

Does Diligence Make Up for One's Dullness?

-- Introduction the Symptom, Diagnosis, and Teaching Strategies of ADHD

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Abstract: Based on the Chinese traditional belief that “diligence is the means by which one makes up for one's dullness,” underachieving students might be blamed or punished for their carelessness, fondness for play, laziness, etc. Actually, these students might suffer from Attention Deficit Hyperactivity Disorder (ADHD). ADHD is one of the major reasons for students’ underachievement in school. If untreated, the disorder can have long-term adverse effects that extend into adolescence and adulthood. The symptoms of ADHD fall into three categories: inattention, hyperactivity, and impulsivity. Although for many people, ADHD is a stand-alone problem, others with ADHD might also have learning disabilities and sometimes other behavior problems. Many clinicians and researchers from many different disciplines have studied the factors that are contributors to ADHD. Recent studies have tended to focus on a combination of such factors as biological/ neurological, genetic, familial/social, and psychological contributors. Although some studies show that medication is the most effective treatment for ADHD, other studies also indicate that when children with ADHD are treated with stimulants alone, the effectiveness for the treatment will be limited. The main focus of this paper is through a literature review to provide background information on the contributors to ADHD and treatment strategies for children with ADHD. Hopefully, this information can enlighten the point of view of educators and families so that they will seek to identify and treat students with ADHD disorder as early as possible. Finally, the researchers suggest that it is essential do not to give up on any children with ADHD. Good collaboration among parents, teachers, psychologists/counselors, and a medical physician and a multimodal treatment plan will make the treatment more effective. The diligence of parents and educators in providing an accurate diagnosis, an effective treatment plan, and practical action can enable children with ADHD to develop their academic potential fully.

Keywords: Attention Deficit Hyperactivity Disorder (ADHD), Diagnosis, Treatment, Teaching Strategies, Children with ADHD

Introduction

Based on the Chinese traditional belief that “diligence is the means by which one makes up for one's dullness,” underachieving students might be blamed or punished for their carelessness, fondness for play, laziness, etc. Actually, these students might suffer from Attention Deficit Hyperactivity Disorder (ADHD). ADHD was first described by Dr. Heinrich Hoffman in 1845 and is one of the most common mental disorders that develop in children. Children with ADHD have impaired functioning in multiple settings, including home, school, and in relationships with peers. It is hard for these children to control their behavior and/or pay attention. ADHD is one of the major reasons for students' underachievement in school. If untreated, the disorder can have long-term adverse effects that extend into adolescence and adulthood.

ADHD is a condition that has become an apparent diagnosed behavior disorder in childhood (Charatan, 1998), affecting 3% to 7% of the school-age population, with males nearly three times more likely to manifest the disorder than females (Angold, Erkanli, Egger, & Costello, 2000). This means that in a classroom of 25 to 30 children, it is likely that at least one will have ADHD. Although originally identified in the west, ADHD also exists in the Chinese culture. According to Leung, Luk, Ho, Taylor, Mak and Bacon-Shone (1996), among 3,069 schoolboys in Hong Kong, who went through screening, 8.9% were diagnosed with ADHD.

A child with ADHD faces a difficult but not insurmountable task. In order to achieve his or her full potential, he or she should receive help, guidance, and understanding from parents, guidance counselors, and the public education system. Therefore, this paper will include: (1) Symptoms and diagnosis of ADHD; (2) Contributors to ADHD; and (3) Treatment and teaching strategies for children with ADHD.

Symptoms and Diagnosis of ADHD

What is ADHD?

Many people have the misperception that ADHD is caused by a poor attitude or by a tendency to be lazy. However, according to Dawson (2004), ADHD is a neurological disorder that affects how the brain takes in and uses information. Although for many people, ADHD is a stand-alone problem, others with ADHD might also have learning disabilities and sometimes other behavior problems.

Types of ADHD

In general, there are three kinds of ADHD, the inattentive type, the impulsive/ hyperactive type, and the combination type. The inattentive type refers to people who have problems primarily with inattention (including distractibility, forgetfulness, and organization problems). The impulsive/hyperactive type refers to people who have problems primarily with impulsivity and overactivity (including feelings of restlessness, difficulty sitting still, and a tendency to say or do things without thinking). The combination type exhibits the symptoms of both previous types.

Symptoms of ADHD

According to the description given in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR 4th edition) (2000), the symptoms of ADHD fall into three categories: inattention, hyperactivity, and impulsivity. Each category can be described in detail as follows:

The symptoms of inattention. The person with ADHD in this category often has problems in paying attention to details and making careless mistakes; sustaining attention to a task; listening to others; following through on instruction and finishing schoolwork; completing chores or duties in the workplace; and organizing tasks and activities. They also often lose and forget things, and they are very easily distracted. Finally, they also often try to avoid activities that require sustained effort and attention.

The symptoms of hyperactivity. Persons with ADHD in this category often have a problem with staying still and engaging in quiet activity. They are restless, leaving their seats or running around when it is inappropriate. They often fidget with hands or feet, squirm in their seat and talk excessively.

The symptoms of impulsivity. Persons with ADHD in this category often have difficulty awaiting their turns. They often blurt out answers to questions before the questions have been completed. In addition, they often interrupt or intrude on others, butting into conversations or games, etc.

Diagnosis of ADHD

Dawson (2004) indicated that an individual does not have to possess all of the above symptoms to be diagnosed as having ADHD. The criteria for the diagnosis are that the individual must present six (or more) symptoms associated with inattention or hyperactivity/impulsivity or both and that

symptoms are present for at least six months to a degree that is maladaptive and inconsistent with his or her developmental level. In addition, these symptoms will usually occur before the age of seven and persist over the years.

In terms of diagnosis, there is no single test to determine ADHD. Therefore, a combination assessment is used, which includes: (1) direct observation and behavior reports by parents and teachers, (2) psychological testing by a psychologist and (3) physical screening by a physician. In order to make an accurate diagnosis, it is important to have good communication among teachers, parents, the physician and the psychologist. More specifically, the parents are usually the key persons who make it possible for this coordination to take place.

Contributors to ADHD

Many clinicians and researchers from many different disciplines have studied the factors that are contributors to ADHD. Recent studies have tended to focus on a combination of such factors as biological/ neurological, genetic, familial/social, and psychological contributors. The following section will discuss each contributor in detail.

Biological / Neurological Contributors to ADHD

The early studies in ADHD proposed a hypothesis of “minimal brain dysfunction” to explain this disorder. However, subsequent studies of grossly brain-damaged children did not support a link with excessive hyperactivity nor did more recent imaging studies find evidence of gross brain damage in ADHD children (Jimerson, 2002). Nolen-Hoeksema (2004) proposed another hypothesis concerning the biological contributors, that ADHD is caused by immaturity of the brain. According to this hypothesis, the areas of the brain most likely to be involved in ADHD include the frontal lobes; the caudate nucleus within the basal ganglia; the corpus callosum, which connects two lobes of the brain; and pathways between these structures. Because the brain development of ADHD children is slower than that of other children, they are unable to control their emotions and maintain attention as other children their age do. This hypothesis could explain why many children’s ADHD symptoms decline with age.

Many research studies in ADHD have been devoted to exploring whether children with ADHD have deficits in the parts of the brain that are involved in executive function. Executive functions include inhibiting actions, restraining

and delaying responses, attending selectively, setting goals, planning, and organizing, as well as maintaining and shifting settings. Most studies acknowledge the relationship between executive functions, attention, and working memory (e.g., Barkley, 1996, 1997). For example, Carte, Nigg, and Hinshaw (1996) used a neuropsychological battery to measure executive functioning in boys with and without ADHD. The results showed that, compared with children without ADHD, children with ADHD obviously exhibited deficits in organization and planning, possibly mediated by frontal systems, as well as in the cognitive model of response organization.

In addition, other factors such as pregnancy, delivery and infancy complications (PDIC's) have been found to be good predictors of ADHD (Milberger, Biederman, Faraone, and Guite, 1997). For example, Milberger, Biederman, Faraone, Chen, and others (1996) found that 22% of the ADHD children had a maternal history of smoking during pregnancy, compared with 8% of the comparison non-ADHD subjects; Bottin, Powls, Cooke, and Marlow (1997) found that children with very low birthweight had an increased prevalence of inattention and hyperactivity. Twenty-three percent of very low birthweight children met research diagnostic criteria for ADHD in contrast to 6 percent of their normal birthweight peers. Hill, Lowers, and Locke-Wellman (2000) found that prenatal exposure to alcohol was significantly associated with the presence of ADHD.

Genetic Contributors to ADHD

Research evidence suggests that ADHD runs in families. Barkley (1996) indicated that between 10 and 35 percent of the immediate family of children with ADHD are also likely to have this disorder. Other research has shown that if a parent has ADHD, the risk to the offspring is 57 percent (Jimerson, 2002). As evidenced by recent twin studies suggesting a strong genetic contribution, the average heritability is 80% for symptoms of ADHD (Barkley, 1997).

Family/Social Contributors to ADHD

Extensive research has focused on exploring family contributors to ADHD. These factors include parental psychopathology, parenting styles, and parent-child interactions. Sandberg and Garralda (1996) highlighted social conditions and maternal depression as highly correlated with ADHD. Nigg and Hinshaw (1998) found that boys with ADHD were more likely to have mothers who had had a major depressive episode and/or marked anxiety symptoms in

the past year, and fathers with a childhood history of ADHD. They also found that boys with comorbid ADHD and Oppositional Defiant or Conduct Disorder had fathers with lower Agreeableness, higher Neuroticism, and greater likelihood of having Generalized Anxiety Disorder.

White (1999) found that parents of ADHD children tended to provide more impulse-control directions, encouragement, and disapproval than parents of non-ADHD children. However, research has indicated that these parent behaviors persist after the child's behavior improves. Thus, it is unclear whether these parental behaviors are responses to the behavior problems of the child. Raising a child with ADHD may continuously stress the parent and, therefore, affect the quality of the parent-child relationship, potentially impacting the child's behavior.

In addition, Barkley, Fisher, Fdelbrock, and Smallish (1990) found that children with ADHD are more likely than children without ADHD to belong to families in which they frequently experience disruption, such as parental divorce or a change in residence.

Psychological Contributors to ADHD

One of the psychological factors related to ADHD is the child's temperament. Individual differences in temperament--ways of reacting to the environment--appear to be inborn, emerging early in life and influencing subsequent personality development. White (1999) found there is a relationship between ADHD and temperament. A high level of activity or hyperactivity is perhaps the most salient temperamental trait of ADHD children. These children are generally markedly distractible and impulsive and, therefore, tend to be most readily diagnosed as their behavior is frustrating to teachers and care-givers. In addition, White (1999) also pointed out that temperamental difficulties related to disinhibition are considered to remain relatively stable throughout the lifespan of an individual with ADHD. For example, in a study of Oosterlaan and Sergeant (1996), children with ADHD demonstrated poorer inhibitory control and a slower inhibitory process than children without ADHD in response to a stop signal task.

Treatment and Teaching Strategies for Children with ADHD

Medical Treatment

Research shows that medication is the most effective treatment for ADHD (Dowson, 2004). The most common treatment for ADHD is the use of stimulant

drugs, such as methylphenidate (trade name Ritalin), dextroamphetamine (trade name Dexedrine), and Adderall (Manos, Short, & Findling, 1999; Nolen-Hoeksema, 2004).

Based on a study of stimulus treatment in Maryland Public School (Safer & Malever 2000), the medications administered for ADHD in school were: 84.2% methylphenidate, 11.6% amphetamines, 1.7% clonidine, .4% pemoline, and .4% tricyclic antidepressants.

When used appropriately, such medication can help students focus for longer periods, screen out distractions, control impulsivity, and reduce activity levels so that it is easier for them to sit for longer periods. Gadow (1992) indicated that between 70 and 85 percent of children with ADHD respond to these drugs with a decrease in demanding, disruptive, and noncompliant behavior. Research has also shown that clinical improvement in behavior with medication occurs in 75-92 percent of those with the hyperactive-impulsive form of ADHD and results in normalization of behavior in approximately 50-60 percent of these cases on average (Barkley, 1997).

When children are treated with psychotropic medication, parents, teachers, and clinicians should be careful in administering and monitoring these drugs. Goldstone and Valley-Gray (2004) provide the following guidelines for parental supervision of medication. Parents need to: (1) be knowledgeable about side effects, possible toxic interactions, and the importance of compliance; (2) know the medication, the generic and trade names, as well as the direct effects and side effects; (3) administer the medication exactly as directed; (4) avoid mixing medications; (5) be aware of school policy regarding medication use in school; and (6) consult the doctor immediately if any allergic reactions or unexpected effects are observed.

However, Whalen and Henker (1990) point out that when children with ADHD are treated with stimulants alone, the effectiveness for the treatment will be limited. DuPaul and Barkley (1993) suggest that longer-term gains can be made by combining stimulant therapy with behavior therapy that focuses on reinforcing attentive, goal-directed, and hyperactive behavior.

Behavioral Therapy

As mentioned in the previous discussion, children with ADHD have deficits in the parts of the brain that are involved in executive function. Therefore, most

of them have difficulty in inhibiting actions, restraining and delaying responses, attending selectively, setting goals, planning, and organizing, as well as in maintaining and shifting settings. Behavioral therapy has been used as a treatment for behavioral training and modification for children with ADHD. Dawson (2004) suggested that when developing the treatment plan, it is important that a therapist should clearly define the skills deficits and appropriate reinforcers. ADHD children typically require more powerful and continuous reinforcers than non-ADHD children. Many research studies have clearly shown that positive reinforcement is highly effective in addressing problem behaviors associated with attention disorders. Empirically-based strategies include: token economies, response cost, and home-school report cards. Group rewards can also be incorporated into the token economy in order to enlist the help of the child's peers. Dawson also stresses that in order to clarify misperceptions about the disorder and prevent the implementation of ineffective behavior management programs, it is important to educate teachers, parents and others working with the child about ADHD.

Cognitive-Behavioral Treatment

As the previous discussion suggested, one contributor to ADHD is cognitive deficiency. Therefore, a variety of cognitive-behavioral interventions have been used to treat children with ADHD. Kendall, Padever, and Zupan (1980) developed a cognitive-behavioral training program in self-control. Specific techniques included in this program are training in problem-solving, self-instruction, modeling, exercises in role-playing, and contingency management. Several research studies have demonstrated that the cognitive and behavioral procedures considered in the program of Kendall et al. obtain a reduction in hyperactive problems (Bloomquist, August, & Ostrander, 1991; Kendall & Braswell, 1982).

Cognitive-behavioral procedures have also demonstrated effectiveness when incorporated into anger management training. Miranda and Presentacion (2000) conducted a research to show the efficacy of cognitive-behavioral self-control therapy for children with ADHD and to determine whether the combination of training in self-control and training in anger management had better outcomes in two subgroups of hyperactive children, aggressive and nonaggressive. The researchers applied cognitive-behavioral self-control training, which included self-instructional training via modeling and behavioral contingencies, to 16 hyperactive children. Another group of 16 hyperactive children were taught the

same program, but it was combined with anger management training. The results indicated improvement in both treatment groups.

Teaching Strategies for Children with ADHD

Merrell and Tymms (2001) found that children with ADHD fall behind their peers in academic subjects. Dowson (2004) also showed that ADHD usually has a negative effect on children's school performance. It can be difficult for children with ADHD to pay attention in class, remember to write down, complete, or hand in assignments, or do their work in a timely or efficient manner.

Reading comprehension abilities are regarded as "fundamental organizational processes which underpin representational development, the construction of knowledge bases and problem-solving strategies" (Low & Durkin, 1998). Effective story comprehension is a significant component of academic performance in the early school years. Therefore, several studies have been devoted to exploring the effects of story structure on the recall of stories in children with ADHD. O'Neill and Douglas (1991) found that children with ADHD did not differ from those in the comparison group regarding the number of main ideas produced, but the comparison children used more effective strategies to aid recall. Zentall (1988) found that children with ADHD produced as many relevant major points and descriptions of events as did the comparison children. However, children with ADHD recalled less story content and produced shorter protocols when asked to make up their own stories. Lorch, Doiener, Sanchez, Milich, Welsh, and Broek (1999) found that children with ADHD showed deficits in both the variety cognitive resources they dedicated to story comprehension and the ways in which they distributed these sources.

Although in recent years many research studies have been devoted to the study of ADHD, fewer than 100 methodologically reliable studies have focused on classroom intervention (DuPaul & Eckert, 1997). Furthermore, according to statistics from 1994, only about 50% of students with ADHD were receiving special education services under the Individual Disabilities Education Act (IDEA). Among these students, at least 80% of their time was spent in general education classrooms (Reid, Maag, Vasa, & Wright, 1994). In 2000, Safer and Malever found that, overall, 45% of the students diagnosed with ADHD were receive special education and an additional 8.3% had a 504 plan. Therefore, some recommendations for intervention approaches will be presented in the

following section to assist teachers to work effectively with students with ADHD.

Goldstein and Mather (1998) recommended that when teaching students with ADHD, a teacher should: (1) be knowledgeable about ADHD; (2) be able to discriminate between incompetence (“I can’t) versus noncompliance (“I won’t); (3) maintain a well-organized and structured classroom with separate desks, class rules, and a predictable schedule; (4) prepare all the students for changes in routines and provide close supervision at regular transition times as well as during special activities; (5) provide feedback frequently and immediately; (6) provide rewards consistently and frequently; (7) match the academic material with the levels of student ability; (8) accept responsibility for communication; (9) be willing to help students learn and practice organization skills; (10) emphasize the process of learning rather than focusing solely on the final product; (11) be comfortable about communicating with parents and willing to send home frequent notes if required.

Asko-Moore, DuPaul, and White (2006) suggest the positive effectiveness of self-management in general education classrooms of adolescents with ADHD. This strategy includes two major components: (1) students’ training in self-management skills, and (2) monitoring of the students’ use of their newly acquired skills. The procedures include working with students to: (1) identify their present problems with class preparation; (2) set goals; and (3) help students learn to self-monitor their behavior. In addition, students’ logs are used in this process for the purpose of self-evaluation and self-reinforcement. Each week students establish new goals for themselves. Weekly goal setting and daily monitoring continue until 100% of classroom preparation skills are exhibited for 4 out of 5 consecutive days. Students meet with the supervisor weekly in the beginning of training, gradually progressing to every two weeks, monthly, etc. According to Cole (1992), self-management interventions offer teachers several advantages, especially at the secondary level: (1) this approach centers on the students’ taking responsibility for their own actions; (2) students are in control of the intervention; (3) it has the potential to promote generalization across classroom settings.

The Council for Exceptional Children (2000-2006) has offered recommendations of teaching strategies for students with ADD. For lesson presentation, teachers should (1) keep lesson objectives clear; (2) break up long

presentations by “chunking” content; (3) provide the student with additional time to finish an assignment or test; (4) break down assignments into “mini-assignments” and build in reinforcement as the child finishes each part; (5) reduce the number of practice items that the student must complete. In terms of the physical arrangement of the classroom, in order to help a student who is distracted focus on the task at hand, teachers should (1) seat the student away from high-traffic and noisy areas; (2) define the work space for the child; and (3) reduce the amount of materials present during work time by having the student put away unnecessary items. In terms of work assignments, because many students with ADHD are inefficient learners, it is a good idea to spend some time helping them develop learning strategies. Some examples of this are: (1) using color coding or highlighting to help focus attention on critical information contained in the assignment; (2) giving clear directions both orally and visually; (3) providing the student with a model of what he or she should be doing; (4) setting up consistent routines for making the transition between lessons, getting and putting away materials, and requesting assistance.

Furthermore, in order to help students with ADHD reach their academic potential, it is important to have strong classroom management. The Council for Exceptional Children suggests that the main job of the classroom management system for students with ADHD is to provide the structure they need to manage their own behaviors on a daily basis. Many teachers have found that behavioral management techniques such as positive reinforcement, negative reinforcement, and response contingencies are very helpful. When helping students learn new behaviors, such as positive social skills, teachers can use a combination of instructional strategies, such as modeling, rehearsing appropriate behavior, role playing, continuous reinforcement, and prompting. Finally, the Council for Exceptional Children suggests that it is very important for clear communication between teachers and families to be established and maintained. The teacher should (1) meet with parents when planning the child’s educational program; (2) be sensitive to the parents’ frustrations and fears; and (3) reaffirm their commitment to helping the child be successful.

Conclusion

“Does diligence make up for one's dullness?” How can this traditional Chinese belief be applied to students with ADHD? How should we explain why some students are underachieving in school performance? Is it because of their

carelessness, fondness for play, and laziness or simply because they have a disorder called ADHD.

The main focus of this paper is through a literature review to provide background information on the contributors to ADHD and treatment strategies for children with ADHD. Hopefully, this information can enlighten the point of view of educators and families so that they will seek to identify and treat students with ADHD disorder as early as possible.

Although raising, educating, and nurturing children with ADHD might be very challenging and cause a lot of frustration, helping them succeed can be especially rewarding. If you have a student or child with ADHD, you are not alone. Many resources are available to help students with ADHD. Good collaboration among parents, teachers, psychologists/counselors, and a medical physician and a multimodal treatment plan will make the treatment more effective. The bottom line is not to give up on any children with ADHD. The diligence of parents and educators in providing an accurate diagnosis, an effective treatment plan, and practical action can enable children with ADHD to develop their academic potential fully.

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