

Short Communication

## Attention Deficit Hyperactivity Disorder (ADHD)- a matter of concern.

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Attention deficit hyperactivity disorder (ADHD), a serious neurodevelopmental disorder that is associated with deterioration in various domains of major life activities. However, various exceptional cases with the disorder may be observed functioning well in some areas of life (e.g., Michael Phelps and swimming, Ty Pennington and destroying and rebuilding houses, Glenn Beck and political commentary, etc.), they probably have conflicts with other areas of functioning (DWIs, managing money, social relationships, etc.) But even if well-altered, these exceptional success stories do not represent the more typical reactions of children with ADHD followed to adulthood. It is one of the most difficult diagnoses to classify as evident from changing definition norm observed in the revisions of Diagnostic and statistical manual (APA 1980, APA 1987, APA 1994). ADHD is reportedly the most pervasive disorder of childhood influencing approximately 3% to 5% of school-aged children with prevalence rates increasing significantly over the past two decades (Pastor & Reuben, 2008; Timimi & Radcliffe, 2005). Children with ADHD struggle with symptoms of inattention, hyperactivity, or impulsivity above and beyond what is developmentally appropriate. ADHA is diagnosed in childhood, most of the children diagnosed with ADHD exhibit symptoms that persist into adolescence and adulthood (Langley et al., 2010).

Inattention in ADHD patients can be seen in social, occupational, and academic settings, accompanied with difficulty sustaining attention, difficulty in completing tasks, not following through on instructions and requests, and inability to complete chores and schoolwork. Hyperactivity symptoms may include wiggling fidgeting, inability to sit still in classroom settings, being always "on the go," and excessive talking, while a symptom of impulsivity is difficulty waiting their turn and restlessness. It should be noted that in the new Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association [APA], 2013) criteria, an individual can be easily diagnosed with ADHD to the age of 12 years but not at 6 years as was previously mentioned, while most of the symptoms must occur in more than one setting (Yousef M et al 2015).

According to Pliszka children with ADHD suffer from conduct disorder and have a higher possibility of developing antisocial and uncommunicative personality disorder as adults, they also have anxiety and bipolar disorders with significant behavioral and

emotional sequels. However the comorbidity of ADHD and major depression is not much studied. 20% to 25% children also have difficulty learning (Pliszka SR 1998). Previously Biederman, Newcorn and Sprich, have formulated that children with ADHD have heterogeneous disorder, the available literature supports that there is a noticeable amount of Comorbidity of ADHD with conduct disorder, oppositional defiant disorder, mood swings, anxiety disorder, learning disabilities and other conditions like Intellectual disability (Biederman J et al 1991).

Even with lack of some neurophysiological or neurochemical basis for ADHD, it is predictably accompanied with conditions causing minimal brain damage. Hence, the possible factors for the developing ADHD may include any prenatal, perinatal and postnatal problem that can be peered with brain damage. Serious head injuries, meningitis, hydrocephalus, and brain surgery can also increase the risk of developing ADHD (Pasquale Accardo 1999). ADHD is best manipulated by a multidisciplinary team effort accompanied with pharmacotherapy usually with stimulant medications, behavioral interventions and environmental changes. In a developing country like Pakistan there are few allied specialist services. Dilemma is associated with poor awareness and acceptance on part of parents, teachers and health professionals. This is evident from low referral rate from schools and inadequate follow-up seen at our clinic. Pharmacological management of ADHD calls for prescription of stimulant medication like methylphenidate. There is significant refusal and controversy regarding the use of stimulant medication both on part of physicians and parents. There lies a battle against the use of chemical methods for management of ADHD and a call upon a need to establish awareness regarding the prevalence of ADHD and co morbid conditions and make efforts to developed links with the services and resource persons that are available both within the country and abroad (Syed, E. U et al 2006).

### School teachers play a vital role

Argument notwithstanding, the interruption produced by ADHD typed nature is undisputed. ADHD behavior tends to worsen in ambiance where attention for long periods of time, silent activities, and waiting one's turn is enforced (APA, 2013). Such behaviors are needed within the formal classroom setting, and if other opportunities such as physical activity are not provided to equalize learning approaches, behavioral frustration can often first be encountered in school.

Children with ADHD are classified as being destructive in the classroom, have conflictual relationships with family and friends, and are incapable to understand social cues and experience academic combat, which ultimately affect their life's aspect (Bender & Smith, 1990; Frick et al., 1991; Hinshaw, Heller, & McHale, 1992). While the initial challenges of inattention and classroom disruption along with primary school decline in secondary school, as well as secondary school students with ADHD often face an academic challenge and the dissatisfaction associated with declined conduct (Travell & Visser, 2006). All of these conditions mean that students with ADHD are often at greater risk of school dropout and academic defeat (Bussing, Mason, Bell, Porter, & Garvan, 2010). These findings depicts the important role that teachers play in identifying children who need extraordinary support, making referrals for their assessment, and being able to incorporate them in the classroom (Sherman, Rasmussen, & Baydala, 2008). As such, within upcoming years, there has been a huge emphasis on teachers' knowledge and practice toward ADHD. Conclusion of several studies from different parts of the world shows that teachers' knowledge is at best reasonable and in many cases, insufficient, requiring intervention (Ghanizadeh, Bahredar, & Moeini, 2006; Nur & Kavakc, 2010; Perold, Louw, & Kleynhans, 2010; West, Taylor, Houghton, & Hudyma, 2005).

#### The prevalence of ADHD

The prevalence is conservatively estimated as being from 3% to 7% of the school age children in the United States (APA 2000). The prevalence of ADHD in Pakistan has been found to be around 2.49% (Karim R et al.1998). Boys with ADHD outnumber girls, but ratio varies significantly from 2:1 to 9:1. Gender differences are less obvious for inattentive type of ADHD. Boys are more likely to be aggressive and to have other behavioral problems (Guab M et al 1997). ADHD children make up 30-40% of referrals to child mental health Practitioners (Barkely RA 1998). ADHA was believed to be outgrown in mid to late Adolescence. It is now declared that two thirds of children with ADHD will continue to have problems leading ADHD as adults and because ADHD is a chronic disorder, will require treatment throughout their lives (Resnik RJ 2000).

#### The causes of ADHD

The etiological pathways for ADHD are not known but the recent hypotheses regarding etiology of ADHD are as follows:

##### **Genetic Factors:**

Parents having children with ADHD are affected by ADHD themselves, suggesting a significant genetic component (Biederman J et al 1992). The random chance of Parents with a child who has ADHD, having

another child with ADHD is about 1 in 3(Breslau N et al. 1996).

##### **Brain Damage:**

It has been suggested that some children affected by ADHD suffered serious damage to the central nervous system and brain development during their fetal and perinatal periods. It may be associated with circulatory, toxic, metabolic, mechanical or physical insult to the brain during early infancy caused by infection, inflammation, and trauma. (Milberger S et al. 1997; Thapar A et al. 2003)

##### **Neurochemical Factors:**

The most widely studied drugs in the treatment of ADHD, the stimulants, alter both dopamine and norepinephrine, leading to neurotransmitter hypothesis that include possible decline in both dopaminergic and noradrenergic systems.

##### **Neurophysiological Factors:**

EEG event related potentials suggest an arousal dysfunction related to hypo reactivity to salient informative stimuli. Thus the individual with ADHD is relatively unable to recognize his or her sensations of salient informative stimuli. This results in the paradoxical reaction to stimulant medication, where individuals with ADHD become less instead of more active after taking stimulant medication, as they become more attentive to salient informative stimuli (Cohen RA 1993).

##### **Psychosocial Factors:**

As per Beiderman family-circumstances variables such as severe marital discord, large family size, paternal misconduct, maternal mental disorder and anxiety, and foster care placement are associated with the possibility factors in the development of ADHD.

#### Diagnosis

According to Diagnostic and Statistical Manual of Mental disorders-IV (APA 2000).

\* Children having six of nine symptoms to qualify for either the inattentive or hyperactive/ impulsive subtypes of ADHD, or six of nine symptoms of both subtypes to qualify for the combined type.

\* Symptoms must have been present before the age of seven.

\* Symptoms must create impairment in two or more settings (e.g. home, school, and neighborhood).

\* Symptoms must cause clinically significant deterioration in social, academic or occupational functioning.

ADHD symptoms fall into two major categories as shown below in the table. DSM-IV identifies three subtypes of ADHD as predominantly inattentive type, predominantly hyperactive/ impulsive type and combined types. The ICD 10 (International Classification of DiseasesWHO) diagnosis of hyperkinetic disorder is the briefer category. In ICD 10, all three problems of inattention, hyperactivity and

impulsivity should be present, the presence of another disorder such as anxiety state is in itself an exclusion criteria the expectation is that most cases will have a single diagnosis.

<i>Inattention</i>	<i>Hyperactivity/Impulsivity</i>
<ul style="list-style-type: none"> <li>* Failing to concentrate for details or making careless mistakes when doing schoolwork or other activities.</li> <li>* Difficulty retaining attention in tasks.</li> <li>* Appearing not to listen, when spoken to.</li> <li>* Failing to follow instructions or finishing tasks.</li> <li>* Problematic for organizing tasks and activities.</li> <li>* Avoidance of the tasks requiring high amount of mental effort.</li> <li>* Frequently losing items required to facilitate tasks or activities.</li> <li>* Distractibility.</li> <li>* Forgetful in daily chores.</li> </ul>	<ul style="list-style-type: none"> <li>* Fidgeting with hands or feet or squirming in seat.</li> <li>* Leaving seat often, even when inappropriate.</li> <li>* Running or climbing at inappropriate times.</li> <li>* Difficulty in quiet play.</li> <li>* Often on the go.</li> <li>* Excessive talking.</li> <li>* Answering a question before the speaker has finished.</li> <li>* Failing to wait one's turn.</li> <li>* distracting the activities of others at inappropriate times.</li> </ul>

**Management**

ADHD children have many problems which can usually be managed along with psycho education, behavioral intervention, medication and diet also used for children with hyperkinetic disorders, multimodal intervention is usually indicated (NICE 2002).

**Psycho educational Measures**

Awareness regarding illness symptoms, etiology, clinical course, prognosis, and treatment should be provided. Counseling with school after parental allowance is mostly needed.

**Parent training and behavioral interventions in the family:**

These interventions have been shown to be very effective (Pelham WE et al 1998).According to expert consensus Guidelines (conners CK et al 2001) behavioral-psychosocial treatment is an effective first level treatment in the following instances:

- \* For milder ADHD.
- \* For pre-school–age children with ADHD.
- \* When there is the presence of co-morbid internalizing disorders and social skills deficits.
- \* When the family prefers psychosocial treatment.

The most effective and relevant technique is to pay positive attention to appropriate behavior and compliance, giving commands more effectively, and using appropriate negative consequences for problem behaviors.

**Behavioral interventions in the school:**

It is effective in minimizing hyperactive behavior and promoting social adjustment. Some behavioral interventions which are found to be helpful in classrooms include (Austin VL 2003).

- \* Child should be seated near to the teacher.
- \* Brief academic assignments.
- \* Reinforcement and reiteration.
- \* Posting daily schedules and assignments.
- \* Using graphic organizers.
- \* Providing a notebook for writing down the homework assignments.
- \* Interspersing classroom lectures with short periods of physical exercises, may be useful

**Psychopharmacological Treatment**

There is significant evidence for the use of medications in the treatment of ADHD. The challenge for the doctor is to establish a treatment regimen that has a rapid predictable onset of action, duration of action that does not require re dosing, no negative side effects (e.g. sleep problems, eating disorders, mood swings) and advantageous effect on co morbidities.

**Conclusions**

ADHD has proceeded from the 20th century with a huge amount of scientific work questioning and investigating its validity and simplifying clinical controversies. The disorder is greatly prevalent worldwide, is associated with significant impairments and frequently persists in adulthood. The emerging knowledge about the causes and pathophysiology of ADHD should lead to an improved understanding of the neural mechanisms underlying the disorder, which should upgrade and promote diagnostic and treatment strategies.

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