While the majority of mental disorders listed in the DSM-IV TR occur in individuals of all ages, certain disorders are exclusively diagnosed during early childhood and are, thus, grouped under a category called childhood disorders. One of the most commonly diagnosed childhood disorders is ADHD or attention deficit/hyperactivity disorder. Since the early 1980's, the number of children diagnosed with this disorder has been rising steadily. Thus, it is important to gain an understanding of ADHD in order to define, classify, explain, and treat it effectively.

The most common symptoms of ADHD include impulsivity, overactivity, and inattentiveness. Impulsivity is defined as an inability to withhold responses and reckless and premature behavior. Hyperactivity is often characterized by excessive restlessness, fidgeting, and motor activity. The last predominant symptom of ADHD, inattentiveness, is defined by abnormal levels of distraction, disorganization, and forgetfulness (Sagvolden, 1999). In order to be diagnosed, the symptoms must cause impairment in two or more settings like a home or a school. Typically, ADHD is diagnosed in children prior to the age of seven and occurs more often in males than in females (Sagvolden, 1999). In 75 out of 100 cases, the disorder progresses into adulthood and leads to future problems like substance abuse and delinquency (Flory et al., 2002).

Classified as a childhood disorder, ADHD, which is called hyperkinetic disorder in the ICD-10, falls under the attention deficit and disruptive behavior disorder category of the DSM IV-TR which is characterized by the externalization of behaviors and an inability to abide by societal standards of behavior (Hansell & Damour, 2005). Depending on which of these three symptoms predominates, the diagnosis of ADHD can further be classified into three subtypes, ADHD, combined type, ADHD, predominately inattentive type, and ADHD, predominately hyperactive-impulsive type. ADHD, combined type is diagnosed when the child has six symptoms of inattention and six symptoms of hyperactivity and/or impulsivity. ADHD predominately inattentive type is diagnosed when the child has at leas six symptoms of

inattention but less then six symptoms of hyperactivity-impulsivity while the diagnosis of ADHD, predominately hyperactive-impulsive type is made when the child has at least six symptoms of hyperactivity-impulsivity but less than six symptoms of inattention (APA, 2000). According to the American Psychiatric Association, between 3% and 7% of children over the age of seven meet the criteria for the diagnosis of ADHD. Most children are often diagnosed with ADHD via a multimodal pathway of assessment. Such a comprehensive assessment often involves information about the developmental history of the child from caregivers, observation of the child, assessment of cognitive and learning ability, and retrieval of behavioral reports from sources in settings outside the home, such as a school (Taylor et al., 2004). Common parent and teacher questionnaires used to assess the diagnosis of ADHD include the Strengths and Difficulties Questionnaire (SDQ) and the Conners' Rating Scales. The SDQ includes five features to evaluate attention and hyperactivity on a scale of 0-10. The Conners' Rating Scales include four scales assessing hyperactivity, cognitive problems / inattention, oppositional behavior, and an ADHD index. In order to warrant a diagnosis of ADHD, the child most receive a score of 6 or above on the SDQ and a score of 70 or above on one of the scales of the Conners' Rating Scales (Sayal, Letch, & El Abd, 2008). Moreover, in order to be diagnosed, the child must exhibit the symptoms of ADHD in multiple settings. Thus, the child should receive the cut-off scores on both questionnaires from multiple sources, like a parent and a teacher. Such questionnaires have high levels of reliability (Faraone, Biederman, & Zimmerman, 2005). However, the validity of the diagnosis is often questioned and ADHD is often said to be over diagnosed. Some contend that with the advent of such drugs as Ritalin in the early 1980's, the diagnosis of ADHD has dramatically risen. Thus, a pharmaceutical pull has lead to often hasty diagnoses of ADHD in behaviors that were once characterized as "normal" in young children (Vatz &Weinberg, 2001). Moreover, the validity of the diagnosis is often questioned due to the

high rates of comorbidity of ADHD with other disorders. Up to 75% of those diagnosed with ADHD also meet the criteria for another DSM-IV TR diagnosis including that of depression or anxiety (Barkley, 2005). Because the criteria for ADHD, such as inattention, overlap with for other disorders like depression, ADHD may often be mistakenly diagnosed.

Once ADHD has been diagnosed, both a treatment plan and an understanding of the cause of the disorder must properly be established. According to the biological perspective, ADHD has a strong genetic component with a heritability component of 75% (Faraone et al., 2005). Adoption studies have also shown that children that develop ADHD are more likely to have biological parents who suffered from ADHD and less likely to have adoptive parents with ADHD (Sprich et al., 2000). Moreover, abnormalities in dopamine neurotransmission have been implicated as the biological cause for the development of ADHD. Gene association studies have identified the gene encoding the dopamine receptor as well as the membrane dopamine transport protein as the cause of reduced dopaminergic activities and the onset of ADHD (Hawi et al., 2002). Structural and functional neuroimaging studies have identified dysregulation of the frontal-subcortical circuits as the cause of the disorder. Specifically, children with ADHD have been shown to have decreased levels of activity in the frontostriatal regions of the brain responsible for sustaining attention (Durston, Totterham, & Thomas, 2003).

While the biological perspective focuses on the role of genes and brain abnormalities as the root cause of ADHD, the family systems perspective emphasizes the role of dysfunctional family relations in the onset of ADHD. Often children with ADHD have families that are unstable financially and emotionally with parents suffering themselves from such psychological conditions as depression or ADHD. Moreover, children with ADHD often have troubled parent-child interactions (Bernier & Siegel, 1994). Furthermore, the severity of family dysfunction determines the degree and severity of ADHD symptoms in the child (Hansell & Damour, 2005).

However, familial dysfunction and bad parent-child interactions may not necessarily cause ADHD but instead be the result of the difficulties of caring for a child with ADHD.

Lastly, the psychodynamic perspective places the cause of many of the symptoms of ADHD on factors related to emotional distress. Specifically, many state that symptoms like hyperactivity and disobedience in children with ADHD are a result of a physical over-compensation for anxiety that is in turn a result of a child's experiences in adjusting to the sexual changes associated with puberty (Rafalovich, 2001).

Therefore, the presence of multiple factors leads to the onset of ADHD in children. Specifically, both pre-disposing and precipitating factors combine to cause the disease. The major pre-disposing factors responsible for ADHD include a genetic predisposition. As stated by the diathesis-stress model, such pre-disposing factors then combine with such influences as social and familial stressors like dysfunctional parent-child interactions and lead to the disorder.

Just as there exist multiple explanations for the onset of ADHD, there also exist a varying number of methods for treating children with this disorder. In order to treat the deficits in brain activity in patients with ADHD, biological interventions include drugs that are able to stimulate the central nervous system as a means of treatment. Typically used drugs include methylphenidate (Ritalin) and amphetamine (Adderall), which increase the neurotransmission of dopamine (Faraone et. al., 2005). While these drugs have been highly effective in enhancing attention in children with ADHD, they are also controlled substances with addictive potential. Thus, a non-stimulant drug known as atomoxetine has now begun to be used more commonly because of its effectiveness in treating the symptoms of ADHD (Faraone et. al., 2005). Moreover, psychodynamic interventions include investigation into the root causes of the child's emotional distress in order to alleviate the anxiety-like symptoms that are associated with ADHD (Hansell & Damour, 2005). Furthermore, an integrative treatment method developed by Russell

Barkley incorporates both the family systems perspective and cognitive and behavioral components. The treatment focuses on training parents to better deal with and improve their child's ADHD symptoms. The parent training program emphasizes the use of reinforcements and punishments. For instance, when a child conducts an appropriate behavior, a point and reward system is implemented to promote such behavior. However, if the child exhibits behavior that is inappropriate, a "time out" measure is used to decrease the frequency of such behaviors (Barkley, 1998). While each of these treatments has been shown to be effective in reducing the problematic symptoms of inattention, hyperactivity, and impulsivity in children with ADHD, a study conducted in 1999 by the National Institute of Mental Health found that a multimodal means of treatment was the most effective at treating the symptoms of ADHD. Such multimodal treatments included both biological and behavioral interventions and were shown to drastically improve academic performance and social skills (Hansell & Damour, 2005).

` Attention deficit/hyperactivity disorder (ADHD) is a childhood mental disorder that has strong implications in the development of young children, decreasing academic performance and social relations among children with the disorder. Elucidation into the causes of the disorder has revealed both genetic and environmental factors at play. With the growing number of children diagnosed with ADHD, treatment options now encompass not only stimulant and non-stimulant medications, but also cognitive behavioral therapies designed to counter the symptoms of inattention, impulsivity, and hyperactivity. Through a thorough understanding of the definition, classification, and cause of the disorder, clinicians will continue to find effective means of combating this childhood disorder.

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