

Cognitive Behaviour Therapy for a Child with Autism Spectrum Disorder and Verbal Impairment: A Case Study

Abstract

The current case study describes the implementation of a number of modifications made to traditional cognitive behavioural therapy (CBT) to address anxiety in a child with autism spectrum disorder (ASD), aggressive behaviour, and mild intellectual impairment. Cognitive behavioural therapy (CBT) is the primary psychosocial therapy for the treatment of mood and anxiety disorders in typically developing children and those with ASD who have at least average intelligence quotient (IQ); however, less work has discussed how to address the needs of youth with ASD and cognitive impairments. The purpose of the present case study is to describe the use of modifications to the Coping Cat program (Kendall & Hedtke, 2006) in the treatment of anxiety of a 9-year-old boy, Chris. Chris participated in a modified group therapy with a substantial individual therapy component, due to behavioural and language difficulties. Modifications included visual aids as the primary method of treatment delivery, inclusion of special interests, physical play activities, and parental involvement. A number of qualitative treatment gains were noted in session; however, quantitative data did not support these gains. Limitations of the CBT group intervention and the need for tailoring supports to meet the cognitive needs of children with ASD, aggressive behaviour, and intellectual impairment are discussed.

Anxiety has been identified as a common feature of children with Autism Spectrum Disorders (ASDs), with estimates of comorbidity averaging between 40% to 50% for this population (Moree & Davis, 2010; White, Oswald, Ollendick, & Scahill, 2009). There is an emerging literature on interventions for anxiety disorders among children with ASD, with the majority focused on providing modified cognitive behavioural therapy (CBT) for children and adolescents with ASD who have at least average intellectual functioning (e.g., Reaven, Blakeley-Smith, Culhane-Shelburne, & Hepburn, 2012; Reaven, Blakeley-Smith, Nichols, Dasari, Flanigan, & Hepburn, 2009; Wood, Drahota, Sze, Har, Chiu, & Langer, 2009). The current case study presents modifications of CBT for anxiety in a child with ASD, aggressive behaviour, and mild intellectual impairments.

Cognitive behavioural therapy is the primary psychosocial therapy for the treatment of mood and anxiety disorders in typically developing children (Ollendick, King, & Chorpita, 2006). Several modifications to traditional CBT have been

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Keywords

cognitive behaviour
therapy,
autism spectrum disorders,
anxiety,
children

suggested to better address anxiety for children and adolescents with ASD, including the use of concrete visual aids, the incorporation of individual special interests, and involvement of parents in therapy (Attwood, 2004; Moree & Davis, 2010; Sze & Wood, 2008), although these modifications have yet to be standardized. Emerging literature has highlighted the potential of CBT in the treatment of anxiety among children and adolescents with ASD (Reaven & Hepburn, 2003; Reaven et al., 2009, 2012; Sofronoff, Attwood, & Hinton, 2005; Sze & Wood, 2007, 2008; White, Ollendick, Scahill, Oswald, & Albano, 2009; Wood et al., 2009), all of which emphasize the importance of modifying traditional CBT models to better suit the multifaceted needs of children and adolescents with ASD. A recent randomized controlled trial (RCT) of a manualized CBT program specifically created for children with ASD (Facing Your Fears; Reaven, Blakeley-Smith, Nichols, & Hepburn, 2011) found that children with ASD participating in the Facing Your Fears (FYF) protocol had better outcomes than a treatment-as-usual (TAU) group, with 50.0% of the FYF children having a clinical positive response, compared to only 8.7% in the TAU group (Reaven et al., 2012). This research demonstrates the potential effectiveness of CBT for anxiety among children with ASD and emphasizes the importance of systematic and intensive research in this area.

Although modifications to traditional CBT have been suggested (Attwood, 2004; Moree & Davis, 2010; Reaven et al., 2009, 2012; Sze & Wood, 2008), these adaptations may be limited by a child's level of functioning (Moree & Davis, 2010). Children with ASD who are higher functioning may be better able to understand the cognitive components (e.g., cognitive restructuring) of CBT than children with cognitive impairments, and less work has discussed how to circumvent such limitations (Moree & Davis, 2010). For example, although some of the aforementioned empirical research studies have included samples having lower bound verbal intelligence quotient (IQ) scores of 65 and 70 (e.g., Reaven et al., 2009, 2012), verbal IQ has not been examined as a predictor to treatment success, and the mean group IQ scores are typically in the average range. Thus, it is unclear how participants with below average intellectual functioning fair in comparison to

their peers with average to above average functioning, especially with regard to verbal skills.

The purpose of the present case study is to describe the use of modifications to a published and empirically supported manualized CBT program for children, *Coping Cat* (Kendall, 1992), in the treatment of anxiety for a 9-year-old boy with ASD and verbal impairment. The *Coping Cat* program is one of the most commonly evaluated manualized CBT interventions (see Kendall, Furr, & Podell, 2010) and is offered in an individual, group, and family format. The current client, Chris, was originally enrolled in a group *Coping Cat* intervention for children with ASD and anxiety; however, his cognitive limitations and behavioural issues quickly indicated that a more individualized approach was required. We describe a case where a number of modifications were implemented in order to assist Chris in maintaining a relationship with his peers with ASD in the group, while at the same time teach the CBT content in a way that would help him control his anxiety. Although anecdotal and qualitative effects of the intervention were noted in session by both the therapist and Chris' parents, post-intervention data from symptom checklists did not support these gains. Description of the intervention, the qualitative gains of the treatment, and the limitations of the treatment and subsequent implications are discussed.

Materials and Methods

Recruitment

Chris and his family were recruited through a community-based program offered to children with ASD in a metropolitan area to take part in a group CBT for children aged 8–12. Inclusion criteria for the group CBT were as follows: a) met criteria for a diagnosis of ASD, verified by the Autism Spectrum Questionnaire for Children (AQ-Child; Auyeung, Baron-Cohen, Wheelwright, & Allison, 2008) and the Autism Diagnostic Observation Schedule-Generic (ADOS-G; Lord, Rutter, DiLavore, & Risi, 2002); b) the child had an estimated IQ > 70 as assessed by the Wechsler Abbreviated Scale of Intelligence (WASI; Weschler, 1999); and, c) had clinically significant levels of anxiety according to parent report on the Anxiety Disorder sub-

scale of the Child Behavior Checklist (CBCL; Achenbach, 1991) and exceeded the cutoff score of at least one anxiety disorder on the Screen for Child Anxiety and Related Emotional Disorders (SCARED; Birmaher, Brent, Chiappetta, Bridge, Monga, & Baugher, 1999). Families were excluded if: a) the child had a comorbid diagnosis of a psychotic disorder; b) the child had a history of engaging in violent behaviours; or, c) the child demonstrated suicidal thoughts or actions. Children were not excluded if they were taking psychotropic medications. A university-based Research Ethics Board approved this research and specific consent for this case study was obtained from the family.

Case Description

Chris is an only-child living in a two-parent household in a metropolitan area. His special interests include videogames¹ and he would frequently act like the characters from his videogame when anxious or distressed. At time of treatment, Chris was taking Ritalin during school (i.e., 10mg – morning, 5mg – lunch time) to help him to focus. At the start of the group, initial concerns were expressed regarding how Chris might interact within a group setting given his cognitive abilities (i.e., verbal reasoning skills in the extremely low range), attention difficulties, and previous history of oppositional behaviour and aggression (e.g., both verbal and physical).

Clinical Profile

Autism Spectrum Disorder diagnosis. Chris met the clinical cut-off for autism on the AQ-Child (Auyeung et al., 2008) and the ADOS-G (Lord et al., 2002). Chris' mother endorsed that Chris finds social situations with peers difficult, has a strong preference for routine and repetition, has difficulty understanding social cues and others' intentions or emotions, and is impaired in communicating his interests or desires to others using words. During the clinical interview, Chris had a difficult time remaining seated, had fleeting and unusual eye contact, demonstrated repetitive behaviours and stereotyped interests

in a specific videogame, and struggled to use language to describe different stimuli.

Cognitive functioning. Chris' estimated Full Scale IQ was 81, which fell into the low average range, due to his strengths in visual reasoning. His verbal reasoning skills were at the 2nd percentile, which fell into the extremely low range (Vocabulary subtest). He demonstrated notable difficulties in receptive and expressive language, being unable to define even concrete items. Chris had significant difficulties with verbal communication; a prerequisite for the standard administration of a CBT protocol. His verbal difficulties were also significantly greater than other children who participated in the group.

Anxiety. Chris and his parents were given a number of pre-assessment measures to establish his clinical profile. Table 1 provides a summary of the assessment results. On the CBCL, Chris' pre-treatment scores were in the clinical range on the internalizing, externalizing, and total problem scales, as well as on all the subscale scores (excluding those of somatic complaints – normal range; and anxiety/depression – borderline range). On the SCARED, his total score was clinically elevated at pre-treatment. Chris' scores on a self-reported measure of anxiety demonstrated a response bias. Chris' elevated profile indicated that Chris is a child with multiple issues and signaled that he may have difficulty within a group setting.

Group Intervention

Five children (including Chris), aged 8–12, with ASD and presenting with anxiety participated in a 12-week group CBT program using the *Coping Cat workbook* (Kendall, 1992; Kendall & Hedtke, 2006). The *Coping Cat* is a manualized cognitive behavioural group therapy program developed to aid children better manage their anxiety. The CBT group was part of a larger pilot project that examined the effectiveness of the *Coping Cat* program with children with ASDs.

Within the group, five doctoral students in clinical psychology worked individually with each child as a co-therapist. A lead therapist guided the group, promoting and facilitating participation, group cohesion, and activities. A doctoral student in clinical psychology was Chris' primary co-therapist and was super-

1 We did not provide specific details in order to protect confidentiality.

Table 1. Parent- and Self-Reported Symptoms

	Pre-intervention	Post-intervention
Child Behavior Checklist (CBCL) Composites ^a		
Total Problems	75	89
Internalizing Problems	70	86
Externalizing Problems	75	75
CBCL DSM-Oriented Scales ^b		
Anxiety Problems	70	75
Attention Deficit/Hyperactivity Problems	75	75
CBCL Syndrome Scales ^b		
Anxious/Depressed	67	72
Social Problems	73	68
Thought Problems	74	81
Attention Problems	83	75
Rule-Breaking Behavior	71	68
Aggressive Behavior	79	85
Screen for Child Anxiety and Related Emotional Disorders (SCARED) ^c		
Total Anxiety	29	45
Panic Disorder	9	19
Generalized Anxiety Disorder	5	9
Separation Anxiety	5	8
Social Anxiety	7	6

^a Results are reported as T-scores, higher scores indicate higher levels of symptomatology. Note: For the Total Problems, Internalizing Problems, and Externalizing Problems composites, T-scores of 60–63 are considered borderline range and T-scores of 64 or higher are considered to be in the clinical range (Achenbach, 1991).

^b For the CBCL DSM-oriented and syndrome scales, T-scores of 65–69 are considered borderline range and T-scores of 70 or higher are considered to be in the clinical range (Achenbach, 1991).

^c Results are reported as raw scores, higher scores indicate higher levels of symptomatology. A Total Anxiety Score ≥ 25 exceeds the clinical cutoff (Birmaher et al., 1999).

vised by a doctoral-level clinical psychologist. Co-therapists in the group worked with the children for 12 weekly 90-minute sessions. As Chris was absent for one session, he completed 11 CBT sessions. Given Chris' presentation, he worked individually with his co-therapist for 60–70 minutes each session, implementing a modified version of the *Coping Cat* program (Kendall, 1992; Kendall & Hedtke, 2006). Modifications were made to address Chris' specific intellectual needs and poor attention and are described in detail below.

As part of the group CBT, parents of the participating children took part in weekly parent psycho-educational sessions. The sessions aimed to educate parents about anxiety and the CBT components in order to help generalize CBT skills outside of therapy. Chris' parents were included in several of Chris' individual sessions with his co-therapist. This parental involvement aimed to help the parents feel more equipped to handle Chris' anxiety and to help generalize skills learned in session (e.g., relaxation techniques) to the home setting.

Modifications to Chris' CBT Intervention

Table 2 provides an overview of the key modifications made to the treatment components, activity examples are also provided. During the initial session, Chris participated in the group and demonstrated aggressive behaviours (e.g., pointing his finger like a gun at other children, kicking his co-therapist's chair aggressively). Although we attempted to have Chris involved in the group therapy throughout, his cognitive level and language skills made him stand out relative to the rest of the group and he would often become oppositional in situations that put him at a disadvantage from his peers (e.g., during times where the group shared their experiences, listening to instructions, and participating in group problem solving). It was clear that he was learning at a different pace than the other group members and required more concrete strategies. A more flexible approach to CBT was necessary, and Chris began receiving a combination of *group and individual therapy*. He started each session with the group, would break-off for the bulk of the new material, and returned to group for the last ten minutes to review what was learned. Chris was included in selected group activities that utilized his strengths (e.g., drawing) to further foster self-esteem and social

interaction. This structure provided Chris with the individual help and attention that ultimately fostered a therapeutic relationship with his co-therapist and allowed for the manipulation of different aspects of the CBT program to enhance Chris' motivation, maintain his attention, and better suit his learning profile.

The *Coping Cat* manual and workbook rely heavily on reading and writing as the primary method of treatment delivery and Chris' limited verbal abilities required more *visual aids* to be implemented in order to teach and reinforce material learned. For example, a highly visible weekly agenda structured the sessions and allowed Chris to predict activities and breaks throughout the 90 minutes. The use of an individual's *special interests* in therapy has been shown to be particularly useful in the treatment of anxiety in children with ASD to facilitate motivation (Attwood, 2004; Moree & Davis, 2010; Reaven & Hepburn, 2003; Sofronoff et al., 2005; Sze & Wood, 2007, 2008; Wood et al., 2009). With regard to relaxation techniques, Chris' co-therapist capitalized on Chris' intense interest in a specific set of videogames by individualizing the muscle relaxation *Coping Cat* game "Robots and Ragdolls" (Kendall & Hedtke, 2006). Chris renamed the game "Transformers and Donkey Kong;" these characters maintained the practical teaching components of the game, as "Transformers" are tense

Table 2. Overview of the Modifications Made by Treatment Components

Treatment Components	Modifications	Examples
Sessions 1-4: <i>Building Rapport and Focusing on Recognizing Thoughts and Feelings</i>	1. Use of visual aids	1. Weekly Agenda, coping plan chart
	2. Decrease of verbal demands	2. "Feeling Frightened" to "Feelings"
	3. Role playing	3. Feeling charades
Sessions 5-7: <i>Development and Implementation of the Coping Plan Using Social Stories</i>	4. Inclusion of special interests	4. Videogame characters affect recognition, coping plan situations
	5. Use of visual social stories	5. Use of illustrated social stories (Wood & McLeod, 2008)
Sessions 8-11: <i>Relaxation Techniques and Inclusion of Parents in Therapy</i>	6. Inclusion of parents in therapy	6. "Simon Says" relaxation game
	7. Physical play activities	7. Coping plan scavenger hunt

like robots, and, as a monkey "Donkey Kong" quite relaxed. Chris was highly engaged in this activity, especially when his co-therapist allowed him to call out the commands in the voices of the characters. Chris' special interest in videogames was particularly useful for affect recognition and working through a coping plan (Kendall & Hedtke, 2006). Pictures of his favourite characters expressing different emotions were found on the Internet to aid in Chris' affect recognition skills. Chris' co-therapist asked him to identify the character's emotion and then drew a thought bubble to the character and, with Chris, filled in the negative self-talk. The co-therapist also created situations using the characters that mimicked Chris' real-life anxiety provoking situations (e.g., "Johnny the pig is bullying Billy the goat: What is Billy feeling/thinking? What can he do?").

One particular session, Chris arrived to session appearing fairly dysregulated. He refused to go to the separate therapy room and became progressively violent towards his co-therapist (e.g., hitting, punching, and kicking) and disruptive within the group setting. It was decided that Chris' parents (typically his mother) would join Chris within the individual session. Given Chris' dysregulation and behavioural difficulties, it seemed practical to provide Chris and his parents with relaxation techniques. A relaxation program was written on butcher paper and practiced during the session. This program was built within a "Simon Says" framework to help engage and motivate Chris to complete the relaxation exercises. First, Chris was asked to lie down on the ground with his mother and close his eyes. His co-therapist then led Chris and his mother through several steps outlined below, beginning with the statement "Simon says...":

- 1) take three deep breaths;
- 2) flex your muscles one at a time (e.g., "Be stiff like Transformers");
- 3) relax your body (i.e., relax like "Donkey Kong"; and,
- 4) take one more deep breath.

Chris' parents were provided with a script of these steps and instructed to practice the relaxation program with him every night before bed in order to reinforce these techniques at home.

A major component of CBT is generating situations that make an individual anxious and working through the situation using CBT principles. Given Chris' intellectual functioning and lack of self-awareness, it was difficult for him to generate situations that made him anxious. Thus, he

was provided with illustrated versions of social situations (Wood & McLeod, 2008) for which he had to practice the coping plan (Kendall & Hedtke, 2006). For each picture, Chris was asked to identify several things: a) the emotion; b) the situation; and, c) what the person was thinking. As the coping strategies were introduced, Chris was also asked to think of something that the character could think and/or do that would make him feel better. One example of Chris' completed social stories is described here. The picture used in the social story was taken from Wood and McLeod (2008, p. 112) and involves a boy standing in the doorway of a messy bathroom. Chris identified that this boy was embarrassed (e.g., feeling) because he made a mess of the bathroom (e.g., situation). He identified the negative thought as "my mom's going to yell at me!" and when asked what the boy could think and/or do to make himself feel better, Chris said, "I'm going to clean it up." This is a clear example of Chris' ability to recognize feelings, identify negative self-talk, and implement coping self-talk and strategies for situations provided for him.

During the final sessions of therapy, in order to review all the components of the coping plan (Kendall & m, 2006), a *physical play activity* was developed for Chris. A scavenger hunt was created where Chris' co-therapist taped different aspects of the plan and tasks at various locations throughout the therapy building. Chris selected a scenario (e.g., you are sent to the office) and successfully completed each step of the plan at each of four locations. Chris was able to terminate successfully with the group and his co-therapist. His parents were encouraged to continue the relaxation techniques nightly and work through the coping plan for situations when Chris was anxious.

Results

Treatment Outcome

Chris' initial scores on the CBCL and SCARED were elevated across nearly all the scales, reflecting Chris' complex presentation and behavioural challenges (e.g., aggression and inattention; see Table 1). No quantitative changes were noted post-treatment, as parent reports remained clinically elevated across the CBCL and SCARED.

A number of *qualitative therapeutic gains* were noted in session that were; however, not reflected by the data. Throughout the sessions, Chris was able to fully participate in session and maintain his focus on the materials at hand. Providing Chris with individual attention and slowing treatment to match his cognitive and clinical needs aided in the formation of a therapeutic alliance and motivated Chris in therapy. Chris was provided with a safe environment, in which he was able to learn the CBT skills and strategies at his own pace and through alternative methods of treatment that worked to engage him in the materials. In terms of CBT techniques, Chris was able to successfully identify different emotions (affect regulation) and his somatic responses to anxiety through different modalities, incorporating visual aids and materials specific to his special interest (e.g., role playing, drawing, acting out, matching games). By the end of treatment, Chris was able to identify the different components of the coping plan and successfully complete it with various situations (e.g., social stories, parent-provided situations). Chris enjoyed the physical play activities (e.g., scavenger hunt), which enabled him to stay motivated and focused on the material. With regard to social gains, Chris was successful in improving his overall functioning within the group setting, despite his initial aggressive behaviour. He demonstrated positive behaviour when reintroduced to the group, as he was excited to share with the other members of the group what he had done in the other therapy room. In terms of the effects of treatment in other contexts, Chris' parents were provided with a guide of how to implement relaxation techniques with Chris and began to practice these skills within the home. Chris' parents noted that they were successful in practicing these techniques.

Discussion

There is a growing body of literature surrounding the utility of modifying traditional CBT techniques to better suit the needs of individuals with ASD (Attwood, 2004; Moree & Davis, 2010; Reaven & Hepburn, 2003; Reaven et al., 2009, 2012; Sofronoff et al., 2005; Sze & Wood, 2007, 2008; Wood et al., 2009). The present case study focuses on a number of modifications used in the treatment of a 9-year-old boy with

ASD, verbal impairment, and complex needs. Modifications that were most useful include the use of visual aids as the primary method of treatment delivery, decreased verbal demands and written language, incorporation of special interests and physical play activities, and inclusion of parents in therapy (see Table 2 for a summary). A number of these modifications are currently incorporated in a manualized, cognitive behavioural group therapy program for children with ASD (Reaven et al., 2011); however, it is unclear whether this program will be useful specifically for individuals with lower verbal abilities and multiple skill deficits (Reaven et al., 2009, 2012).

The present case study demonstrates that modifications to traditional CBT are useful in addressing the inherent sociocommunicative and behavioural issues related to the diagnosis of ASD in therapy; however, given the lack of quantitative support, there is a recognition that group treatment with the addition of substantial individualized modifications, may not be the best way of meeting the needs of individuals with verbal impairments and complex behavioural issues, as only anecdotal gains were noted. The results highlight several key areas of discussion for treatment of children within this greatly heterogeneous population.

First, the present study emphasizes the need for clinicians to take into account group homogeneity when providing CBT to children along the ASD spectrum (e.g., children with an IQ of 80 in a group with others with an IQ of 130). A number of limitations were present in attempting to use the *Coping Cat* program with Chris. Given Chris' cognitive level, the more abstract material, including the use of the plan in personally relevant situations and the use of exposure activities could not be covered within the 12-week time frame. Extended time frames for the provision of CBT may be valuable in allowing children with cognitive delays the time to repeat and process the information and apply the strategies to situations specific to their anxiety (Suveg, Comer, Furr, & Kendall, 2006). Second, the active participation of Chris' parents in therapy suggests that family-based CBT and school consultation would be beneficial in facilitating individual-specific situations and exposures, as well as to help generalize the learned skills (Wood & McLeod, 2008).

Unfortunately, given that this case study was derived from a larger research project, specific information with regard to the effects of treatment in other contexts, such as school, was not assessed. A post-intervention interview with the parent would have been beneficial in gaining further support or feedback on the perceived gains of treatment in other contexts. Finally, given Chris' comorbid internalizing and externalizing problems, a focus exclusively on anxiety may not have been the most effective start point for treatment. Although the family was referred and requested treatment for Chris' anxiety; a more holistic, family-based approach may have produced better outcomes. In complex cases, clinicians should expect to target multiple symptoms, such as anger or emotion dysregulation (Stop Now and Plan: SNAP®; Earls court Child and Family Centre, 2001).

The present case study contributes to the literature surrounding the treatment of anxiety for children with ASD. Overall, Chris was able to recognize different types of emotions and feelings, identify negative self-talk, and develop coping self-talk and strategies for situations provided for him, suggesting that the modifications presented were useful in his learning of the CBT techniques. Further work is needed to adapt CBT programs for children with ASD, aggressive behaviour, and impaired verbal abilities. The present case study highlights the importance of incorporating even more play/activity based and visually based materials to surmount the typically language loaded cognitive tasks required in CBT.

Acknowledgements

The authors would like to thank Chris, his parents, and all those involved in the CBT program and Michelle Viceli for her assistance with manuscript preparation.

Key Messages From This Article

People with disabilities: If you feel that you have a lot of anxiety, you can speak with a service provider about getting access to a therapy called CBT (Cognitive Behaviour Therapy).

Professionals: Helping children with disabilities to cope with their anxiety must include a careful consideration of each individual's unique needs.

Policymakers: Policies are required to assist clinicians in gaining additional training so that they can modify their interventions to the needs of children with disabilities, when it is required.

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