Chapter 1
Attention Deficit Hyperactivity Disorder (ADHD): An Overview

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ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders of the childhood which is characterized by inattention, hyperactivity and impulsivity. Diagnostic and Statistical Manual of Mental Disorders (DSM) and International Classification of Diseases (ICD) have established and revised the guidelines defining the diagnostic criteria for ADHD. This chapter focused on the diagnostic criteria for ADHD given by the ICD and DSM, and also compared the two. Children are mostly very energetic and active and hence it becomes difficult to decide if the level of activity is to be considered normal or should be taken as an indication of an ADHD symptom. Hence even when the symptoms of ADHD are observable, they require a proper assessment to reach to a diagnostic conclusion and hence diagnostic tools for assessing ADHD were also discussed in the chapter. A brief account of the disorders associated with ADHD was mentioned with an emphasis on how these symptoms would affect the academic, emotional and social areas of lives of the children. Different etiological factors including biological factors, brain anatomy, environmental factors, food /diet were discussed along with the pharmacological as well as non-pharmacological management of ADHD. Pharmacological management included brief discussion about stimulant as well as non-stimulant drugs. On the other hand, non-pharmacological treatment included behavioral interventions, neurofeedback, exercise, family therapy, social skill training and parent training.

WHAT IS ADHD

ADHD stands for Attention Deficit Hyperactivity Disorder. A paediatrician, George Still, from UK first described a syndrome called as hyperkinetic disorder, in 1902.ADHD is one of the most common

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neurodevelopmental disorders of the childhood and is characterized by, impulsivity, excessive or exaggerated motor behaviour and difficulty in sustaining attention. It is characterized by developmentally inappropriate functioning in the domains of inattention, hyperactivity and impulsivity. Due to their overactivity and impulsivity, children with ADHD struggle to fit into the school structure (Lange, Reichl, Lange, Tucha, & Tucha, 2010).

As mentioned above, this disorder is marked by inattention, impulsiveness, low tolerance for frustration, and a great deal of in appropriate activity. All children show such traits at times, but for ADHD children, such behaviour is common, interfering with their home and school functioning (Nigg, 2001). It is often difficult to distinguish between children who are highly active and those with ADHD (Feldman, 2010). Hence indicates that it's a matter of degree in terms of the level of activity, but children with ADHD show a variety of other behaviours which makes them difficult to deal with. Even when it seems difficult to draw the line, significant people who tend to be around the child for a longer period of time, like parents and specifically teachers, can observe these children in comparison with other children of the same chronological age.

According to Thomas Brown in his article, ADD/ADHD is seen as a cognitive disorder, according to him it is a developmental impairment of executive functions, the self- management system of the brain. This impairment results in chronic difficulties in executive wide variety of daily tasks (Brown, 2009).

In a study to understand executive function deficits in Attention Deficit/ Hyperactivity Disorder; the researchers compared children's performance on both neuropsychological and real life measures of executive function and processing speed. They used Stroop and Wisconsin Card Sorting Task as neuropsychological measures and videogame and zoo task as real life measures. There was no difference in two groups in executive performance on Stroop effect or zoo task but ADHD group showed deficits in set-shifting assessed by WCST (Perseverative errors and responses). Also, ADHD group showed slowed processing speed on the task of Stroop (slower in colour naming). It was clear from the study, that children with ADHD exhibit impairments in executive function and processing speed in real life activities as well as in neuropsychological testing. Cognitive deficits detected by standardized neuropsychological tests are related to performance difficulties in real world activities (Lawrence, Houghton, Douglas, Durkin, & Whiting, 2004).

In an analysis, ADHD symptoms as mentioned in DSM-5, were found to be strongly correlated with and predictive deficits in executive functioning (Silverstein, et al., 2018).

Clinical Picture of ADHD

As mentioned above, this disorder is marked by inattention, impulsivity and hyperactivity. Some people with ADHD seem to exhibit motor hyperactivity. Children with ADHD are often fidgety, unable to sit still for a longer period of time. Due to this they may disturb the entire class. People also tend to complain about their actions without thinking. Children exhibiting hyperactivity are most frequent referrals to mental health and paediatric faculties.

ADHD is associated with a broad range of cognitive deficits, including inhibition, memory, temporal discounting, decision making, timing and Reaction Time Variability (Coghill, Seth, & Matthews, 2014).

A study exploring the mechanism of verbal working memory deficit of attention deficit hyperactive disorder showed that the children with ADHD show deficits in advanced process of verbal working memory when they were engaged in memory updating (Zhang, Fan, & Jiang, 2016).