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TREATMENT METHODS

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Elizabeth Alegria

Teachers College, Columbia University

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Some scholars have estimated that as many as four million children...suffer from Attention-Deficit/Hyperactivity Disorder (ADHD) in the United States (Wender, 2000). Although Attention-Deficit/Hyperactivity Disorder (ADHD) is a common and well researched behavioral disorder, there has been no agreement as to what the actual cause of this disorder is. Some scholars have suggested that ADHD is caused by environmental factors (such as family dynamics), while others have suggested that its cause is biological (which include genetic factors, brain structure differentials, and neurochemical dysregulation). Since there has not been an agreement as to what the definite cause of ADHD actually is, a combined treatment approach that draws from a variety of treatment areas is currently being hailed as the most effective. This comprehensive treatment plan (which includes education, medication and behavior modification plans) seems to address all of the potential causes of ADHD. This work will specifically focus on the characteristics, manifestations, and the combined treatment method of ADHD in children.

Review and Description of ADHD

Vyas and Zaroff (2007) describe ADHD as “a pattern of inattentive and/or hyperactive/impulsive behavior with a developmental onset and current developmentally inappropriate behaviors that are maladaptive, present in two settings, and present for at least six months” (p.6). More specifically, in order for a child to be diagnosed with ADHD, he/she must exhibit a more severe pattern of the aforementioned behavior when compared to those of his/her peers. Additionally, these patterns of behavior must be inconsistent with the child’s level of development, and said behaviors must be deemed maladaptive in that they interfere with the child’s ability to function in two or more given settings (J. Tausig-Edwards, learning disorders lecture, April 7, 2007). ADHD can be divided into three different subtypes, which are ADHD

Predominantly Inattentive Type, ADHD Predominantly Hyperactive-Impulsive Type, and ADHD Combined Type (Diagnostic and Statistical Manual of Mental Disorders, 4th edition, text revision American Psychological Association, 2000). A child with ADHD Predominantly Inattentive Type may express characteristics that may include (but are not limited to) a failure to pay close attention to details, difficulty maintaining attention on play activities, an inattentiveness when spoken to, and a failure to follow instructions (*DSM-IV-TR*, APA, 2000). A child with ADHD Predominantly Hyperactive-Impulsive Type may express characteristics that include (but are not limited to) fidgeting with hands and/or feet, running or climbing in inappropriate settings and situations, and engaging in a rushed “on the go” behavior (*DSM-IV-TR*, APA, 2000). Lastly, a child would be diagnosed as ADHD Combined Type if he/she exhibited six or more symptoms from both the ADHD Predominantly Inattentive Type and the ADHD Predominantly Hyperactive-Impulsive Type for a period of at least six months across two or more settings (*DSM-IV-TR*, APA, 2000).

The exact cause of ADHD is not known, however, scholars have presented different hypotheses suggesting that certain environmental and biological factors that may be associated with its development. One such scholar is Haber (2000), and he presents an environmental cause by suggesting that the parent-child relationship may be a contributing factor to the development of ADHD in children. More specifically, he states that instability in the home (such as the presence of divorce or family relocation) may predispose a child to the symptoms that are associated with this disorder (Haber, 2000). Silver (1999) is another scholar who presents a biological perspective by suggesting that faulty brain wiring and neurochemical deficits are possible factors that may contribute to the development of ADHD in children. Wender (2000) offers a similar biological perspective when he contends that most “cases of attention-deficit

hyperactivity disorder appear to be genetically transmitted and chemically produced. Stating it differently, [ADHD] seems to be hereditary and what is inherited is abnormal chemical functioning within the brain” (p. 34). Faraone and Biederman (1994) further support the genetic contributions to ADHD by suggesting that “family studies of ADHD have shown that the relatives of ADHD children are at high risk for ADHD...” (as cited in Wilens, Biederman, & Spencer, 1999, p. 16). Other scholars offer a neurobiological perspective when they suggest that structural and functional brain differences may be other associated with ADHD. For example, Giedd, Castellanos, Casey, and Kozuch (1994) found that the “areas of two anterior regions of the corpus callosum were...significantly smaller in the children with ADHD. [They] concluded that their findings supported the hypothesis that ADHD is correlated with abnormal frontal lobe development” (as cited in Norvilitis & Reid, 2000, p. 97). Lastly, Zametkin and Liotta (1998) state that “neurochemical studies continue to support the hypothesis that catecholamine dysregulation plays a central role in the pathophysiology of ADHD. Dopaminergic dysfunction in particular, and norepinephrine indirectly, appear to have an important role in the underlying pathophysiology of ADHD” (as cited in Wilens et al., 1999, p. 15-16).

Other scholars have described the different manifestations of behaviors that are typically expressed in people with ADHD. Two such scholars are Davies and Jennings (2006), and they contend that “the 1980s brought to the fore theories regarding primary deficits in attention and impulse control, leading to current approaches which focus on impaired self-regulation and behavioural inhibition” (p. 65). Davies & Jennings (2006) suggest that cognitive models of Attention-Deficit/Hyperactivity Disorder may involve the “faulty information processing and executive functioning which impair appraising, selecting, initiating...[and] allocating mental effort” (p. 66). Another important theory is the attentional disregulation theory, which describes

the child with ADHD as being unable to filter out extraneous stimuli and focus on what is more relevant (J. Tausig-Edwards, learning disorders lecture, April 7, 2007). Russell Barkley is another scholar whose theory of behavior disinhibition declares that ADHD results from a child's inability to control his/her impulses and behavior so that he/she can appropriately meet the situational demands of his environment (Barkely, 2003).

General Findings and Prognosis

Children with Attention-Deficit/Hyperactivity Disorder may display similar general characteristics; however the presence of these characteristics can vary from individual to individual. Most children with this diagnosis also experience academic difficulties as well as strained relationships with their peers (Wender, 2000). Hutchinson and Williams (2007) report that "epidemiological studies...suggest that ADHD is more common in boys than in girls with ratios ranging from 4:1 to 9:1" (p. 131). These scholars add that "boys tend to have worse cognitive and interpersonal outcomes, [engage] in more antisocial behaviour and [have] more learning disabilities than their female counterparts" (Hutchinson & Williams, 2007, p. 132). Children with ADHD commonly have other co-morbid disorders which include oppositional defiant disorder, conduct disorder, depression, anxiety, and bipolar disorder (Wilens et al., 1999). Many children with ADHD may experience difficulties in school, strained family relationships, and low self esteem (Wender, 2000). Attention-Deficit/Hyperactivity Disorder usually begins before the age of seven, and it can persist into adolescence and adulthood (Davies & Jennings, 2006). "About 50% of children with ADHD will improve by puberty; however, 50% will continue to have ADHD as adults" (Silver, 1999, p. 136). "Impaired...relationships may result, and there is an increased risk of social isolation. Adverse outcomes include delinquency, anti- social behaviour and academic underachievement. It is therefore appropriate

that ADHD is a major focus of child mental health intervention” (Davies & Jennings, 2006, p.65).

Treatment for Children with ADHD

There has been a significant amount of research dedicated to developing effective treatment plans for children with ADHD. A popular therapeutic approach that is often advocated by therapists and clinicians alike in the treatment of ADHD in children is one that involves “psycho-education, medication, behavioral interventions at home and at school, and child-focused work to teach strategies for managing symptoms (Davies & Jennings, 2006, p. 72). According to Silver (1999), once a child has been diagnosed with ADHD and has been fully assessed for the presence of other associated emotional, social, or learning disabilities, a comprehensive diagnostic profile should be created and an intervention plan should be implemented based on that assessment.

Silver (1999) suggests that the first step in any comprehensive therapeutic plan should be to inform and educate the child with ADHD, as well as the parents and other family members. More specifically, they should be informed about the nature and effects of [ADHD], and they should understand the treatment plan itself. (Silver, 1999). Davies and Jennings (2006) add that the education portion of this type of treatment approach should involve answering any questions that parents may have about the condition, as well as providing them with “written information about ADHD symptoms, medication and behavioural management which can be shared with the school and others involved in the child’s care” (p. 72). Silver (1999) suggests that education is an integral part of any effective treatment plan because this knowledge will be a base on which to build upon over the years if the disorder should perpetuate itself into adulthood. After the child with ADHD and his/her family members have been informed, Silver suggests that teachers

and other school professionals should be educated about the clinical findings regarding children with ADHD and make the necessary educational modifications to help the student succeed (Silver, 1999). “If a learning disability is suspected, the appropriate school professionals will need to conduct the necessary psychoeducational testing to clarify whether this clinical impression is correct. If it is, appropriate services and accommodations will be needed” (Silver, 1999, p. 135). of this so that they can learn about the rights that these laws afford them and their children.

A second integral component of this comprehensive therapeutic approach is the use of medication. “It is well established that stimulants improve the behavioural symptoms of ADHD. The major effects are a reduction of fidgetiness, fewer interruptions and an increase in concentration....Even in the presence of co-morbidity, a reduction of core ADHD symptoms may be achieved” (Davies & Jennings, 2006, p. 73). Wilens et al. (1999) suggest that the most common psychostimulants that are used to treat symptoms of ADHD are methylphenidate (Ritalin), pemoline (Cylert), dextroamphetamine sulfate (Dexedrine), and amphetamine compounds (Adderall). Davies and Jennings (2006) claim that the most popular choice of ADHD medication is short-acting methylphenidate, but that regardless of the medication choice, the dose should be appropriate to the child’s functional level. Some common side effects that are associated with these types of medications include a loss of appetite, head aches, sleep disturbances, and nausea (Davies & Jennings, 2006).

In addition to education and medication, Davies and Jennings (2006) suggest that the consistent and extended cognitive and behavioral treatments are useful in the treatment of ADHD. More specifically, these researchers advocate behavioral management techniques that focus on the parents as opposed to the child. For example, Davies and Jennings (2006) claim

that certain parental strategies (such as praise and rewards) can maximize the occurrence of desired behaviors in their children, and that cognitive strategies that require linking the child's thought processes to his/her actions should be reserved for older children who are able to interpret these kinds of advanced cognitive skills.

Silver (1999) adds another component to Davies and Jennings's (2006) comprehensive therapeutic model by suggesting that therapeutic interventions (in conjunction with the education and medication treatments) should be made available to the child, parents, and family. Silver (1999) further contends that the child, as well as the family members, might have conflicting feelings when the ADHD diagnosis is made. As a result, a parent or both parents may need to seek out therapy in order to work through any emotional difficulties they may be experiencing as a result of their child's ADHD. Similarly, the child might have difficulties in dealing with the reality of his/her disorder, and may need to participate in individual therapy so that he/she can work through some of the emotional issues that may arise as a result of living with ADHD (Silver, 1999). If it is decided that it is in the child's best interest for him/her to start therapy, it is monumentally important for the therapist to address any issues of low self-esteem that the child may have, if this problem should present itself. According to Silver (1999), "the years of frustration, poor school performance, negative interactions, and behavioral difficulties the individual experienced before diagnosis and treatment contribute to a poor self-image, low self-esteem, lack of peer acceptance and success, family conflicts, and possibly academic failure" (p. 142).

A significant amount of research has been dedicated to investigating the efficacy of the multimodal psychosocial treatment plan in children with ADHD. In an effort to investigate whether behavioral treatment or medication treatment was more effective in treating children

with ADHD, the National Institute of Mental Health and the U.S. Department of Education Sponsored a Multimodal Treatment Study of Children with ADHD (MTA Cooperative Group, 1999; Brown, 2005). The goals of this seminal research project were to investigate how “medication and behavioral treatments for ADHD compare with each other over the long term” and whether there are “additional benefits when the two modes of treatment are used together” (Brown, 2005, p. 278). Research participants were children with ADHD, who were between the ages of 7 and 9 (Brown, 2005). These children were randomly assigned into four different treatment groups, which included:

1. Medication monitoring only – the children in this group only received medication treatment for their ADHD disorder that had been specifically tailored for them. (Brown, 2005).
2. Behavioral treatment only – the families of the children in this group were only provided with a behavioral treatment plan, which included parent training, a two month day camp for the children with specialist counselors, three months of exposure to trained aides in the children’s school classrooms. (Brown, 2005).
3. Combined medication and behavioral treatment- children in this group received medication treatment as well as the behavioral treatment (Brown, 2005).
4. Community care only – children in this group did not receive any direct treatment. The test subjects in this group were asked to find their own treatment within their communities, which could have included counselors, medication, or any other resource they saw fit (Brown, 2005).

The results of this study showed that the “children in each of the four groups showed significant reduction in their ADHD symptoms ...” (Brown, 2005, p. 278). This study further showed that “medication management was superior to the behavioral treatment program....[and] that the combined treatment did not yield significantly better results for improvement of ADHD

symptoms than did the medication alone” (Brown, 2005, p. 279). When the data was reanalyzed, it was found that the advantages of the combined treatment were more apparent because a higher percentage of those who had undergone this type of treatment had reported an excellent improvement rating from their treatment that did the participants of the other groups (Brown, 2005). Although this research seemed to indicate that a combined treatment may have no benefit over medication treatment alone, it did suggest that behavior management techniques might work well in conjunction with the medication (Davies & Jennings, 2006).

Klein, Abikoff, Hechtman, and Weiss (2004) conducted a controlled study that examined long-term methylphenidate and multimodal psychosocial treatment in children with ADHD. This investigation was designed to test the following hypothesis: “methylphenidate combined with comprehensive multimodal psychosocial treatment was superior to methylphenidate alone in improving multiple functions...” (Klein et al., 2004, p.792). More specifically, they studied “one hundred three children with ADHD (ages 7-9), free of conduct and learning disorders, who responded to methylphenidate, were randomized for 2 years” into three groups (p.792). Group 1 was comprised of children who were exposed to the methylphenidate treatment alone (M), group 2 was comprised of children who were exposed to “methylphenidate combined with multimodal psychosocial treatment that included parent training and counseling, academic assistance, psychotherapy, and social skills training” (M+MPT), and group 3 was comprised of children who were exposed to the methylphenidate treatment “plus attention control treatment that excluded specific aspects of the psychosocial intervention” (M+ACT) (Klein et al., 2004, p. 792). The results of these tests were published and the findings have led to some very important revelations. The results of this research study indicated that “significantly more families of children who received methylphenidate alone received crisis sessions than those in the

combination treatment groups (Klein et al., 2004, p.799). From these results, one could assume that the families of the children in group 1 who were only receiving the methylphenidate treatment experience more frequent or more severe problems with their children, and that is probably why they sought out more crisis sessions than those families whose children were in groups 2 or 3 (who were receiving both methylphenidate and multimodal psychosocial treatment). Furthermore, Klein et al. (2004) claimed that the majority of the families remained in the psychosocial treatment that was provided to them, which had a time obligation of two weekly meetings for one year and two meetings per month for the second year. “Less than 10% of families discontinued treatment because they could not meet these demands. This rate of desistance is relatively low for a randomized trial extending over 24 months” (Klein et al., 2004, p.800). These researchers further contended that the high rate of family compliance throughout the study “indirectly attests to the credibility of the psychosocial treatments delivered in this study” (Klein et al, 2004, p. 800).

The nature of Attention-Deficit/Hyperactivity disorder is both intricate and complex. Due to its high rate of diagnosis in children and the ill effects that are associated with its relationship to other behavioral disorders, continued research on effective treatment methods is of the utmost importance (Davies & Jennings, 2006). According to Davies and Jennings (2006), “if untreated, there can be severe consequences with an increased risk of developing further psychiatric disorders, poor academic achievement, poor peer group relations and low self-esteem” (p. 74). Fortunately, the application of appropriate treatment modules can significantly improve the day to day experience for individuals with Attention-Deficit/Hyperactivity disorder. Further research can only serve to increase an individual’s knowledge about the nature of this

disorder and hopefully continue to expand on effective treatments for people living with this disorder.

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