



Texas Children's Hospital



Examining the Severity of Child Externalizing Symptoms Following Family Participation in a Pilot, 10-week, Manualized Behavioral Intervention

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BACKGROUND

- ADHD-related externalizing problems are the #1 cause for behavioral health referral in children
(Kelleher et al. 2000; Hibbs & Jensen, 2004)
- ADHD affects 3-7% of all school-aged children (APA, 2000)
- Hyperactive, impulsive, & aggressive behaviors can be severe & significantly impair daily functioning across home, school & other settings.
- Only 3 empirically supported treatments are considered “well-established” for children with ADHD
(Pelham & Fabiano, 2008)
- Psychosocial interventions for ADHD target adults

SPECIFIC AIMS

- To Examine the Effectiveness of a Pilot, Manualized 10-week Family Skills Training Intervention for Externalizing Symptoms of ADHD
- To Examine the Potential Benefits of Behavior Activation for ADHD Intervention Using the Example of the Family STARS Program
 - Family STARS was Hypothesized to Reduce Child Externalizing Symptoms of ADHD to Sub-clinical Severity
- To Discuss Possible Future Research & Treatment Applications Pertinent to Family STARS Findings

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METHODS

- This Pilot Investigation Examined Preliminary Treatment Data from a Larger Parent Study
- The Parent Study is a Randomized Clinical Trial Designed to Compare Child & Parent Outcomes Across 3 Conditions: Multifamily Intervention, Individualized Family Intervention, & Waitlist Control Group
- The Intervention Administered Weekly Behavioral Parent Training with Simultaneous Child Behavior Activation Therapy
- An A-B Research Design was Employed to Compare Pre-Post Externalizing Symptoms of ADHD

PARTICIPANT SELECTION

- Children Ages 7-12, Diagnosed with ADHD-C
- Diagnoses Achieved within a Formal Diagnostic Intake Clinic Prior to Program Referral
- Diagnostic procedures included:
 - Review of medical record
 - Structured parent & child clinical interviews,
 - Parent & teacher forms of BASC-2 & Disruptive Behavior Rating Scale
- Excluded if Symptom Severity was Below Clinical Significance or if Co-Morbid Symptoms were More Severe than ADHD (Per Rating Scales)



PARTICIPANTS



TABLE 1. CHILD CHARACTERISTICS

CHILD CHARACTERISTICS	N	VALID %
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Gender

Male	15.....	71%
Female.....	6.....	29%

Ethnicity

Black/African American.....	3.....	14%
Hispanic/Latino.....	5.....	24%
Caucasian/Non-Hispanic.....	9.....	43%
Asian/Pacific Islander.....	1.....	5%
Bi-Racial	3.....	14%

TABLE 2. CAREGIVER CHARACTERISTICS

CHARACTERISTICS	N	VALID %
Primary Caregiver		
Biological Parents.....	16.....	76%
Adoptive Parents.....	4.....	19%
Custodial Grandparent.....	1.....	5%
Marital Status		
Married.....	15.....	71%
Divorced/Separated.....	3.....	14%
Never Married.....	3.....	14%
Age of Caregivers		
Under 30.....	2.....	11%
31 to 40.....	11.....	58%
41 to 50.....	6.....	32%
Over 50.....	0.....	0%

PROCEDURES

Participants were Randomly Assigned to an Individual or Multifamily Format that Included:

- 10 Weekly Sessions of a Manualized Intervention with Parent Training & Child Behavior Activation Strategies
- Instruments Used to Assess Externalizing Symptoms were the BASC-2 & DBRS (Hyperactivity/Impulsivity, Aggression, Conduct Problems, Oppositionality)
- Pilot Investigation Employed a Single Group, A-B Research Design Comparing Post-Tx Externalizing Symptoms to Baseline

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PARENT INTERVENTION



PARENT SESSION FORMAT



- Well-Defined & Structured Session Activities
- Written In-Session Agenda with Detailed Handouts
- Applied Empirically Support Treatment Principles
- Clinician Modeling & Parent Behavioral Rehearsal
- Integrated Materials from Well Established Interventions Such as Defiant Children (Barkley, 1997), Triple P (Sanders, 1999) and COPE (Cunningham, 2005)
- Weekly Home Behavioral Assignments



PARENT SESSION OBJECTIVES

SESSION 1: Introduction, Treatment Overview, ADHD Psycho-Education

SESSION 2: Problematic Behavior Patterns, Effective Routines, & Differential Attention

SESSION 3: Positive attending, & Effective Commands

SESSION 4: Independent Play, Conquering the Backpack & Organizational Strategies

SESSION 5: Behavioral Goal Setting; Establishing a Positive Reinforcement System

SESSION 6: Behavior Goals at School, “Mastery-Based” Token Economy

SESSION 7: Improving De-Escalation Strategies, Logical Consequences, Response Cost

SESSION 8: Implementing Quiet Time & Time Out

SESSION 9: Problem Prevention; Behavior Contracts

SESSION 10: Generalization & Relapse Prevention, Scheduled Program Review



**CHILD INTERVENTION:
BEHAVIORAL ACTIVATION
PROGRAM OVERVIEW**



CHILD SESSION FORMAT



- Well-Defined & Structured Session Routines
- Posted Behavior Target with Preset Benchmark
- Frequency Count of In-Session Target Behaviors Using a Clicker to Mark Performance
- Weekly Home Behavioral Assignments
- Token Reward System
 - Based on In-Session Achievement of Benchmarks
 - Based on Home Rehearsal/Worksheet Completion

EXAMPLES OF BEHAVIORAL ACTIVATION SKILLS IMPLEMENTED

- Nonverbal & Verbal Attending Skills
- Key Word Identification
- Cue-Controlled Responses
- Organizational Strategies
- Managing Personal Space
- Behavioral Goal Setting
- Affective Self-Appraisal
- Relaxation Response
- Accepting Consequences
- Problem Prevention
- Long-Term Goal Setting

KEY FEATURES OF CHILD SESSIONS

- **Priming** of Behavioral Methods to be Employed by Parents at Home
- Introduction of Child **Self-Regulation Skills**
- **Behavioral Rehearsal** with Opportunities for **Overlearning & Automaticity**
- **Mastery-Based** Implementation to Increase Self-Efficacy RE: Performance of Target Behaviors
- **Social Modeling** by observing clinician or/& Peer

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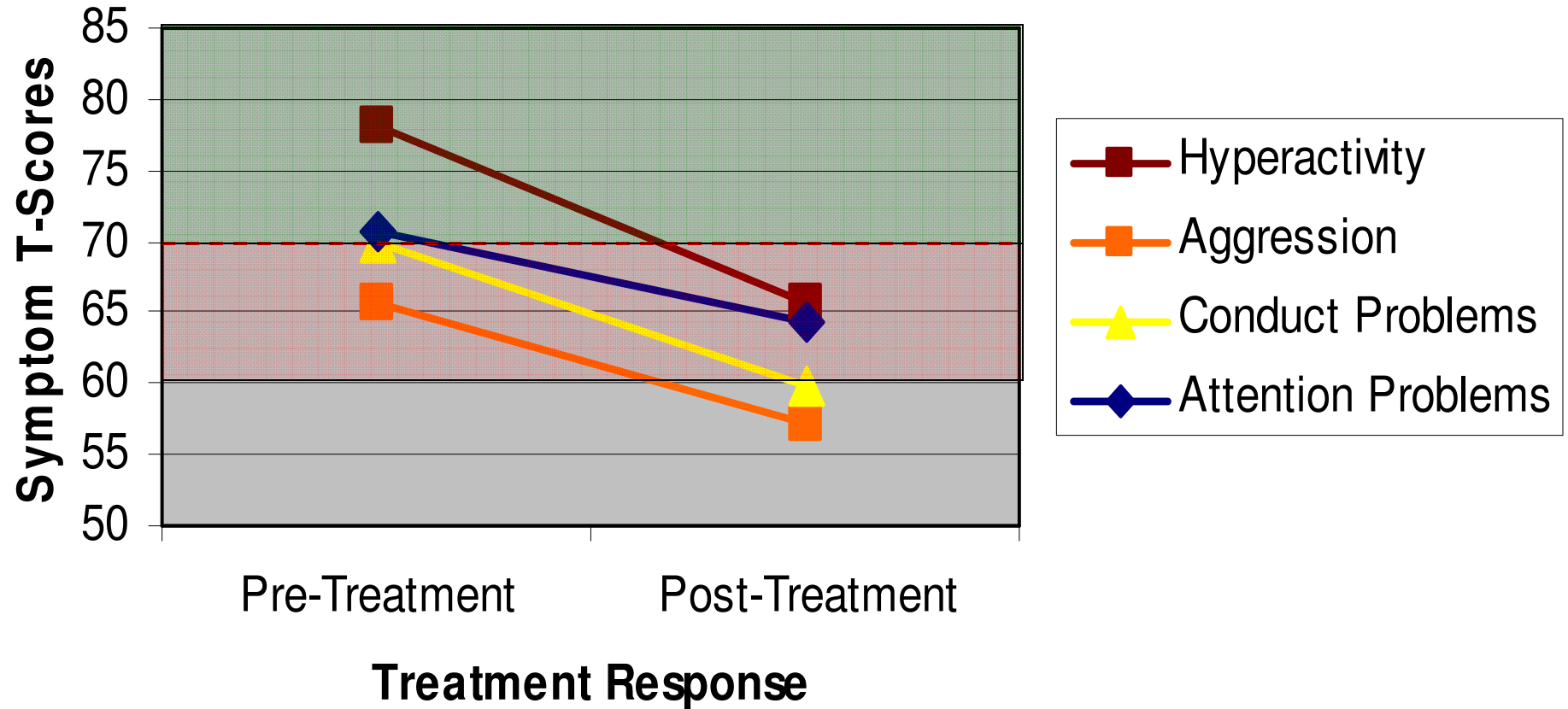
ANALYSES

- A-B Research Design
- Paired Sample T-tests, Using One-Sided Tests of the Null Hypothesis of No Intervention Effect
- No Adjustments for Multiple Comparisons Since the Goal was to Determine Effectiveness to Justify a Larger RCT
- Effect Sizes were Computed for Changes in Externalizing Behaviors Using the “Externalizing Symptoms Index” on the BASC-2 & the Mean Score of the Disruptive Behavior Rating Scale Subscales (Hyperactive/Impulsive, Inattentive, Oppositional)

RESULTS

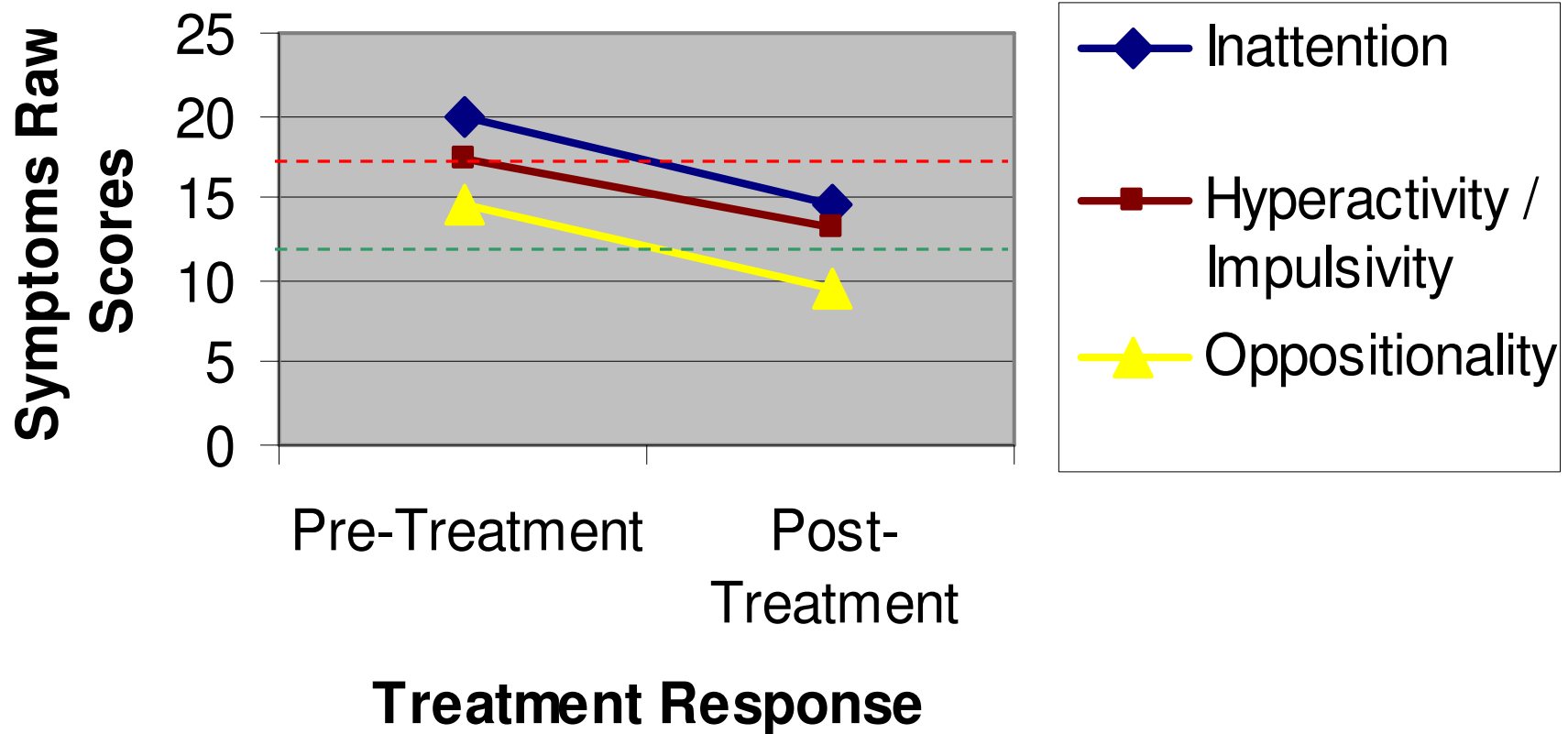
- On parent forms of the BASC-2 and DBRS, statistically significant improvements for externalizing symptoms were observed from Time 1 to Time 2.
- Externalizing Symptoms Index Outcomes on the BASC-2:
 - $t(20) = 4.81$, $p < .000$.
 - Eta squared = **0.54**, indicating a large effect size
- Externalizing Symptom Outcomes on the DBRS (Mean Score):
 - $t(18) = 5.06$, $p < .000$.
 - Eta squared = **0.76**, representing a very large effect

Parent Ratings of Child Externalizing Behavior on the BASC-2



- T Scores ≥ 70 reflect “clinically significant” symptom severity
- T Scores 60 – 69 reflect “at risk” symptom severity

Parent Ratings on the Disruptive Behavior Rating Scale



- Scores ≥ 17 reflect “clinically significant” symptoms of for Hyperactivity/Impulsivity & Inattention
- Scores ≥ 12 reflect “clinically significant” symptoms of Oppositionality.

CONCLUSIONS

- Family STARS with Behavior Activation was Effective in Reducing Child Externalizing Symptoms
- Symptom Severity at Outcome was Below Clinical Significance, Suggesting High Magnitude of Change
- Limitations Include
 - Insufficient Sample Size for Between Group Comparisons
 - No Comparison to Traditional Parent Training without Behavior Activation
 - Long Term Outcomes are Not Known

FUTURE DIRECTIONS (1)

- Identification of Child Outcome Differences Based Upon Treatment Modality is Needed
- Differences by Modality will Provide Alternative Formats for Delivering Evidenced-Based Treatments
- Identification of Parent Characteristics Predictive of Treatment Outcomes is Needed
- Parent Variables Associated with Outcome Differences will Allow Better Patient –Treatment Matching to Promote Better Needs-Based, Ecologically Valid Interventions

FUTURE DIRECTIONS (2)

- Comparison of Parent Training to Parent Training + Behavior Activation Therapy is Needed to Identify Possible Differences in Magnitude for Treatment Effects
- Investigation of Behavioral Activation for ADHD without Parent Training is Needed.
- Positive Outcomes would Offer Better Opportunities for Intervention Portability to Reduction of Patient Barriers (e.g. School-Based Intervention)

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Texas Children's Hospital/
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EXCELLENCE

**ADDITIONAL PARTICIPANT
CHARACTERISTICS**

EMINENCE

TEXAS CHILDREN'S HOSPITAL

VISION 2010

TABLE 1b. CHILD CHARACTERISTICS

CHILD

CHARACTERISTICS

N

VALID %

Medication Status

No Medications Used	3.....	16%
Stimulant Medication.....	12.....	64%
Other Medications.....	4.....	20%

Educational Placement

Mainstream/Regular Education...	14.....	74%
Classroom Accommodations.....	5.....	26%
Special Education.....	0.....	0%

Treatment History

Hx of Psychological Tx.....	10.....	53%
No Treatment Hx.....	9.....	47%

TABLE 2b. CAREGIVER CHARACTERISTICS

CHARACTERISTICS	N	VALID %
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Highest Education

High School.....	6.....	32%
Specialized Trade.....	3.....	16%
≥ College Degree.....	10.....	52%

Annual Household Income

< \$20K.....	1.....	5%
\$20-\$40K.....	11.....	11%
\$41-\$60K.....	0.....	0%
\$61-\$80K.....	19.....	21%
> \$80K.....	12.....	63%

Caregiver History of Mental Health Problems

Positive MH History.....	3.....	14%
No MH History.....	16.....	84%