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Is Attention Deficit Hyperactivity Disorder a Valid Disorder?

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Attention deficit hyperactivity disorder (ADHD) is defined as consisting of six of nine inattention or six of nine hyperactivity/impulsivity symptoms for 6 or more months that have been present from before the age of 7 years, with impairment in two or more settings, and are not due to other conditions. Additional common assumptions about ADHD include that it is clearly distinguishable from normal behavior, constitutes a neurodevelopmental disability, is relatively uninfluenced by the environment, and can be adequately diagnosed by brief questionnaires. All of these assumptions and some others must be challenged because of the weakness of empirical support and the strength of contrary evidence.

There does seem to be general agreement on the existence of a small group of readily recognizable "hyperkinetic" children, about 1 to 2 percent of the population with pervasive high activity and inattention. Their condition is associated with early onset, antisocial behavior, cognitive deficits, neurological problems, and response to methylphenidate. But even for this group, it is generally not clear whether the symptoms come from abnormal brains or adverse environments.

This discussion describes the problems in the diagnostic terminology of ADHD as it is currently applied to the other 5 to 10 percent of American children.

ADHD Symptoms Are Not Clearly Distinguishable From Normal Temperament Variations

The literature of ADHD defines the inattention and high activity behaviors as abnormal and easily differentiated from normal temperamental variations, using "cutpoints" in numbers of symptoms.

However, temperament research shows a normal range of its several traits from high to low, with half of any population being more active and half less attentive than average. No solid data support the current cutpoints, where normal high activity and inattentiveness leave off and abnormal amounts begin (Levy, Hay, McStephen, et al., 1997). Yet, any temperament trait may, as a risk factor, induce a "poor fit" with the particular environment and dysfunction in the child. Children with the "difficult" temperament cluster (low adaptability, negative mood, etc.) are more likely to develop social behavior problems, and those with the "low task orientation" cluster (high activity, low persistence-attention span, high distractibility) are more likely to do poorly in academic achievement. But even at their extremes, these traits do not necessarily lead to dysfunction unless other factors are present.

Absence of Clear Evidence That ADHD Symptoms Are Related to Brain Malfunction

The ADHD behaviors are assumed to be largely or entirely due to abnormal brain function. The DSM-IV does not say so, but textbooks and journals do. Some preliminary brain imaging studies have shown inconsistent *differences* in children with the ADHD diagnosis, but there is no proof that they are *deviations.* We do know that various brain insults like lead poisoning, fetal alcohol syndrome, and low birth weight may lead to increased activity and decreased attention span.

Several lines of evidence oppose this supposed link for ADHD: (1) No consistent pattern of high activity or inattention is seen in children with established brain injury, (2) no consistent structural, functional, or chemical neurological marker is found with the current ADHD diagnosis (Cantwell, 1996), (3) on the other hand, differences in brain function have been demonstrated in healthy children with normal temperamental variations (e.g., frontal electroencephalogram differences). Therefore, proof is needed that any test differences demonstrated with the ADHD diagnosis are signs of a disorder and not just a temperamental predisposition. Evidence of a genetic basis for the current diagnosis of ADHD cannot be taken as proof of brain abnormality because normal temperamental variations and coping also reveal substantial genetic contributions.

Neglect of the Role of Environment and Interactions With It as Factors in Etiology

The DSM-IV criteria for ADHD describe only the behaviors in the child and require the child to be having problems at home, at school, and so forth. The varying contributions of the setting to the problem are typically ignored. Yet, there are indications that the environment can produce or at least worsen (Biederman, Milberger, Faraone, et al., 1995) the ADHD symptoms. Something else is needed besides the behavioral predisposition to cause a disorder, for example, family problems with difficult temperament to produce behavior problems, or family problems, or inappropriate teaching (or other factors in the child) with high activity and low attention span to result in academic underachievement.

Diagnostic Questionnaires Now in Use as Highly Subjective and Impressionistic

Current practice involves the widespread use of brief, vaguely worded parent and teacher questionnaires to diagnose the presumed complex neurodevelopmental disability of ADHD. These scales have not met adequate psychometric criteria; they generally consist of only small numbers of items, are vaguely worded ("often," "excessively," etc.), and place much of the responsibility for not only reporting but also making clinical judgments as to deviation on the observer. Variations in experience, tolerance, or criteria used among observers are not allowed for. Only modest agreement has been demonstrated between these scales. Yet this vagueness leads to an all-or-nothing diagnosis of ADHD. The consequences have included poor inter-rater reliability, overdiagnosis, misdiagnosis, and inclusion of other problems (the comorbidity issue);

various unvalidated techniques (e.g., electroencephalograms) have been proposed by some in an effort to improve the precision of the diagnosis.

Low Adaptability and Cognitive Problems May Be the Most Important Predisposing Factors

The DSM-IV definition says that high activity and low attention span are the disorder itself. Accumulating evidence is demonstrating that other factors may be more important in production of the behavioral or scholastic dysfunction: (1) a different behavioral predisposition, variously described as low adaptability, limited ability to modify behavior, a problem in regulation of responses, and a deficiency in response inhibition (Barkley, 1997) and (2) a developmental predisposition—there is a high frequency of cognitive disabilities in children who receive diagnoses of ADHD today (Levine, 1998).

Lack of Evolutionary Perspective

Embodied in the current ADHD diagnosis is the assumption that a child not fitting into the modern classroom has a defective brain. An evolutionary perspective informs us that the ADHD traits may have been highly adaptive in primitive times but may be less so now (Jensen, Mrazek, Knapp, et al., 1997).

Small Practical Usefulness and Possible Harm From Label

Some observers maintain that the ADHD label represents progress in mental health diagnosis because it takes the blame off the parents and schools, helps children get services, and justifies the use of medication. But there are several negative aspects of the labeling: (1) It is not helpful to teachers, psychologists, or physicians because it offers no articulation of the individual's problems and strengths and no suggestions for specific management other than medication, (2) the complex phenomenon of attention is analyzed in too simple a way, and (3) the label may be harmful and stigmatizing by stating or implying brain malfunction when it is unproven. Labels stick.

Conclusions

DSM-IV defines a mental disorder as a clinically significant behavioral syndrome arising from a dysfunction that results in present distress or disability. What is now most often described as ADHD in the United States appears to be a set of normal behavioral variations that sometimes lead to dysfunction through dissonant environmental interactions. This discrepancy leaves the validity of the construct in doubt.

Research for a better diagnostic system should include the following: (1) As the DSM-IV requires, any disorder should be defined in terms of areas of dysfunction (social relationships, school achievement, self-control, etc.) and service needs but not in terms of risk factors,

(2) diagnosis of brain malfunction should be substantiated by some objective test, and (3) broader individual assessments should be used regularly and encompass both child and setting and strengths and problems.

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