A Parent-Mediated, Cognitive Behavioral Therapy Group Treatment for Young Children With High-Functioning Autism Spectrum Disorder and Comorbid Anxiety: Development and Case Illustration of the Fun With Feelings Program

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Comorbid anxiety is increasingly being recognized as a significant concern in children with high-functioning autism spectrum disorder (HFASD; Selles & Storch, 2013). Given the significant short and long term impact of anxiety on the functioning of a child with autism spectrum disorder (ASD; e.g., Bellini, 2004; Ben-Sasson et al., 2008), it is imperative that children with HFASD and comorbid anxiety receive intervention as early as is possible. Despite this need, there is currently a dearth of research examining anxiety management programs for young children with HFASD. This article describes the development of a parent-mediated, cognitive behavioral therapy, group program for anxiety in 4- to 6-year-old children with HFASD. It provides a detailed discussion of the strategies taught to parents and children and highlights some of the challenges involved. A case study is also presented to illustrate progression and outcomes brought about through the program.

Keywords: autism spectrum disorder; anxiety; children; parents

High functioning autism spectrum disorder (HFASD) refers to autism spectrum disorder (ASD) without the presence of intellectual disability. That is, it is a disorder whereby the individual demonstrates qualitative deficits in social and communication skills as well as restricted and repetitive patterns of behaviors, despite at least normative intelligence (e.g., Sukhodolsky et al., 2008). Because the case with ASD more generally, prevalence rates of HFASD have risen dramatically over the last decade, with recent estimates indicating that 1 in 98 children

have HFASD (Centers for Disease Control and Prevention, 2014). Furthermore, because advances in diagnostic procedures and measures have occurred over the last 10 years, the age at which children are diagnosed has decreased, with research now suggesting that high-functioning forms of ASD can be diagnosed in children as young as 3 years (Leventhal-Belfer & Coe, 2004; Matson et al., 2009). Intervening early in the development of a child with ASD is considered to be of utmost importance (Warren et al., 2011), and therefore, the development and evaluation of intervention programs designed for preschool children with HFASD is imperative.

Children with HFASD appear to be more prone to experiencing anxiety symptoms than their typically developing peers because of impairments in social interaction and communication (Wood & Gadow, 2010), sensory hypersensitivities (Green, Ben-Sasson, Soto, & Carter, 2012), and difficulties recognizing and regulating emotions (Scarpa & Reyes, 2011). Recent research suggests that approximately 40% of children with ASD meet criteria for a *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., DSM-IV) anxiety disorder (van Steensel, Bögels, & Perrin, 2011), whereas up to 85% experience clinically significant anxiety (White, Oswald, Ollendick, & Scahill, 2009). Furthermore, anxiety is thought to exacerbate the core deficits of ASD. Indeed, children with comorbid ASD and anxiety have been shown to exhibit higher levels of total restricted and repetitive behaviors, circumscribed interests, sensory motor behaviors (Ben-Sasson et al., 2008; Rodgers, Glod, Connolly, & McConachie, 2012; Spiker, Lin, Van Dyke, & Wood, 2012; Sukhodolsky et al., 2008), and social impairments (Bellini, 2004; Chang, Quan, & Wood, 2012; Sukhodolsky et al., 2008). In addition, for children with ASD, anxiety has been associated with pervasive impairments above and beyond ASD symptomology including increased family stress and conflict, school refusal, and academic problems (Kim, Szatmari, Bryson, Steiner, & Watson, 2000), increased negative automatic thoughts, feelings of loneliness, and depressive symptoms (Farrugia & Hudson, 2006; Kerns & Kendall, 2012; Mayes, Calhoun, Murray, & Zahid, 2011; White & Roberson-Nay, 2009), increased externalizing problem behavior (Evans, Canavera, Kleinpeter, Maccubbin, & Taga, 2005), and decreased quality of life (van Steensel et al., 2011). Consequently, treatments for managing anxiety specifically in children with HFASD have been designed and evaluated.

Cognitive behavioral therapy (CBT) is widely accepted as the treatment of choice for typically developing children with clinically significant anxiety (e.g., Cartwright-Hatton et al., 2011; Kennedy, Rapee, & Edwards, 2009; Rapee, Schniering, & Hudson, 2009). CBT treatment programs for anxiety aim to help children recognize anxious feelings and physiological reactions to anxiety; identify and challenge dysfunctional beliefs, catastrophic cognitions, and automatic thoughts; develop coping skills; and change problematic behaviors (Beck, 2011). Parental factors, including parents' own anxiety levels, parental modeling of anxious thinking patterns and avoidant behavior, and parental overprotective behavior are implicated in the etiology of childhood anxiety (Craske & Waters, 2005), and therefore, the benefits of including parents in treatment has been recognized (Cobham, Dadd, & Spence, 1998; Ginsburg, Silverman, & Kurtines, 1995). This is especially so in the case of very young children with anxiety, where parental involvement is considered critical (e.g., Barrett, Dadds, & Rapee, 1996). Indeed, five studies have reported reductions in child anxiety in response to parent-mediated CBT programs for children who are neurotypical, where CBT content is delivered exclusively to parents who then act as "therapists" to their children (Cartwright-Hatton, McNally, White, & Verduyn, 2005; Donovan & March, 2014; Mendlowitz et al., 1999; Thienemann, Moore, & Tompkins, 2006; Waters, Ford, Wharton, & Cobham, 2009).

As might be expected, research investigating the use of CBT with children with ASD has commonly modified CBT to accommodate the special needs of children with ASD. Modifications reported by successful studies with this population include increasing affective education, emphasizing behavioral aspects, targeting cooccurring difficulties in ASD, increasing parental

involvement, increasing the use of visual approaches, and incorporating special interests (Attwood, 2008; Green & Wood, 2013). In particular, involving parents in the treatment of anxiety in children with ASD is considered critical for treatment success (Attwood, 2008). Evidence regarding the use of CBT in treating anxiety in the ASD population is still emerging. However, several recent reviews collectively support the efficacy of CBT in managing anxiety in school-aged children with HFASD (Lang, Regester, Lauderdale, Ashbaugh, & Haring, 2010; Moree & Davis, 2010; Nadeau et al., 2011; Rudy, Lewin, & Storch, 2013; Sukhodolsky, Bloch, Panza, & Reichow, 2013; Ung, Selles, Small, & Storch, 2015).

In contrast to research involving typically developing children, the efficacy of parent-mediated anxiety programs for children with ASD is yet to be examined. However, there is evidence to suggest that parent-mediated interventions targeting other skills (e.g., language) are effective (Oono, Honey, & McConachie, 2013). Unfortunately, there has also been very little examination of CBT for anxiety in young children with HFASD despite several studies indicating that CBT can be effective in treating anxiety in typically developing children as young as 3 years old (e.g., Cartwright-Hatton et al., 2011; Hirshfeld-Becker et al., 2010; Kennedy et al., 2009; Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005; Waters et al., 2009).

To the best of the authors' knowledge, Scarpa and Reyes' (2011) pilot study is the only published study to date that has examined the treatment of emotion regulation difficulties in a group format for young children with HFASD. The authors delivered a modified version of the group CBT program used by Sofronoff et al. (Sofronoff, Attwood, & Hinton, 2005; Sofronoff, Attwood, Hinton, & Levin, 2007) to eleven 5- to 7-year-olds that aimed to improve children's knowledge of, and ability to use, emotion regulation strategies to manage anger and anxiety (although it should be noted that children were not diagnosed with elevated levels of anxiety or anger pre-treatment *per se*). Furthermore, the authors aimed to increase parental self-confidence in their ability to manage their child's anxiety and anger as well as the child's ability to manage their own anger and anxiety. Child sessions were conducted in groups of two to three children and focused on understanding pleasant (happiness and relaxation) and unpleasant (anger and anxiety) emotions, emotion regulation strategies (physical, relaxation, social, thinking, special interests), and distinguishing between appropriate and inappropriate strategies. Sessions were shorter in length and more structured than those of Sofronoff et al. (2005, 2007) and included more stories, songs, and play activities to be developmentally appropriate. The program also involved concurrent parenting training sessions. Parent sessions included a review of the material taught to children, discussions regarding how to best implement strategies outside of the clinic setting, and explanations of homework tasks. Results indicated that posttreatment, compared to children in the control group, children who completed the intervention exhibited fewer and shorter behavioral outbursts related to anger and anxiety (as rated by parents), and reported a greater number of emotion regulation strategies in response to anger and anxiety vignettes. Despite this study's small sample size, the results suggest that modified CBT may be useful in reducing anxiety and anger in young children with HFASD.

In addition to Scarpa and Reyes (2011), a recently completed study from our laboratory investigated the use of a group-based CBT program (Ford, Plows, & Garnett, 2010) for emotion regulation in forty-three 4- to 6-year-old children with Asperger's syndrome (Plows, 2013). The program consisted of eight 1-hour child group sessions and eight concurrent half-hour parent group sessions. Topics covered in these sessions included understanding emotions (happiness, anger, sadness, and worry) and emotion regulation strategies (progressive muscle relaxation, imagination, cognitive restructuring, cognitive challenging, and controlled breathing) with an emphasis on anger and anxiety. The CBT program was developed to be highly visual, animated, entertaining, and structured. The program also involved stories, puppets, games, pictures, and modeling to foster interest and to enhance learning in a young age group. Because the focus of

the intervention was emotion regulation, anxiety was not an inclusion criterion for this study. However, results indicated that children who received treatment showed reductions in parent-rated anxiety and increases in emotional awareness upon completion of the intervention compared to waitlisted children.

Despite these promising results, Ford, Plows, and Garnett's (2010) program was designed as an emotion regulation program and thus has several shortcomings when used specifically to target anxiety. Foremost, the program did not contain several integral anxiety-specific CBT components found in empirically supported programs for children with anxiety (i.e., psychoeducation, development of an exposure hierarchy, and *in vivo* exposure). The program also contained a smaller parent component than typically found in empirically supported programs for children with ASD and anxiety. Furthermore, because the young children's developmental abilities and ASD symptomology, a high therapist to child ratio was required when delivering the group-based program, making it less cost-effective than other group format programs. Our laboratory recently extended this research by evaluating, via a randomized control trial, the effectiveness of an adapted, parent-mediated version of the program developed by Ford et al. (2010) that specifically targets anxiety symptoms; the results of which are published elsewhere (Cook, Donovan, & Garnett, 2017). The purpose of this article, however, is to provide clinicians with an overview of the content and delivery of the adapted parent-mediated version of the Ford et al. (2010) program, as well as specific clinical ideas, strategies, and examples employed in the program. Furthermore, a case study will be used to illustrate progression and outcomes brought about through the adapted program.

OVERVIEW OF THE PROGRAM

The new "Fun with Feelings" program represents a modified version of the Ford et al. (2010) program. The modified version of Fun with Feelings is parent rather than child-mediated and represents an anxiety intervention to suit young, high-functioning children (aged 4–6 years) with ASD and comorbid anxiety. The program aims to decrease anxiety symptoms by helping children and parents recognize anxious feelings and physiological reactions to anxiety; understand the connection between thoughts, feelings, and behavior in relation to anxiety; and practice CBT based coping strategies to regulate difficult emotions. Parents are instructed in CBT strategies and skills which they in turn teach to their children. The intervention consists of nine weekly sessions, each of 90-min duration, followed by one booster session, conducted 1 month after completion of the initial program. Although Fun with Feelings was designed to be delivered in a group format, it could be adapted for use with individual clients. The intervention is best suited to children who have functional verbal communication and developmental abilities similar to those of typically developing preschool children.

An overview of the session topics for the Fun with Feelings program is provided in Table 1. The program contains five main treatment phases: psychoeducation and parent skills training, development of an exposure hierarchy and graded exposure, affective education, emotion regulation skills training, and review and termination. Parent skills are primarily targeted in the initial phases of treatment such that content, activities, and homework mainly involve parents only. As the program progresses, the focus is increasingly on child skills and thus the content predominately focuses on activities that parents will complete with their child outside of session. The program contains essential components of existing empirically supported programs for young typically developing anxious children. However, consistent with the work of other researchers in the ASD area (e.g., Scarpa, White, & Attwood, 2013), key modifications and adaptations have been made to ensure that the content is accessible and suitable for young children with HFASD.

TABLE 1. OVERVIEW OF SESSION TOPICS IN THE FUN WITH FEELINGS PROGRAM

Session	Topic
1	Psychoeducation and goal setting
2	Parent skills training
3	Parent skills training
4	Affective education (happy)
5	Affective education (worried)
6	Affective education (relaxed) and emotion regulation strategies
7	Affective education (sad and angry)
8	Emotion regulation strategies
9	Review of content
10	Review of content

Specific modifications in the Fun with Feelings program include a larger affective education component; a greater emphasis on behavioral versus cognitive strategies; the use of child activity books; a highly structured predictable format in activities; short activity duration; multiple opportunities for repetition and practice; use of visual supports for each concept; use of puppets; and an emphasis on drawing, collage, and other creative outlets designed for young children.

OVERVIEW OF SESSIONS

Phase 1: Psychoeducation and Parent Skills Training (Sessions 1 and 2)

Traditional CBT for anxiety aims to increase an individual's understanding and motivation by providing education on anxiety (Beck, 2011). The initial phase of treatment in the Fun with Feelings program therefore aims to build parents' motivation and increase their awareness and understanding of the CBT model of anxiety, anxious child behaviors, and anxious parental thoughts and behaviors (that parents may be modeling to their child). This phase of treatment additionally aims to increase parental understanding of the relationship between ASD and anxiety, different child behaviors that reflect ASD versus anxiety and specific problems that will be targeted through the program.

During Session 1, parents engage in discussions on the core characteristics of ASD, the relationship between anxiety and ASD, and the prevalence of anxiety in individuals with ASD. Parents are then introduced to common anxiety symptoms. Many anxiety symptoms are internal (e.g., thoughts, feelings, physiological symptoms) and may be initially difficult for parents to identify in their children. Thus, the concept of anxiety symptoms is introduced to parents through an activity in which they think of a situation in which they themselves experienced anxiety then generate a list of thoughts, feelings, physiological symptoms, and behaviors that occurred during this experience. The remainder of the first session focuses on antecedents and consequences of anxiety in young children with ASD. Parents are provided with information on common triggers and signs of anxiety in young children with ASD, and engage in a discussion on the differences and similarities in the experience and presentation of anxiety in individuals who are neurotypical versus individuals with ASD. Parents then create a list of their child's signs of anxiety. Session 1 concludes with parents devising goals for themselves and for their child during the program.

Session 2 involves (a) psychoeducation on the role of parent behaviors in maintaining child anxiety and (b) parent skills training. As previously discussed, research examining the role of parent

behaviors in maintaining anxiety in typically developing children suggests that modeling of anxious behaviors and thoughts as well as overprotective parenting behavior can play a significant role in maintaining child anxiety (Manassis, Bradley, Goldberg, Hood, & Swinson, 1994; Whaley, Pinto, & Sigman, 1999). Thus, parental understanding of these maintaining factors as well as their ability to implement practical parenting strategies to reduce child anxiety and increase coping skills, is important. To address parental behavior, parents engage in a discussion regarding the differences between “meltdowns” (an extreme display of emotion in response to anxiety, cognitive overload and/or sensory overload) and “tantrums” (a behavior that typically occurs as the result of a young child not getting their own way), as well as the importance of differentially responding to these problems (i.e., taking an emotion management vs. a behavior management approach, respectively).

Parents are taught several practical strategies to lessen child anxiety and increase coping skills. Parents are first introduced to “environmental strategies” that aim to combat ASD-related difficulties that contribute to anxiety. Environmental strategies taught to parents focus on adapting communication, allowing children to engage in “special interest time” (individuals with ASD often report feeling more relaxed and content after completing an activity related to their special interest; Attwood, 2008), identifying sensory sensitivities and making environmental adaptations, creating predictable routines, and preparing children for change. Parents are then introduced to “parent strategies” that aim to combat problematic parent behaviors. Emphasis is placed on the importance of modeling coping behaviors to children, discouraging children from avoiding anxiety provoking situations, reinforcing coping behaviors through praise and rewards (i.e., rewards charts and token systems), and spending quality time with children.

Phase 2: Developing an Exposure Hierarchy and In Vivo Exposure (Session 3)

The next phase of treatment focuses on graded exposure. Graded exposure to feared situations is generally considered an essential component of an effective CBT program for childhood anxiety (Kendall et al., 2005). Thus, this phase of treatment is intended to provide parents with the skills to create an exposure hierarchy for their child and to successfully structure and perform exposure tasks with them. The following section will give a very brief overview of implementing in vivo exposure with young children. However, the reader is referred to Rapee (2000) for more detailed information.

Parents are provided with a rationale for graded exposure and are coached on the development of an exposure hierarchy. With the assistance of therapists, parents then create an exposure hierarchy for the fear or worry that is impacting their child’s day-to-day functioning and/or is central to their child’s diagnostic profile (based on the results of pretreatment assessment). In addition to the usual steps of listing feared situations and developing fear ratings for each situation (as with exposure hierarchies in CBT for children who are neurotypical), parents are also encouraged to consider whether, given their child’s current developmental abilities, their child has the skills necessary to complete the exposure tasks. For example, for a child who has a fear of talking to children and adults outside of their immediate family, the exposure hierarchy may include situations such as saying hello to their school teacher, starting a conversation with a known peer or introducing themselves to an unknown child; all of which require social skills (such as gaining a conversational partner’s attention, standing an appropriate distance from this partner, looking at this partner, etc.). The child’s parent is assisted to consider whether or not their child has the requisite social skills to complete the step on the hierarchy and if not, to devise ways in which these skills could be taught before and during implementation of the exposure hierarchy. For instance, the parent may be encouraged to teach their child to say hello through social stories (Gray, 1994) and/or role plays before moving on to the exposure task of saying hello to their school teacher.

Parents are then coached in the process of conducting in vivo exposure with their child. First, parents are taught to prepare their child for the exposure task by explaining in clear simple language exactly what is expected from the child during the exposure task, negotiating rewards for exposure task completion, conducting role plays or writing social stories (if necessary), rating their child's anxiety, and practicing anxiety reduction strategies if necessary (e.g., diaphragmatic breathing and progressive muscle relaxation). It should be noted that these specific anxiety reduction strategies are taught to parents later in the program, however, parents are encouraged to begin conducting initial exposure tasks (i.e., Hierarchy Steps 1 and 2) without these strategies because these steps trigger very low levels of anxiety in children, and thus, they generally cope well none the less. Parents are then taught to conduct the exposure task with an emphasis on continuing to monitor their child's anxiety, praising their child, and encouraging their child to use anxiety reduction strategies (once these are taught later in the program). At this point, parents also engage in a discussion regarding difficult feelings that parents may experience while completing an exposure task with their child (e.g., feeling distressed by their child's anxiety and experiencing a strong urge to reduce their child's anxiety by allowing the child to avoid the situation), as well as strategies that parents can use to manage these feelings (e.g., taking 10 deep breaths and reminding themselves they are conducting exposure to help their child overcome anxiety). Parents also engage in a discussion around possible problems that may arise during an exposure session (e.g., a child refusing to begin a task, fleeing a task, or being unable to complete a task) and are provided with suggestions about how to manage these situations. Finally, parents are instructed to give their child praise and to reward their child following exposure task completion.

Given the centrality and importance of exposure to effective anxiety management, parents complete weekly exposure homework with their child involving once daily to once-weekly exposure tasks (depending on the nature of their child's hierarchy) from Session 3 onward and engage in discussions regarding the successes and challenges experienced during the exposure homework tasks at the beginning of Sessions 4 through 9. During these discussions, parents are encouraged to brainstorm solutions to the difficulties they encountered and to provide encouragement to each other.

Phase 3: Affective Education (Sessions 4, 5, 6, and 7)

The next phase of treatment delivered in Sessions 4 through 7, differs somewhat from traditional CBT for anxiety in the child who is neurotypical, and involves affective education. Children with HFASD exhibit deficits in understanding, interpreting, and expressing emotions (Attwood, 2006; Laurent & Rubin, 2004). These deficits are particularly problematic when implementing CBT with children with HFASD because children may fail to recognize the signs of anxiety and thus miss opportune times to implement learnt CBT strategies. Consequently, it is generally recommended that CBT programs for children with HFASD contain larger affective education components than those found in typical CBT programs and that they involve simplified education regarding the understanding and recognition of basic emotions (Attwood, 2003; Green & Wood, 2013). Consistent with these recommendations, the aim of the third phase of treatment in the Fun with Feelings program is to increase the child's ability to understand, interpret, and express basic emotions.

Over four sessions, parents are instructed in activities aimed at exploring the feelings of happiness, worry, relaxation, anger, and sadness. Parents then complete these activities with their children in between sessions. Each emotion is represented by a puppet and thermometer, and is explored through an activity booklet. The puppet is a simple animal finger puppet made from felt that helps parents to engage their child in learning about emotions and adds a character to the emotion, making it more concrete and understandable for children with HFASD. Figure 1 is an image the puppet representing "Worried Wanda the mouse."

FIGURE 1. Worried Wanda the mouse puppet.

The beginning of each booklet includes an introductory story for each puppet that describes the targeted emotion, the physical signs of the emotion, the facial expression corresponding to the emotion, and activities that may trigger the emotion. Parents are instructed to read the story to their child using the puppet to act out the story. Below is the introductory story for Worried Wanda the mouse:

"Hi, I'm Wanda the Mouse and I feel worried. When I feel worried my eyes go wide, my lips start to shake, and I put my hands on my face. When I feel worried my stomach has butterflies, my hands get all sweaty, and my legs become wobbly. I feel worried when someone I care about is sick and when I think I might get into trouble. I feel worried before I go on scary rides and if someone is mad at me. I do not like feeling worried."

Each emotion is accompanied by a thermometer with three levels: "small," "medium," and "big." Children with ASD (and children who is neurotypical) may fail to recognize an emotion until it is at an extreme level: often an ineffective time to implement emotion regulation strategies. Therefore, children with ASD need to develop skills to identify emotions when they are at a lower intensity and when emotion regulation strategies are most effective. Thus, the thermometer analogy recommended by Attwood (2006) is used to quantify emotional arousal in many CBT programs for anxiety in children with ASD. For each emotion, children complete a feelings thermometer activity in their activity book whereby they list situations that elicit small, medium, and big degrees of each emotion. They then are required to discuss, with their parents, signs of each emotion (e.g., physical symptoms such as a racing heart rate, facial expressions such as a frown, and behaviors such as hiding) at each level of intensity. Finally, for each emotion, children complete an activity where they draw the facial expression of the specified emotion on "Mr. Face." This activity aims to increase the child's ability to make and recognize facial expressions. Figure 2 is a picture of the Mr. Face activity.

FIGURE 2. Mr. Face activity.

Although education on five basic emotions is covered in the program, an understanding of anxiety is central to positive treatment outcomes and thus children complete extra anxiety-related activities to facilitate a greater understanding of this emotion. In addition, given that for children with ASD, anxiety is associated with increased externalizing problem behavior (Evans et al., 2005), children also complete an extra anger-related activity. For both of these emotions, children complete activities on the "body signs" associated with the emotion, to increase their ability to recognize the emotion through physiological symptoms. During these activities, children draw or write down, the physiological signs of anxiety or anger on an outline of a person.

During the anxiety session, Worried Wanda is used to introduce the concept of "real alarms" (situations in which children are in real danger) and "false alarms" (situations in which children feel anxious but there is no real danger). This activity aims to educate children on the differences between helpful and unhelpful anxiety, again for increasing their ability to recognize situations where emotion regulation strategies are required.

Phase 4: Emotion Regulation Strategies (Sessions 6 and 8)

Sessions 6 and 8 involve emotion regulation strategies and affective education. Traditional CBT programs for anxiety typically involve relaxation or other calming strategies aimed at reducing the physiological arousal caused by anxiety (Kendall & Treadwell, 2007). Phase 4 is designed to equip parents with the skills required to teach their child formal relaxation strategies and calming activities. Therapists first engage parents in a discussion of the rationale behind diaphragmatic breathing, progressive muscle relaxation, and guided imagery and then guide parents in

the practice of these techniques. Parents are coached on how to teach these skills to children, with therapists highlighting child friendly ways of explaining the exercises (e.g., diaphragmatic breathing can be called “balloon belly breathing”), appropriate times for children to practice emotion regulation skills, and possible challenges that may arise during such practices (e.g., children may find the exercises difficult or may not want to complete the exercises). Parents then engage in a discussion focusing on instances when children may feel a high level of anxiety or anger and thus do not have the cognitive capacity to perform diaphragmatic breathing, progressive muscle relaxation, or guided imagery. Calming activities (e.g., reading a book, counting, engaging in a special interest) and energy burning activities (e.g., jumping on a trampoline, running, throwing a ball) are presented as potential strategies to use in these instances, and parents are asked to generate a list of calming and energy burning activities specifically for their child. Finally, parents are instructed in strategies for managing a child who is experiencing an extreme level of anxiety (i.e., meltdown), including finding a safe place for the child, staying calm and assertive, using clear and simple communication, displaying open rather than imposing body language, and praising the child for compliance.

Phase 5: Review and Termination (Sessions 9 and 10)

Sessions 9 and 10 (booster session held 1 month after Session 9), involve a review of all strategies taught during the program. Parents first formally review the content of the program and then review their goals from Session 1. Parents are then instructed to help their child review the content of the program through activities that involve short scenarios in which children are required to help the puppets deal with their anxiety by identifying their emotions and using emotion regulation strategies. Finally, parents are encouraged to keep an “anxiety emergency box” containing visual reminders of emotion management strategies as well as items that have a calming effect on their child. This box is explained to parents as a means of making anxiety management strategies “portable” and allowing them to be incorporated into everyday life more easily.

CASE ILLUSTRATION

The following case study is presented to demonstrate the implementation of the program with a complex case presentation and to illustrate issues involved in implementation. The parent and child described in the following text experienced positive outcomes from the Fun with Feelings program. However, this family was highly motivated and committed—attending all sessions and completing most homework tasks. Thus, this case illustration is not intended to represent the progression of all young children with HFASD through the program. Rather, it is presented to demonstrate what can be achieved with a family who are committed to completing the program.

Presenting Problem

BB was a 5-year-old boy in a mainstream Kindergarten who lived with his biological parents and younger sister. Two months prior to beginning the program, BB was diagnosed with ASD according to *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., DSM-5), by an independent multidisciplinary team (including a developmental and behavioral pediatrician, developmental and educational psychologist, speech pathologist, and occupational therapist) via an assessment that included an Autism Diagnostic Observation Schedule assessment, clinical history, and school observation. Although intellectual functioning was not formally assessed, no developmental delays were reported and no gross deficiencies in intellectual or adaptive functioning were noted.

He was referred to the program by his mother (CB). CB reported that BB had always been a sensitive child who was distressed by change and that from 18 months old, he exhibited persistent and excessive anxiety primarily related to changes in routine, social situations, and separation from her. She stated that although BB had seemingly overcome his separation anxiety without the assistance of intervention, he currently exhibited excessive anxiety related to changes in routine and social situations.

When BB was exposed to social situations in which he was expected to interact with children and adults outside his immediate family (i.e., teachers, grandparents, and therapists), he would hide behind his mother, refuse to speak, shake, and at times cry. However, BB was able to interact and play with his kindergarten teacher, swimming teacher, and a small number of familiar children at his kindergarten (whom he had known for several years). Thus, BB's difficulties with novel social situations appeared to be primarily related to anxiety rather than to social skills deficits associated with ASD (although these partly contributed) because he demonstrated social skills in familiar but not unfamiliar situations, and experienced physiological signs of anxiety and demonstrated avoidance and escape behaviors in unfamiliar but not familiar social situations.

BB also exhibited anxious behaviors (i.e., crying, shaking, fleeing from situations, and refusing to speak) in response to change. These behaviors would last from 5 to 60 min depending on the situation. For example, when BB's regular swimming teacher was absent from class he became extremely distressed—crying, shaking, and refusing to get into the swimming pool. On these occasions, BB would either become so distressed that he could not participate at all in the swimming lesson, or, after 5–10 min, his mother would physically put him in the pool and he would participate but remain unsettled. BB also demonstrated several controlling behaviors including directing family routines (e.g., bathing routine), excessively directing play with other children, and idiosyncratic routines (e.g., only eating with plates, cups, and utensils of a certain color).

CB attempted to alleviate her son's anxiety wherever possible, by allowing him to avoid social situations altogether or alternatively allowing him to hide behind her in social situations. Furthermore, to the best of her ability, CB prevented changes to BB's routine. When it was not possible for the routine to remain the same, she would avoid telling him about the change ahead of time for fear he would become distressed. CB's mother reported that she was seeking treatment at this time as a precaution because she was concerned that BB's anxiety would be exacerbated during the upcoming transition to school.

Formulation

Given the deficits inherent to ASD, BB was predisposed generally to experiencing difficulties with emotion regulation and anxiety. Regarding social anxiety, specifically, these difficulties may have been precipitated by BB entering a stage of development in which he was increasingly expected to interact socially, and to form relationships with individuals outside of his family (i.e., at kindergarten, swimming classes, and social gatherings). Maintaining BB's social anxiety was the belief and subsequent unhelpful thoughts that social situations were threatening and dangerous. These beliefs and thoughts, combined with a lack of understanding of social situations and what to do in social situations, lead him to feel anxious in social situations. In an effort to alleviate his anxiety, BB avoided or escaped social situations (e.g., by hiding behind his mother, refusing to speak), which in turn prevented him from habituating to this anxiety-provoking stimuli (thus reinforcing his belief that social situations are dangerous), prevented him from developing the skills to understand and navigate social situations (thus continuing his social skills deficits), and not allowing him to learn that social situations were not as frightening and dangerous as he believed them to be. BB's mother reinforced BB's belief that social situations were dangerous by allowing him to avoid them. Despite these difficulties, it is clear that BB possessed some level of social skill, because he was able to interact socially with his family members and familiar others.

Insistence of sameness is a defining characteristic of ASD, and therefore, BB was predisposed to develop anxiety around this issue. However at presentation, his anxiety about change appeared to be maintained through lack of experience and practice with change. BB appeared to believe that change was threatening and dangerous, which lead him to have unhelpful thoughts and to subsequently experience anxiety on encountering change. In an effort to alleviate his anxiety, he attempted to avoid change by controlling situations and fleeing novel or unpredictable situations. This in turn prevented him from habituating to novel or unpredictable situations (and reinforced his belief that change was threatening or dangerous). Furthermore, BB displayed outward signs of anxiety (i.e., crying and shaking) and noncompliant behaviors (i.e., refusing to follow instructions) in response to change. In an attempt to prevent the occurrence of these outward anxiety symptoms, BB's mother went out of her way to ensure that BB's routine never changed (and thus he lacked experience with unpredictable or novel situations), which in turn prevented BB from learning to cope with change, experience situations in which he coped with change, and prove to himself that he could cope with change. In summary, BB's anxiety about both social situations and change were primarily maintained by a lack of exposure to social situations and unpredictable situations. The avoidance was heavily reinforced by his mother who, in an effort to minimize his distress, allowed and facilitated his avoidance. However, CB displayed insight into her maintaining role in BB's anxiety and demonstrated a high motivation for change.

Treatment Participation

Session and Activity Completion. CB actively participated in treatment, attending all parent sessions and completing approximately 85% of the homework tasks on time. CB reported that BB engaged well when completing homework tasks. However, although completion of homework tasks related to emotional education and regulation was excellent, CB and BB only completed half of the graded exposure homework tasks. Difficulties finding time to complete exposure tasks was cited as the main barrier to homework completion.

Graded Exposure Tasks. Graded exposure focused on BB's social anxiety, with the goal of being able to initiate a simple conversation (i.e., "Hi, I am BB. What's your name?") with an unfamiliar person. Although CB was being assisted to create an exposure hierarchy for BB's social anxiety, it became apparent that BB lacked some of the social skills required to successfully complete the hierarchy. Thus, before beginning the hierarchy, CB assisted BB with the social skills required to appropriately greet, start a conversation with, and farewell a conversational partner. This was achieved through role plays and repeated practice. Initial steps of the exposure hierarchy included BB saying hello to his mother, father, sister, and members of his extended family. Later steps focused on BB initiating interactions and conversations with unfamiliar peers in new settings.

Measures

Checklist for Autism Spectrum Disorder. The 30-item symptom checklist that forms part of the Checklist for Autism Spectrum Disorder (CASD; Mayes et al., 2009) was used to confirm BB's ASD diagnosis and was administered once, prior to treatment. The CASD is designed to assess the presence of ASD symptoms in children aged between 1 and 6 years. It was completed by the first author (JP) based on a 20-min structured interview with CB, in which CB was asked about the presence or absence of 30 ASD symptoms for BB involving problematic social interactions, repetitive behaviors, somatosensory disturbance, atypical communication and development, mood disturbance, and problems with attention and safety. The total number of symptoms present were added (total scores range from 0 to 30), with a total symptom score of 15 or higher considered indicative of ASD (as recommended by Mayes et al., 2009). The CASD has been found to

differentiate between typically developing children and children diagnosed with ASD with a sensitivity, specificity, and positive predictive value of 1.00 (Mayes & Calhoun, 1999; Tryon, Mayes, Rhodes, & Waldo, 2006) and has been found to have strong diagnostic agreement with other validated measures of ASD such as the Childhood Autism Rating Scale (98%) and the Gilliam Asperger's Disorder Scale (94%; Mayes et al., 2009). BB scored 17 on the CASD and was therefore considered appropriate for the program.

Preschool Anxiety Scale. The Preschool Anxiety Scale (PAS; Spence, Rapee, McDonald, & Ingram, 2001) was intended to be used as a measure of BB's level of anxiety at pretreatment, posttreatment, and at 3-month follow-up. However, because of a technical malfunction on the electronic version of the PAS that was administered at posttreatment and 3-month follow-up, one response option was deleted from the measure, making comparisons with pretreatment invalid. Thus, the PAS was used only to determine suitability for the program at preassessment.

The PAS is a 34-item parent-report questionnaire assessing the severity of anxiety symptoms in children aged 2–6 years. Parents are required to rate how true each item is for their child on a five point scale ranging from 0 (*not at all true*) to 4 (*very often true*). Twenty-eight of the items are used in the scoring process and subscales aligning with the *DSM-IV* anxiety diagnoses can be produced. For this study, only the total score was used. The total score is calculated by summing all items and may therefore range from 0 to 132, with higher scores indicating higher levels of anxiety. A score of 1 standard deviation (*SD*) above the mean (corresponding to a total score of 41) was used to determine clinical status using the norms from Spence et al. (2001). The PAS has been found to demonstrate moderate to good psychometric properties, with good internal consistency (Chronbach's alphas $>.70$; Edwards, 2007). Furthermore, the PAS has shown convergent validity with the Child Behavior Checklist (Spence et al., 2001) and the Children's Mood, Fears, and Worries Questionnaire (Broeren & Muris, 2008). BB scored 64 on the PAS and was therefore considered appropriate for the program.

The Child Behavior Checklist 1.5–5 Years. The Child Behavior Checklist (CBCL; Achenbach & Rescorla, 2001) was used to measure anxiety, internalizing, and externalizing behavior and was administered at pretreatment, posttreatment, and 3-month follow-up. The CBCL is a parent-report questionnaire designed to measure behavioral and emotional problems in children aged between 1.5 and 5 years. Parents rate the frequency with which specific behavioral and emotional problems are exhibited by their child over the last 2 months on a 3-point scale ranging from 0 (*not true*) through 1 (*somewhat or sometimes true*), to 2 (*very true/often true*). The CBCL comprises two broad subscales: internalizing problems (including emotionally reactive, anxious/depressed, somatic complaints, withdrawn, and sleep problems subscales) and externalizing problems (including attention problems and aggressive behavior subscales). The CBCL also contains five *DSM-IV*-orientated subscales: Affective Problems (dysthymia, major depression), Anxiety Problems (generalized anxiety disorder, separation anxiety disorder, specific phobia), Pervasive Developmental Problems (Asperger disorder and autistic disorder), Attention Deficit/Hyperactive Problems (hyperactive-impulsive type and inattentive type), and Oppositional Defiant Problems (oppositional defiant disorder). Each subscale score is calculated by summing the items relevant to the particular subscale. For this study the Internalizing, Externalizing, and Anxiety subscales were used. The scores on the internalizing scale may range from 0 to 72, scores on the externalizing scale range from 0 to 48, and scores on the anxiety scale range from 0 to 20.

According to Achenbach and Rescorla (2001), *t* scores greater than 63 are considered to be in the clinical range. The psychometric properties of the CBCL are well established.

Treatment Satisfaction. CB's satisfaction with the intervention was assessed immediately after completion of the treatment using an 8-item questionnaire developed by our laboratory group. CB rated on a 5-point Likert-scale ranging from 1 (*not at all*) to 5 (*very much*), how satisfied

she was with various aspects of the program. The resulting total score had a possible range of 0–40, where higher scores were indicative of greater treatment satisfaction. The questionnaire also contained two open-ended questions where CB was able to comment on what she liked most and least about the intervention.

RESULTS

Data Analytic Plan

Clinical improvement was assessed by determining whether scores on the anxiety, internalizing, and externalizing scales of the CBCL, moved from being in the clinical range at pretreatment to the nonclinical range at posttreatment. In addition, the reliable change index (RCI: Jacobson & Truax, 1991) was calculated to determine whether the magnitude of change observed in scores from pretreatment to posttreatment to 3-month follow-up were statistically reliable. According to the procedure outlined by Jacobson and Traux (1991), RCI is calculated by subtracting a post-treatment score from the corresponding pretreatment score and dividing the result by the standard error of the difference (calculated from a measurement's standard deviation and test-retest reliability) between the two test scores. If the RCI score exceeds 1.96, then it is 95% likely that the observed changes between the two time points are statistically reliable.

Evaluation of Treatment

Table 2 outlines BB's scores on each of the measures at pretreatment, posttreatment, and 3-month follow-up. As is evident from Table 2 and as noted earlier, prior to treatment BB scored in the

TABLE 2. CONFIRMATION OF DIAGNOSIS RATINGS, OUTCOME SCORES, TREATMENT SATISFACTION RATINGS, AND SCORE RANGES AT PRETREATMENT, POSTTREATMENT, AND THREE-MONTH FOLLOW-UP

Measure	Score Range	Clinical Cut-Off	Pretreatment	Posttreatment	3-Month Follow-Up
Confirmation of diagnosis					
Checklist for ASD	0–30	15	17	—	—
PAS	0–132	41	64 ^a	—	—
Outcome measures					
CBCL					
a. Internalizing subscale <i>t</i> score	0–100	63	$t = 81^a$	$t = 71^{a,b}$	$t = 56^{b,c}$
b. Anxiety subscale <i>t</i> score	0–100	63	$t = 75^a$	$t = 67^a$	$t = 54^c$
c. Externalizing subscale <i>t</i> score	0–100	63	$t = 77^a$	$t = 59^{b,c}$	$t = 50^{b,c}$
Treatment satisfaction					
Treatment satisfaction	0–40		—	37	—

Note. ASD = Autism Spectrum Disorder; PAS = Preschool Anxiety Scale; CBCL = Child Behavior Checklist.

^aClinical scores.

^bReliable change.

^cClinical change.

clinical range on the CASD and the PAS. Furthermore, BB scored in the clinical range on the Anxiety, Internalizing, and Externalizing subscales of the CBCL.

BB's scores on the CBCL-Anxiety subscale improved from the clinical range at pretreatment to within the borderline range at posttreatment. As determined by the RCI (Jacobson & Truax, 1991), the 8-point reduction in his score from pre- to posttreatment represented a reliable improvement (at $p < .05$). At 3-month follow-up, BB's t score on the CBCL-Anxiety subscale decreased further to 54 placing him well within the normal range, and demonstrating reliable improvement from pretreatment according to the RCI (at $p < .05$).

Although BB's score on the CBCL-Internalizing subscale remained in the clinical range at posttreatment, according to the RCI (at $p < .05$), the 10-point reduction in his score from pre- to posttreatment represented a reliable improvement. BB's t score on the CBCL-Internalizing subscale further decreased to 56 at 3-month follow-up, placing him in the normal range and similarly demonstrating reliable improvement according to the RCI (at $p < .05$).

BB's score on the CBCL-Externalizing subscale improved from the clinical range at pretreatment to within the nonclinical range at posttreatment. Furthermore, according to the RCI (at $p < .05$), the 18-point reduction in his score from pre- to posttreatment represented a reliable improvement (Jacobson & Truax, 1991). At 3-month follow-up BB's score on the CBCL-Externalizing subscale remained in the normal range and similarly demonstrated a reliable improvement from pretreatment to 3-month follow-up according to the RCI (at $p < .05$).

Descriptive Data

CB reported a reduction in BB's social anxiety symptoms and an increase in his social skills postintervention. Although BB had not completed his exposure hierarchy by posttreatment, he was consistently saying "hello" to family members without prompting and was inconsistently saying "goodbye" to family members without prompting. Upon meeting a new occupational therapist for the first time, he spontaneously said "hello" and initiated a conversation. In addition, he had initiated interactions with unfamiliar children during a visit to his new school. Regarding anxiety about change, CB reported that BB's emotional distress in response to change had reduced. For example, she reported that BB displayed no distress when his regular swimming teacher was absent from class. In relation to her own skills, CB reported that she felt better able to manage BB's emotional distress. Specifically, she reported using strategies from the program including preparing BB for change, encouraging BB to use relaxation strategies when anxious, and rewarding BB for engaging in resilient and "brave" behavior.

Treatment Satisfaction

CB indicated a high level of satisfaction with the program immediately following completion of treatment, with her satisfaction rating for each aspect of the program ranging from 4 (*a lot satisfied*) to 5 (*very much satisfied*). She reported finding the finger puppets highly valuable in explaining different emotions to BB. In addition, she reported that BB responded particularly well to the relaxation exercises and specifically enjoyed diaphragmatic breathing and imagination exercises. Finally, there were not any aspects of the program that CB reported being unhappy with.

DISCUSSION

This article sought to provide clinicians with a detailed overview of the structure, content, and clinical strategies incorporated within an early intervention for children aged 4–6 years with HFASD

and anxiety. This article, in addition, sought to illustrate the progression and outcomes brought about by the Fun with Feelings program through the presentation of a case study. As with any case study, the findings of this report are limited in terms of generalizability. However, the results were generally positive and thus lend support to the potential effectiveness of this novel treatment in managing anxiety in young children with HFASD. BB began the program with clinically significant levels of anxiety and internalizing symptoms as measured by the CBCL and the PAS. Immediately after treatment, his symptoms remained in the borderline to clinical level. However by the end of the 3-month follow-up, his symptoms had decreased to nonclinical levels as measured by the CBCL. BB's reductions in anxiety symptoms on this measure were consistent with his mother's descriptive reports of reductions in anxious behavior and improvements in adaptive behavior. In addition to symptom reduction, BB's mother also indicated that she was highly satisfied with the program.

The fact that BB's scores on the Anxiety and Internalizing subscales of the CBCL did not drop to nonclinical levels until 3-month follow-up, requires some discussion. Because of the program being parent-mediated, it is possible that treatment effects took longer to emerge because CB required more time to master CBT skills and strategies and implement these effectively with BB. Indeed, although CB regularly completed exposure hierarchy tasks with BB at the beginning of the program, the later steps were not completed by the posttreatment assessment point. It is hypothesized that BB's symptoms continued to decrease from postassessment to 3-month follow-up because the family had greater opportunity to practice learnt skills and complete the exposure hierarchy. Further research with the program should investigate ways to address barriers to homework completion during the program and thus improve treatment adherence.

It should also be noted that BB began the program with clinically significant levels of externalizing symptoms. Although not specifically targeted in the Fun with Feelings program, BB's externalizing symptoms decreased from clinical to nonclinical levels over the course of treatment. Given that for children with ASD, anxiety is associated with increased externalizing problem behavior (Evans et al., 2005), it would seem that in this case, reductions in BB's externalizing symptoms were achieved via improvements in his anxiety symptoms. This is an important finding and one that requires replication and further investigation.

In sum, comorbid anxiety is increasingly being recognized as a significant concern in children with ASD (Selles & Storch, 2013). Given the deleterious short- and long-term impact of anxiety on the functioning of a child with ASD (e.g., Ben-Sasson et al., 2008; Bellini, 2004; Kim et al., 2000), it is imperative that children with HFASD with comorbid anxiety receive intervention as early as possible. This article provided clinicians with a detailed overview of a parent-mediated, CBT, group intervention for managing anxiety in young children (aged 4–6 years) with HFASD. A case study was presented to demonstrate the feasibility of achieving positive outcomes through the program, the results of which are promising and illustrate the potential usefulness of such a program in decreasing anxiety in young children with HFASD. Furthermore, the parent in this case study was highly satisfied with the program, suggesting that the program is both feasible and attractive to parents.

Although the case described here achieved positive outcomes, the results may have been because of unique characteristics of the child and his family, and thus, we are not suggesting that such gains will be made by all children who participate in the program. Indeed, before conclusions can be drawn about the effectiveness of this program, a randomized control trial is required. It is hoped that this article has demonstrated the promise of parent-mediated interventions in assisting young children with HFASD, and that it has provided the clinician with helpful ideas and strategies for decreasing anxiety symptoms and increasing coping skills in young children with HFASD.

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