Walker, Patricia Donovan, Lynn Martin, Tracey Wilson, Jonathan Greenstein, Betsy Hoza, Richard Milich, Joanne Dixon, Susan Sams, Caryn Carlson, Steven Evans, Cynthia Hartung, Jodi Polaha, Kristi Meisinger, Linda Johnson, Rosanne Javorsky, Leanna Labowski, Heidi Kipp, Jeannine French, Bradley Smith, Cheri Shapiro, David Myers, David Meichenbaum, Daniel Waschbusch, Adia Onyango, Andrea Chronis, Gregory Fabiano, Lisa Burrows-McLean, Erika Coles, Anil Chacko, Katie Walker, Jessica Robb, Maggie Sibley

STP Documentation

- STP Manual: 429 pages, describes procedures and treatment components in detail
- Child Binder: Provides clinical data tracking forms to monitor each child's progress in key areas and individualized target behavior graphs
- Group Binder: Provides group-based tracking forms and materials used in treatment

STP Documentation

- Learning Center Binder: Provides academic productivity/accuracy tracking forms and individualized target behavior graphs
- Supervisor Binder: Provides treatment integrity materials and instructions and other managerial materials
- All data recording forms are provided

Treatment Integrity and Fidelity

- Point system and learning center reliability (checks on the accuracy of staff members' reporting and classifying behaviors)
- Weekly reliability quizzes for counselors and learning center staff members
- Supervisors complete daily observations using TIF forms (see below) and provide daily feedback and remediation as necessary for staff members

Treatment Integrity/Fidelity Forms

- Social Skills Training: Communication, Cooperation, Participation, Validation, Teasing Module
- Group Problem-Solving/Reparation Discussion Discussion
- Time Out
- Command Sequence
- Point Check, Transition, and Bathroom Break
- Social Reinforcement
- Honor Roll
- Recreational Activities: Soccer, Softball/Kickball, Basketball
- Skill Drills
- Swimming
- Academic Learning Center: Seatwork, Peer Tutoring, Computer
- Art Learning Center

Commands Integrity & Fidelity

☐ Counselor followed the command sequence correctly (see diagram):

- ☐ Evaluated child's behavior.
- ☐ Did not interrupt command sequence by issuing a prompt or repeating a command without applying consequences.
- ☐ Allowed sufficient time to elapse (10 seconds or time specified) before evaluating behavior.
- ☐ Awarded points for Compliance or deducted points for Noncompliance.
- ☐ Repeated command after Noncompliance.
- ☐ Assigned time out after Repeated Noncompliance.

```

graph TD
    A[Issue a command] --> B[Child complies]
    B --> C[Award points for Compliance]
    A --> D[Child does not comply]
    D --> E[Inform child of point loss for Noncompliance  
Repeat command]
    E --> F[Child complies]
    F --> G[Award points for Compliance]
    E --> H[Child does not comply]
    H --> I[Inform child of point loss for Repeated  
Noncompliance  
Assign Time out]
  
```

Score: ____ / ____ = ____

Tone of Voice
Neutral but Firm

1 2 3 4 5 6 7

Pleasant Harsh

Voice Level
Appropriate for Setting

1 2 3 4 5 6 7

Too Soft For Setting Too Loud For Setting

Social Reinforcement Integrity & Fidelity

At the end of the interval, use the scale below to rate each staff member on each of the following six dimensions of social reinforcement.

<div style="display: flex; justify-content: space-between; width: 100%;"> Superior Adequate Inferior </div> <div style="display: flex; justify-content: space-between; width: 100%;"> 1 2 3 4 5 6 7 </div>	
<p>1. Communication: Used appropriate tone of voice. Used appropriate voice level. Used appropriate physical gestures. Used appropriate facial expression.</p> <p>2. Timing/Content: Provided social reinforcement immediately after child exhibited a positive behavior. Statement contained a specific description of the behavior being reinforced.</p> <p>3. Application: Used social reinforcement every time he or she awarded points. Used social reinforcement every time child exhibited positive non-point system behaviors, exhibited proper skills, or demonstrated improvement over initial ability. Initially rewarded every occurrence of a positive behavior or provided intermittent reinforcement to maintain behavior change. Provided social reinforcement to children who were actively involved in the activity and tried hard. Provided social reinforcement to individual children when appropriate. Provided social reinforcement to group when appropriate.</p>	<p>4. Moderation: Increased frequency of social reinforcement when teaching new skills. Increased frequency of social reinforcement when children exhibited negative behaviors at a high rate. Increased frequency of social reinforcement when providing rewards (e.g., High Point Kid, Honor Roll, Star Student). Increased frequency of social reinforcement at point checks. Made a special effort to provide social reinforcement to individual children or to the entire group when awarding points for ignoring a Negative Stimulus.</p> <p>5. Modeling: Provided social reinforcement at appropriate times. Provided social reinforcement at an appropriate rate. Used appropriate affect when providing social reinforcement. Appropriately provided social reinforcement to other staff members. Modeled appropriate ignoring when children exhibited staff-directed negative behaviors.</p>

Major Benefits of the STP

- 360 hours of treatment (equivalent to seven years worth of weekly social skills training sessions) in an 8-week period
- Produces large improvements in multiple domains--comparable to medication
- Teaches skills (e.g., sports) not taught in other interventions and provides on-line practice
- Parents have daily contact with treatment staff
- Extremely low dropout rate (3%) compared with up to 50% in other studies
- High child attendance (>95%) and parent attendance at parent training meetings (>95%), so treatment is being delivered
- Supportive "community" environment for child and family
- Stress-relief for parents and child provided by an 8-week daily treatment program
- Unusually high level of parent and child satisfaction with treatment--critical for long-term palatability and implementation
- Maintains academic gains/prevents summer loss
- Addresses the three key psychosocial predictors--parenting, peer relationships, and academics

Efficacy Data: Pelham & Hoza, 1996

- Sample: 258 boys with clear diagnoses of ADHD, between the ages of 6-12 and attending a Summer Treatment Program between the years 1987-1992.
- Characteristics of this subsample are similar to the entire group of children who attended the STP.
- Replicated with an additional 400 children 1993-2001 (Pelham et al, 2005)

List of Measures

- (1) anonymous consumer satisfaction ratings completed by parents
- (2) domain-specific parent, counselor, and teacher CGI improvement ratings
- (3) pre-post child self-perception ratings
- (4) pre-post parent ratings on a standardized rating scale and on a problem severity index
- (5) counselor and teacher ratings of "normalcy" as indices of the social validity of treatment effects.

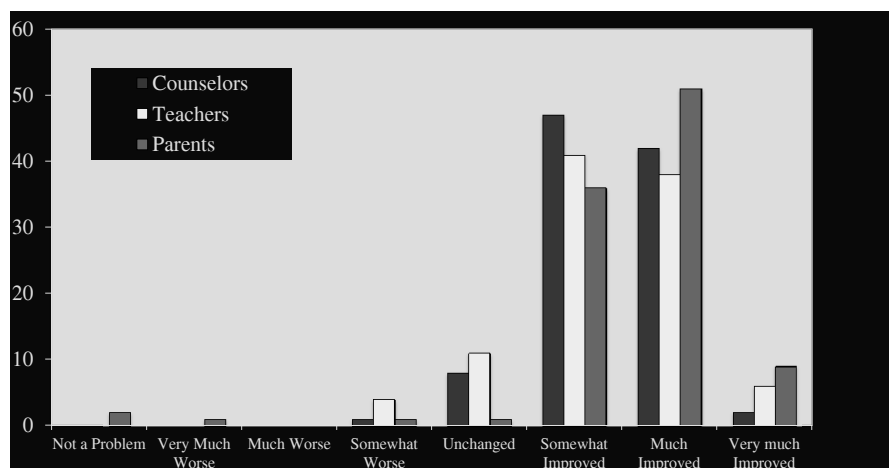
(Pelham & Hoza, 1996)

General Outcome

- Significant findings were shown for all measures, including nontraditional domains such as self esteem.
- Results did not differ as a function of aggressive comorbidity, family/marital status, SES, or child age.

(Pelham & Hoza, 1996)

Ratings of Improvement

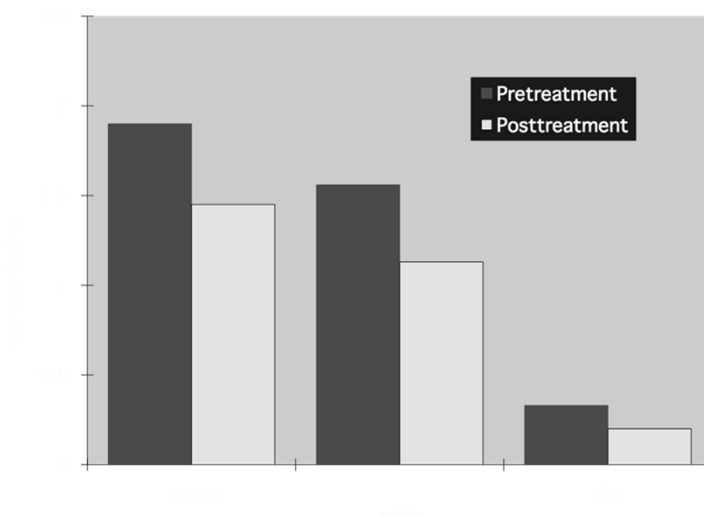


Parent Feedback

	Yes Definitely	Yes Probably	Don't Know	Probably Not	Definitely Not
Would you:					
Send your child again?	82%	13%	3%	1%	0%
Recommend the program to other parents?	93%	6%	1%	0%	0%

	Much/ Very Much	Somewhat	Not at all
How much did your child benefit from the program?	83%	15%	0%
How much did you benefit from the program?	86%	12%	2%
How much did your child enjoy the program?	85%	11%	3%

DBD Ratings

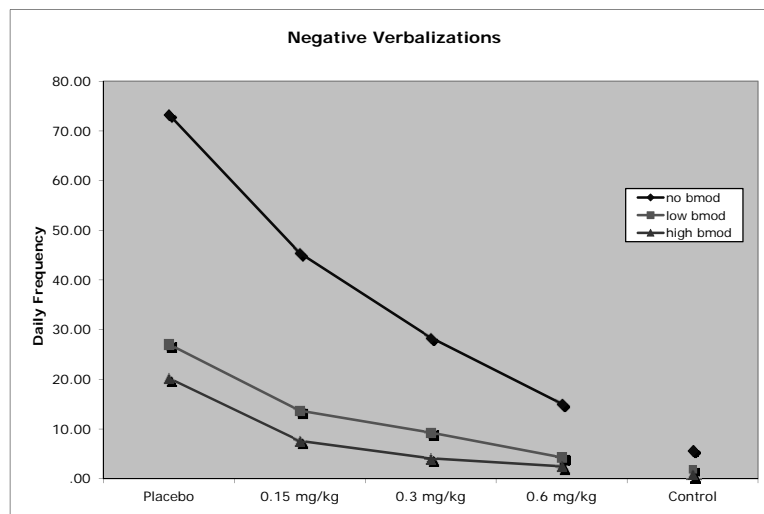


Controlled Trials

Carlson et al, 1991;
 Pelham et al, 1993;
 MTACG, 1999;
 Pelham et al, 2000;
 Chronis et al, 2004;
 Fabiano et al, 2004;
 Pelham et al, 2005;
 Coles et al, 2005;
 Fabiano et al, 2007;
 Pelham et al, under review a,b,c
 O'Connor et al, 2012
 O'Connor et al, 2013
 Pelham et al, 2014

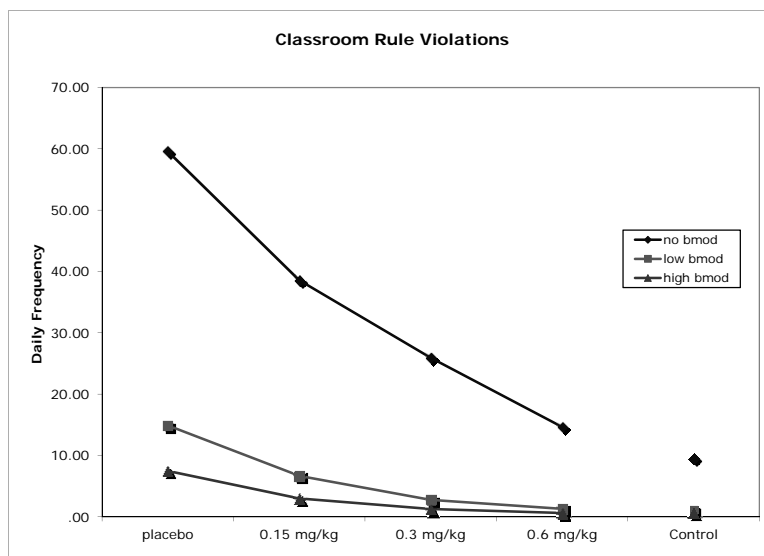
Large effect sizes on a variety of dependent measures

Rates of Negative Verbalizations



(Pelham et al., 2014)

Classroom Rule Violations



(Fabiano et al., 2007)

Replicability of the Summer Treatment Program

- Internally, we have replicated the STP in three different settings, over 30 summers with more than 1,500 children.
- Procedures are completely documented (429 page treatment manual)
- Comprehensive set of procedures for ensuring treatment integrity
- Conducted with a mix of summer student interns (college students) and permanent supervisors
- Can be adapted to almost any setting where appropriate resources are available, including community mental health centers, school districts, group private practices, hospitals

Dissemination

- All STP materials on one CD (\$199 US)
- Training available annually at several sites
- Trainers may be available to come to site
- After first summer, maintained by agency staff
- Adapted for many settings/uses (e.g., after school (UCLA, Cleveland Clinic), summer school (Buffalo), city recreation departments (Chicago), day school and wrap-around (Johnstown)

Community-Based Summer Treatment Programs

- Grants awarded to 3 community agencies in Western Pennsylvania to conduct STPs (24-36 children each)
- Grants paid for startup supplies, equipment, treatment materials, partial staff support, and centralized training by experienced STP staff
- Ongoing supervision/support provided throughout the first summer program by “circuit riding” experienced staff members
- After one summer, agency staff members took over supervision, management, and financial support
- Have been running independently since 1995 and have expanded to 20 sites
- Replicated in NYC in 2007 and in 2008 in Western NY (3 sites)

STP Sites

- Buffalo (Summit Educational Services)
- New York City (NYU, Staten Island MH Institute)
- Cleveland, OH (Cleveland Clinic)
- Irvine, CA (UCI)
- Erie, Johnstown, Indiana, and Butler, PA (4 Community Agencies with 20 different sites); SLC, Utah
- University of Alabama, Birmingham Medical Center
- Harvard University (JBGC)
- Chicago (Univ. IL Medical Center, Community parks)
- Kurume, Japan
- University of Kansas Medical Center
- Florida International University CCF
- Smaller, shorter camps in many U.S. cities that use parts of STP

Adaptations of STP Model

- With similar structure and procedures, peer-relationship interventions can be offered in a variety of settings
 - After-school programs
 - Saturday programs
 - Respite Care
 - Summer School Adjunctive Programming
 - Child Social Skills Sessions Concurrent with Parent Training Sessions
 - Brief 2-3 week summer/winter break sessions (e.g., year-round school)

Core Components of Effective Social Skills Intervention

- Teach concepts of key social skills (e.g., brief, repetition)
- Practice in child-appropriate contexts (e.g., sports games)
- Monitoring and feedback from adults
- Rewards and consequences for positive and negative behaviors
- Intensive practice and integration with parent training and school intervention to boost generalization

