Integrating PBS and Cognitive-Behavioral Therapy (CBT) to Treat Anxiety in Autism & ID

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In Memoriam

Thank you to my late advisor, Dr. Ted Carr

1947-2009

And to the children we work with and their families
• Overview of Autism and Anxiety

• Frameworks and Interventions
  – Cognitive Behavior Therapy (CBT)
  – Combining/Modifying CBT with PBS

• If time, case studies!
Background on Anxiety in Autism

• Anxiety is more prevalent in youth on the spectrum than in neurotypical youth or those with other DDs

• BUT anxiety often overlooked, unrecognized, or undiagnosed among autistics due to:
  – Difficulty of assessing or measuring anxiety
    • Communication deficits
    • Idiosyncratic behavioral expression
  – Symptom overlap b/w Autism & anxiety disorders
    • Diagnostic overshadowing

Hagopian & Jennett (2008); White et al., (2009); van Steensel, Bogels, & Perrin, 2011
Treating Anxiety in Autism

a) CBT procedures reduce anxiety in NT children and those with lower support needs
   - i.e., exposure, cognitive restructuring, psychoed (see Albano & Kendall, 2002 for review)

b) ABA procedures shown to reduce avoidant responding in children with autism
   - e.g., systematic desensitization, reinforcement, modeling (Ellis et al., 2006; Koegel et al., 2004; Love et al., 1990; Luscre & Centre, 1996; Rapp et al., 2005; Ricciardi et al., 2005)

c) PBS antecedent-based & replacement strategies used w/autism & DD (Carr et al., 2002; Lucyshyn et al., 2007)
   - e.g., choice, visual supports, social stories, noncontingent reinforcement, FCT
Take what we know

PBS
Prevent-Teach-Respond

CBT
Cognitive Triangle

Promote/Prevent
What can we do before the behavior occurs to prevent the behavior?

Teach
What can we teach instead of the problem behavior?

Respond
How do we respond to the behavior?

Slow & fast triggers Setting Events

A → B → C
(Antecedent) (Behavior) (Consequence)

Add what’s missing

Thoughts
Behaviors
Physical Feelings
CBT
Cognitive Triangle

Prevent-Teach-Respond (PBS)

Take what we know

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What is Anxiety?

3-Component Model:

Thoughts

Behaviors

Physical Feelings
Feelings

- Heart beating fast
- Heavy/rapid breathing
- Muscles tense
- Flushed face
- Perspiration
- Nausea
Thoughts

- **Catastrophizing**: Always thinking the worst ever is going to happen
- **Mind-Reading**: Believing you know what other people are thinking about you
- **Fortune-Telling**: Believing that you know that something bad will happen in the future
- **All-or-Nothing Thinking**: Believing if you don’t do something 100% perfectly, you have failed
- **Negative Thinking**: Picking out only negative aspects of situation and not considering positive aspects

What if the spider crawls on me and then bites me and I die?
Behavior

• Avoidance/escape behavior
  – Running away
  – Cowering

• Reassurance-seeking

• Freezing

• Pacing

• Crying
Cognitive Behavioral Therapy (CBT)

3-Component Model:

Thoughts: Cognitive Restructuring

Behaviors: Gradual Exposure

Feelings: Relaxation
Cognitive Behavioral Therapy (CBT)

• Addressing Thoughts
  – Psychoeducation
  – Cognitive Restructuring

• Addressing Behaviors
  – Creating a Fear-and-Avoidance Hierarchy
  – Gradual Exposure*
  – Positive Reinforcement

• Addressing Feelings
  – Relaxation

• CBT is the most effective evidence-based treatment for anxiety disorders in neurotypical individuals & autistic youth who do not have ID (Ung, Selles, Small, & Storch, 2015; van Steensel & Bogels, 2015; Wood, Kendall, Wood, Kerns, Seltzer, Small, Lewin, & Storch 2020)
Psychoeducation

• Information about nature of anxiety
  – Define anxiety
  – Normalize anxiety
  – Anxiety has a function or purpose
  – Externalize anxiety
  – Explain 3-component model
  – Explain rationale for treatment
    • e.g., distress tolerance
Cognitive Restructuring

• **Challenging anxious thoughts**
  – Do I know for certain that____?
  – Do I have a crystal ball?
  – What evidence do I have that____?
  – Is there another explanation for _____?
  – What is the worst thing that can happen? How bad is that? **How can I cope with that?**

• **Coping self-talk/“Boss-back” talk**
  – I’ve done this before, so I can do it again.
  – I can handle this!
  – My brain is just stuck right now; I don’t have to listen to it!
  – My anxiety will pass; I’ll get used to it.

*Give fear/anxiety a name!
Gradual Exposure

• **Face your fears** (a little at a time)
  • Learn that you will *get used to it*
  • Learn that feared consequences do not come true (*behavioral experiment*)

• **Fear Ladder** (fear-and-avoidance hierarchy)
  • Gradually confront anxiety-provoking situations from easy to hard

Graded exposure is the **CORE component** in CBT or behavioral intervention for anxiety
Example “Fear-and-Avoidance Hierarchy”

Fear Staircase for Thunder and Lightning

8. Watching the lightning outside and listening to the thunder outside while having my hands out of my ears

7. Watching the lightning outside and listening to the thunder outside while having my hands in my ears

6. Watching the lightning and listening to the thunder through the window when I am inside

5. Pretending that there is thunder and lightning (e.g., making loud noises that sound like thunder), but there is not really thunder and lightning

4. Seeing something that looks like lightning, like a camera flash or car lights

3. Watching videos of thunder or lightning

2. Looking at pictures of thunder and lightning

1. Sunny day

Not afraid

Afraid

Very afraid
Reinforcement

- Reinforce BRAVE behavior!
  - Reward your child for doing something that is hard for him/her!

- What is reinforcing for your child?
  - Social rewards (positive attention)
  - Tangible rewards (e.g., toy, treat)
  - Activity rewards/privileges

- Reinforce partial success or attempts
MODIFYING CBT STRATEGIES
FOR AUTISTIC YOUTH
Modifications to CBT for Treating Anxiety in Autistic Youth

- Increase **structure & predictability** in delivering treatment components
  - Use **concrete** and **visual teaching strategies**
- Extra modules for ASD-specific difficulties
- Increase focus on **generalization**
  - Increase **parental involvement**
- Focus on reducing anxiety around **uncertainty** (Rodgers et al., 2017)
- Incorporate children's **“special interests”**

Moree & Davis, 2010; Reaven et al., 2012; Storch et al., 2013; Wood et al., 2020
Modifications for Autism: Cognitive Restructuring

- **Concrete & visual teaching strategies**
  - Cognitive components *de-emphasized* or *modified* to meet developmental level
  - Psychoeducation & cognitive restructuring conveyed using **visual aids** (e.g., Social Stories, illustrations, lists with pictures, reward charts), modeling, video modeling, role-playing

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So, to fight my anxiety, I will try not to ask Mom these questions.

And to help me fight my anxiety, mom will try NOT to answer my questions by saying, “Yes, you’re healthy” or “No, you’re not going to get sick.”

Instead, mom will say, “That’s just your anxiety talking. I can’t tell you if you’re going to get sick.”

At first, when Mom says “I don’t know” or “I can’t tell you,” I will feel scared. But, after a while, I will be less scared. Then, after a while longer, I won’t be scared anymore.

I will see that my anxiety goes down after a while, even if mom doesn’t answer me.

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*I am brave & can take good care of myself!*

Moskowitz et al. (2017)
Modifications for ASD: Gradual Exposure

- Incorporate **special interests** into the exposures
- Incorporate **video modeling** or **video self-modeling** or **video priming**
- Increase parental involvement; most likely need **parents** to implement **positive reinforcement** (e.g., Reward Chart)

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Lego Needle created by Dr. Ali Mattu

Moskowitz et al. (2017)
Additional ModIFICATIONS for Nonverbal or Minimally Verbal Autistic Individuals

- **Modifications to Cognitive Restructuring**
  - More **CONCRETE** (e.g., visual, multiple choice)
  - Focus on REPLACING with general coping thoughts rather than identifying/challenging anxious thoughts
  - Cognitive components often simplified, adapted to cognitive/language level, or may be excluded altogether

- **Modifications to Exposure**
  - Incorporate **special interests**
  - Pair anxiety-provoking stimuli with **highly positive stimuli** (counterconditioning)
  - Involve parents in all treatment sessions
  - Incorporate **Functional Communication Training (FCT)**

  Moskowitz et al. (2017)
NOTE: Not all fears need to be ”faced”

• Is it **necessary** to encourage child to face this fear? Is it **ethical**?
• Does the child appear **distressed** by their fear/anxiety?
• Is this fear/anxiety **harming child’s or family’s quality of life**?
  – If child afraid of roller coasters, **no need to do exposures** (no need for them to go on a roller coaster; they can live their life without going on a roller coaster) – **not impairing quality of life**
  – BUT if a child is afraid of trees, there’s a **need for exposures**, since that’s hard to avoid and **impairing daily life/functioning**
  – If child afraid of spiders and so doesn’t want to go camping or go to the attic, there may be **no need to target that fear**
  – BUT if child saw spider in bathroom and is so afraid that she is now no longer using the bathroom and having accidents, **need to target this fear**
Take what we know

PBS
Prevent-Teach-Respond

CBT Cognitive Triangle

ABC
(Antecedent) (Behavior) (Consequence)

Hypothesis Function

Slow & fast triggers Setting Events

Promote/Prevent
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Hypothesis Function

(Antecedent) → (Behaviour) → (Consequence)

Promote/Prevent
Teach
Respond
Combining PBS + CBT

With exception of Neufeld, Law, and Lucyshyn, (2014) and Moskowitz et al. (2017), intervention research targeting fear/anxiety in children with autism has not incorporated key principles or procedures of PBS:

- Antecedent-based interventions
- Incorporating stakeholder participation & ecological validity in the selection of goals and strategies
- Intervention informed by a functional assessment
Combining PBS + CBT

• **Given that**
  – the heterogeneity of setting events & antecedents of anxious behavior in children with autism,
  – the different functions of such behavior,
  – the idiosyncratic fears that children with autism possess, and
  – the idiosyncratic ways in which they might express their fear and anxiety

• **We should**
  – Use individualized treatments tailored to each specific child may be that much more powerful for autistic youth with ID
PBS: Considering Function of Behaviors

Traditional View: 4 main functions of behavior

- Escape-Demand
- Gain Attention
- Obtain Tangible
- Sensory-Seeking

Re-conceptualizing as Reducing Anxiety:

- Escape-Anxiety
- Gain comfort/reassurance
- Obtain comfort object or self-soothing activity
- Reduce feelings of arousal associated with anxiety
Using Positive Behavior Support (PBS) Framework to Treat Anxiety

Prevention Strategies (altering antecedents)
✓ Psychoeducation/cognitive restructuring (e.g., using Social Stories)
✓ Increasing predictability (visual schedules, timer, Social Stories, priming)
✓ Providing choices
✓ Incorporating special interests
✓ Counter-conditioning (pair with anti-anxiety stimuli noncontingently)

Replacement Strategies (teaching replacement skills)
✓ Gradual exposure (replacing avoidance with approach response)
✓ Coping self-talk (boss-back talk)
✓ Functional communication training (FCT)
✓ Mindfulness: Soles of the Feet
✓ Relaxation training

Consequence-based Strategies
✓ Positive reinforcement for brave behavior (e.g., contingent on approach)
✓ Extinction (stop reinforcing anxious behavior or challenging behavior)
PBS Prevention Strategies
(to Prevent or Mitigate Challenging Behavior Related to Anxiety in Autism & DD)

- Increase PREDICTABILITY
  - Visual Schedules
  - Social Stories
  - Advanced Warnings (e.g., timers, countdowns)
  - Priming (previewing future events)

McClannahan & Krantz (1999); Mesibov, Browder, & Kirkland (2002)
PBS Prevention Strategies
(to Prevent or Mitigate Challenging Behavior Related to Anxiety in Autism & DD)

- Provide CHOICES
  - Enhances sense of control
  - Child learns to become an active participant, rather than a passive, helpless bystander
  - Increases motivation to participate & behave well

Cale, Carr, Blakeley-Smith, & Owen-DeSchryver (2009); Shogren, Faggella-Luby, Bae, & Wehmeyer (2004)
Incorporating Special Interests

- Not just a toy, treat or activity that is liked, but rather one that is MOST HIGHLY PREFERRED
- Don't just use special interests as a reward; you can also incorporate special interests into exposure and cognitive restructuring as well as other skills, strategies, and tools.
PBS Replacement Strategy: Functional Communication Training (FCT)

- Teaching child to ask for what he/she wants through language instead of problem behavior or anxious behavior
- Examples of appropriate communication:
  - Function: Escape Anxiety
    - Ask for break, help, change in activity
  - Function: Attention
    - Ask for social interaction, attention, or praise
  - Function: Tangible
    - Ask for preferred items, activities, or people; ask for a turn
  - Function: Sensory
    - Ask for item that provides sensory stimulation or reduces sensory stimulation

Note: Must fade the number of “Break Cards” available or hugs we provide over time so that child is exposed to the feared situation for increasingly longer periods of time (“graduated exposure”)
PBS Replacement Strategy: Coping Self-Talk

Examples of Coping self-talk/“Boss-back” talk

– I’ve done this before, so I can do it again.
– My anxiety will pass; I’ll get used to it.
– My brain is just stuck right now; I don’t have to listen to it!
– Back off Voldemort, I’m the boss of me!
– Undertaker, you can’t tell me what to do anymore!
– It’s no big deal!
– It will be hard, but I can do it!
– I can handle this!
– I can do it!

Use this Coping Self-Talk before, during, and after exposure!
PBS Replacement Strategy: Mindfulness: Soles of Feet (SoF)

Visual from Manualized SoF Adaptation for Schools (from Felver and Singh, 2020):

**Soles of The Feet**

**Breathe**

1. Sit or stand with your back straight, relaxing your body
2. Place one hand on your belly, paying attention to your breathing
3. Shifting attention to your feet...

**Focus on Feet**

4. Putting your attention on the soles of your feet
5. Wiggling your toes
6. Feeling your socks
7. Focusing on the arches
8. Going to the heels
9. Continue wiggling your toes
10. Opening your eyes and relaxing...

**Return to Class**

11. Coming back to class with a calm, clear mind - making a choice that is good for you!

*Use Soles of the Feet whenever you notice yourself starting to become upset (triggers). You have the power to stay calm even if you’re upset!*

Shah, Moskowitz, and Felver (2022)
Case #1: Jon – Baseline of Happy Birthday
Case Example: Intervention for “Happy Birthday” Anxiety

Prevention Strategies
✓ Increasing predictability
  ✓ Video modeling (psychoed, cognitive restructuring)
✓ Incorporating special interests (Sesame Street)
✓ Counter-conditioning (pair with anti-anxiety stimuli noncontingently)

Replacement Strategies
✓ Gradual exposure

Consequence-based Strategies
✓ Positive reinforcement for brave behavior (e.g., contingent on approach)
✓ Extinction

Moskowitz et al., (2017); JADD
Intervention Session for Happy Birthday
Intervention for Happy Birthday: Exposures
Case #2: Separation Anxiety

Prevention Strategies
✓ Psychoeducation/cognitive restructuring (e.g., using Social Story)
✓ Increasing predictability (e.g., using Social Story)
✓ Providing choices
✓ Incorporating special interests
✓ Counter-conditioning (pair with anti-anxiety stimuli noncontingently)

Replacement Strategies (teaching replacement skills)
✓ Gradual exposure (replacing avoidance with approach response)
✓ Coping self-talk (boss-back talk)

Consequence-based Strategies
✓ Positive reinforcement for brave behavior
✓ Extinction

Moskowitz et al., (2017); JADD
Case #3: Fear of Left/Right Turns

Prevention Strategies
✓ Increasing predictability (e.g., using visual schedules, Social Story, video priming)
✓ Providing choices
✓ Incorporating special interests
✓ Counter-conditioning (pair with anti-anxiety stimuli noncontingently)

Replacement Strategies
✓ Gradual exposure

Consequence-based Strategies
✓ Positive reinforcement for brave behavior
✓ Extinction

Moskowitz et al., (2017); JADD
Target behavior may be functionally related to anxiety in youth with autism

Need for valid methods of assessing anxiety in youth with autism

Identifying anxiety in youth with autism can help to:
  • Change conceptualization
  • Change intervention approach
Resources: Books

Written for Parents of Children without autism or DD (but should still be useful for youth with autism or DD):

• *Freeing Your Child From Anxiety*, by Tamar Chansky, Ph.D.

• *Freeing Your Child from Obsessive Compulsive Disorder*, by Tamar Chansky, Ph.D.

• *You and Your Anxious Child*, by Anne Marie Albano, Ph.D.

• *Helping Your Anxious Child*, by Ronald Rapee, Ph.D., Ann Wignall, Susan Spence, Vanessa Cobham, and Heidi Lyneham

Designed for Children with autism and their Parents:

Resources: Websites

• Child and Adolescent Anxiety Disorders Clinic at Temple University: [www.childanxiety.org](http://www.childanxiety.org)
• Children’s and Adult Center for OCD and Anxiety: [www.worrywisekids.org](http://www.worrywisekids.org)
• The Child Anxiety Network: [www.childanxiety.net](http://www.childanxiety.net)
• Association for Behavioral & Cognitive Therapies: [www.abct.org](http://www.abct.org)
• Anxiety Disorders Association of America: [www.adda.org](http://www.adda.org)
Thank you!