Modified CBT for Anxiety in School-aged Children with ASD: Strategies for Treatment

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Thanks to…

Colleagues	Current & Former Students	Families and Funding Agencies
Jeffrey Wood Cori Fujii Patty Renno Eric Storch Phil Kendall Jill Ehrenreich Lindsey Sterling Enjey Lin Kelly Decker	Amy Drahota Marilyn Van Dyke Kaycie Zielinski John Danial Sami Klebanoff Ben Schwartzman Maria Cornejo Rebecca Dehnel Lindsay Hauptman	Children and parents: Thank you! Thanks also to: NIMH NICHD Autism Speaks Organization for Autism Research UCLA-CART The Help Group

Psychiatric Comorbidity in ASD

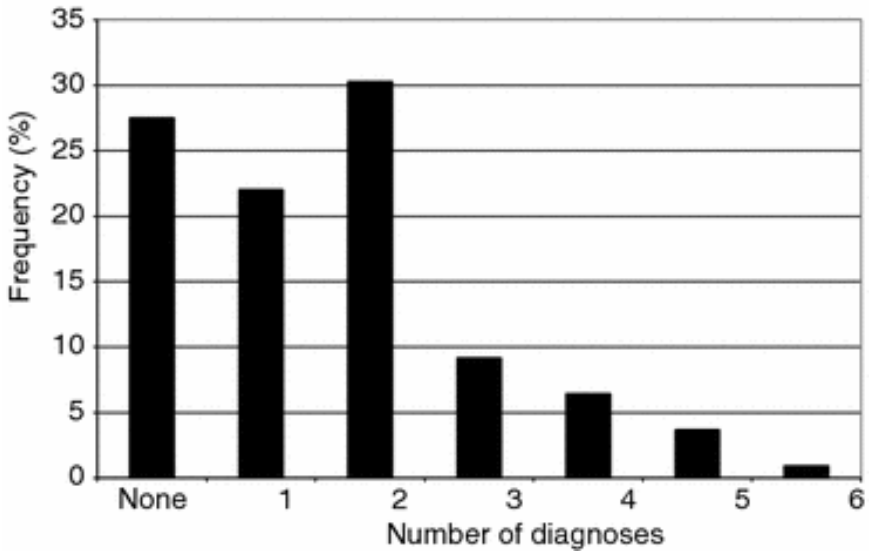
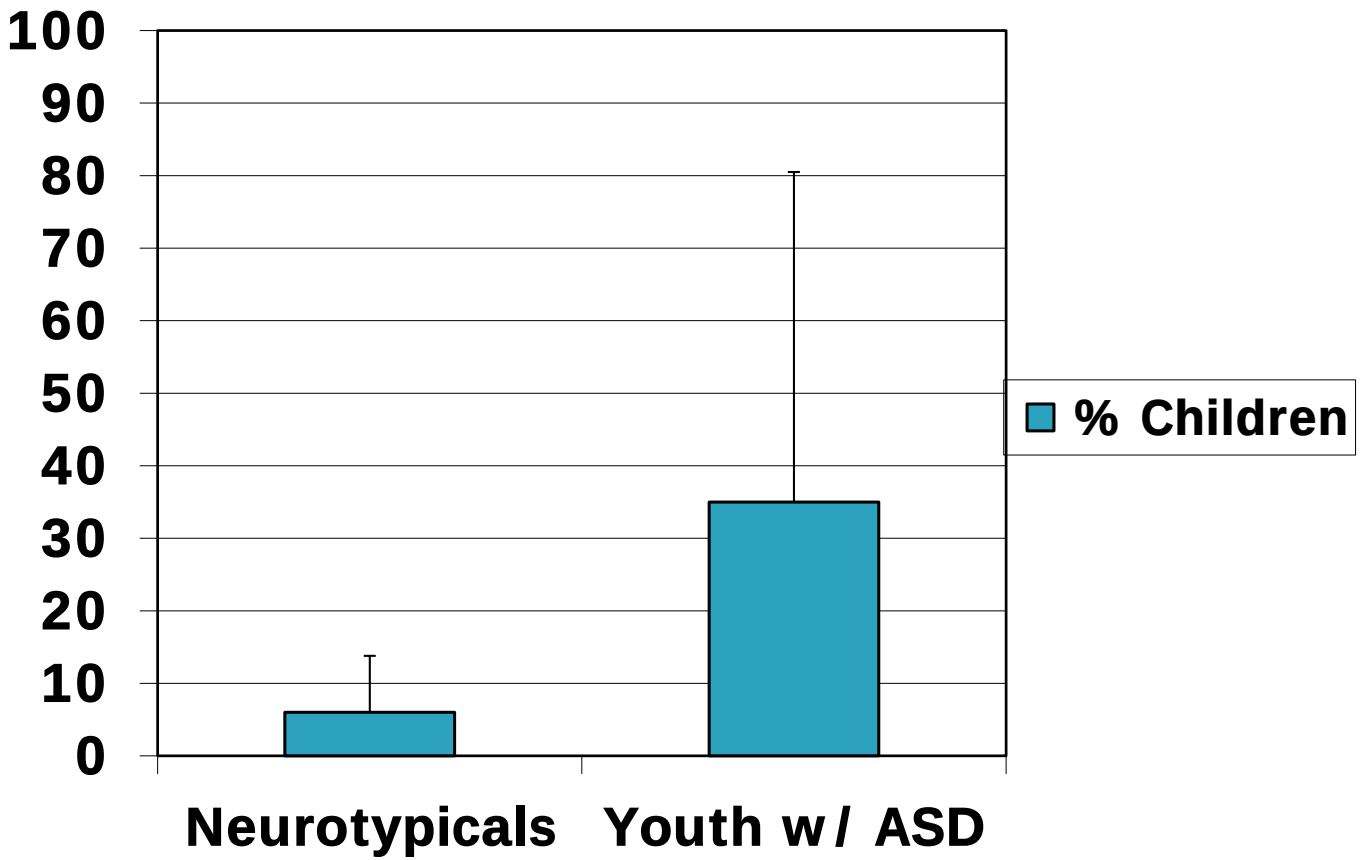


Fig. 1 Frequency of the number of comorbid lifetime psychiatric diagnoses per child with autism. Only DSM-IV diagnoses are included (Leyfer et al. 2006)

Anxiety is Common in Autism Spectrum Disorders (ASD)



What Types of Anxiety? Validity?

- Studies of youth with ASD have consistently found heightened rates of:
  - Separation anxiety
  - Social anxiety
  - Generalized anxiety
  - Phobias
  - Trait anxiety
  - OCD symptoms

- Emerging evidence of construct validity of anxiety in ASD in our research:
  - Convergent/discriminant validity (Renno & Wood, 2014)
  - Factorial equivalence (White… & Wood, 2015)
  - Elevated baseline skin conductance (Sterling et al. 2015)
  - Elevated diurnal cortisal levels (Renno et al., 2015)
  - Linkage with ASD-related stressors (Renno, 2014)
  - Expected treatment response (Wood et al., 2015)

Understanding the Linkage

- Common neurocognitive mechanisms.
  - Executive functioning deficits are characteristics of autism and a number of psychiatric disorders (anxiety, ADHD, etc.) (Geurts et al., 2004)
  - Poor attention shifting and executive dysfunction underlies both prolonged negative emotion (anxiety).
- Other traits and their biological substrates that serve as vulnerabilities for psychiatric disorder may be more common in ASD, too.
  - For example, genetic factors that are markers of negative affectivity/anxiety in typical youth are also present in children with ASD and anxiety; e.g. dopaminergic gene polymorphisms such as DAT1 intron8; serotonin transporter 5-HTTLPR.

    (Cohen et al., 2003; Gadow et al., 2014, 2008, 2009, 2010; Roohi et al., 2009)

At Least 2 Roads to Anxiety

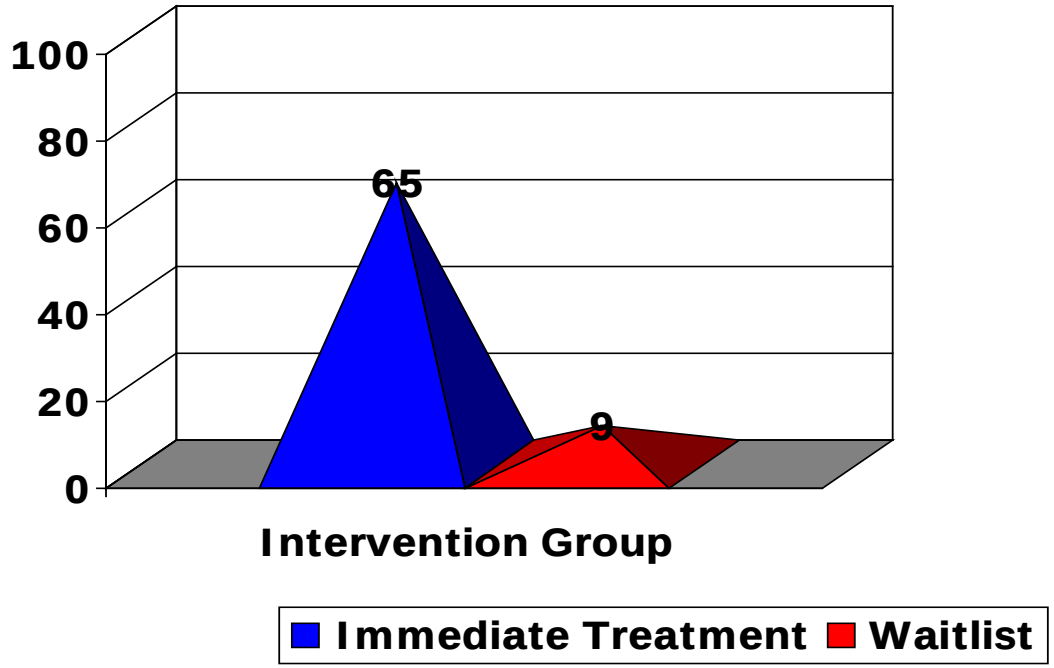
- 1. A child with ASD who is primarily dysregulated in general (e.g., broad executive function impairments) producing emotional dysregulation across the spectrum including fear, anger, frustration, joy, etc.
- 2. A child with ASD and more focal anxiety (e.g., secondary to high amygdala output and/or specific learning experiences and/or stressors that selectively increase anxiety but not necessarily other emotional reactions)

UCLA BIACA Intervention (Behavioral Interventions for Anxiety in Children with Autism)

- 16 weekly outpatient meetings, 90 minutes each
  - 45 minutes with the youth
  - 45 minutes with the parents and/or family
  - Core focus: coping with anxiety and facing fears
- Optional school visits & consultations
- Modular treatment—highly individualized

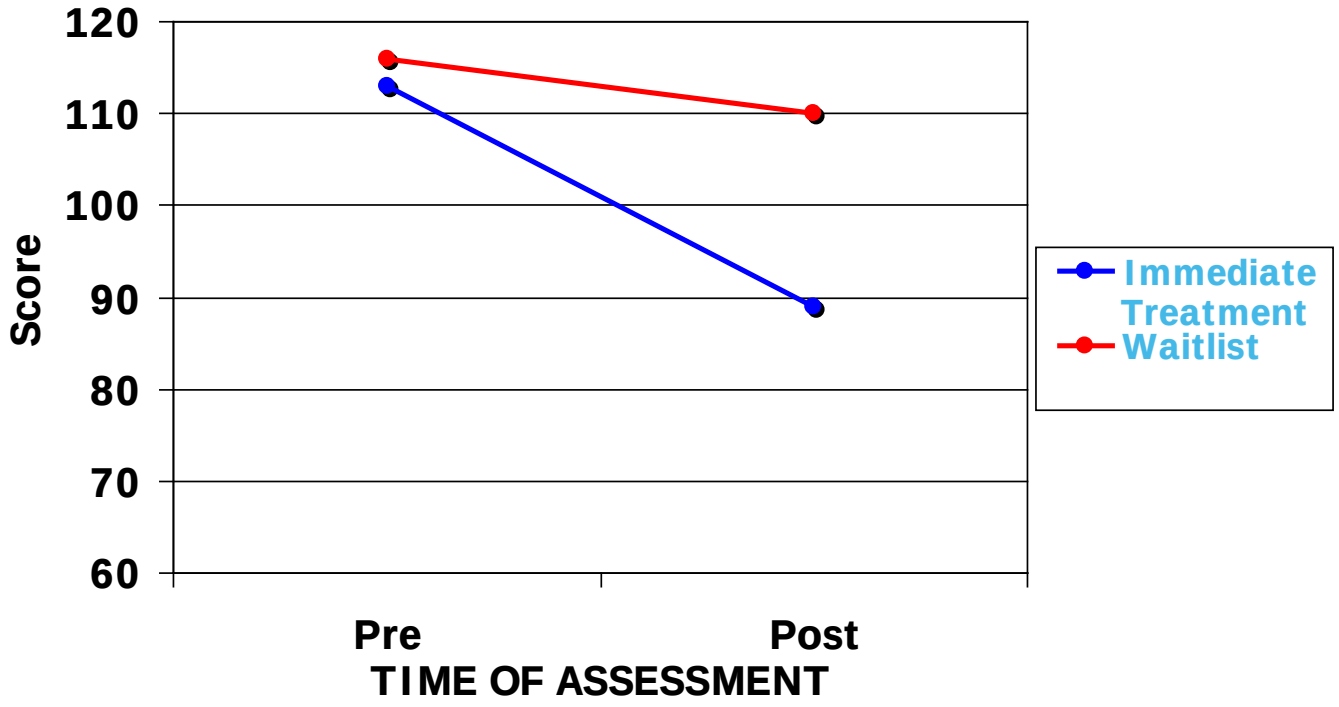
First Study (N = 40, 7–11 year olds) Diagnostic Remission (Wood et al., 2009)

% Anxiety Disorder Remission —ADIS



$\chi 2$ [1] = 12.28, p < .0001

First Study, Social Responsiveness Scale



N = 19

$F(1,16) = 5.39$, $p < .05$; ES = .76

Second Study Design (Fujii et al., 2014; Wood et al., 2014)

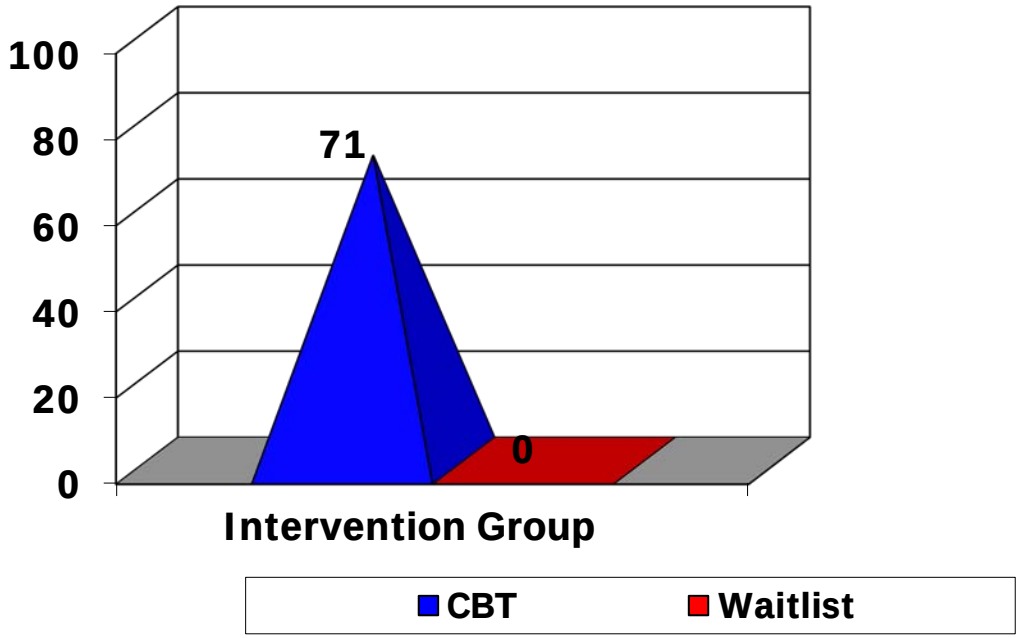
- 13 Children 7-11 years old with confirmed diagnosis of autism, Aspergers, or PDD
- ADIS-C/P comorbid diagnosis of Separation Anxiety, Social Phobia, or OCD
- Children randomly assigned to 32 weeks of immediate treatment or 3-month waitlist
- Independent evaluators blind to treatment condition observe social behaviors at pre- and post-treatment

Observation Measure

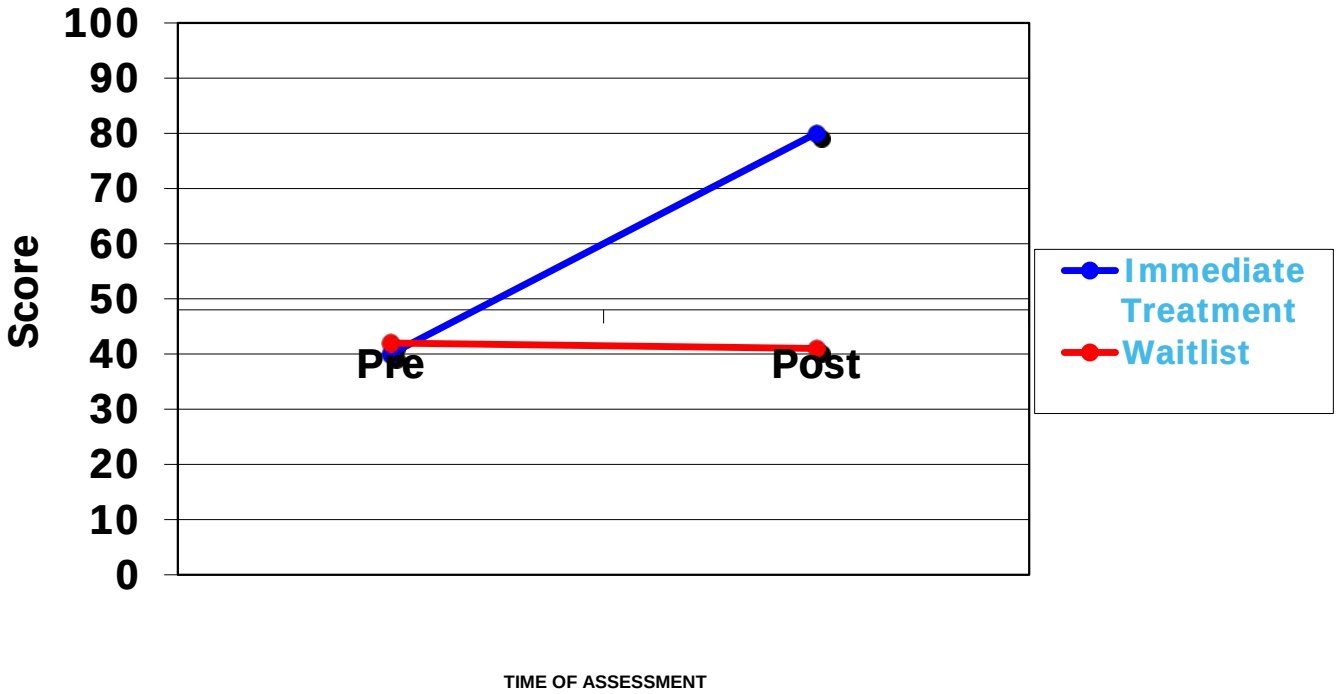
- Bauminger's school social observation measure (e.g., 2002), focusing on initiations, responses, and the quality (positive, negative, and neutral) of each.
- Time sampling—40 sec. observation intervals.
- Proportion scores per child of each behavior are generated at pre and post
- 2 recess periods per assessment (pre-, post-) observed.
- Interrater reliability ICC > .7

% Diagnostic Remission @ Post

% Anxiety Disorder Remission —ADIS



Observed Positive Peer Response to Positive Social Overtures



Adolescence, Anxiety, and ASD

- Social anxiety and behavioral avoidance are more pronounced among early adolescents with high-functioning ASD (Kuusikko et al. 2008).
- Kuusikko et al. speculated that youth with high-functioning ASD may begin to observe and comprehend their own impaired social skills in early adolescence, thereby increasing the likelihood of self-consciousness.

Neurotypical Findings on Social Anxiety → Social Functioning

- Social anxiety linked with:
  - Reduced social networks and poorer self-esteem (e.g., Neal & Edelmann, 2003).
  - Poor social skills: parent-reported low assertion and responsibility; observed infrequent initiations and social interactions (Spence, Donovan, and Brechman-Toussaint, 1999)
  - Social withdrawal reported by teachers (Erath, Flanagan, & Bierman, 2007)
  - Difficulty in generating conversation topics during role plays (Alfano, Beidel, & Turner, 2006).

Issues Specific to Teens with ASD

- Increased stress from school workloads and social complexity
- Puberty-related heightened emotionality
- Emerging sexuality
- These and other factors may impinge upon the typical treatment process that appears to be efficacious for preteens with ASD?
- Therefore, Behavioral Interventions for Anxiety in Children with Autism was adjusted to incorporate teen-friendly language and handouts, and otherwise ensure developmental appropriateness.
- Hypothesis: CBT would outperform a waitlist condition on independent evaluators' ratings of treatment response and symptom severity.

Third Study: Early Adolescent Study Design

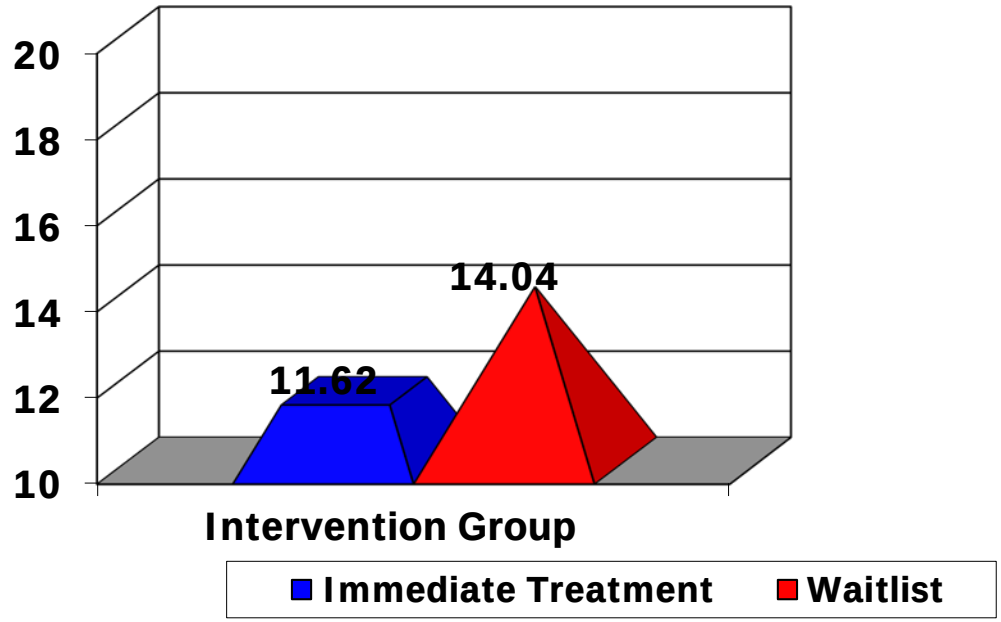
- 33 youth and their parents
- Ages range from 11 to 15 years
- 17 youth at the University of Southern Florida (USF) (11 males, 6 females) and 16 youth at the University of California – Los Angeles (UCLA) (12 males, 4 females)
- All youth had estimated or WISC full scale scores $\geq$ 70.
- Met criteria for at least PDD on ADI-R
- Youth randomly assigned to immediate treatment or 3-month waitlist
- Independent evaluators blind to treatment condition conduct diagnostic interviews at pre- and post-treatment and make CGI ratings of treatment response at post

Sample Characteristics

	IT No. (%) n = 19	WL No. (%) n = 14
Youth sex (male)	13 (68)	10 (71)
Youth age	12.4 (SD = 1.3)	12.2 (SD = .98)
Autism spectrum disorders		
Autistic disorder	12 (63)	10 (72)
PDD-NOS	1 (5)	2 (14)
Asperger syndrome	6 (32)	2 (14)
Baseline anxiety disorders		
SoP	8 (41)	5 (36)
SAD	2 (11)	4 (29)
OCD	2 (11)	1 (7)
GAD	4 (21)	3 (21)
Other comorbid diagnoses		
ADHD	14 (74)	9 (64)
Dysthymia / MDD	5 (26)	0
ODD / CD	4 (21)	1 (7)
PTSD	1 (5)	0
Psychiatric medication use		
SSRI	9 (47)	5 (36)
Atypical antipsychotic	6 (32)	2 (14)
Stimulant or atomoxetine	10 (53)	4 (29)

Pediatric Anxiety Scale (PARS) at Post-Treatment

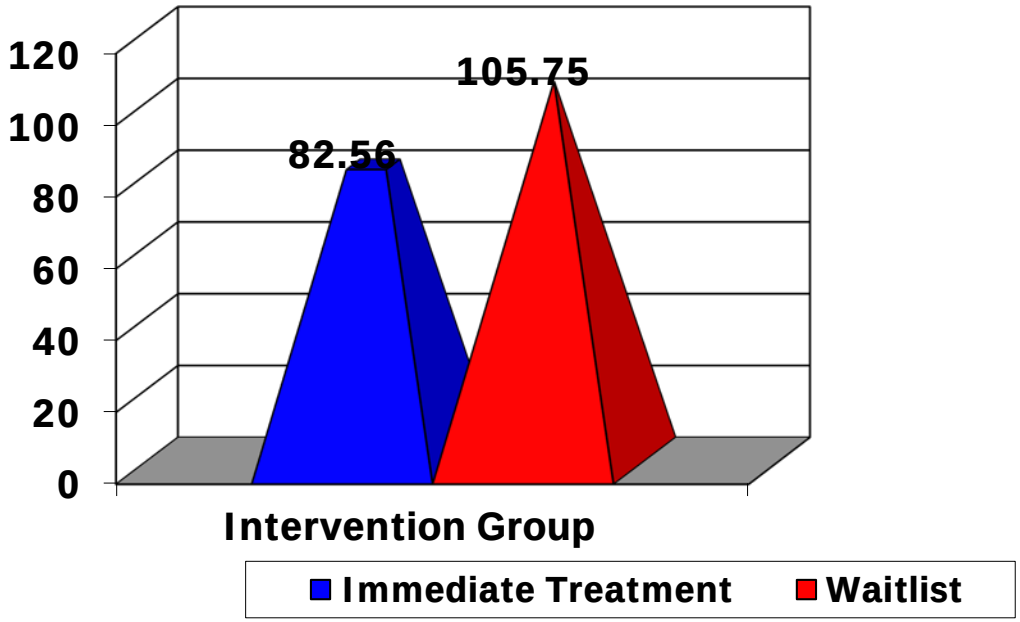
PARS scores at post



p = .044, Cohen's d ES = .74

Social Responsiveness Scale (SRS) at Post-Treatment

SRS scores at post



$p < .01$, Cohen's d ES = 1.17 (large)

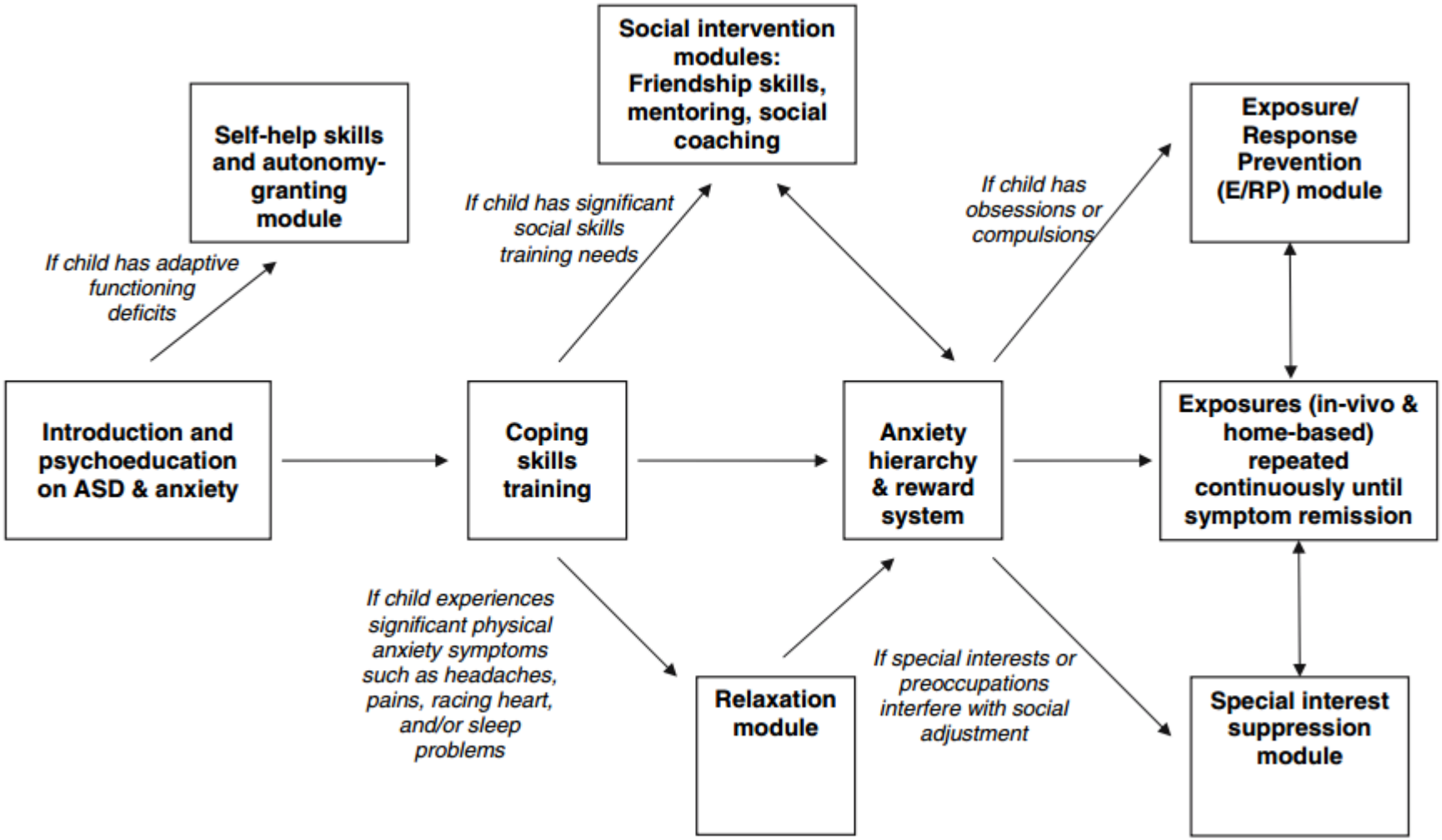
BIACA Modifications to CBT

- Adaptations to our original CBT program (Wood & McLeod, 2008) were based on research & clinical experience in ASD.
  - Broaden hierarchy to include social communication, repetitive behaviors, and undercontrolled behaviors
  - Partially reverse cognitive and behavioral elements
  - Playdates, peer "buddy" programs at school
  - "Social coaching" at home and school
  - Large scale rewards system; home-school note
  - Using visual stimuli and special interests

Parent's Role

- Administer reward system consistently
- Encourage / remind about daily tasks (exposures and social practicing)
- Overseeing playdates, promoting good hosting
- Social coaching as philosophy all day long
- Modeling adaptive thoughts and social behavior
- Interfacing with school on home-school note
- Promoting independence in daily self-help skills and providing related positive feedback

The Modular Nature of BIACA



Machine Points!

Task	MON	TUES	WED	THURS	FRI	SAT	SUN
Speaking respectfully to others. This means no insults. I can make 3 mistakes per day and still earn this point—I will be told each time and have to correct it.							
Following directions by the second time I'm asked all day long (1 request + 1 reminder). This includes starting homework on time; taking a bath; and other things mom/dad might ask me to do, with a good attitude.							
Keeping in my own bed.							
Going on elevators when mom/dad say it is required. I will go by the count of 5, after being given a moment to calm down and get mentally prepared (thinking calm thoughts!).							

- **Each task = 1 point**
- **If I earn my 4 home points for the day, I will have my daily TV / electronics, and sweets, privileges for the day.**

Lego Points!

Task	MON	TUES	WED	THURS	FRI	SAT	SUN
Practice having 1 conversation about a topic mom/dad bring up. They will tell me when we're going to practice this. I will ask at least two questions in a row about the topic to show I am interested. It is ok if mom/dad points out when I could ask the second question.							
Playing a game with a SMALL rule change while keeping my cool and going with the flow (e.g., can't start in the middle spot in tic-tac-toe or Connect 4; the oldest person gets to go first; etc.)							
Practice loaning and borrowing! I will let my sister use one of my toys for a minute or two while I stay in the room and make sure she keeps it safe. She will let me use one of hers at the same time.							

Superstar Chart!

	Mon	Tue	Wed	Thurs	Fri
GOAL 1: Trying hard when writing! (Either hand-written, or typed). My teachers will give me a specific goal for each assignment for how much I should write, and I will do so without complaint.					
GOAL 2: Participating in large and small groups. I will make at least 2 comments or ask at least 2 questions per group. (I can wear 2 colorful bracelets on my left wrist that I'll move to my right wrist after each comment/question to help me remember to do this.)					

School Points!

Task	MON	TUES	WED	THURS	FRI
Being a good friend—I can get 1 reminder per day (being a good sport and NOT telling on other kids or spying on them)					
Playing with friends. I will ask my friends at least 2 questions about a topic they bring up during snack and during lunch					

Sample Case Profile

- 7 year-old boy, “Sammy”
- High-functioning autism (verbose), OCD, generalized anxiety disorder
- Anxiety-related symptoms
  - Extreme reactions to academic “pressure” (frequent crying and refusal during testing and homework—due to perfectionism)
  - “Sammy’s list of things to do”—3-4 h. / day
  - Separation anxiety—unable to be alone

Profile Continued

- Social functioning
  - Likeable, but no reciprocal friends
  - Previously “abandoned” peers, set the play agenda, and did not share toys during attempted playdates
  - Walking around aimlessly during recess
- Self-help skills
  - Relied on mother to perform all activities related to bathing and dressing

CBT Approach with "Sammy"

- Interventions for anxiety symptoms
  - Paradoxical intervention with perfectionism: intentionally make mistakes in "pretend" assignments; later, in homework; later, on tests. Learn positive self-talk related to abilities & relative unimportance of "perfection."
  - To-do list compulsions: Restricted length of time to be devoted to to-do list per day. Later "challenged" Sammy to try days, then weeks, without any list whatsoever. Rewarded Sammy for engaging in non-list activities after school.
  - Separation anxiety: developed realistic thoughts about safety; increasing time in rooms alone; sleeping without a night light / door closed.

Social Interventions

- Friendship skills: Capitalized on Sammy's rule-governed personality to help him master and implement "rules of a good host."
- 3-4 short playdates per week, hosted by Sammy, in which he practiced these skills (and was rewarded for effort)
- "Lunch buddies"—peer intervention with classmates; they invited him to lunch. Sammy and mother problem-solved in advance on conversation topics, and he was instructed to finish lunch in time to walk to recess with peers and play with them for 5-20 min.

Self-Help Skills

- Sammy had previously demonstrated some ability to engage in most aspects of dressing and bathing—"low hanging fruit."
- Had early success in mastering all aspects of each, except for setting water temp. in bath.
- Capitalized on his desire to be a grown-up (and "have his own business") by pointing out how mature he would be if he did these activities himself. He adopted these terms and rapidly experienced increased self-esteem after mastering the self-help skills.

Sammy's Outcomes

- Sammy did not meet criteria for any anxiety disorder (OCD, GAD) at post-treatment, per the independent evaluator's diagnosis.
- Had identified 2 peers with whom he enjoyed playing after school.
- No more break-downs or refusal at school or during homework; flexible
- Increased pride and self-esteem

Sample Case Profile #2: Randy

- 10-year-old boy, Randy.
- High-functioning ASD, generalized anxiety, OCD symptoms (fear of contamination).
- Severe behavior & emotion regulation difficulties (screaming, flailing on the ground, running away during sessions).
- History of social difficulties, including inappropriate sexual behavior and inflexibility.
- Single mother reported “feeling at a loss” as to how to help Randy.

Sample Case Profile #2: Randy

- Recently suffered from PTSD-like symptoms (fear of teacher, night terrors, panic attacks) due to several (verbally) abusive incidents by one of his teachers at his previous school.
- As a result of the abusive incidents, Randy had been out of school for several months and received Carlson home hospital program in the interim.
- Since the abusive experience at school, it had been difficult for Randy to trust and work with adults.

CBT Approach with Randy: Establishing Basic Engagement

- Sessions 1-3: R's significant emotional & behavioral regulation difficulties (e.g., screaming, throwing objects) made it extremely challenging to achieve key objectives of each module.
- "Ground rules" (keeping hands & feet to self) were set which, when broken, would result in the session ending immediately.
- These initial sessions mostly consisted of efforts at managing R's challenging behaviors and increasing his engagement.
- Actual CBT began at session 4.

CBT Approach with Randy

- Further adapting coping skills training: because the child was taking the "KICK" plan in the most literal form, the therapist modified it to the "GNAK" plan:
  - G: Getting gnak? (feeling nervous?
  - N: Niceless thoughts (bad things he thinks might happen)
  - A: Acting goodly (having positive/calm thoughts)
  - K: Keep going (keep practicing)
- Adapting the use of cartoons to illustrate coping skills: Instead of basing discussions on printed cartoons, Randy was encouraged to draw cartoon strips featuring his favorite characters from computer games.
- Access to rewards during sessions to increase engagement and motivation.

Randy's UCLA Missions

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
1. Be brave in my room! (everyday; 3-5 minutes) - I will stay in my room, lights on, door closed, for 3-5 minutes - If I open the door early or call out for mom, then my time will start again - Mom will tell me where she is going and will come back when the time is done							

Daily Reward (1 ✓per day): _____

Points Reward: 1 point for each ✓ (15 points = medium prize)

Parent Training for Randy's Mother

- Established daily reward chart with only behavior-oriented goals early on. Anxiety-related goals were added later, as Randy's participation in session increased.
- Therapist regularly involved Randy's mother in role playing of possible responses to his challenging behaviors and refusal to comply with exposures.

Key sessions to review

- EXP and REW
  - Go BIG: target behavioral problems EARLY; multiple concurrent homework exposures; believe in viability of achieving social goals—social modules are not just a nicety
  - Incorporation of all relevant goals (anxiety, social, behavioral) into hierarchy/reward system
  - Parent communication—e.g., use of extinction
- SCHOOL
- FRND, PLAY, SOC-C (including park variant)
- Child 1-4 + KICK / IV

Final Thoughts: What Next?

- Combining evidence based practices such as CBT with effective social skills training models may be the most sensible approach for capitalizing on the increased emotional and behavioral regulation achieved in the treatment of comorbid conditions.
- Teens may need additional adolescent-focused treatment components.
- Treatment may need to be longer than 16 sessions.

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