

Attention-Deficit/Hyperactivity Disorder: The Effect of Family Therapy on Family and Child Functioning

Problem Definition

“You could say that Attention Deficit Hyperactivity Disorder (“ADHD”) is one of the most misunderstood and underdiagnosed brain types in America. You could. And, you would likely be correct” (Sterling, 2011).

Attention deficit and hyperactivity disorder (ADHD) is a neurodevelopmental disorder. The American Medical Association concluded in 1998 that the criteria for ADHD are based on extensive research and, if applied appropriately, lead to the diagnosis with high reliability. The child and adult diagnosed with ADHD have significant difficulties in work, love and play compared to the general population.

ADHD across lifespan

ADHD is one of the most common psychiatric disorders diagnosed in children, affecting approximately 5-10% of school age children (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007; Scahill & Schwab-Stone, 2000). The disorder is characterized by symptoms of inattention, hyperactivity and impulsivity. Adults report that children have difficulty regulating their emotions, organizing day to day tasks, following directions at home and at school. Finally, many children present with social skill deficits affecting their social life and ability to make and maintain friends (Frankel & Feinberg, 2002). These difficulties further interfere with children’s ability to function at school and at home.

The developmental nature of ADHD is now well established and clinicians no longer believe that children with ADHD “grow out of” the disorder. Any adult born before 1976 may not have been diagnosed if he or she did not exhibit symptoms of hyperactivity and/or had developed strategies to compensate for their neurological difficulties or used prescribed drugs and alcohol to get by. Adults with ADHD experience significantly more difficulties than the general population with functioning at work, frequent job changes, risky driving incidents, difficulties managing finances, problems in dating or marital relationships, and more separation and divorce (Russell A. Barkley et al., 2008). They are

also more likely to be arrested and have trouble with the law (Mannuzza, Klein, & Moulton, 2008). Moreover, even high IQ (>120) does not protect adults with ADD, although their exceptional intelligence may have helped them develop effective strategies to function reasonably in life. Antshel (2008) reported that ADHD adults with high IQ scored significantly lower ($p > .001$) than their peers on most aspects of the standard Quality of Life scale: mood, work, household activities, family relationships, leisure time, daily life functioning, economic status, living/housing situation and overall life satisfaction. The impairments are diverse and serious (R. A. Barkley & Murphy, 2010; Russell A. Barkley et al., 2008).

Risk factors associated with ADHD

ADHD rarely occurs in isolation. Children and adults with ADHD are at a higher risk of developing additional comorbid disorders. Among children, rates of comorbid disorders range from 24% to 71%, varying across studies and across disorders (Jensen et al., 2001). Among adults, the comorbid rates are similar to that of children (Anastopoulos et al., 2016)(Fischer, Barkley, Smallish, & Fletcher, 2002).

Most children also present with executive function (EF) deficits (Toplak, Bucciarelli, Jain, & Tannock, 2009; Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005), sleep difficulties (Shur-Fen Gau, 2006), and a wide range of comorbid disorders (Connor et al., 2003). These include oppositional defiant disorder (ODD), conduct disorder (CD), anxiety disorders, depressive disorders, and specific learning disabilities (Cumyn, French, & Hechtman, 2009; Daviss, 2008; Schatz & Rostain, 2006).

Comorbid anxiety disorders, depression and conduct disorder are more likely to continue into adulthood. Antshel (2008) found that high IQ adults with ADD reported patterns of functional impairments, familial, and psychiatric comorbidities that parallel those found in the average-IQ adult ADHD population. Many adults are untreated for their ADHD, and are thus more likely to seek help from mental health services because of comorbid problems (Kessler et al, 2006).

Aside from taking a toll on individuals and families, ADHD is also a serious public

health concern. The economic cost is even higher for children who do not respond to treatment (van der Kolk et al., 2014). Furthermore, unless the underlying problem of ADHD in adults is diagnosed, their comorbid problems of anxiety, depression and substance abuse continue to be a drain on mental health resources.

Etiology

While the exact causes of developing ADHD are still under investigation, it is now well established that both environmental and genetic factors are major contributors (Thapar, Cooper, Jefferies, & Stergiakouli, 2012). Familial and genetic studies have demonstrated a strong genetic component for developing ADHD (Biederman & Faraone, 2005). ADHD is two to eight times more likely to be present in first degree relatives compared to the general population (Faraone et al., 2005). Approximately 25% of children diagnosed with ADHD have at least one parent also diagnosed with ADHD, while about 50% of adults with ADHD will have at least one child diagnosed with the disorder (Johnston, Mash, Miller, & Ninowski, 2012). Therefore, a child with ADHD has a very good chance to have at least one of the parents either diagnosed with ADHD or, more likely, undiagnosed. Thus, there is an increased possibility of multiple family members presenting with ADHD diagnosis or symptoms.

ADHD in a family context

Several studies have examined the impact ADHD symptoms have on family and couple functioning. Being diagnosed with ADHD or raising a child who has ADHD introduces a major strain on the family and negatively affects the quality of life of children and their families. The presence of ADHD is associated with difficulties in family functioning, stress, couple functioning and negative parent-child relationship, particularly when children present comorbid disorders in addition to ADHD (Orr, Miller, and Polson, 2005)(Riley 2009; Deault, 2010; Cussen, Sciberras, Ukoumunne, & Efron, 2012; Kvist, Nielsen, & Simonsen, 2013; Moen, Hedelin, & Hall-Lord, 2015). Merely listing the DSM symptoms is sufficient to understand how impairments in these areas can interfere with individuals' functioning. Individuals with ADHD often present additional deficits in areas

like working memory, emotion regulation, cognitive flexibility, and planning, areas that are crucial for efficient family organization and parenting. Children require the same skills to meet adults' expectations related to day to day functioning. Lack of these skills can be a source of significant stress for those involved.

Compared to parents whose firstborn child was not diagnosed with ADHD, parents of children with ADHD had a 75% higher probability of being separated from their partner and a higher probability of having lower income. Having an offspring with ADHD predicted parental divorce even after confounding factors, for example parental psychopathology, were controlled for (Schermerhorn et al., 2012).

Conversely, parental ADHD also impacts the child's functioning. Mothers' ADHD symptoms have been associated with negative parenting style, such as inconsistent discipline and non-supportive response to children, while fathers ADHD symptoms predicted high level of chaos at home, which in turn mediated maternal ineffective parenting (Mokrova, O'Brien, Calkins, and Keane, 2010). Parental inattention symptoms negatively affected intervention programs for their children in behavior-management training (Sonuga-Barke, Daley, & Thompson, 2002), and increased child peer rejection among families receiving friendship coaching (Griggs & Mikami, 2011). Furthermore, parental ADHD has been found to be associated with more severe ADHD symptoms in children (Agha, Zammit, Thapar, & Langley, 2013) and parental psychopathology with more severe ADHD symptoms and comorbidity (Takeda, Ambrosini, deBerardinis, & Elia, 2012; Takeda et al., 2010). Friedman et al. (2003) suggested that the negative impact of parental ADHD is likely influenced by the reality that adults with ADHD have difficulty managing their emotional expressions, determining when interactions with others are going poorly, and being able to modify their behavior to meet the demands of social situations. The situation is particularly exacerbated by frequent comorbid disorders accompanying ADHD in the vast majority of the adults diagnosed with the disorder, depression and anxiety being the most frequent conditions (Silva et al., 2015). In particular, depression has been shown to influence family dysfunction by acting as a mediator between ADHD symptoms and family cohesion (Hong et al., 2014). Given the difficulties posed by ADHD for both a child and probably an adult in the family, with or

without co-morbid conditions, it is clear that these families are at risk and need help in negotiating these challenges to improve the quality of life for all its members (Hechtman, 1996; Minde et al., 2003).

Despite the difficulties posed for the family functioning by ADHD, other researchers (Johnson et al., 2012; Travers, 2014) point out that our understanding of the effects parental ADHD remains underdeveloped. They argue that parental ADHD can also serve to temper or reduce the development of the child's problems. For example, the ADHD parent, appreciating the child's need and liking for novel and fast paced activities, may foster an environment in which the child will flourish.

Treatment

Different countries have different guidelines for treating ADHD, but most utilise a stepwise approach. Canadian guidelines, established by the Canadian ADHD Resource Alliance (CADDRA, 2011) propose a holistic approach that includes five steps: parent and family education, behavioural or occupational management, psychological treatment, educational accommodation and medication management (CADDRA, 2011).

Medication Management

First line pharmacological agents include long acting psychostimulants, which efficacy has been clearly established for both for children and adults (Ginsberg, Langstrom, Larsson, & Lindefors, 2015). Psycho-stimulants improve ADHD symptomatology in about 70% of children with ADHD (Spencer et al., 1996). In addition, reduction of ADHD symptoms in children after treatment with medication has been reported to reduce family stress as measured by the Family Strain Index (Silva et al., 2015). Since the introduction of long acting medication, the effectiveness of the medication continues to be high (Wilens et al., 2003).

Literature reports positive effects of pharmacological treatment in adults, particularly on outcomes such as driving. Treatment of adults with stimulant medication has been shown to have a positive effect on parenting style for parents who have adolescent diagnosed with ADHD (Babinski, Waxmonsky, Waschbusch, et al., 2014). Effects on other outcomes, such as occupation and antisocial behaviour, have not been as beneficial (Shaw et al., 2012), suggesting that other forms of intervention are needed to

supplement pharmacological treatment.

Among experts and clinicians, there is an increased recognition of the limitations associated with resorting to only treatment with medication. While effective, many children present with additional difficulties including comorbid disorders and learning disabilities that medication does not address. “Pills don’t teach skills.” Thus, medication is an important but not a sufficient intervention. There is a growing awareness of the need for multimodal interventions for children diagnosed with ADHD to include parent and family education, behavioural or occupational management, as well as medication management (Hodgson, Hutchinson, & Denson, 2014).

Beyond medication

The Multimodal Treatment of ADHD (MTA) study was one of the first large studies to examine the effectiveness of psychosocial intervention and medication management for children and continues to be a landmark study in ADHD, bringing insight to treatment and long-term outcomes of this disorder (Molina, Marshal, Pelham, & Wirth, 2005). The MTA study used intensive parent training, behavioural treatment for children, provided participants with 14 month tailored medication management as well as help for children to generalise the skills in the classroom environment (MTA Cooperative Group, 1999). When these children were followed into their adolescence, the combination multimodal treatment was found to be optimal for peer relations, academics and parenting practices. For children with comorbidities, an addition of behavioural treatment was found to be essential. However, for children with depressed parents, treatment protocol was not efficient. Improvement of parenting style significantly and positively affected the children’s school functioning.

In adults, behavioural interventions have been shown to be effective. For instance, Weiss et al. (2012) found that adults randomized into two treatment groups (Cognitive Behavioural Therapy (CBT) plus placebo vs CBT plus medication) showed similar improvements in ADHD symptoms after CBT, regardless of pharmacological treatment.

Family interventions

Given the difficulties associated with ADHD presented in above literature review,

several research projects were developed with an aim to deliver various types of non-pharmacological interventions for families affected with ADHD. Family interventions have focused on psychoeducation, parental training, and the inclusion of parents in primarily individual or group focused treatment (Tarver, Daley, and Sayal, 2014). Some studies have investigated the efficacy of parent training for children diagnosed with ADHD. From a perspective of early prevention, Heinrichs, Kliem, and Hahlweg (2014) used the Triple P (Positive Parenting Programme) as a prevention programme. Mothers who participated in the programme reported more positive and warm parenting, reduction of dysfunctional parenting, and decrease of child's problem behavior. Another approach gaining popularity is the collaborative problem solving or collaborative and proactive solutions (CPS), which utilizes a modified cognitive behavioural model in parent training with promising results (Greene et al., 2002; Johnson et al., 2012). Psychoeducation is another approach gaining popularity, and even though studies are limited in number and have some methodological shortcomings, there is some evidence supporting the positive effects of this approach as an effective intervention for ADHD (Montoya, Colom, & Ferrin, 2011).

Some researchers have focused on family interventions with parents with ADHD, as parenting a child with ADHD is even more challenging when one of the parents is also diagnosed with the disorder. Much existing research into intervention with the ADHD child is designed to place the responsibility of the treatment onto the parent, a responsibility which can be particularly difficult for the ADHD parent (Johnston, 2012). Babinski, Waxmonsky, and Pelham (2014) have compared behavioural parent training and medication management for parents with ADHD. The authors found positive benefits from parent training and observed no interaction with medication, highlighting the importance of psychosocial treatment for adults. Given the risk factors associated with comorbid depression, Chronis-Tuscano et al. (2013) used cognitive behavioural therapy elements for depression in conjunction with behavioral training for parents and found it to be superior to parent training only.

In the current literature, most intervention programs have focused on individual treatment(s) for the child and teaching parents about ADHD and how to help their children cope. Lately, researchers have made several recommendations suggesting that intervention programs should be involving the entire family. Travers (2014) points out

that the parent and child are in a transactional relationships and the lack of research into ADHD parenting leads to a lack of theoretical or conceptual framework to guide such work. Other researchers have advocated the need for an individualized treatment plan for the family and, especially, adapting the intervention when a parent also presents with ADHD (Weiss, 2012; Travers, 2014; Johnston, 2012). Listening to parental concerns and including the father in interventions has also been recommended as important components of family intervention (Tavers, 2014). Orr et al. (2005) suggested some useful guidelines for family and marital therapists based on a multimodal approach: collaboration with medical and school system; comprehensive assessment including comorbid conditions; referral to medical professional for medical evaluation and possible medication; psychoeducation about the disorder; parental management training and family and marital therapy for family dynamics. As many adults with ADHD symptoms continue to be undiagnosed, their identification and psychoeducation should be integrated into the treatment.

Family Therapy

Given the limitations of previous research in ADHD and family therapy, it is not surprising that there are no clear standards for the family treatment of ADHD in the field of marriage and family therapy. Family therapy is a systemic psychotherapy that works with couples and families to nurture change and development. Change is viewed through the interactions between family members. Practitioners emphasize relationships and emotional connections to improve family functioning. We propose that family therapy incorporating insights from previous ADHD research on family interventions, with a specific emphasis on relational interactions, would address some of the limitations of the former and would be an important contribution to helping families touched by ADHD.

PILOT PROJECT FOR ADHD FAMILIES

Goals

The goal of the current project is to develop an evidence-based treatment protocol that will have a positive long term effect on children diagnosed with ADHD and their families, maximizing the treatment gains and the future success for all members of the

family. This study aims to answer the following questions:

- a) Will individualized family therapy have a positive long-term effect on children diagnosed with ADHD?
- b) Will individualized family therapy have a positive long-term effect on family functioning in families with a child diagnosed with ADHD?
- c) What participant/family characteristics (socioeconomic status, parental education, marital status, parental psychopathology, parental ADHD, severity of ADHD symptoms, medication compliance etc.) moderate treatment gains with family therapy?
- d) Do child characteristics such as presence of comorbid disorders moderate treatment gains with family therapy?

Hypothesis

- a) Individualized family therapy will improve the overall functional performance of the child (WFFRS) and the family (FAD) more than the standard approach for ADHD (medication, psychoeducation, skill training, and community support).
- b) Families who have one or both parents with ADHD will benefit more from family therapy than those who do not.

STUDY PROCEDURE

1. Setting

The study is conducted in collaboration between Douglas Mental Health University Institute (herein called Douglas Institute) and the Argyle Institute, a Montreal centre for psychotherapy and education. Internal Research Ethics Board approval will be obtained from the Douglas Institute Research Ethics Board.

1.1 The ADHD clinic

Douglas Institute ADHD Clinic is a specialised clinic offering ADHD assessment to children referred from the community. Upon diagnostic, families are offered pharmacological treatment for the child. The treating psychiatrist follows the child and adjusts medication until optimal treatment is found. During this time families may see a psychiatric nurse to address psychosocial concerns if needed. However, these meetings are limited. Families are also offered a 6- week parent training program and a 6-week social skills training for children. Once the child is stabilized on medication, he or she is referred back to his or her pediatrician or family doctor. Depending on needs, the family can also be referred to a community mental health centre. This is the standard approach for treatment in most ADHD clinics and follows the CADDRA guidelines. Approximately 80 to 100 patients are evaluated at the clinic every year.

1.2 The Argyle Institute

The Argyle Institute is a large treatment and education centre providing individual, family, couple and group counselling and psychotherapy. It operates on sliding scale model, where the fees are adjusted to the clients' income level, providing affordable mental health service to the community. In addition, the Argyle Institute is a reputable educational establishment, training graduate and post-graduate level students to become qualified therapists and counsellors. Centrally situated, the Argyle Institute is a major resource for the Montreal community.

2. Participants

Families with one child aged between 6-12 years, referred to the ADHD clinic at the Douglas Institute will be sequentially recruited for the study until 40 families are recruited for the family intervention group and 40 families for the treatment as usual comparison group. The study procedure will be explained to the family by a trained research assistant. Families will be informed of the study and told that, if either parent is presently dissatisfied with the family functioning according to the Family Assessment Device, the

family will be randomly assigned after initial treatment to either the Argyle Institute or appropriate community resources. Families in the intervention group will receive interventions free of charge. Families in the comparison group will be paid a modest stipend for their participation to compensate for their time and for parking and travel expenses. Participants will receive \$25 after the completion of the baseline questionnaires and \$25 again at the end of the study. Informed Consent will be obtained from the parents and an assent from children over the age of thirteen. Test results will be made available to all families and to their treating clinician should they give permission.

2.1 Inclusion Criteria

- Diagnosis of ADHD according to DSM 5 criteria conducted by a psychiatrist based on an interview with the child and parents and school reports (CADDRA).
- Age 6 to 12

2.2 Exclusion Criteria

- Autism Spectrum Disorder
- IQ less than 70
- Psychotic disorder
- Major health problem that will interfere with child's ability to fully participate in treatment
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3. Baseline Assessment

Upon recruitment the family members will be asked to complete the following interviews and questionnaires. Certain questionnaires may be completed online.

3.1 General Questionnaire

- Ages of all family members
- Years of Education completed by all family members
- Family income
- Postal code of child's primary residence. In case of joint custody, both residences
- Ethnicity of parents
- Language(s) spoken at home

3.2 Child Assessment

3.2.1. Diagnostic Interview Schedule for Children-version IV (DISC-IV): The DISC-IV assesses common psychiatric disorders in children and adolescents. The interview will be conducted by a trained research assistant with a primary caregiver. The DISC-IV will be used to identify ADHD symptoms and comorbid disorders.
3.3.2 Weiss Functional Impairment Rating Scale (WFIRS): Completed by the primary caregiver, the WFIRS allows for overall functioning assessment.

3.2.3 Conner's Comprehensive Behaviour Rating Scale (3rd edition): Completed by the primary caregiver and a teacher, it is used for the evaluation, diagnosis and treatment response of children with ADHD and comorbid disorders.

3.3 Family Assessment

3.3.1 Family Assessment Device (FAD) long version: The FAD is a measure of family functioning. It provides an assessment of functioning across seven universal clinical parameters: General Functioning, Behavioural Control, Affective involvement, Roles, Communication, and Problem solving (Epstein 1983; Mansfield 2015). FAD will be independently completed by all family members aged over 13 residing with the child.

3.3.2 *Family Strain Index (FSI)*: A 6-item questionnaire completed by parent(s).

3.3.3 *Family Interview for Genetic Studies (FIGS – short version)*: Administered by a research assistant, this interview allows to identify any psychopathology present in the family as well as document family composition.

4. Medication Compliance:

Child: Parents will be asked to sign a consent form so the researchers can go into the DSQ (Dossier Santé Québec online), or to contact the pharmacy to confirm what the parent is telling the psychiatrist/research staff.

Parent(s): Any parent on ADHD medication regime will be asked to complete a weekly compliance form throughout the treatment process.

4. Initial Treatment

All participants will be treated by a team psychiatrist until an optimal medication type and dose is found. Parents will be offered a sixweek parent training program. This program is designed to provide psychoeducation, support and parenting skills for families with children diagnosed with ADHD. Families in both treatment groups will receive the following services:

4.1 *Medication management* which will include weekly or biweekly meetings until medication stabilization is reached, followed by regular (every 3 month) meetings with the psychiatrist. 4.2 *Parent training (PT)* and *Social Skills Training (SST)* sessions, a six week session developed specifically for parents with children diagnosed with ADHD, which incorporates psychoeducation, parenting skill training and the Collaborative and Proactive Solutions approach developed by Greene and Ablon (2005). Children will be receiving social skills training. The groups will be held for eight(?six) consecutive sessions for two hour duration.

4.3 *Case management (CM)*. Families will be provided case management by Douglas ADHD clinic staff as needed, as well as liaison with schools.

4.4 *Parental or sibling ADHD assessment* and, if needed, medication management will be provided for parents and/or siblings if requested by the family or family physician .

5. Randomized Treatment

Following the initial treatment phase, families whose results on the FAD questionnaire filled at initial assessment indicated that they were dissatisfied with their overall family functioning will be randomly assigned to either Family Treatment (FT) at the Argyle Institute or Treatment as Usual (TU).

5.1 Treatment as Usual (TU)

Participants assigned to TU group will receive the Follow-up Treatment Protocol to include case management and referral to standard community mental health resources, such as the CLSC by their case manager for a period of one year

5.2 Family Therapy (FT)

Participants assigned to FT group will receive family therapy services at the Argyle Institute from a qualified Marital and Family therapist, a Psychotherapist with a Systemic focus, or a Clinical Member of the American Association for Marriage and Family Therapy. In addition, the therapist will have received 14 hours of specialized training in the assessment and treatment of ADHD. With the permission of the family, the treating therapist will be informed of the results of the baseline FAD, which offers specific information about areas of satisfaction and dissatisfaction of each family member regarding family functioning.

5.2.1 Family Intervention

Treatment will address the problem areas in family functioning initially identified by the family in the FAD, and adjusted by the treating therapist when necessary. The therapy will be tailored to address each family's needs.

Therapeutic interventions will be adapted from relevant family therapy models depending on the presenting problem(s). Collaboration with the family is an overarching principle. Particular therapeutic attention will be paid to reciprocal emotional responsiveness among family members. Although the lack of homogeneity in this population precludes the development of structured manualized treatment protocols (Tuckman, 2009), the intervention plans will all possess the following qualities, which are particularly pertinent to individuals with ADHD (Ramsay & Rostain, 2005a): 1) Active involvement of the therapist 2) Strong therapeutic relationship 3) Reasonable structure and ground rules 4) Problem-solving focus 5) Case conceptualization that incorporates the neurological factors of ADHD 6) Strategies for living with ADHD

5.2.2 The sessions will be videotaped for supervision and data analysis.

5.2.3 *Clinical supervision:* To ensure fidelity to the treatment plan for each individual family, all therapists will participate in group clinical supervision sessions for a minimum ratio of one to five, where each case will be presented to an AAMFT Approved Supervisor and the treatment plan discussed and modified if needed.

5.2.4 Family therapy will continue for 10 sessions. For a period of one year families will be offered two booster sessions on the need-to basis. Participants will not be penalized for missed sessions however a careful log of all interventions received will be kept in the clinical and research file.

6. Post Treatment Assessment

One year and two years after randomization, participants in both groups will be asked to complete the same measures as administered at baseline. In addition, the TU parents will be asked about services they received privately or in a community.

DATA ANALYSIS

Statistical analyses will be conducted using the SPSS software, Chicago, IL, USA. Continuous variables will be expressed as means \pm standard deviation (SD). Categorical variables will be expressed as proportions (%). Chi Square tests will be used to compare proportions between groups at baseline and analysis of variance (ANOVA) will be used to examine group differences at baseline. SPSS General Linear Model procedure (GLM) repeated measures ANOVA or repeated measures analysis of covariance will be used to identify treatment response using teacher and parent measures.

PROJECT TEAM

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