
Review Article

Attention Deficit/Hyperactivity Disorder: Are We Fostering Overdiagnosis?

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Abstract:

There has been a growing restlessness among professionals and parents about the diagnosis and treatment of attention-deficit/hyperactivity disorder (ADHD). It is estimated that ADHD is occurring in as many as one out of 10 school-age children and 1 out of 20 adults. The rapidly growing use of stimulants (such as Ritalin) for children with ADHD has raised serious concerns. It is also worth special mention that the production of Ritalin has increased 500%. Many professionals think that the excessive use of stimulants reflects our keen desire for a "quick fix." Parents have serious concerns regarding possible side effects. Some of the side effects of stimulants are insomnia, reduced appetite, suppressed growth, and suicidal thoughts, and they have long-range health implications. A critical review about the diagnosis and treatment of ADHD is vital to understanding the unsettled issues that have generated heated debate among professionals.

Key words: ADHD, diagnosis of ADHD, treatment modalities for ADHD, side effects of stimulants.

During the past decade there has been a growing restlessness among professionals and parents about the diagnosis and treatment of attention-deficit/hyperactivity disorder (ADHD). According to a 2005 report published in the *Journal of the American Medical Association*,¹ ADHD in school-aged children ranged from 2-18% in commu-

nity samples. More than 4 million were reported to have a history of ADHD, and 2.5 million (or 56%) were taking stimulant medication for the disorder. It is estimated that the prescription of psychostimulants for ADHD increased 500% between 1988 and 1994.² Although the Physician Desk Reference (PDR) clearly states that Ritalin (a psychostimulant) should not be prescribed for children under age 6, physicians in the United States wrote 200,000 prescriptions for Ritalin and other stimulant drugs for children 5 years old or younger.³ The use of psychostimulants among preschoolers tripled during the 1990s,⁴ and USA Today reported that the number of adults on ADHD drugs doubled during the past four years.⁵ Parents have serious concern regarding possible side effects and long-term health outcomes of stimulant medication.

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These startling figures have generated heated debate among professionals. For example, Dr. Baughman, a neurologist, argues that ADHD is a mythical disease, and suggests that it is a creation of the psychiatric-pharmaceutical cartel.⁶ Stein,⁷ in his book *Unraveling the ADD/ADHD Fiasco*, also seriously questioned whether ADHD is a disorder. Dr. Breggin, who received his education at Harvard Medical School and held a staff position at the National Institute of Mental Health, harshly criticized the use of Ritalin in his congressional testimony on September 29, 2000.⁸ He explained the harmful effects of psychostimulants and stated that they suppress creativity, curiosity, and socializing behavior in children. Similar opinions were expressed in an article, "Boom in Ritalin Sales Raises Ethical Issues," published in the *New York Times* (1996).⁹ It indicated that the production of Ritalin has increased 500% during the past five years.

Other professionals, who do not take the extreme position of Baughman, Breggin and Stein, believe that children are being overdiagnosed and overprescribed for stimulant drugs.^{10,11} Other issues are equally important. Are the symptoms of ADHD clear-cut and well delineated? Is there a reliable tool to diagnose ADHD? Do most children with ADHD need psychostimulants? Is placing youths on stimulant drugs merely a quick and easy fix? Are stimulant drugs safe or do they have negative side effects?

Symptoms and Diagnosis of ADHD

The British physician George Still in 1902 was first to call attention to the overactive behavior of children.¹² He postulated that these children may be exhibiting biological as well as moral defects. American psychiatry has classified this type of behavior problem in children into different categories over the years. In DSM-II, this disorder was called "hyperkinesis," which is the same as hyperactivity. Later, DSM-III referred to it as attention deficit disorder (ADD). Now in DSM-IV it is named attention-deficit/hyperactivity disorder (ADHD).

The main symptoms of ADHD are inattention, hyperactivity, and impulsivity. ADHD is further divided into three subtypes: (1) ADHD, predominantly inattentive type, (2) ADHD, predominantly hyperactive-impulsive type, and (3) ADHD combined type, displaying both inattentive and hyperactive-impulsive symptoms.

DSM-IV indicates that at least some symptoms must begin before the age of 7, should continue for at least six months, and there must be a consistency of symptoms across situations. Associated with ADHD are two other types of psychological disorders of childhood. They are oppositional defiant disorder (ODD) and conduct disorder (CD). Oppositional defiant disorder is characterized by a pattern of negative, hostile, and defiant behavior, very often resulting in conflicts with authority figures. Conduct disorder is usually defined by a persistent habit of rule violations that are at times illegal and antisocial. It is not always easy to understand the distinction between these three types because there are overlapping symptoms.¹³ Research has shown that approximately half of all children with ADHD also have ODD.¹⁴ ADHD diagnosis was approximately 2.5% more frequent among boys than girls. Also medication treatment for ADHD was more common among boys (9.3%) than among girls (3.7%).

Unfortunately, there is not a special medical test or specific neurological markers for ADHD. In most cases, a teacher or a parent first points out these behavior problems. Then a school psychologist typically asks teachers to fill out a rating scale. The Conners Teacher Rating Scale is the most common rating scale used by professionals to determine symptoms of ADHD. This screening device is composed of a number items, and the teachers are supposed to rate the behavior of a child based on their observations. Each of the observations is rated from 0 to 3; 0 means that symptom is not present and 3 means that symptom is very prominent. Those classroom observation items are the following: (1) constantly fidgeting; (2) easily frustrated; (3) restless and overactive; (4) excitable and impulsive; (5) inattentive and easily distracted; (6) short attention span; (7) cries often easily; (8) disturbs other children; (9) mood changes quickly; (10) unpredictable behavior, temper outbursts. A total score of 15 or more indicates that a child has ADHD. To assess ADHD, specialists determine whether these behaviors are excessive, long-term, and pervasive. The most important consideration is that these problem behaviors consistently occur in different settings: schoolroom, home, and playground.

The current procedure to diagnose ADHD has led to considerable debate. The method used to determine the diagnosis of ADHD, say some professionals,

is totally based on the reports gathered from parents, teachers, and school psychologists. Since attention span and activity levels fall along a continuum, the cut-off point for defining ADHD as a “disorder” is purely subjective. We judge a behavior abnormal by comparing it with normal behavior, but it is not so easy to evaluate whether a child’s behavior in a particular setting is normal or abnormal. There are conflicting perceptions even among professionals. If symptoms cannot be measured or verified and conclusions can vary significantly, the whole process is subjective.

However, there are other professionals who feel that ADHD is a true disorder and, if left untreated, its symptoms may worsen. The proponents of this viewpoint do not dispute the subjective element in diagnosis, but they advocate that those children who seriously suffer from ADHD should receive treatment. They cite examples where both parents and teachers testify that medications have significantly improved the behavior of children.

Etiology

The research studies reveal that multiple factors are involved in the etiology of ADHD. Some professionals think that food additives and sugar may cause ADHD. But with the exception of lead poisoning, researchers failed to find any relation between diet and ADHD.¹⁵ Since attention disorders often run in families, theorists suspected genetic factors in ADHD. A comprehensive study of nearly 4000 Australian twins has provided some reliable evidence that genetic factors substantially contribute to ADHD.¹⁶ The concordance rates for ADHD among identical twins were approximately 80%; and about 40% in fraternal twins.

While this research suggests the influence of genes on behavior, we still do not fully understand their specific mechanisms. It remains a challenge to clarify how genetic susceptibility is translated into disorder. It was for this reason that Rutter, an international authority on epidemiology of child psychopathology, stressed that nongenetic factors in ADHD must be seriously considered because they also play a significant role.¹⁷ He identified six family predictors, which he named the “Family Adversity Index.”^{18,19} Those risk factors are low income, overcrowding in the home, maternal depression, paternal antisocial behavior, conflict between the parents,

and removal of the child from the home. While the presence of one family predictor was not enough to cause substantial behavior problems, the risk increases fourfold when there are two risk factors. And when there are three or more risk factors, there is a dramatic increase in behavior problems.

Some have pointed out that parenting style may have an effect on the behavior of children with ADHD and ODD. For example, authoritative parenting that is both loving and firm is healthy. But a parenting style that is authoritarian with strict discipline, lacking love and warmth, may have a negative impact on children. Similarly, indulgent parents who show love and affection but are lax in discipline are much better than neglectful parents who are unconcerned with the emotional needs of the children.²⁰

Treatment

The treatment modalities for ADHD include medication, behavior therapy, counseling, parent training, educational strategies, and creating a supportive family climate. However, medication has indisputably become the first line of treatment.

Drug Treatment

It is estimated that 56-85% of children with ADHD receive drug therapy, primarily a psychostimulant such as Ritalin (methylphenidate) or other stimulants like Dexedrine (dextroamphetamine) or Adderall (an amphetamine mixture). These stimulants are supposed to regulate the behavior of children within the normal range. The side effects of these stimulants are generally considered minor²¹ and they are mostly related to the administered dosage. The higher the doses, the more serious are the side effects. Most common side effects are stomachache, sleep disturbances, reduced appetite, irritability, anxiety, suppressed growth, and, in rare cases, tics. With lower dosage or discontinuation of the stimulants, the symptoms may disappear and it is generally assumed that there is no residual effect. A new drug, Strattera, which is not a psychostimulant, is also used, but recently the Food and Drug Administration (FDA) directed the Eli Lilly Company to include a boxed warning. Physicians were alerted that there was an increased risk of suicidal thinking in children and adolescents being treated with this drug. By far the most frequently prescribed drug for ADHD is Ritalin. It is probably used more often than

all other drugs combined.

One may wonder why a psychostimulant (street name: *speed*), which is supposed to make one frenetic, restless, and boisterous, can help to calm a child, decrease hyperactivity, and restlessness. It seems that these psychostimulants have a paradoxical effect on overactive children because it is presumed to slow them down. Research studies did not substantiate this paradoxical effect. A study conducted at the National Institute of Mental Health (NIMH) found that psychostimulants affect normal children in the same way as they affect children with ADHD.²² The findings revealed that, in the case of normal children, psychostimulants also improved their attention and decreased their motor activity.

Many studies have consistently shown that psychostimulants are effective in increasing the attentiveness of children and decreasing their hyperactivity and restlessness.^{23,24} It was generally believed that behavior problems associated with ADHD are outgrown in early adolescence when medication should be discontinued. But follow-up studies indicate that in most cases the behavior problems associated with ADHD continue through adolescence into adulthood.^{25,26}

Behavior Therapy

Some form of behavior therapy is frequently used in combination with medication. The system of rewards and penalties can be an effective way to modify a child's behavior. The child receives a reward when he performs the desired behavior and a mild penalty when he does not. The main goal is to help children learn to control their behavior and learn new coping techniques to deal with distress. The most common criticism is about the lack of enduring effects once the behavior modification program is terminated. Even when this system of rewards and penalties works perfectly in the clinical setting, one cannot be sure that the learned behavior will be generalized and carried over in real life where the reward does not exist.

Counseling

Therapists first try to help the children accept themselves despite their hyperactivity and impulsivity. They focus on the parent-child relationship, early childhood experiences, and try to uncover the psycho-social factors of the disorder. After exploring upsetting thought and self-defeating behavior pat-

terns, children learn conflict negotiation skills and alternative ways of handling their emotions, thus improving their general adaptive functioning. So far there is no reliable data to support that this insight-approach is effective in helping children with ADHD.

Treatment Effectiveness

The National Institute of Mental Health in 2003 conducted a multimodal treatment study of children, which included 579 school boys and girls with ADHD.²⁷ The study revealed that combined treatment (medication plus behavior therapy) was usually more effective. The fact that the children could be treated with lower doses of medication was also an advantage for the combined treatment.

Discussion of Critical Issues

There are three crucial issues that demand further elucidation. The first concerns the assessment of ADHD, and the second addresses the justification for the massive use of stimulants. The third issue is more general and concerns the proliferation of psychiatric disorders during the past three decades. It is important to examine the appropriateness of labeling and classifying some behaviors as psychiatric disorders, thus transforming people into patients.

A critical evaluation about the diagnosis of ADHD is vital to the whole discussion. We must know whether the diagnostic tool used to determine ADHD can withstand test of reliability and validity. As mentioned earlier, the diagnostic procedure is purely subjective, based on the reports of parents and teachers. But a study²⁸ published in the *Journal of Abnormal Child Psychology* revealed that parents' and teachers' ratings of test-retest sample of children did not meet the criteria for the diagnostic groups of ADHD. Also, there is no convincing evidence that the rating scales generally used in the determination of ADHD have ever been validated. In 1998, the National Institutes of Health held a conference on ADHD. At the end of the conference, members issued a statement that there is no independent valid test for ADHD. So one can safely state that the diagnosis of ADHD can fluctuate based on the raters' viewpoints, their temperament, their patience level, their tolerance, and their own bias. Consequently, it is possible we may be placing a lot of children on Ritalin (or other stimulants) who are not suffering from ADHD. Sometimes inattentiveness, hyperactivity, and defiant behavior may be the symptoms of a bright and

gifted child who is feeling bored by doing a repetitive task. A few professionals who have worked in this area have seriously raised this possibility.^{29,30} This should be further explored, and research findings should establish objective criteria for diagnosing children with ADHD. We must also explain the dramatic increase in the diagnosis of ADHD. A claim of heightened awareness is not a good explanation. Are the conditions associated with ADHD actually occurring more frequently? Or are we diagnosing children with ADHD more frequently?

The second issue deals with the rapidly growing use of stimulants for children with ADHD. Ritalin production has dramatically increased and up to 85 percent of the children diagnosed with ADHD receive drug therapy. The excessive use of stimulants may be partly a function of pressure from drug companies as well as reflecting a keen desire for a "quick fix." Obviously there is increased potential for negative side effects as well as the dangers of administering stimulants to children who are wrongfully diagnosed with ADHD. Furthermore the overconcentration on drug therapies tends to limit other treatment options.

The prevalence of ADHD in different countries raises the question of whether ADHD is best understood as a cultural construct. According to Timimi and Taylor,³¹ cross-cultural studies found significant differences when different raters from different countries rated the symptoms of ADHD. The prevalence rate of ADHD in the United Kingdom is much lower than in the United States. It has been suggested that this difference is probably due to the use of International Classification of Diseases (ICD-10) and/or medical attitudes toward symptoms of ADHD.

The third issue is more general. Is psychiatry overpathologizing human behavior and fostering overdiagnosis? Psychiatry has expanded its scope enormously during the past three decades, and it continues to do so at a rapid rate. Mental health experts are eager to point out a wide variety of human behaviors that do not conform to cultural norms as appropriate targets for their intervention and are willing to offer solutions.³² When DSM-I was published in 1952, only 60 different psychiatric disorders were mentioned. DSM-II, which came out in 1970, identified homosexuality as a mental disorder. But after three years, it was removed in 1973 under the pressure of various gay activist groups. In 1980,

DSM-III was greatly expanded. But when DSM-IV was published in 1994, the number of psychiatric disorders jumped to 256.

According to DSM-IV, if one experiences a difficulty writing coherently, then it is a disorder of written expression. And if one's fantasies and desire for sexual activity are recurrently deficient, then it is called "hypoactive sexual desire disorder." Once there is a consensus of mental health professionals to regard a pattern of behavior as abnormal, they tend to characterize it as a psychiatric disorder. When a behavior is characterized as a psychiatric disorder, Kaplan's famous "Law of Instrument" applies,³³ and professionals are unwilling to drop their tools. According to Kaplan, if you give a small boy a hammer, he will find that everything he encounters needs pounding. It should, therefore, come as no surprise that mental health specialists may be in the habit of formulating or developing problems in a way that requires only their techniques (therapeutic interventions) for their solutions. Many clinicians are highly critical of the labeling theory.^{34,35}

Recommendations

1. In view of the pioneering work done by Rutter, we should not ignore social and family factors that may be contributing symptoms associated with ADHD. During the past three decades we have witnessed many radical changes in the society: loss of extended family support and increases in the rates of divorce, dysfunctional families, and single parent homes. In most cases both parents are working and children have little time to interact with their parents and discuss their problems. These factors adversely affect the emotional health of children. It is, therefore, imperative to use rigorous and well-defined criteria before diagnosing a child with ADHD. This carries particular weight because of the frequent use of stimulant medication and its possible negative side effects.
2. If ICD-10 has more strict criteria for ADHD, it is incumbent upon us to re-examine the symptoms of ADHD as specified in DSM-IV. It is worth special mention that the Netherlands Panel rejected ADHD diagnosis as a mental illness.³⁶ The ruling of the Netherlands Advertisement Code Commission (NACC) clearly indicated that scientific data were not convincing to show that ADHD was a mental disorder.

der. There is no established prognosis of ADHD, and association and cause are frequently confused. We must be sure that the symptoms of ADHD are not so vague and fuzzy that they can easily apply to most children, thus leading to overdiagnosis. One way to comply with this recommendation is to have a team approach.

3. Parents should be made fully aware of the possible side effects and any long-term outcome on health before placing children on stimulants. Side effects should not be minimized by simply indicating that they are minor and/or negligible or that they will subside once the medication is discontinued. Some of the side effects of stimulants such as insomnia, reduced appetite, and suppressed growth have important long-range health implications.

4. For a long time we believed that children would outgrow the symptoms of ADHD, and medications would not be needed when they became adolescents. But research has shown that ADHD in children may persist into adulthood. Maybe this finding is important and adds new dimension to our understanding of ADHD. The other possibility is more disturbing. Maybe the use of psychostimulant (speed) over several years results in drug tolerance; its cessation could produce unpleasant physical and psychological effects including symptoms of anxiety and hyperactivity. This possibility cannot be discounted because the research done by Greenhill³⁷ has demonstrated that relapses occur soon after the child stops taking the psychostimulant. The children, therefore, need to continue stimulants when they are adolescents or adults. Comprehensive research to answer this question is very important. Further, stimulants could become a gateway to illicit drugs.³⁸ Clearly, longitudinal studies are needed to address the long-range effects of stimulants.

5. Conceptualizing ADHD primarily as a medical problem mainly leads to drug intervention. Therefore other possible treatments, such as behavior therapy, counseling, and parenting skill classes, are not usually sought by parents or recommended by teachers. It is easier to solve the problem by giving a pill than taking time to analyze and understand the adverse effects of psychosocial factors. But mental health specialists, acting as agents of social control, may be stifling creativity and diversity in children. They may also be victimizing them by putting them on highly addictive drugs, promoting a "pill for

life" habit. Unfortunately, it gives a free pass to parents by allowing them to disengage from their responsibility to raise well-behaved children.

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