

Cognitive Behavior Therapy  
for the Treatment of Co-Occurring Mental Disorders  
in Children and Adolescents with Aspergers Syndrome  
and High-Functioning Autism

Jan Palmer

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[www.janpalmer.ca](http://www.janpalmer.ca)

janpalmer27@telus.net

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There has been an increase in the number of articles in the research literature on the characteristics, educational methods and interventions to address the unique needs of children and youth with average to above average intelligence and who are also diagnosed on the Autism Spectrum. In 1994, Asperger syndrome (AS) was recognized as a mental disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (APA, 1994). There is continuing discussion that AS may be at one end of the continuum of Autistic Disorder and in fact is a form of high-functioning autism (HFA). In the literature, the terms Asperger syndrome and high-functioning autism appear to be used to describe a similar group of children and adolescents whether or not early language delay was present (Bennett et al., 2008). This paper will include children and adolescents between the age of six and eighteen with a diagnosis of either Asperger syndrome or high-functioning autism.

Both AS and HFA are characterized by severe impairments in social interaction, difficulties with communication skills, and restricted repetitive interests and behavior, although intellectual ability is average or above average (Attwood, 2004). Impaired or delayed “theory of mind”; difficulties in perspective taking; and the inability to understand, express and manage emotions may impede the attempts of children and youth to make and keep friends, despite the desire to do so, resulting in loneliness, anxiety and depression (Attwood, 2004; Bauminger, 2002; Bauminger, Shulman & Agam, 2003).

This review will discuss: (1) the prevalence and causes of mental disorders in children and youth with AS and HFA; (2) a brief summary of the theory and research for using cognitive behavior therapy for the prevention and treatment of mental health disorders in typical populations; (3) modifications to cognitive behavior therapy (CBT) for use by children and adolescents with AS

and HFA; and (4) current research using CBT to treat co-occurring mental disorders.

### Prevalence and Causes of Co-occurring Mental Disorders in AS and HFA

#### *Prevalence*

Fourteen percent of children in Canada have mental disorders that cause impairments in functioning (Waddell, McEwan, Shepherd, Offord & Hua, 2005). However, research with children and adolescents with AS and HFA has found a significantly higher percentage. Attwood (2000) found that about 65% of youth with Aspergers syndrome have either an affective disorder or depression. Kim, Szatmari, Bryson, Streiner and Wilson (2000) found that, in their sample of 68 children and adolescents with AS and HFA aged 9 to 14, 16.9% had clinically relevant levels of depression and a significantly higher incidence of anxiety than a typical population. They also found a high correlation between anxiety and mood problems and difficulties with disruptive behavior.

A study by Gillot, Furniss and Walter (2001) compared children with HFA to children with specific language impairments and to typically developing children. They found significantly higher scores for the children with HFA on measures of anxiety and social worries. Russell and Sofronoff (2005) used the Spence Children's Anxiety Scale to measure anxiety in 65 children with AS without an anxiety diagnosis and a control group of typical children with clinical anxiety. Children with AS rated themselves as being as anxious as the control group, with the highest scores in obsessive-compulsive disorder, physical injury and social worries.

AS and HFA have also been associated with increased occurrence of obsessive-compulsive disorder, difficulties with stress management and anger, and hyperactivity and inattention (Caselles, 2006; Ghaziuddin, Weidmar-Mikhail & Ghaziuddin, 1998).

#### *Causes*

The reasons for this increased rate of co-occurrence across disorders are not clear cut but

may include interaction between heredity and environment. The basic deficits of AS and HFA in the areas of executive function, the inability to consider the beliefs and intentions of others, and understanding emotions are themselves risk indicators for stress and mental disorders in typical populations (Attwood, 2004; Meyer, Mundy, Van Heck & Durocher, 2006). Research into the broad autism phenotype shows an increased rate of affective disorders in families of those with AS and HFA, which could include a genetic predisposition and parental modeling of certain thought patterns and behaviors (Anderson & Morris, 2006).

Society pressures and stress are also precursors for anxiety. Humphrey and Lewis, in their 2008 article entitled “‘Make me normal’: The views and experiences of pupils on the autistic spectrum in mainstream secondary schools,” noted the difficulties facing students in inclusive classroom settings. Their research with secondary students with AS indicated that schools can be stressful and anxiety-provoking due to lack of awareness of individual learning styles, sensory needs, social isolation, loneliness and bullying. Difficulties in social initiation and understanding, rather than social disinterest, may lead to repeated negative, unsuccessful social interactions with peers. Bauminger et al. (2003) compared the rates of social interaction of 18 preadolescent and adolescents with HFA and age-matched typical peers in regular schools. They found the students with HFA spent only half the time engaged in social interactions as their peers, despite high levels of social initiations. The students with HFA reported greater loneliness than their peers regardless of their level of social interaction. Higher levels of social awareness, motivation and understanding of their own lack of ability may be a factor in co-occurrence (Meyers et al., 2006).

A survey of 1400 families completed by the National Autistic Society (Batten, Corbett, Rosenblatt, Withers & Yuille, 2006) in the UK estimated that over 40% of children on the autism spectrum had been bullied at school and for children with AS or HFA the rate was 60%. Over 80% of families felt that bullying had damaged their child’s self-esteem, 75% said it had a negative

impact on social skills and relationships, and 60% felt it had a negative impact on their child's mental health. Adolescents were affected the most. Anxiety, depression, suicide, withdrawn behaviors, aggression and physical health problems are all correlated with being the victim of bullying (Heinrichs, 2003; Shtayerman, 2007). Barnhill and Myles (2001) investigated 33 adolescents diagnosed with clinical depression and AS and found that participants took personal responsibility for negative external events which they felt no ability to change.

#### Summary of Theory and Research Using CBT For the Treatment of Mental Disorders

CBT is a well-established evidence-based practice used for the treatment and prevention of a range of mental disorders in children, youth and adults. In their review of meta-analysis literature on treatment outcomes for CBT, Butler, Chapman, Forman and Beck (2006) found a large effect size for its use with childhood anxiety and depressive disorders and a moderate effect for treatment of anger/aggression in children and adolescents.

In *Mental Health and Developmental Disabilities in Children*, Schwartz, Garland, Waddell and Harrison (2006, p.15) recommended that “where children have developmental disabilities and co-existing mental disorders, treatment interventions should be modelled after the principles and key elements of approaches supported by research evidence for specific mental disorders.” The use of CBT for individual and group settings has been identified as “the standard of care” for treating most types of anxiety, obsessive-compulsive disorder (OCD) and depression in children and youth (Waddell, Godderis, Hua, McEwan & Wong, 2004; Waddell, Godderis, McEwan & Schwartz, 2005; Waddell, Hua, Godderis & McEwan, 2004).

CBT reduces psychological distress and maladaptive behaviors by changing cognitive processes. It is based on the assumption that affect and behavior are influenced by cognition and thus, cognitive and behavioral interventions can produce changes in thinking, feeling and behavior. CBT can focus on correcting faulty beliefs and informing about their affect on behavior and

emotions. It usually includes teaching skills to: (1) change negative automatic thoughts using self-talk; (2) increase abilities for social problem solving; (3) provide positive strategies for managing physical symptoms including activity, relaxation and breathing exercises; (4) provide self-reflection and self-reinforcement; and (5) practice in everyday settings (Stallard, 2003).

Chalfant, Rapee and Carroll (2007) listed five ways that CBT is considered exemplary for treating anxious children: (1) research has included cases with a formal diagnosis of an anxiety disorder utilizing standardized assessment tools; (2) randomized control trials including a wait list control condition compared to CBT treatment have shown clinical significance; (3) long-term follow-up research has indicated treatment gains were maintained; (4) independent research groups in at least two different countries have demonstrated positive results; and (5) treatment integrity has been maintained in most programs through the use of manuals.

#### Modifications to CBT for Children and Adolescents with AS and HFA

Modifications to CBT for individuals with AS and HFA should be individualized and take into consideration their unique learning styles, sensory needs and strengths. These may include: (a) highly structured sessions over a longer and defined time period (Anderson & Morris, 2006; Hare, 1997); (b) informative and entertaining sessions with less emphasis on spoken words and more visual materials (Sofronoff et al., 2005); and (c) a greater use of role playing and presenting important ideas in a simpler style using the child's special interests either as examples or a metaphor (Sze & Wood, 2007). Hare (1997) suggested avoiding the use of metaphorical language and concepts. The role of parents, as co-therapists during formal therapy and in continuing the intervention after therapy has ended, has also been explored (Reaven & Hepburn, 2003, Sofronoff, Atwood, Hinton & Levin, 2007).

#### *Affective Education*

Affective education is common to all CBT programs. This may include teaching about the

link between thoughts, behavior and emotions (Anderson & Morris, 2006); creating a scrapbook to explain how and why emotions are used (Attwood, 2004); face affect recognition (Lopata, Thomeer, Volker & Nida, 2006); and practice in determining the intensity of an emotion using a visual such as an emotional thermometer (Sofronoff et al., 2005). For children and adolescents with AS and HFA, emotion exploration may utilize a personal passion. Comic strip conversations (Gray, 1998) and cartoon characters (Madrigal & Winner, 2008) may be used to provide a more concrete representation of emotions.

#### *Thought and Emotion Monitoring and Restructuring*

Thought monitoring is the process of becoming aware of the automatic thoughts that are used to provide context on how to interpret and behave in a particular situation. Automatic thoughts, which are distorted provide faulty information, and are considered “thinking errors.” In individuals with AS, these thinking errors may be related to immature information processing systems which may include over attention to unimportant or small details and using only visual stimuli to interpret and store information (Anderson & Morris, 2006). Creating a hierarchy of thoughts to explore using logic and evidence to challenge a faulty belief as well as the use of idiosyncratic words that are meaningful to the child may be useful (Reaven & Hepburn, 2003; Sze & Wood, 2007).

The metaphor and physical image of an emotional tool box containing physical, relaxation, social, thinking, special interest and other tools such as medication, which can “fix” faulty thoughts and “repair” feelings has been used (Attwood, 2004; Sofronoff et al., 2005; Sofronoff et al., 2007), as have social stories, comic book conversations (Gray, 1998) and specific skill instruction in interpreting non-literal statements and idioms (Lopata et al., 2006).

#### *Exposure and Practice*

Exposure to the anxiety producing stimuli and rehearsal of the specific skills such as

relaxation being taught to counteract the anxiety is an important part of CBT. For children and adolescents with AS and HFA, this might require small steps and more practice sessions.

Modeling and role play have been effective modifications to traditional CBT (Sofronoff et al., 2007). Additionally, generalization to non-clinical settings is generally a component of the treatment. Participants are required to plan and conduct “homework” which involves placing themselves into situations which are stressful, using a specific strategy, and discussing the outcome at the next session (Reaven & Hepburn, 2003). Parental involvement may be required to effectively implement this aspect of CBT.

#### Current Research Using CBT to Treat Co-Occurring Mental Disorders

A 2004 British STEER (Succinct and Timely Evaluated Evidence Review) of the published literature on CBT research with children with Autism Spectrum Disorder (ASD) found only two studies which met their review inclusion criteria. Although these two studies were not reliable enough to attribute their results to CBT or compare effects with other interventions, the review did conclude that CBT was a feasible treatment for children and adolescent with AS and HFA (White, Wessex Institute for Health Research and Development).

As there is still a paucity of research, all published research including single case studies which included measures of a mental disorder as defined by the DSM-IV and children or youth with AS or HFA will be discussed.

#### *Experimental Group CBT for Anxiety in Children with AS and HFA*

Three experimental studies have been completed with children with AS and anxiety. The first study, published by Sofronoff et al. in 2005, evaluated the effectiveness of a brief (six weekly 2-hour sessions) intervention using CBT. Seventy-one children aged 10 to 12 years were recruited through advertising. A primary diagnosis of AS was confirmed using the Childhood Asperger Syndrome Test (CAST) and the presence of anxiety on the Spence Children’s Anxiety Scale

(Spence, 1995), similar to a sample of clinically diagnosed anxious typical children. The children were randomly assigned to one of three groups: intervention for the child only; intervention for the child and family; and a wait-list control group. CBT modified for youth with AS was delivered in a group using a researcher-prepared manual in a structured format by graduate students in clinical psychology. Measures included 'James and the Maths Test' designed to measure the ability to problem solve in an anxiety-producing situation, the SCAP-Parent, and the parent-report version of the Social Worries Questionnaire (Spence, 1995). The child version of the SCAP was discarded due to difficulties in obtaining information directly from the children involved. The two groups treated with brief CBT demonstrated significant decreases in parent-reported anxiety post-treatment and at the six week follow-up, and a significant increase in the child's ability to provide anxiety-reducing strategies. Active parental involvement increased treatment effects. The findings of this study are limited by non-reporting of randomization methods, possibility of subjective outcomes measures (parental report) and the use of measures which have not been validated.

The second study published by Chalfant, Rapee, and Carroll in 2007 evaluated the use of a family-based CBT treatment for anxiety in 47 children with co-occurring anxiety disorders and HFA or AS as diagnosed by a pediatrician, psychiatrist or clinical psychologist. No criteria for acceptable diagnostic instruments was required for ASD. Thirty-five boys and twelve girls between the ages of 8 and 13 were recruited by referral from various health professionals and advertising. All children presented frequent, irrational fears and/or worries that significantly impacted their daily functioning. Twenty-six met criteria for two anxiety disorders, nine met the criteria for three anxiety disorders, and 13 of the children also presented with co-occurring ADHD. Children were randomly assigned to either a treatment or wait list group after recruitment ended.

An experimental design with pre and post treatment measures and clinical interviews was

used. Self-report measures included the Revised Children's Manifest Anxiety Scale (RCMAS) for chronic anxiety (Reynolds & Richards, 1978); Spence Children's Anxiety Scale (SCAS, Spence, 1998); and the Children's Automatic Thoughts Scale (CATS, Schniering & Rapee, 2002) which measures negative self-statements. Parental reports included the Spence Children's Anxiety Scales - Parent Report and the Strengths and Difficulties Questionnaire - Parent Report (SDQ, Goodman, 1997). The SDQ Teacher Report was used with the participants' teachers.

CBT was delivered in weekly two-hour sessions for 12 weeks. A modified version of the "Cool Kids" program (Lyneham, Abbot, Wignall & Rapee, 2003) focused on the main components of anxiety. Modifications included more visual aids, structured worksheets, and a longer delivery period with additional time spent on relaxation and exposure.

Treatment resulted in significant reductions in anxiety across the self-report, parental and teacher reports. The majority (71.4%) of the treatment group no longer met diagnostic criteria for an anxiety disorder post treatment. This study showed that CBT produced significant change in anxiety as compared to the wait list group, and that anxiety could be measured with tools previously thought too difficult for children with HFA and AS to use. Design flaws included no report of participant IQ scores or randomization methods, possible parental subjectivity in reporting, and lack of data for the validity of the measures used.

Ooi et al. (2008) completed a pilot study using a pre-post test design. Six children with HFA or AS and anxiety as diagnosed by their psychiatrist, a mean age of 11.50 years, and an IQ of 80 or above were treated with a manualized CBT treatment program consisting of sixteen 90-minute sessions. Each group of three similar aged children was led by two therapists with a postgraduate degree in psychology and experience in working with children with ASD. Strategies used included role playing, modeling, behavioral rehearsal, and group discussion. Adaptations included visual cues and social stories. Discussion of the measures used indicated extensive

validation and acceptable psychometric properties. The Spence Child Anxiety Scale - Child and Parent and teacher responses on the Asian Children Anxiety Scale - Caretaker Version and the Index of Teaching Stress were used. Results included significant reductions in parental stress and non-significant improvements in teacher stress and children's anxiety levels. Study results were limited by small sample size and lack of a control group. The authors reported that a randomized clinical trial is ongoing.

#### *Case Studies Using CBT for Individual Children with HFA or AS*

Sze and Wood (2007) used CBT with an 11 year old girl with HFA and three clinically significant co-occurring anxiety disorders (Social Anxiety Disorder [SAD], Generalized Anxiety Disorder [GAD] and Obsessive Compulsive Disorder [OCD]) as diagnosed using the Autism Diagnostic Observation Schedule - Module 3, the Autism Diagnostic Interview - Revised and the Anxiety Disorders Interview Schedule for DSM-IV Parent and Child versions. The *Building Confidence* manualized Functional CBT program was extended and modified by using less abstract spoken language, more visual material and role playing, and using the child's interests as examples of key concepts. Post-treatment assessment indicated that the girl no longer met criteria for SAD, GAD or OCD as conducted by an independent evaluator, blind to the treatment. Large gains in social skills, adaptive functioning and a decrease in mild anxiety were noted at followup despite transition to middle school. These researchers recommended that perseverative interests, parent training and home-based exposures should be incorporated into treatment. No treatment measures were provided. It was stated that a randomized clinical trial using this treatment is presently underway.

CBT was used by Reaven and Hepburn (2003) to treat a highly-gifted seven year old girl with Asperger Syndrome and co-occurring OCD. The Autism Diagnostic Interview-Revised (ADI-R) was used to confirm ASD and her early development history confirmed Asperger

Syndrome. The Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS) indicated moderate OCD symptoms. The 14 week treatment followed a protocol developed by March and Mulle (1998) which was modified by: involving the parents in the treatment sessions; providing visual structure including a "toolbox" containing various cognitive strategies; using the child's formal language style; and self-created social stories. Anxiety and OCD medication was prescribed in the third month of treatment. Post-treatment measurement with the CY-BOCS indicated a 65% decrease in symptoms. Study limitations include the difficulty regarding generalization of findings in single case studies and the confounding of treatment effects by prescribing medication during the study.

#### *CBT and Anger Management in Children*

CBT was also shown to be effective in teaching 10 - 14 year olds with a primary diagnosis of AS to control anger and aggression ( Sofronoff et al., 2007). Forty-three boys and two girls with average IQs were randomly assigned to either intervention or wait-list conditions as consent forms were returned. Twenty-three boys and one girl in groups of two participated in a highly structured, informative and entertaining series of six 2-hour sessions taught by postgraduate students. The modified CBT program explored emotions, taught relaxation, introduced a cognitive "toolbox" for dealing with anger, a visual thermometer, and social stories. Parents were required to participate in separate sessions. The study used a pretest - post test and followup design. A researcher-designed questionnaire of anger-reducing strategies, *What Makes Me Angry* (Faulpel, Henick and Sharp, 1998); a parent completed measure of outbursts of anger; the Children's Inventory of Anger; and qualitative reports were utilized. A followup questionnaire and interview with teachers was also employed. Post-treatment measures indicated a significant increase in children's ability to generate strategies to manage anger, a significant decrease in number of episodes of anger as reported by parents and an increase in parents perceived ability to manage their child's anger. Additionally,

they felt their children were better able to control their anger. Teachers also reported changes in behavior and instances where the child tried to use learned strategies. Study limitations include small sample size, use of unvalidated measures and potential subjectivity of parental and teacher report.

### Conclusion

Children and youth with Asperger syndrome and high functioning autism have rates of co-occurring mental disorders which are far higher than the general population. A study by Bradley and Bolton (2006) also identified that twice as many children with ASD were prescribed psychotropic medication for treatment of mental disorders than children with similar disorders without an ASD diagnosis. CBT has received recognition as an evidence-based method to treat mental disorders in children and youth that could be used as an adjunct to or in place of psychotropic treatment.

Although design limitations reduced possible generalization, these studies have shown the potential of using CBT to treat clinical anxiety and anger in children and youth with AS or HFA. Modifications suggested include: high structure; increased use of written and visual material, including social stories and comic book conversations; emphasis on affective education, relaxation and rehearsal; incorporation of personal interests and perseverations; and parental involvement. Sze and Wood (2007) emphasized the importance of incorporating social coaching, friendship skills training, and peer buddies outside of the therapy sessions.

Suggestions for future research include mood disorders such as depression and more rigorous study designs. Also important is research into ways that these types of mental disorders can be prevented through early identification and intervention such as social skills training, individual educational plans (IEPs) that address the needs of students with AS and HFA, and public and peer education to ensure welcoming environments for individuals with ASD.

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