



**Cognitive-Behavioral Therapy for Anxiety among Youth with Autism Spectrum Disorders**

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### Autism Spectrum Disorders

- Affecting approximately 1 out of every 98 children in the United States, ASD comprises one of the most common childhood neurobiological conditions (Centers for Disease Control, 2007, 2010; Fombonne, 2005; Rutter, 2005).
- ASD is typified by severe deficits in social communication, language use, and/or inflexible and repetitive behaviors (Klin et al., 2007; Klin & Volkmar, 2003; Rutter & Schopler, 1992).

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### Comorbid Psychiatric Disorders with ASD

- In addition to core ASD symptoms, comorbid psychiatric disorders are the rule rather than the exception (de Bruin et al., 2007; Leyfer et al., 2006; Meyer et al., 2006; Simono)
- Anxiety disorders affect up to 80% of youth with ASD
  - Anxiety could be an important treatment focus (e.g., Bellini & Peters, 2008; Sofronoff et al., 2005; Volkmar & Klin, 2000).
- Often, additional comorbid disorders coincide with anxiety disorders in the ASD population (e.g., oppositional defiant disorder), resulting in complex and severe clinical presentations (de Bruin et al., 2007; Klin et al., 2005; Muris et al., 1998)

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### Comorbid Attention Deficit Hyperactivity Symptoms with ASD

- Currently, the DSM-IV does not allow for a comorbid diagnosis of autism and ADHD.
- ADHD is characterized by inattention, impulsivity, and hyperactivity.
- Individuals with ASD often exhibit many of the symptoms found in ADHD, particularly social inattention, hyperactivity, impulsivity.
- Children with significant ADHD symptoms and ASD often present as more severe than their non-ADHD counterparts. (Reiersen, & Todd, 2008)

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### Comorbid Tic Disorders with ASD

- Tourette syndrome is characterized by childhood onset of chronic motor and vocal tics.
- Most children develop tics around the age of 5. (Leckman et al., 1998)
- Baron-Cohen et al. (1999) found a comorbidity rate of 6.5% in 458 autistic children, exceeding what would be expected of chance.
- Tic disorders often present with other comorbid issues that further complicate treatment.
  - E.g., OCD, rage, behavioral manifestations.

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### Comorbid Depression with ASD

- Depression is defined as a condition characterized by changes in appetite and sleep patterns, feelings of worthlessness, and anhedonia (Fava & Kendler, 2000).
- Depression is quite common among youth and adults with ASD (Ghaziuddin et al., 1992; Wing, 1981).
- Often manifests in anhedonia, sensitivity, touchiness, low self-worth, lack of motivation.

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### Comorbid Anxiety Disorders with ASD

- **Generalized anxiety disorder**, which is typified by disabling worry, affects at least 35% of those with ASD.
- **Separation anxiety disorder**, i.e., intense fear of separating from caregivers, affects at least 38%.
- **Obsessive-compulsive disorder (OCD)**, characterized by intrusive thoughts and rituals, affects at least 37%.
- **Social phobia**, characterized by a fear of humiliation and corresponding avoidance of specific social situations, affects at least 30%. (de Bruin et al., 2007; Green et al., 2000; Klin et al., 2005; Leyfer et al., 2006; Muris et al., 1998)
- Anxiety is the second most highly cited problem reported by parents of children with ASD. (Mills & Wing, 2005)

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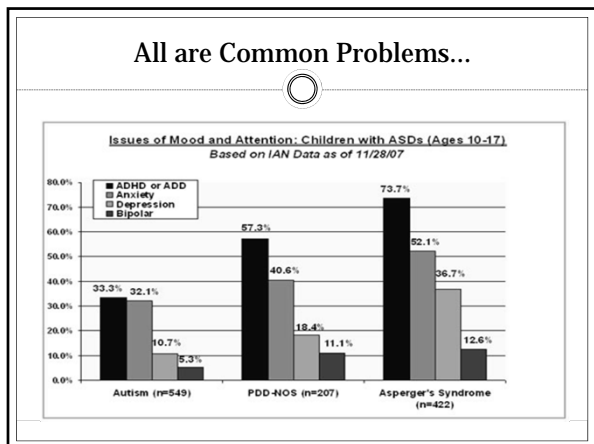
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### How Anxiety Interacts with ASD

- Anxiety disorders lead to significant functional impairment in youth with ASD.
- Youth with ASD who had higher anxiety levels exhibited more social skills deficits. (Bellini, 2004)
- Several large studies of children with ASD have found strong linkages between high anxiety and increased severity of ASD symptoms such as
  - *repetitive behaviors* (e.g., Sukhodolov et al., 2008)
  - *sensory symptoms* (Ben-Sasson et al., 2008)
  - *total ASD symptoms*
- Additional areas frequently (and *negatively*) impacted by anxiety disorders include
  - *school attendance*
  - *family cohesion*
  - *academic performance* (e.g., Kearney, 2007; Langley et al., 2004)

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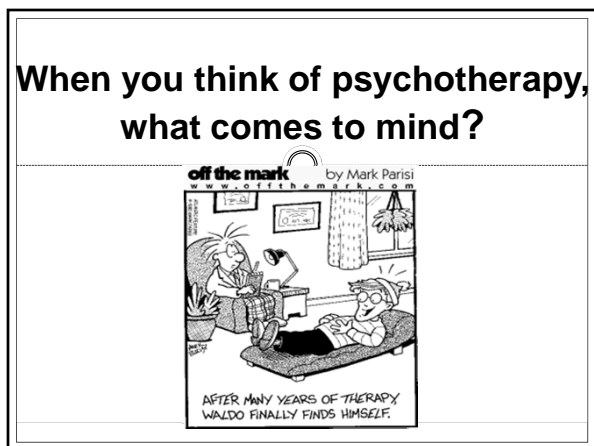
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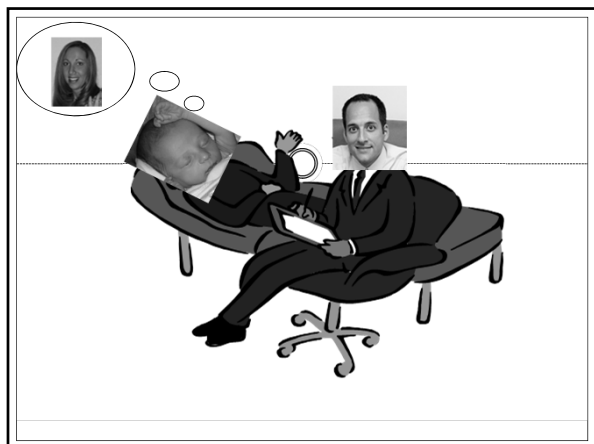
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### Overview of Treatment

- Behavioral Interventions for Anxiety in Children with Autism (BIACA; Wood & Drahota, 2005; Wood et al., 2008)
- 16-weekly sessions / up to 90 minute session structure
- Therapy modules are selected by the therapist on a session-by-session basis to address the child's most pressing clinical needs.
- For all cases, a minimum of three sessions will be spent on basic coping skills, and eight on *in vivo* exposure.
- Sessions are delivered in an individual child/family format depending on needs of child.

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### Conceptual Basis for Adapting CBT to Address Comorbid ASD and Anxiety Disorders

- Brewin (2006) proposes a model of memory retrieval competition in CBT.
- Identifies **three key strategies** for enhancing adaptive emotional and behavioral responses and the concurrent suppression of maladaptive responses:
  - (1) Patients need to engage in elaborated rehearsal of adaptive responses, with deep semantic processing (as opposed to passive listening or rote learning) (cf. Anderson et al., 1994).
  - (2) Adaptive responses should be implemented and practiced in those settings, and under those conditions that typically cue maladaptive responses (the encoding specificity principle; Craike et al., 2008; Tulving, 1979).
  - (3) There should be positive and reinforcing features associated with the adaptive memory (Anderson et al., 2000).

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### Elements of Treatment

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Utilizes core CBT elements

- Identifying thoughts and feelings
- Developing a fear hierarchy
- In vivo exposure
- Encouraging independence
- Positive reinforcement module
- Relaxation
- Making Friends

**Parent involvement.** Parent-training is among the most efficacious modalities used for childhood anxiety, conduct problems, and ASD.

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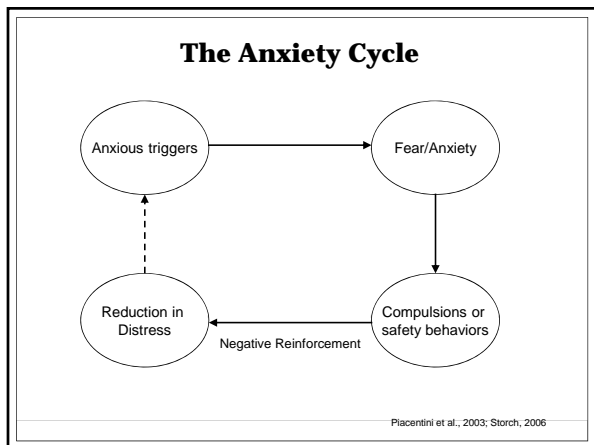
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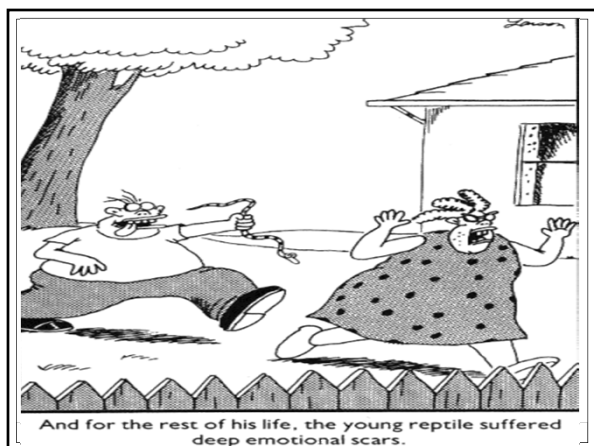
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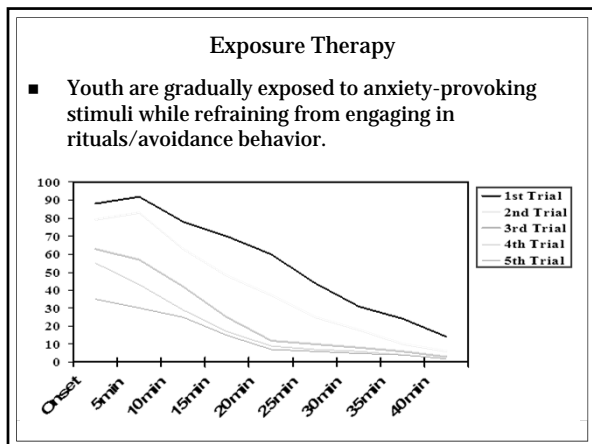
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- ### ASD-Related Skill Deficits and Corresponding Treatment Elements
- Poor social functioning is a key autism-related deficit that may reduce the efficacy of traditional CBT unless modifications are made
  - Social skills in children with ASD are most likely to be generalized and maintained through in vivo exposure
  - CBT should incorporate friendship skills training that focuses on one-to-one playdates
  - Peer intervention at school is an important treatment element
  - Caregiver-mediated social coaching can enhance understanding and generalizability
  - Circumscribed interests and stereotypes are core ASD symptoms that can interfere with the development of positive peer relationships (Attwood, 2003)
  - Disruptive behavior also needs to be addressed using evidence-based practices if global clinical improvement is to be achieved

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- ### Study 1: Cognitive Behavioral Therapy in Children with Autism Spectrum Disorders
- Evaluate how effective Cognitive Behavioral Therapy (CBT) is compared to treatment as usual (TAU) in children with ASD and comorbid anxiety.
  - To examine the short-term durability of treatment gains for youth receiving CBT.
  - To examine whether, relative to TAU, CBT results in improved social, adaptive, and global functioning, as well as reduced child- and parent-rated anxiety symptoms.

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### Participants and Procedures

- 46 children age 7 to 11 years old.
- Participants meet criteria for an Autism Spectrum Disorder and an anxiety disorder.
- Participants are randomly assigned to either receive CBT immediately or to continue treatment as usual for 16 weeks before beginning CBT.
- Participants will receive CBT weekly for 16 weeks.

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### Assessment Timeline

	Screening Week 0*	Baseline EDW 1	Mid Treatment EDW 9	Post Treatment EDW 17	1 month FU EDW 21	3 month FU EDW 25
ADIS-IV-C/P	X		X	X	X	X
ADOS: ADI-R; WISC-IV: SACA	X		X***			
PARS: CGI-S	X	X	X	X	X	X
CVBOCS		X		X		
CGI-I			X	X	X	X
RCMAS: PDDC-R; CIS: PQS, LIS		X		X	X	X
CIS-P: CBCL; MASC-P: SRS-P		X		X	X	X
TASC-C/P: SS				X		
ERY**		X				

\* The screening visit is completed over the course of two days during Week 0.  
\*\* Will be given at Baseline and at 4th visit.  
\*\*\* Only SACA.

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### Treatment Conditions

- **Cognitive Behavioral Therapy (CBT)**
  - Therapists will work with families for 16 weekly sessions, each lasting 90 minutes (45 minutes with the child and 45 minutes with the parents/family), implementing the *Behavioral Interventions for Anxiety in Children with Autism (BIACA)*; Wood & Drahota, 2005; Wood et al., 2008) CBT program.
- **Treatment as Usual**
  - Participants randomized to treatment as usual will be instructed to continue receiving their prior interventions as recommended by their providers (e.g., psychotherapy, social skills training, behavioral interventions, family participation in family therapy or a parenting class, or pharmacological interventions). Treatment changes (e.g., medication increase, starting psychotherapy in the community) are not prohibited and will be monitored.

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**Clinician Rated Measures**

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- **Autism Diagnosis Interview-Revised (ADI-R)**
- **Autism Diagnostic Observation Schedule (ADOS)—Module 3 (Lord et al., 1999)**
- **Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent Versions (ADIS-IV-C/P) (Silverman & Albano, 1996)**
- **Pediatric Anxiety Rating Scale (PARS) (RUPP, 2002)**
- **Children's Yale-Brown Obsessive Compulsive Scale (CYBOCS) (Scahill et al., 1997)**
- **Clinical Global Impression-Severity (CGI-S) (NIMH, 1985)**
- **Clinical Global Impression (CGI) (Guy, 1976)**
- **Service Assessment for Children and Adolescents-Service Use Scale (SACA) (Horwitz et al., 2001)**

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**Child and Parent Rated Measures**

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- **Child**
  - Fear Survey Schedule for Children (FSSC-R) (Ollendick, 1983)
  - Revised Children's Manifest Anxiety Scale (RCMAS)
  - Columbia Impairment Scale (CIS) (Bird et al., 1996)
- **Parent**
  - Columbia Impairment Scale (CIS-P) (Bird et al., 1996)
  - Multidimensional Anxiety Scale for Children – Parent (MASC-P) (March, 1998)
  - Social Responsiveness Scale (SRS-P) (Constantino, 2002)
  - Child Behavior Checklist (CBCL) (Achenbach, 2001)
  - Expectancy Rating Questionnaire (ERQ; Borkovec & Nau, 1972).

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**Study 2: for Anxiety Disorders in Autism:  
Adapting Treatment for Adolescents**

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- **Adolescence is a time of both “continuity and change” for those with ASD.**
- **Adolescents with ASD are at increased risk for anxiety disorders.**
- **In addition to anxiety symptoms, adolescents with ASD are likely to present with more complex and severe diagnoses than same-age peers.**

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**Cognitive Behavioral Therapy for Anxiety Disorders in Autism: Adapting Treatment for Adolescents**

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- 1. To develop a developmentally appropriate CBT manual for early adolescents with ASD and comorbid anxiety disorders.
- 2. To assess the CBT manual for clarity, completeness, and feasibility through a pilot study of 20 early adolescents ages 11-14 years
- 3. To conduct a preliminary randomized controlled trial of 32 adolescents
- Three site NIH-funded trial: USF, UCLA, University of Miami

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**Participants and Procedures**

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- Participants are between the ages of 11 and 14 years.
- Participants will meet criteria for ASD and an anxiety disorder.
- Participants will be randomly assigned to either receive CBT immediately or to be placed on a waitlist for 16 weeks before beginning CBT.

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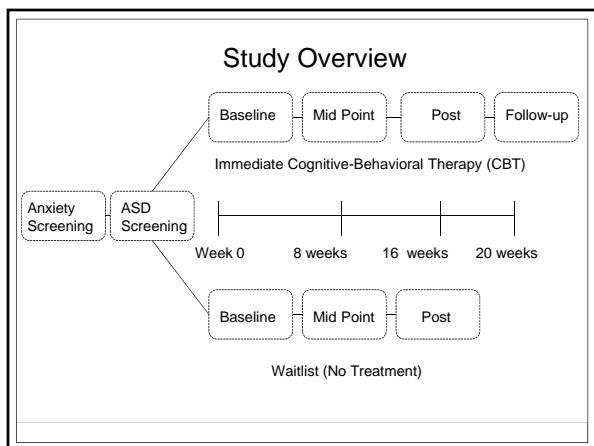
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### Clinician Rated Measures

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### Child and Parent Rated Measures

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- **Child**
  - Revised Child Anxiety and Depression Scales (RCADS)
  - Columbia Impairment Scale (CIS)
  - Peer Experiences Questionnaire-Revised (PEQ-R)
  - Loneliness Rating Scale (LRS)
- **Parent**
  - Columbia Impairment Scale (CIS-P) (Bird et al., 1996)
  - Multidimensional Anxiety Scale for Children – Parent (MASC-P) (March, 1998)
  - Social Responsiveness Scale (SRS-P) (Constantino, 2002)
  - Child Behavior Checklist (CBCL) (Achenbach, 2001)
  - Social Communication Questionnaire (SCQ)

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### Preliminary Results at USF

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- Mean PARS scores were reduced from 24 at baseline to 14 at post-treatment
- 7 of 9 youth were considered treatment responders.
- Analyses examining pre- and post-intervention outcomes indicate a reduction in both total number of anxiety symptoms and diagnoses as well as severity of anxiety symptoms.

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### Some benefits of CBT

- Time limited
  - Average course is 12-16 sessions
- Focuses on building coping skills
- Insurances more likely to reimburse
  - Doesn't drain resources
- Durability of gains
- Gains may extend to others (e.g., parents)
- Can help more people
- Personal rewards

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### Caveats...

- Dissemination
  - Not all mental health providers have the same training and/or beliefs
  - Not everyone does CBT (but some say they do)
    - CBT for OCD/anxiety should include exposure
- Cost and durability of treatment
  - Typically very durable
  - More upfront costs
- For pediatric conditions, family involvement is critical

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**Thank you!**

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