From clinic to classroom: Two case studies of youth with ASD and anxiety from the school-based Facing Your Fears program

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Abstract

Cognitive Behavioral Therapy (CBT) is considered best practice for treating anxiety in youth with autism spectrum disorder (ASD) in clinic settings. However, there is significant need to translate CBT into school settings. This paper presents two case illustrations of students who participated in the Facing Your Fears: School-Based program (FYF-SB), a manualized, group CBT intervention for anxiety in ASD, adapted for delivery in schools by interdisciplinary school providers. Students showed improvement in anxiety across multiple domains following intervention, according to clinical interview and parent- and self-report. These outcomes suggest that anxious youth with ASD can benefit from CBT delivered by interdisciplinary school providers. Importantly, decreases in anxiety symptoms were evident in domains that were not explicitly targeted during intervention. Overall, these case illustrations help frame areas of future research, including examining how treatment gains may generalize across anxiety domains as well as whether corresponding improvement in school functioning occurs.

Keywords: Anxiety, Autism, CBT, Facing your Fears, interdisciplinary, school

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Youth with Autism Spectrum Disorder (ASD) are at high risk for developing anxiety disorders, and approximately 40% of youth with ASD may be diagnosed with an anxiety disorder (van Steensel, Bögels, & Perrin, 2011). Crucially, anxiety symptoms can significantly interfere with participation in multiple environments, including home, community, and school settings. Anxiety can be particularly interfering when it occurs in school settings (Adams, Simpson, & Keen, 2018). For example, students with ASD may display social worries when talking to peers, presenting in class, or asking a teacher for help. They may also experience generalized worries around making mistakes in academic work or being late for class. Additionally, separation fears may make it difficult to separate from caregivers to attend school, and specific phobias may manifest during fire alarms, school assemblies, or other loud stimuli.

In addition to traditional anxiety symptoms, youth with ASD may also experience fear and worries that are distinct from those most often endorsed by typically developing youth (hereon referred to as "distinct anxiety"; Kerns et al., 2014; Kerns et al., 2020). For example, youth with ASD often have strong interests, and may display excessive worry about their ability to engage in or access that interest (Kerns, Renno, Kendall, Wood, & Storch, 2017). Additionally, some youth with ASD display social anxiety without fear of negative evaluation (a defining feature of traditional social anxiety), due to a lack of social awareness associated with ASD (Kerns et al., 2014). For students with ASD, anxiety may also manifest behaviorally, including through avoidance of school work or school refusal, externalizing behaviors such as outbursts or anger, exacerbation of repetitive behaviors, and/or physical complaints (Reyes, Pickard, Tanda, Morris, & Reaven, under review).

With 50 years of research support, CBT is considered an effective, evidence-based intervention and first line treatment for youth with anxiety (Higa-McMillan, Francis, Rith-Najarian, & Chorpita, 2016). CBT is usually delivered as short-term therapy that focuses on skill building. In CBT for anxiety, healthier cognitions are promoted via cognitive restructuring, emotion regulation is improved via somatic management strategies coupled with cognitive approaches, and approaching feared stimuli is facilitated via graded exposures (Abramowitz, Deacon, & Whiteside, 2011).

In the past 10-15 years, CBT has been adapted for the treatment of anxiety disorders in youth with ASD (Perihan et al., 2020). Some CBT treatment programs were created specifically for youth with ASD (e.g., *Facing your Fears*; Reaven, Blakeley-Smith, Nichols, & Hepburn, 2011; *Exploring Feelings*; Attwood, 2004), while others were adapted from programs originally developed for youth without ASD (e.g., *Cool Kids*; Chalfant, Rapee, & Carroll, 2007; *Behavioral Interventions for Anxiety in Children with Autism*; Wood et al., 2009). Adaptations commonly include the addition of social communication skill building, the incorporation of the child's special interests, the use of concrete or visual tactics, and emphasis on parental involvement (Moree & Davis, 2010). Core components are similar across treatment programs and include psychoeducation (e.g., increasing awareness of automatic negative thoughts; somatic management strategies) and graded exposure. The evidence base for these and other adapted CBT treatment protocols has expanded considerably in recent years (Reaven, Blakeley-Smith, Culhane-Shelburne, & Hepburn, 2012; Sofronoff, Attwood, & Hinton, 2005; Storch et al., 2013; Wood et al., 2009, 2020), with a recent meta-analysis suggesting a medium effect size for CBT treatment on anxiety symptoms in youth ASD (Perihan et al., 2020).

While there are promising results from randomized trials of anxiety treatment in ASD, these studies have primarily occurred in clinic or clinical research settings, and include participants who are more educated and less diverse than what is reflected in the general population (Pickard, Reyes, & Reaven, 2019). In fact, for families from traditionally underserved racial/ethnic minority communities or low socioeconomic backgrounds, there are significant treatment inequities and barriers to accessing specialized clinic-based services. Families with limited resources may not have the transportation, childcare, or time off from work needed to travel to the clinic, nor the financial means to pay for the appointment (Elkins, McHugh, Santucci, & Barlow, 2011; Huey & Polo, 2008; Merikangas et al., 2011).

Examining the effectiveness of anxiety interventions in community settings with diverse populations is critical, and public-school settings may be ideal for these translation efforts. Schools are usually in close proximity to a family's home and services within school settings are delivered at no cost. Importantly, schools are a primary service access point for many youth (Weist & Evans, 2005), especially youth with ASD (Zablotsky et al., 2015). In addition to providing specialized services, schools may be a more naturalistic setting for treatment given the impact of anxiety for students within the school setting (Reyes et al., under review). Treating anxiety symptoms in the environment where they naturally occur may support the generalization and maintenance of treatment gains (Ginsburg, Becker, Drazdowski, & Tein, 2012). Relatedly, interdisciplinary school providers (e.g., school psychologists, occupational therapists, speech language therapists, etc.) are naturally positioned to deliver interventions and promote skill generalization, as they can provide *in-vivo* support of skill use during anxiety-inducing situations in the school setting.

To date, studies support the effectiveness of delivering CBT in schools for youth without ASD, and suggest beneficial gains when these programs are delivered by school providers (e.g., Ginsburg, Pella, Pikulski, Tein, & Drake, 2020; Masia Warner et al., 2016). Although there have only been a handful of studies examining the effectiveness of CBT for anxiety in ASD in school settings, results thus far are promising. These interventions were delivered by study researchers, mental health therapists, or allied educators (Learning and Behavior Support – AEDs/LBS). Specifically, two of these studies took place in the United Kingdom and examined the effectiveness of an adapted CBT treatment (*Exploring Feelings;* Attwood, 2004) delivered by the study researchers (Clarke, Hill, & Charman, 2017; Luxford, Hadwin, & Kovshoff, 2017). A separate study examined a different adapted CBT program (*Multimodal Anxiety and Social Skills Intervention;* White et al., 2010) administered by psychology graduate level therapists in Kenya (Ireri, White, & Mbwayo, 2019). The fourth study examined the feasibility and initial effectiveness of the *Facing Your Fears* program adapted for delivery in schools by allied educators for students ages 13-15 years in Singapore (Drmic, Aljunied, & Reaven, 2017; Reaven et al. 2011). Importantly, all four of these studies found that students who had received the CBT interventions showed significant treatment gains, supporting the potential effectiveness of school-based CBT for anxiety in ASD.

Although the results of these school-based studies were encouraging, modified CBT interventions have yet to be delivered by interdisciplinary school providers. Additionally, studies thus far have presented group-level data, whereas individual case presentations offer practical utility for providers delivering interventions and can help inform areas of research for group trials. Therefore, the present paper expands upon previous research by providing case illustrations of two students who participated in the pilot feasibility study examining the

effectiveness of the *Facing Your Fears: School-Based program* (FYF-SB; Reaven et al., under review). *Facing your Fears* was adapted for schools (Reaven, Reyes, Pickard, Tanda, & Morris, 2019) and delivered by interdisciplinary school providers.

Facing Your Fears

FYF-SB is derived from the manualized, group CBT program *Facing Your Fears* (FYF; Reaven et al. 2011). FYF is an evidence-based, outpatient, and multi-family group treatment for children and adolescents with ASD and clinically significant anxiety between the ages of 8-14 years. Groups of 4-5 families meet for 14 consecutive weeks in 90-minute sessions (Reaven, Blakeley-Smith, Nichols, & Hepburn, 2011; Reaven et al., 2012, 2018). During the first half of FYF, the focus of treatment is on increasing awareness of anxiety symptoms and situations and managing anxious feelings via psychoeducational strategies. The second half of FYF is focused on graded exposure practice. The strategies of the initial weeks of FYF intervention are put into practice as youth identify specific targets for exposure practice, create hierarchies of feared stimuli and face fears in session, at home, in school and in other community settings. A robust parent curriculum is part of the FYF intervention (see Reaven et al. 2011); parents attend all 14 sessions.

Facing Your Fears: School-Based Program (FYF-SB; Reaven & Blakeley-Smith, unpublished manual):

FYF-SB was informed via focus group methodology that included interdisciplinary school providers, as well as parents of children with ASD and anxiety (Reaven et al., 2019). Key differences between FYF and FYF-SB include changes to the program duration (core CBT components were maintained but shortened), more limited parent involvement (3 face-to-face sessions), and interdisciplinary school providers as FYF-SB facilitators, rather than clinical

psychology graduate students/Ph.D. level clinicians or allied educators. FYF-SB includes a facilitator manual, a student workbook, and parent handouts in English and Spanish. Worksheets are used liberally throughout the program and include representations of diverse students (Bitmojis) alongside clear written directions and multiple-choice lists. Brief "hands-on" activities are incorporated throughout the program and are intended to enhance the accessibility of CBT content for different learners.

In this study a high provider to student ratio was encouraged, since providers were learning the intervention and delivering it for the first time. Therefore, FYF-SB groups included between 2-5 students and were led by a minimum of two providers per group. A brief handout was provided to each student's school team and to their parents following each session to enhance communication.

As stated above, participants were drawn from a larger pilot feasibility study of FYF-SB conducted across three public school districts in Colorado (Reaven et al., under review). The study was completed in compliance with the Colorado Multiple Institutional Review Board (University of Colorado Anschutz Medical Campus). Informed consent was obtained for all participants prior to collecting any data. Prior to implementing FYF-SB, interdisciplinary school providers attended a two-day training by the treatment developers, and both groups achieved excellent fidelity (above 80%) of absence/presence of core components of the treatment. Twice monthly consultation phone calls (20 minute) occurred between the research team and school providers to answer questions and provide suggestions for program delivery, following videotape review of the sessions (when available).

Pre-Intervention Assessment

Students were between the ages of 8-14 years, had an Individualized Education Program (IEP) or 504 plan, estimated Verbal IQ above 70, and significant deficits in reciprocal social behaviors as measured by the Social Responsiveness Scale-2nd edition (SRS-2; Constantino & Gruber, 2012). The SRS-2 is a measure of autism symptoms which yields subscales, including social awareness, social cognition, social communication, social motivation, and restricted interests and repetitive behaviors. SRS *T*-scores of 60-75 indicate mild to moderate elevations, whereas *T*-scores of 76 and above indicate severe symptom elevations. Students were referred to the study if they had a known or suspected medical diagnosis of ASD and/or Educational Identification of ASD. A formal diagnosis or identification of ASD was not required for participation because the student population was largely from traditionally underserved communities, and it was believed that the requirement of a formal diagnosis would unfairly penalize families who had been unable to obtain a medical diagnosis due to limited resources.

Additionally, students had clinically interfering anxiety symptoms as measured by the Screen for Child Anxiety and Related Disorders – Parent/Child versions (SCARED-P/C; (Birmaher et al., 1999), a 41-item inventory comprised of five anxiety subscales (i.e., Panic, Generalized Anxiety, Separation Anxiety, Social Anxiety, and School Anxiety) and a Total score. A total raw score of 25 or above indicates clinically significant anxiety symptoms.

Prior to intervention, parents were interviewed by a clinically reliable examiner using the Anxiety Disorders Interview Schedule for Children (ADIS-C/P; Silverman & Albano, 1996) – Autism Addendum (ADIS/ASA; Kerns et al., 2017), a reliable and valid measure for assessing DSM-5 anxiety symptoms as well as distinct anxiety presentations in ASD. The ADIS/ASA yields Clinician Severity Ratings (CSRs) ranging from 0 (not impairing) to 8 (debilitating). The cutoff for a clinical diagnosis or significant symptoms (in the case of distinct anxiety) is a CSR

of 4 or higher. CSR anxiety ratings from two randomly selected ADIS/ASA administrations were co-scored by a second reliable examiner; reliability ratings ranged from 85.71 to 100%.

Student 1

Luis (pseudonym) was a 13-year-old male in 8th grade when he was referred by his school team to participate in FYF-SB. Luis' mother identified him as White and Hispanic (i.e., Mexican). Luis' mother reported that he was diagnosed with ASD at age 7 by a Developmental Behavioral Pediatrician. On the SRS-2, she reported clinically elevated symptoms across all domains, with the exception that social cognition fell in the mild to moderate range. Luis also had an IEP at school with an educational identification of ASD. His mother reported that he did not have any known psychiatric diagnoses (e.g., anxiety or depression), was not taking any medications, and had no known medical conditions. Luis was receiving ABA outside of school targeting social skills and fine motor skills throughout his participation in FYF-SB.

Total SCARED score according to parent report was well above the clinical threshold (see Table 1). On the SCARED-P, Luis' mother reported that he was experiencing clinically elevated symptoms of social anxiety, generalized anxiety, and panic. His total SCARED score according to self-report approached the clinical threshold. He reported elevated social anxiety and school avoidance symptoms on the SCARED-C.

Luis' mother was interviewed about the intensity and interference of his anxiety symptoms as part of the ADIS/ASA. In her initial description, she reported, *"he usually will put his face in his shirt, he'll cry, and he really likes the avoidance so he'll try to walk away or go hide in his room."* When asked what situations trigger Luis' anxious behavior, she noted, "*A lot of times it's around getting his schoolwork done, or if there is a time limit and he only has a few minutes; he just won't start."* Upon further interview, it became evident that his anxiety spanned

a number of domains, including significant social fears, fears of bugs and loud noises, and worrying excessively about his ability to engage in special interests (e.g., video games). Overall, the ADIS/ASA CSR ratings indicated interfering Social Anxiety (CSR=6), a Specific Phobia of Loud Noises (CSR=6), a Bug Phobia (CSR=6), and a Special Interest Fear (CSR=4).

Importantly, Luis' mother noted that her primary concern centered on his symptoms of Social Anxiety. Although she described him as displaying minimal social interest, she noted that Luis experienced frequent teasing, and that he has some awareness about others' thoughts and feelings, such that he knows that others may think negatively of him. She shared that, "*he does not like the idea of being laughed at, so, if he even thinks somebody is talking about him or laughing at him, he'll cry, put his face in his shirt, or leave the room."* Specifically, she noted that Luis became highly fearful when answering questions in class, asking for help, working within a group of peers, speaking to unfamiliar adults, having his picture taken, and telling others to, "stop," or needing to say, "no." She reported that Luis experienced persistent anxiety in these social situations and that this anxiety was heightened in larger groups, groups of same-age peers, or groups of unfamiliar people. Overall, his mother described his social anxiety as highly interfering, sharing that, *"He gets so nervous and anxious about it that I think that he's missing out on things."* She went on to describe that with regards to interacting with teachers, "*He's not turning in work or not asking for work he needs because he doesn't want to talk to them."*

Student 2

Frankie (pseudonym) was a 10-year-old female in 5th grade when referred by her school team to participate in FYF-SB. Frankie's mother identified her as White and non-Hispanic. Frankie had not been formally diagnosed with ASD; however, her SRS-2 *T*-score of 82 was well above clinical cutoff. Additionally, severe elevations were evident in four out of five SRS-2

subscales. *T*-scores were as follows: Social Awareness = 81, Social Cognition = 80, Social Communication = 81, Social Motivation = 49, Restricted Interests and Repetitive Behaviors = 101, suggesting that she presented with social/communication impairments consistent with ASD. Additionally, review of the videotaped sessions by a licensed psychologist indicated that Frankie's presentation was consistent with ASD, and this information was communicated to her school team. Regarding psychiatric history, Frankie had been diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) and an anxiety disorder. She also had an IEP with the educational identification of Other Health Impairment, and was receiving occupational, speech-language, and physical therapy. Outside of school, she was also receiving hippotherapy. Frankie was not taking any medication and had no known medical conditions.

Total SCARED score according to parent report was just below the clinical threshold (see Table 1). On the SCARED-P, her mother endorsed significant symptoms of separation anxiety in addition to sub-threshold symptoms of generalized anxiety and panic symptoms. Total SCARED score according to self-report was well above the clinical threshold. On the self-report version of the SCARED, Frankie endorsed significant worry across all domains, including separation anxiety, social anxiety, generalized anxiety, panic-like symptoms, and school avoidance.

Frankie's mother was interviewed about the intensity and interference of Frankie's anxiety symptoms as part of the ADIS/ASA. In her initial description of Frankie's anxiety, her mother shared, *"She gets overwhelmed really quickly if a schedule is changed and she is not notified of it, she gets way off track and kind of upset, whether that is at school or at home."* Further interview indicated that Frankie had significant anxiety in the Other Social Fear category. That is, she had a strong desire to engage socially with others, and still experienced social fearfulness, despite having limited awareness of their thoughts and feelings. Additionally,

her mother reported fearfulness around loud noises. Overall, ADIS/ASA CSR ratings indicated that Frankie experienced clinically interfering Generalized Anxiety (CSR=4), a Specific Phobia of Loud Noises (CSR=4), and Other Social Fear (CSR=4). Importantly, her mother described that Frankie's experience of Generalized Anxiety was her primary concern. Specifically, she indicated that Frankie experienced persistent worry about school, her performance, making friends, perfectionism, world events, and being abandoned. When worried, her mother described Frankie as being more irritable and having greater difficulty paying attention. Her mother emphasized that, although Frankie did not consistently verbalize these worries, her generalized worries were difficult to control and interfered significantly with her performance at school.

Course of Intervention

Since FYF-SB is a manualized program, each session is written and structured in a similar way, with a list of required materials and/or worksheets, a clear purpose and specific goals to accomplish, and a sample written schedule. Positive reward systems are used throughout the program and during each session (if needed). Tips for school providers are offered throughout the manual. Goals and objectives are provided for sessions; however, it is beyond the scope of this paper to provide all activities from each session in detail; rather, selected activities consistent with core CBT content (psychoeducation: sessions 1-7; graded exposure: sessions 8-12) will be briefly presented. Three corresponding parent sessions are included as part of FYF-SB and are also described below. Ideally, the first parent session occurs early in the program, the second parent session about half-way through, and the third session towards the end of the program. Lastly, embedded within sessions are observations, when available, for one or both students described above. Note that while both schools completed all 13 sessions of the program, videos and corresponding observations were available for 5 sessions for Luis, and 9 sessions for

Frankie. Additionally, regarding group structure, there was one other student in Frankie's group, and there were four other students in Luis' group.

Sessions 1-7: Psychoeducation

The psychoeducation component of FYF-SB includes establishing a shared emotion vocabulary (e.g., Attwood, 2004), identifying anxiety provoking situations and physical correlates of anxiety, encouraging buy-in and motivation for change, and supporting emotion regulation via cognitive and somatic management strategies.

In the initial session, students and providers get to know each other and learn the purpose of the group. Various ice breaker activities are offered (e.g., naming favorite video games, food, etc., playing "would you rather?").

Selected Activities:

Emotion Game (establishing a shared vocabulary). In this activity, students are presented with a list of 28 emotion words (e.g., happy, irritated, scared, freaked out, etc.) and asked to pair a word or words with 14 specific situations. Students are encouraged to select more than one word for each situation and explain *why* someone might feel a certain way.

Frankie: During this activity, Frankie demonstrated appropriate emotional understanding of several situations, although she also displayed strong reactions to the hypothetical situations. For example, in response to "Carlos did a math problem in front of the class and made a mistake," she said, "I think he is uncomfortable being in front of the whole class…I also think he is freaked out. I think he is uncomfortable, freaked out, and scared." When presented with the situation "John forgets his homework at home," Frankie commented, "The teacher might be mad....and [the student] is freaked out because if you're in high school or in middle school, you might get sent to the principal's office or get suspended."

Identifying Worry/Upset and Reactions to Worry/Upset (identifying anxiety provoking situations and physical correlates of anxiety). To assist students in the identification of symptoms, two sets of worksheets are completed. The first is titled "*Everybody* Worries and Gets Upset Sometimes" and includes a list of situations/circumstances that many students view as anxiety-provoking in school (e.g., making mistakes, changes in schedule, talking in front of the class). The second is a list of common physical symptoms that can be associated with worry or upset (e.g., feel sick, blush, cry, dry mouth). The emphasis on *everybody* is intentional and is a primary theme throughout the program, conveying the sentiment that anxiety and other negative emotions are common human experiences and that *everyone* may struggle with these symptoms from time to time (not just people with ASD).

Frankie: One of the providers read the checklist to Frankie to assist with completion. The students in group listened to the situations read aloud, and decided if they felt anxious in these situations:

> Provider: "What about going to school?"
>
> Frankie: "Yes. Loud noises. Yes."
>
> Provider: "Like what?"
>
> Frankie: "Fire alarms. Things that go "lockdown, lockdown". It really irritates the ear that—"

It appears that Frankie intends to describe her fear of loud noises in more detail, but the provider redirects her by continuing to administer items from the checklist. At one point, the provider assists Frankie in distinguishing worry from a general dislike of an event or situation:

> Provider: "Not being able to go outside for recess?"
>
> Frankie: "Disappointing."

Provider: “Is that a worry?”

Frankie: “Not really. When the teacher says, when the principal says we have to stay inside, we just go ‘awww’”.

Share time. To take advantage of the group context, during each session, students are encouraged to share their responses on worksheets and activities so that the students can see similarities and/or differences between their experiences and the experiences of others in group.

Understanding Time Spent Worrying (encouraging buy-in/motivation for change). Students complete a packet of worksheets introducing the concept of how much time they spend worrying. Students visually depict how much time they spend worrying, to demonstrate how much of their day is spent worrying in comparison to how much time they spend having fun. The intent of this activity is to garner motivation or “buy-in” for the importance of managing anxiety symptoms, and eventually increase the amount of time engaging in fun activities.

Frankie: When the other student in Frankie’s group completes a worksheet demonstrating the concept of time spent worrying, she appeared to think carefully about his response, and offered her own take on the example character’s time spent worrying. She replied, “I slightly disagree because if you look on this page, she only worries a little. She wants to be fun and happy all the time and not spend all her time worrying.” To encourage continued positive behavior, the provider praised Frankie for politely telling the other student she disagreed and awarded both students points for task completion.

Art Activity. To “externalize” worry (e.g., separate the person from the problem; (March & Mulle, 1998), students are instructed to create a “worry bug” either with play-doh, or with markers and paper. Students are asked to imagine what their worry or upset could look like and then create that image. “Helper” bugs are similarly crafted and ultimately team with the

students to “squash” their “worry bug”. The intent of the activity is to empower students to take control of their worry/upset and to create a common language for managing anxiety (e.g., “this is just your worry bug”).

Luis: During this activity, Luis draws his worry bug. When the provider asks for his worry bug’s name, Luis replies: “Nightmare, literally”, clearly demonstrating understanding of the concept.

Frankie: Frankie used her interest in the *Harry Potter* series to inspire her worry and helper bugs. However, she initially displayed difficulty understanding the task, sharing that her worry bug was the guardian of the four houses of Hogwarts. The provider supported Frankie by further explaining the purpose of creating a worry bug, while encouraging Frankie to continue to draw inspiration from Harry Potter: “When I think of a guardian, it is someone that protects and helps, not someone that causes you stress.” She then encouraged Frankie to model her worry bug after the villain in Harry Potter, “because he was a huge worry for Harry Potter, right? So, the guardian might be like a helper bug.” The providers’ guidance appeared effective in supporting Frankie’s understanding of the helper bug task, as Frankie proceeded to model her helper bug after a Harry Potter character who she describes as “assertive, brave, helpful, and comfortable.”

The next sessions are aimed at supporting emotion regulation. Students are introduced to the concept of “false alarms”, (e.g., experiencing physiological symptoms in the absence of danger). The students are then taught various strategies to manage their body’s physiological response to anxiety. Students also learn how to measure the intensity of their emotional response.

Somatic Management Strategies (supporting emotion regulation). Following the introduction of false alarms, students view a video of another student learning how to engage in deep breathing. The student in the video learns how to distinguish when his body is feeling tense

verses relaxed, and then uses deep breathing. As the students watch the video, they practice tensing and relaxing their bodies, and they also practice deep breathing. Additional calming/relaxing activities and strategies are introduced in subsequent sessions.

Luis: After watching the video, a provider asked the students when they can practice deep breathing. Luis identified appropriate times to practice deep-breathing, indicating "maybe when you are waiting for school to start or during lunch or something….or in the hallway. Or really any time between classes." The teacher affirmed Luis' response, saying "Yes, passing period can be kind of stressful sometimes."

Frankie: When asked what her body does when she is nervous or relaxed, Frankie replied with direct quotations from the instructional video, indicating "your body gets stiff like a robot" when anxious and that she "feels like a wet noodle" when relaxed. Frankie showed the group what her body looks like when she is nervous by scratching her arms to show the "itchiness," rotating her head to show, "dizziness," and attempting to show the tightness of her muscles. She demonstrated a relaxed state by sitting down and slouching.

Measuring Intensity of Worry/Upset. To measure the intensity of worry or upset (and similar to other intervention programs, e.g., Zones of Regulation; Kuypers, 2011), the students use a "stress-o-meter," a paper thermometer that uses red, yellow, and green zones with corresponding numbers from 1-8. Over the remainder of the program, students are encouraged to recognize when they are in one of the color zones, when their behavior has escalated to the yellow or red zone, and most importantly, how to use strategies to get to "green."

Frankie: A provider explained the concept of the stress-o-meter: "What comes up must come back down. So those upset nervous feelings must come down." Frankie demonstrated some initial understanding of the concept, using the stress-o-meter to express her emotions, saying,

"I'm up here right now," as she pointed to the red zone of her stress-o-meter. It is important to note that many students with ASD (like Frankie) take some time to understand each of the zones and may tend to describe themselves in red, even though they appear fairly calm. Similarly, some students may indicate that they are in the green zone when they are more obviously upset. To facilitate understanding of the stress-o-meter, the provider used a concrete approach:

> Provider: "Look at your stress-o-meters. If you're in the yellow, what do you think that tells you Frankie?"
>
> Frankie: "The green and the yellow zone. The green will be the green zone and the yellow will be yellow zone."
>
> Provider: "If the green zone means you have little worry or upset, if you're in the yellow zone do you think you have more worry or less worry than the green zone?"
>
> Frankie: "More worry."
>
> Provider: "In the red you have—"
>
> Frankie: "A lot more."

In following sessions, students learn cognitive strategies to manage negative thoughts and develop positive self-statements. The connections between thoughts, feelings, and the body's reaction to anxiety are reinforced. Students are also encouraged to identify several personal goals for managing their anxiety.

Active Minds/Helpful Thoughts (cognitive strategies). Through a series of worksheets illustrating several school-based scenarios (entering the science room where there is a snake in a cage; talking in class), students begin to identify "active minds" (Garland & Clark, 1995; e.g., active minds is a term that describes overactive and automatic negative/anxious thoughts) that can occur during an anxiety-provoking situation. In response to "active minds," students are

coached to generate "helpful thoughts" (e.g., positive self-statements) on their own or select helpful thoughts from a list of pre-determined self-statements in their workbooks (e.g., "I can handle this"). Again, this can be a challenging activity for students with ASD, and they may need additional explanation and practice to identify active minds and helpful thoughts.

Goal Setting – Mind and Body. Students are asked to identify 2-3 goals that will reflect their intent to use various strategies (e.g., helpful thoughts; somatic management approaches) when they are experiencing much worry or upset. These goals are shared with the students' school team as well as with their families.

At the culmination of the psychoeducation sessions, students are taught to use the strategies they have learned thus far to manage strong emotions (Plan to Get to Green) and identify how the adults in their life can support them in using these strategies.

Create a Plan to Get to Green (incorporating cognitive and somatic strategies to support emotion regulation). To create a Plan to Get to Green, students are encouraged to generate strategies that they can use to bring themselves from the red zone to yellow, and from the yellow zone to green. Students are provided with a worksheet depicting a stress-o-meter paired with a list of coping strategies, so they simply can circle the strategies they will use when they are upset or anxious. Students are encouraged to share this plan with their school team as well as their family.

Frankie: The provider guided Frankie in thinking more carefully about her plan to get from the yellow to green zone. Frankie initially stated that she would "learn with her friends" in order to get from the yellow to green zone, to which the provider replied, "If you're in the yellow zone, are you ready for learning?" Frankie responded, "A little bit, but not a lot." The provider asked Frankie what else she could do with her friends, and Frankie identified more appropriate

strategies from moving from the yellow to the green zone: "Play a game, read a book, write on the whiteboard a little bit, draw on the whiteboard." The provider continued to help Frankie think through her plan by asking how her teachers could support her. This support appeared effective, as Frankie indicated, "They could say…well maybe not because it's a family thing…but maybe they could say 'hey, you're in the yellow zone, let's talk about it and figure out a solution to your problem.'"

Sessions 8-12: Graded Exposure Practice

To introduce the concept of graded exposure, the students watch a short example video of another student "facing their fears of toilets flushing" to illustrate how students can face fears via small exposure steps. Following the video, students work with the school providers to identify the first fear they will face and develop their own hierarchies for facing fears.

Selected Activities:

Identifying Worries/Fears to Face. Hierarchies are decided in part by the child's motivation and preference, and do not necessarily correspond to primary anxiety concerns. Then, location (e.g., during group, in general education classrooms, etc.) and frequency (daily, weekly, etc.) of exposure practice for upcoming sessions are identified along with a specific reward program for facing fears. The phone consultations with the research team were also instrumental in helping the school teams develop the hierarchies for each student.

Frankie: The school providers supported Frankie in identifying her goal of facing her fear of loud noises. The identified steps were as follows: 1) expose Frankie to a loud noise she can control, 2) expose Frankie to a loud noise that is controlled (e.g., volume, length of time) by the provider, with a warning, 3) practice listening to loud noises with all group members. After these steps were identified, Frankie shared that she also has anxiety around classroom noise. The

providers therefore added a step to expose Frankie to large groups of children, so that she could eventually learn to tolerate classroom noise.

Luis: The school providers split the students in to two "fear facing" groups. The providers in Luis' group helped him identify steps in a hierarchy for facing his fear of asking questions in class. Luis was initially resistant to selecting a specific fear to work on and appeared to downplay his anxiety around this fear. As a result, his school team suggested that he practice talking about worries as a preliminary step. They also had him "coach" another member in his group to face her fear of joining a group conversation, prior to beginning his first step on his hierarchy.

In discussions between Luis and his school providers, he indicated that he has already asked questions in some of his classes, so the providers encouraged him to identify classes where he had not yet asked questions. Luis identified social studies, language arts, and math, and the providers encouraged him to pick one of these classes to work on first. Luis appeared irritated and indicated that he needed to identify an actual question first. The providers helped him label his emotion, sharing with him that he seemed "mildly annoyed" when discussing his goal. Luis shared that he feels comfortable asking questions in class and clarified that "it is more of an annoyance than a fear." The providers asked him to "rate" his annoyance, and he provided a rating of a 3 (in the green zone). The bell rang for the next period, and the teachers decided to meet separately to discuss his hierarchy further. His specific steps are not available, but Luis ultimately worked on asking questions in a small group and was able to ask questions in the larger general education classroom.

In subsequent sessions, students report on their progress facing fears, including ongoing details of their graded exposure practice. New fears to face are selected if time allows. Students

also have the opportunity to watch additional "facing your fears videos", such as facing your fears of making mistakes or talking to new people. During each session, all the students in group are actively working on their own fears but are also aware of what fears their peers have identified. A supportive, "cheerleading" atmosphere is encouraged so that peers can praise and encourage each other for facing fears.

Frankie: During share time with the group, Frankie discussed the coping strategies that she used during fear facing, stating **"**And I plugged my ears when it was really loud. And then I did deep breathing and helpful thoughts and I unplugged my ears." When asked what helpful thought she used, she replied "That I wanted to go to Kansas, China, and that I liked flowers."

Session 13: Graduation

The purpose of the graduation session is intended to be quite celebratory, marking the students' accomplishments throughout the program. A review of lessons learned over the course of the 13 sessions occurs with an emphasis on the achievement of specific goals/objectives.

Parent Sessions:

The purpose of the initial group parent session is to provide parents with an overview of CBT for anxiety and the FYF-SB program. FYF-SB worksheets for the first 6 sessions are reviewed with parents, and their questions about the FYF-SB program are answered. These sessions are scheduled in keeping with family schedules and school provider availability and last about 60 minutes. At the second parent session, parents are informed about the student's hierarchies, and are encouraged to support their children in using the coping skills learned thus far within relevant, anxiety-provoking situations at home. Additionally, psychoeducation is provided about the "cycle of anxiety," or the inter-relation of thoughts, behaviors, and feelings, and how avoiding feared situations maintains the cycle of anxiety. The concepts of "adaptive

versus excessive parental protection" (Judy Reaven & Hepburn, 2006) are also discussed. "Adaptive protection" may occur when a child has a fear of a specific situation, but the caregiver encourages the child to face that fear in small steps while also considering what skills the child may need to learn to face that fear (e.g., teaching conversational skills to support fear of social interaction). Conversely, and similar to parental accommodation (see Storch et al., 2015), excessive protection occurs when a child is fearful of a situation, is objectively able to manage that situation but the caregiver "protects" the child from facing the fear (and ultimately from experiencing distress). Excessive protection may inadvertently teach children to avoid fearful situations, thereby, preventing them from learning that they are able to manage their worry. At the final and third parent session, FYF-SB core concepts and the children's progress are reviewed. As with the graduation session for the students, the spirit of the final parent session is also intended to be celebratory, with an emphasis on progress made and how parents can continue to support their children's progress in managing anxiety and facing fears.

Intervention Results

Pre and post SCARED scores (total and subscale scores) were examined for parent- and self-report. Meaningful decreases in SCARED scores were defined as scores above or approaching clinical threshold at pre-treatment, but fell below the threshold post- intervention. (see Table 1). Pre and Post ADIS/ASA scores were also examined, and meaningful decreases were defined as CSR scores with a rating of 4 or above at pre-treatment, but below a CSR of 4 at post-treatment.

Luis

According to SCARED parent-report, there was a meaningful decrease in total anxiety symptoms, as well as panic, GAD, and school avoidance symptoms (see Table 1). There was no

significant change in social anxiety symptoms. According to SCARED self-report, there was a meaningful decrease in total anxiety symptoms, as well as the social anxiety and school avoidance subscales. Per the ADIS-ASA, Luis no longer met diagnostic criteria for Specific Phobia of bugs (*CSR* pre-FYF-SB = 6, *CSR* post-FYF-SB = 3) and loud noises (*CSR* pre-FYF-SB = 6, *CSR* post-FYF-SB = 0), nor for Special Interest Fear (*CSR* pre-FYF-SB = 4, *CSR* post-FYF-SB = 0). However, he continued to meet criteria for a social anxiety diagnosis (Social Anxiety *CSR* pre-FYF-SB = 6, Other Social Fear *CSR* post-FYF-SB = 5).

Frankie

Per the SCARED parent-report, a meaningful decrease in total anxiety symptoms was evident per parent-report. Parent-report also reflected meaningful decreases in the panic, GAD, and separation anxiety subscales. Per SCARED self-report, there was a meaningful decrease in total anxiety symptoms. Though separation anxiety remained significant, there was a meaningful decrease in all other anxiety subscales, including panic, GAD, social, and school avoidance symptoms (See Table 1). Post-intervention, ADIS-ASA results indicated that Frankie no longer met diagnostic criteria for Generalized Anxiety (*CSR* pre-FYF SB = 4, *CSR* post-FYF SB = 0) and Specific Phobia of loud noises (*CSR* pre-FYF SB = 4, *CSR* post-FYF SB = 1. However, she still met diagnostic criteria for Other Social Fears (*CSR* pre-FYF SB = 4, *CSR* post-FYF SB = 4).

Table 1

Pre- and Post FYF-SB SCARED parent- and child-report anxiety scores by student

		SCARED Raw Scores For Luis		SCARED Raw Scores For Frankie	
		Pre FYF-SB	Post FYF-SB	Pre FYF-SB	Post FYF-SB
Parent-Report	Total	**41**	17	*23*	10
	Panic/Somatic	**13**	3	*6*	3
	GAD	**9**	3	*8*	4

	Separation	3	0	**7**	2
	Social	**12**	**9**	2	1
	School Avoidance	**4**	2	0	0
Self-Report	Total	*24*	12	**46**	17
	Panic/Somatic	5	1	**11**	0
	GAD	4	1	**9**	3
	Separation	0	1	**14**	**14**
	Social	**12**	7	**8**	0
	School Avoidance	**3**	2	**4**	0

Note. SCARED = **Screen** for Child Anxiety and Related Disorders. GAD = Generalized anxiety. Clinically significant cutoffs for scales: Total $\geq$ 25, Panic/somatic > 7, GAD > 9, Separation > 5, Social $\geq$ 8, School avoidance $\geq$ 3. **Bold** = raw score exceeded clinical cutoff; *Italicized* = raw score approached clinical cutoff.

Discussion

The current study provided case illustrations of two students who participated in a manualized CBT intervention for anxiety in ASD, adapted for delivery in the school setting. Students highlighted in this paper had known or suspected ASD, and displayed significant social communication impairments consistent with ASD. To our knowledge, this is the first study to examine such an intervention when delivered by interdisciplinary school providers within public school settings.

Prior to participating in FYF-SB, Luis had diagnoses of Social Anxiety, two Specific Phobias (i.e., bugs, loud noises), and Special Interest Fears. Additionally, self and parent-report indicated clinically elevated social anxiety and school avoidance symptoms. By the end of the intervention, social anxiety symptoms decreased according to self-report. However, Luis retained a Social Anxiety diagnosis (e.g., Other Social Fear), and parent-report indicated clinically elevated social anxiety symptoms. However, school avoidance symptoms decreased according to both self- and parent-report. Additionally, by the end of the intervention, Luis no longer met criteria for Specific Phobias nor his Special Interest Fears, according to CSR ratings.

At the beginning of the intervention, Frankie had diagnoses of GAD, Other Social Fear, and Specific Phobia (i.e., loud noises). Additionally, elevations in GAD and social anxiety were evident from parent- and self-report. After FYF-SB, Frankie no longer met criteria for Specific Phobia of loud noises per CSR ratings. Moreover, after participating in FYF-SB, Frankie no longer met diagnostic criteria for GAD and decreases in GAD symptoms were evident per parent- and self-report. Like Luis, school avoidance symptoms also decreased based on self-report.

Taken together, for both students, intervention gains were evident from a semi-structured clinical interview, and self- and parent-report measures (i.e., SCARED). For Frankie, her treatment gains, particularly regarding her diagnosis of a Specific Phobia, could be tied to the fear that was specifically targeted in FYF-SB. However, this was less so the case for Luis, who retained significant social anxiety symptoms per semi-structured interview and parent-report, even though his treatment target was specific to his social worries. On the other hand, Luis himself reported significant decreases in social anxiety symptoms. The discrepancy between self- and parent-reported gains in social anxiety are important to consider and may indicate that these improvements were more pronounced in the setting in which they were addressed (e.g., school). Additionally, this discrepancy highlights the importance of obtaining self-report when assessing intervention outcomes, as parent-report measures alone may not fully capture treatment gains within school settings.

Interestingly, for both students, decreases in anxiety symptoms were evident in domains not explicitly targeted by their exposure hierarchies (i.e., additional specific phobias for Luis, generalized anxiety symptoms for Frankie). As part of their group participation, both Frankie and Luis supported and observed their peers facing fears. In so doing, they were aware of the

hierarchies their peers had identified as well as the strategies their peers used to face anxieties different than their own. In addition, communication between the school team and families occurred on several levels, via weekly handouts to the parents as well as face to face parent meetings. The extent to which the group aspects of FYF-SB contributed to the positive changes, or the extent to which parent participation helped to facilitate change is unclear, but would be important to examine in future work. Nonetheless, these results suggest that some generalization of skills and strategies to anxiety domains that were not a specific focus of exposure practice may have occurred. Given that youth with ASD have difficulty generalizing skills to novel situations (e.g., Ozonoff & Miller, 1995), these results are especially encouraging.

There are several limitations to the present study. First, both students were receiving other school-based services, which may have contributed to the reduction in their anxiety symptoms. Additionally, the extent to which school providers encouraged and/or reinforced strategies learned in the FYF-SB program to students outside of the group context and across the school day is unknown. Therefore, it is difficult to make firm claims about anxiety symptoms that were specifically addressed versus those that may have been indirectly addressed. Moreover, we did not examine whether anxiety reductions were associated with other functional measures of impact, such as school attendance, class participation, academic performance, and/or disciplinary referrals. It is also possible that social desirability led to overly positive student and parent responses on study measures. Finally, as with other case studies, the extent to which results generalize to other youth with ASD, such as older or younger youth, or those with intellectual disability, is uncertain.

Future investigations are needed to expand upon these limitations. For example, students learned general coping skills to support overall emotion regulation in addition to a

psychoeducational framework for understanding anxiety symptoms; the application of these strategies may have helped address multiple anxiety symptoms simultaneously. Understanding the type and amount of parent support of students' skill use would also be important to examine. Systematic examination of anxiety domains targeted in-session *and* outside of session, as well as domains targeted for other group members, would be informative. It would also be important to examine symptoms that are explicitly targeted during intervention in comparison to those that improve but are not explicitly addressed. Additionally, while both students reported decreases in school avoidance symptoms, it will be important for future studies to examine whether improvements in school functioning occurs following intervention. Such investigations could shed additional light onto whether improvements in school functioning may be directly related to *in-vivo* skill support from school providers during the school day.

Finally, while results of the present study indicated that the students appeared to make positive gains following intervention, the students may have benefitted from a more robust treatment response. Therefore, it would be important for future research to examine ways to enhance outcomes of school-based anxiety treatments. Although there are important advantages to school-based intervention as discussed throughout this paper, there may also be some disadvantages that could affect treatment outcomes. For example, there is likely less parent involvement with school-based treatments compared with other settings, and increasing parent involvement may lead to improved outcomes across both home and school settings. However, the logistics of including parent involvement in school-based interventions are challenging and require careful planning to navigate. In addition, some families may be reluctant to participate in ongoing school-based mental health treatment due to concerns of confidentiality or privacy, and may even be reluctant to have their children participate in mental health interventions in schools

because of concern around their child missing academic work. These factors all bear important consideration for future research.

In conclusion, the present paper provides case illustrations of two students who participated in a manualized CBT intervention for students with ASD and anxiety delivered by interdisciplinary school teams in their schools. Detailed case illustrations were presented to offer practical information for providers across disciplinary backgrounds interested in implementing FYF-SB or other adapted CBT protocols in their schools. Importantly, both students showed notable improvements in anxiety symptoms across multiple domains following the intervention, suggesting that youth with ASD and significant anxiety symptoms can benefit from CBT interventions delivered in school by interdisciplinary providers. Importantly, the present case studies offer rich information that augments findings from the larger feasibility trial and highlight the importance of examining idiographic treatment gains in informing larger scale effectiveness trials.

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