

Behaviour Therapy:

Non-pharmaceutical Intervention for Attention Deficit Hyperactivity Disorder

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Attention Deficit Hyperactivity Disorder (ADHD) is a common disorder affecting between 4% and 6% of the school population (Daley & Birchwood, 2010). Children with ADHD are so active or impulsive that they cannot sit still, are constantly fidgeting, talk when they should be listening, interrupt others, have difficulty staying on task and can often forget and lose their personal belongings. They may be prone to accidentally injuring themselves, may be unable to stay seated in a classroom or they may be so inattentive that they cannot learn (Mash & Barkley, 2014). The DSM-5 describes the symptoms of ADHD as being characterized by an individual who is “easily distracted, has difficulty organizing tasks, does not follow through on instructions and often does not seem to listen when being spoken to” (APA, 2013 p 59). It is easy to see based on these behaviours that individuals with ADHD are going to benefit from intervention, as it is highly likely that without it they will suffer from impaired social, academic, cognitive, familial and eventually occupational domains.

ADHD is a highly heritable condition and there have been numerous neurobiological causes proposed. There are significant impairments with executive functions in most children with ADHD (Cassone, 2015). Executive functions are the mental processes associated with higher cognitive abilities that help comprise overall neuropsychological functioning (Cassone, 2015). Several studies have found that adults with ADHD have greater levels of dopamine transfer activity (Dresel, Krause, Krause, Lafougere, Brinkbaumer, Kung, Hahn & Tatsch, 2000). There is strong evidence for this theory since the symptoms of

ADHD can be successfully treated with methylphenidate, a potent blocker of the dopamine transporter. The increase in number of dopamine transporters decreases the amount of dopamine in the synaptic cleft (Dresel et al., 2000). This can cause the low neural activity that may be responsible for the typical symptoms of ADHD patients, such as hyperactivity and deficits in attention and memory consolidation with poor performance in cognitive tasks (Dresel et al., 2000).

The most recent research in the neurobiology of ADHD is that involving fMRI studies that reveal that children with ADHD have altered patterns of activation in the right prefrontal, the basal ganglia (striatum and putamen) and the cerebellum during attention and inhibition tasks (Cortese, Kelly, Chabernaud, Proal, Di Martino, Milham, 2012). The research also shows that there are specific brain systems involved in ADHD, specifically the frontal-subcortical (frontal limbic and frontal striatal) that are important for behavioural and emotional regulation and impulse control (Cortese et al., 2012).

The theoretical Background on ADHD has revealed that many children who have the diagnosis will suffer from anti-social behaviour, substance abuse and continued attentional and interpersonal difficulties (Antshel, Raraone & Gordon, 2014). Individuals can also suffer from comorbid conditions such as Oppositional Defiant Disorder, Conduct Disorder, Specific Learning Disabilities and Anxiety (Antshel et al., 2014). Evidence-based treatment for ADHD has focused predominately on the use of medication and behavior therapy (Cassone, 2015).

Because of the serious nature of the disorder, many parents turn to stimulant medication and selective serotonin reuptake inhibitors (SSRI's) such as methylphenidate, as treatment. The stimulants target the ADHD symptoms in order to address the behaviour difficulties (Manassis, 2008). Pharmacological management is the most widely explored and utilized form of treatment for children diagnosed with ADHD (Antshel et al., 2014). The American Academy of Pediatrics (AAP) guidelines recommend that ADHD treatment be with behavioral therapy alone for preschoolers and medication and behavioral therapy combined for children aged 6 to 17 years. However, only 44% of US children and teens aged 4 to 17 years received behavioral therapy in 2009 to 2010. Medication was the most prevalent ADHD treatment, with 43.3% of children treated solely with medication, 13.3% with behavioral therapy alone, 30.7% treated with both, and about 10% with dietary supplements (Voelker, 2015). Research by Voelker (2015) suggests that most children and teens with ADHD have been treated with medication but the use of behavioral therapy has been underused. This research shows that while many parents are opposed to using stimulant medication, they are potentially not accessing the non-pharmaceutical interventions such as behaviour therapy to manage the symptoms of their child's ADHD. There is also new research suggesting that mindfulness training should be incorporated into the current treatment guidelines for psychosocial interventions for families with ADHD. Preliminary findings in this field suggest significant improvements in

attentional processes, and prominent mindfulness-based approaches have been successfully adapted for ADHD (Cassone, 2015). There are few other evidence-based interventions for the treatment of ADHD and most are versions of behavior therapy such as school-based behavioural reinforcement and intensive social-skills summer camps (Cassone, 2015).

Behavior therapy is the application of behavior modification principles to clinical populations (Ollendick & Cerny, 1981). A behaviour therapist can set up behavior modification programs at school, work, and home. They can establish concrete goals for behaviour and achievement and help families and teachers maintain rewards and consequences (Wells, Pelham & Kotkin, 2000). The research affirms the importance of psychosocial intervention in order to lower the use of medication. Reviews of the literature demonstrate that behavioural interventions, including behavioural parent training, behavioural classroom management and intensive summer programs are supported as evidence-based treatments for ADHD (Zwi, Jones, Thorgaard, York, Dennis, 2011). This paper will use the 12 steps for best practice as outlined in the article by Upah & Tilly (2002) to assess the effectiveness of a behaviour therapy intervention program for children with ADHD.

Treatments that have influence across multiple domains and multiple settings will have the greatest chance ameliorating the symptoms of this disorder. Specifically, treatments that target aggression, coercive family interactions and family disharmony, poor peer relationships, and academic deficits and failure, in

addition to core ADHD symptoms, are of great theoretical importance (Wells et al., 2000). Because psychosocial treatments, including classroom behavioral intervention have proven successful, they have theoretical significance in reversing the risks and long-term outcomes associated with ADHD, especially if combined with stimulant medication (Wells et al., 2000).

The Behavioural Definition of children with ADHD includes high levels of inattention, hyperactivity and impulsivity (Zwi, et al., 2011). These behaviours can lead to significant problems with school behavior and performance, as noted by low rates of on-task behavior in the classroom, low academic task completion and low rates of positive exchanges with teachers and higher rates of negativity. These problem behaviours are often reflected in low-grade level performance (Wells et al., 2000). The target behaviour for intervention is inattention, hyperactivity and impulsivity which means that the student is off task in the classroom, moves about seemingly constantly, has hasty reactions that occur in moments without first thinking of them and overall lower academic achievement than his or her peers.

Prior to implementing a behavior therapy intervention program, baseline data must be collected on the student in order to be used for progress monitoring, goal setting and as a comparison tool for the effectiveness of the intervention program. Classroom observations, review of student records and report cards, student interviews and assessment observations would all be vital pieces of information to collect prior to beginning the behaviour therapy. The

Behavior Assessment System for Children–2nd edition (BASC-2) is an effective tool for assessing the behaviour and emotional functioning of children and adolescents. It can be used to determine the severity of academic problems, along with problems associated with developing and maintaining positive relationships with others. The behaviour therapist can collect the data providing information on the frequency, latency, intensity, topography, accuracy and duration of the child's problem classroom behaviours prior to intervention (Upah & Tilly, 2002).

Students with ADHD often have lower academic performance in comparison with their peers (Daley & Birchwood, 2010). The discrepancy between the expectations of the classroom and the behaviour seen by the student with ADHD serves as problem validation, a just cause, for beginning an intervention program. Lower academic performance is often evident on a student's report card, rating scales completed by the teacher as well as those completed by parents and conversation with the school personnel (Daley & Birchwood, 2010). A discrepancy that would warrant intervention would be if a child begins to lag behind their peers in terms of social and academic development and/or if the problem behaviours impact functioning at home or social functioning with peers.

Through the process of problem analysis, the hypothesis statement attained is that the lowered academic performance of children with ADHD is occurring because the child is unable to sustain attention at school. If the child

receives adequate behaviour training, combined with slight modifications in the classroom structure, then it would be suggested that their academic performance would improve. The desired outcome therefore of an intervention program utilizing behaviour therapy would be that a student would be better able to manage the expectations of the classroom. Academic interventions such as task and instruction modifications, strategy training, peer tutoring, and computer-assisted instruction can also be implemented into the intervention program in order to improve academic performance (Antshel et al., 2014).

The goal for adolescents and children participating in a behaviour therapy program would be to have a significant reduction in ADHD symptoms as reported by parents and teachers as well as a significant improvement in functional outcomes related to academic domains.

The Intervention Plan Development step is utilized by the systematic approach to the behaviour therapy intervention. There are three components to effective behavioral interventions for children with ADHD: parenting training, teacher consultation/school interventions, and child-focused treatments. These components were chosen because they address different settings such as the home, school, and community. The three components of the intervention will address the different domains of functioning such as peer relationships, parent-child interactions, and family relationships (Wells et al., 2000).



Parent training programs are psychosocial interventions aimed at training parents in behavioural or cognitive behavioural techniques they can use to manage their children's challenging behaviour. The programs vary in their style and content but are generally manual-based and may involve discussion and the use of video and role-play (Zwi et al., 2011). Parent training is typically provided in weekly individual or group sessions for 12 to 16 weeks. Parents are taught skills by a therapist such as how to use time out effectively, and asked to go home and practice the skill for a week with their child. Progress is then reviewed on subsequent sessions with problem solving, discussion, progress monitoring and then new skills in sequential follow-up sessions (Zwi et al., 2011). As children with ADHD experience problems with planning, prioritizing, filtering out distractions, focusing on individual tasks, forgetfulness and lack of organization, it is likely that homework will suffer. Therefore teaching parent homework strategies based around these problems has also been found to be beneficial to ADHD individuals (Daley & Birchwood, 2010). School interventions involve having the teacher implement simple interventions with the child in the classroom such as providing stickers for work completion, and using a daily report card to provide feedback to parents who can provide a reward at home for a good day at school (Wells et al., 2000). Child-focused behavioral treatment involves teaching children how to improve their interactions with other children. It is typically implemented in school or recreational settings, and involves more frequent contact than parent training (Antshel et al., 2014). The sessions involve

psychoeducation about ADHD as well as training in organization and planning skills for the individual. Other core sessions focus on the child learning skills to reduce distractibility. Still other sessions focus on reducing procrastination, improving communication skills, reducing interruptions, improving active listening, and improving anger/frustration management (Antshel et al., 2014).

Trained staff members administer the behaviour therapy intervention. Staff includes the therapist-consultants who provide the parent training and teacher consultation components. There can also be paraprofessional aides who work with each child in the school intervention or occasionally a summer treatment program. Special education teachers will often implement the academic components of the treatment program (Wells et al., 2000).

The Behavior Assessment System for Children–2nd edition (BASC-2) is often used as a measurement strategy to assess functioning pre and post intervention. The ADHD Rating Scales (ADHD-RS) are also used as a measure of parent and teacher-rated ADHD symptoms. In addition to the adaptive functioning scales included in the BASC-2, functional outcomes can be assessed via parent and teacher report on the Impairment Rating Scale (IRS). The Parent IRS consists of 7-items (relationship with peers, relationship with siblings, relationship with parents, academic progress, self-esteem, influence on family functioning, and overall impairment). The Teacher IRS version has six domains (relationship with peers, relationship with teacher, academic progress, self-

esteem, influence on classroom functioning, and overall impairment (Antshel, et al., 2014)

When analyzing how well is the intervention plan is working using a decision-making plan it would also be worth incorporating modifications to the classroom environment into the intervention if necessary. Feedback is received from parent-report measures to further identify problems, along with their frequency and intensity (Cassone, 2015). When feedback has been received there can be manipulations in the program such as altering tasks and instructions to meet the needs of the ADHD individual. Manipulations include reducing task length, dividing tasks into sub-units, giving explicit instructions, providing peer tutoring and modifying the delivery or modality of instruction according to the pupil's learning style (Daley & Birchwood, 2010). Student data is observed and collected two to three times per week in order to monitor progress. Variables such as number of weekly missed classes, school absences, parent-reported externalizing behaviors, parent-reported inattention symptoms, teacher-reported inattention symptoms and task completion are charted (Antshel, et al., 2014).

The behaviour therapy program should be specific to the child and use formative evaluation based on the environment and the individual that will either increase or decrease a child's problematic behaviour (Daley & Birchwood, 2010). Therefore in order to maintain treatment integrity, the plan is modified as necessary to meet the individual needs of the child. A child's Individualized Education Plan (IEP) can be adapted if necessary to reflect the goals that are

being targeted through the intervention program. It is possible that individuals with ADHD are continuing to function somewhat below average as a function of the reputation that each has developed over time with their parents, teachers, and peers (Daley & Birchwood, 2010).

In conclusion, comprehensive treatment for ADHD should include a strong psychosocial, non-pharmaceutical component, such as a behaviour therapy intervention. There are many reasons for considering psychosocial interventions in ADHD, including uncertainty about the long-term effectiveness of stimulants, minimal clinical benefits of medication, non-responsiveness to medication, clinical needs of younger children, and ethical objections to the use of medication (Zwi et al., 2011). The psychologist should be able to provide accurate information regarding treatment options to parents of children with a diagnosis of ADHD. A parent may be opposed to pharmaceutical treatment for many reasons and the psychologist should listen to concerns regarding medication and provide accurate information regarding the risks and benefits of medication and behaviour therapy intervention approaches to treatment. Intervention should be in collaboration with the family and the school personnel to improve the child's positive outcomes.

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